

VISION IAS

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CURRENT AFFAIRS

JULY 2020

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Table of Contents

1. POLITY AND GOVERNANCE _____	4	5.6. E-waste _____	48
1.1. India's Second Voluntary National Review (VNR) _____	4	5.7. Marine Plastic Pollution _____	49
1.2. The Consumer Protection Act, 2019 _____	6	5.8. Sustainable Ocean Economy for 2050 Report _____	51
1.3. Issue of Local Reservation in Private Sector Jobs _____	8	5.9. Cooling Emissions and Policy Synthesis Report _____	53
2. INTERNATIONAL RELATIONS _____	10	5.10. Virtual Water _____	54
2.1. India-E.U. Relations _____	10	5.11. Watershed Development _____	55
2.2. Chabahar - Zahedan Railway Line _____	11	5.12. Hydropower Projects in Northeast _____	56
2.3. United Nations Convention on the Law of the Sea (UNCLOS) _____	13	5.13. Tiger Status Report 2018 _____	58
3. ECONOMY _____	16	6. SOCIAL ISSUES _____	60
3.1. Multidimensional Poverty Index (MPI) 2020 _____	16	6.1. New Education Policy 2020 _____	60
3.2. Private Participation in Railways _____	18	6.1.1. School Education _____	60
3.3. Privatising Discoms _____	19	6.1.2. Higher Education _____	63
3.4. Affordable Housing _____	21	6.1.3. Other Major Provisions _____	65
3.5. Special Liquidity Scheme for NBFCs and HFCs _____	23	6.1.4. Analysis of New Education Policy-2020 _____	65
3.6. Financing of MSME Sector _____	26	6.2. Role of ASHAs During Pandemic _____	67
3.7. Unified Gas Price System _____	27	6.3. Lancet Study on Population Trends _____	69
3.8. Bundling Scheme for Round-the-clock (RTC) Power Supply _____	28	6.4. State of Food Security and Nutrition in the World 2020 _____	70
3.9. Model Concession Agreement for BOT Model _____	29	7. SCIENCE AND TECHNOLOGY _____	72
3.10. National Land Management Corporation _____	30	7.1. Nano Technology in Agriculture _____	72
4. SECURITY _____	32	7.2. Accelerate Vigyan _____	73
4.1. Militarization of Andaman and Nicobar Islands _____	32	8. CULTURE _____	74
4.2. Non-Personal Data _____	33	8.1. Gurjara-Pratiharas _____	74
4.3. Space Warfare _____	35	9. ETHICS _____	75
5. ENVIRONMENT _____	38	9.1. Social and Emotional Learning _____	75
5.1. Draft Environment Impact Assessment (EIA), 2020 _____	38	10. SCHEMES IN NEWS _____	78
5.2. COVID-19 and Its Impact on Environment and Climate Change Efforts _____	40	10.1. Schemes for Medical Devices _____	78
5.3. Decarbonising Transport _____	42	11. NEWS IN SHORT _____	79
5.4. Agricultural Emissions in India _____	44	11.1. States to be Ranked on Financial Management Index (FMI) for Rural Development _____	79
5.5. Methane Emissions _____	46	11.2. AIM iCREST _____	79
		11.3. Capital Procurement Powers to Armed Forces _____	79
		11.4. Operation Samudra Setu _____	79
		11.5. Fish Cryobanks _____	79
		11.6. Central Zoo Authority Reconstituted _____	80
		11.7. Protected Areas – Dehing Patkai _____	80
		11.8. KAZI 106F _____	80
		11.9. Black Panther _____	81
		11.10. Germany to Become First Major Economy to Phase Out Coal, Nuclear Power _____	81

11.11. Pied Cuckoo to be Tracked in Migration, Climate Change Study _____	81	11.23. Latent Viral Infection (LVI) _____	83
11.12. New Human Fingerprint on Global Drought Patterns _____	81	11.24. BelYo _____	83
11.13. Ministry of Earth Sciences (MoES) Launches KRCNet and Mobile App "Mausam" _____	82	11.25. Yellow Fever _____	83
11.14. Initiatives for Energy Efficiency & Promoting e-mobility Launched _____	82	11.26. Mars Missions _____	84
11.15. Subhash Chandra Bose Aapda Prabandhan Puraskar _____	82	11.27. Asteroid 2020 ND _____	84
11.16. YuWaah _____	82	11.28. India's First In-orbit Space Debris Monitoring and Tracking System _____	84
11.17. Aatamanirbhar Skilled Employee-Employer Mapping (ASEEM) Portal _____	82	11.29. Siddi Community _____	84
11.18. Himachal Pradesh: First State with 100% LPG Connections _____	82	11.30. Kashmir Saffron gets Geographical Indication (GI) Certificate _____	85
11.19. Lead Poisoning in children _____	82	11.31. Indigenous Mango Heritage Area _____	85
11.20. Human Growth Hormone (hGH) _____	83	11.32. Hagia Sophia, Turkey _____	85
11.21. Winter Diesel _____	83	11.33. Gandhi-King Scholarly Exchange Initiative Bill _____	85
11.22. BlackRock Android Malware _____	83	11.34. Mahalanobis Award _____	85
		12. APPENDIX _____	86
		12.1. Status Report _____	86
		12.2. Good Practices in Localising SDGs _____	97

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1. POLITY AND GOVERNANCE

1.1. INDIA'S SECOND VOLUNTARY NATIONAL REVIEW (VNR)

Why in News?

NITI Aayog presented India VNR 2020 report titled **Decade of Action: Taking SDGs from Global to Local** at UN's High-level Political Forum (HLPF) meeting.

About VNR

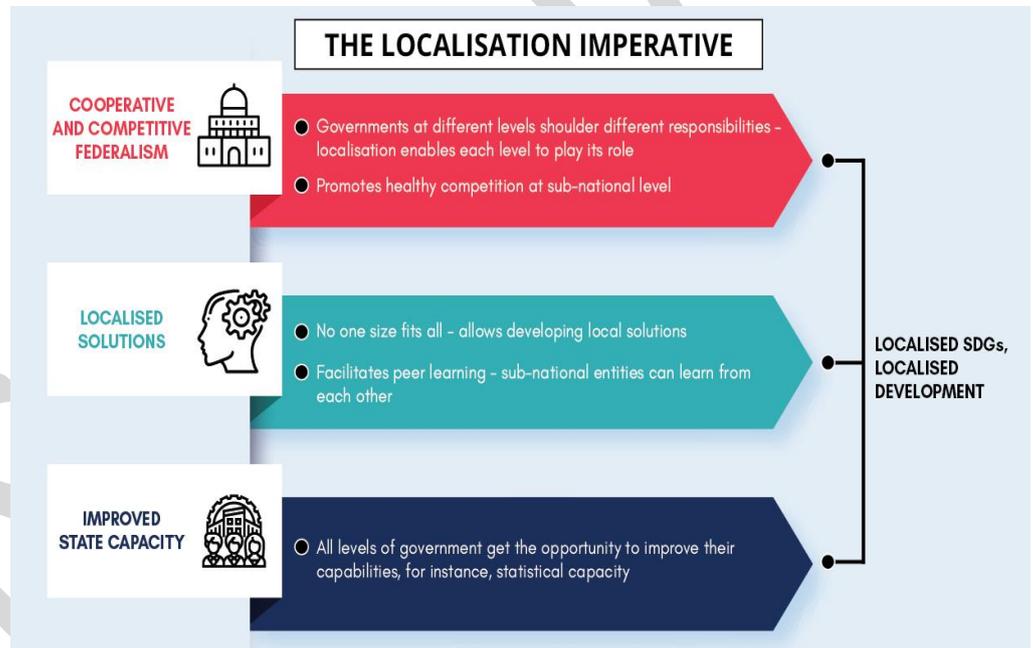
- VNR is a process through which **countries assess and present progress made** in achieving the global goals and the pledge to leave no one behind.
- **It facilitates the sharing of experiences**, including successes, challenges and lessons learned, with a view to accelerating the implementation of the 2030 Agenda.
- It also **seeks to strengthen policies and institutions of governments** and to mobilize multi-stakeholder support and partnerships for the implementation of the Sustainable Development Goals.
- **Indian VNR 2020 report presents** a review of progress on 17 SDGs, **India's approach to localising SDGs**, and strengthening means of implementation.

About HLPF

- Establishment of HLPF **was mandated in 2012** by the outcome document of the United Nations Conference on Sustainable Development (Rio+20), The Future We Want.
- It is the **central global platform for follow-up and review of the 2030 Agenda** for Sustainable Development and the 17 SDGs.
- It **meets annually** under the auspices of the UN Economic and Social Council.

Need for localising SDGs

- Localising SDGs involves the process of understanding, adapting, planning, implementing and monitoring the SDGs from national to local levels by relevant institutions thus strengthening the implementation framework.
- Localisation relates both to how local and sub-national governments can support the achievement of the SDGs through **bottom up action** as well as how the SDGs can provide a **framework for local development policy**.
- These entail participatory planning, implementation, and evaluation and thus crucial to any strategy aimed at achieving the goals under 2030 agenda. (see infographic)



India's Approach in Localising SDGs

- **Institutional mechanism:**
 - **At National Level**
 - **NITI Aayog is responsible for overall coordination and monitoring** of the SDGs in the country, in close collaboration with Ministry of Statistics and Programme Implementation (MoSPI).
 - This includes target setting, assigning data responsibilities, bi-annual review and facilitating partnership building (supporting states in developing monitoring framework).
 - **Parliament:** Public Accounts Committee exercises legislative oversight on the progress of the SDG agenda through periodic reviews of NITI Aayog and related line ministries.
 - **At sub-national level**

- All **States and UTs have identified and tasked nodal departments** for implementation of SDGs with key activities like- preparing knowledge products and progress reports, organizing capacity building programmes, providing inputs as required from time to time and playing a support-oriented role in interventions on SDGs.
- Several **States have established even district level structures** for taking SDG implementation and monitoring to the grassroots. For eg. District Planning Committees, District Development Coordination and Monitoring Committee (called DISHA) at district level, Aspirational District Programme etc.
- **SDG oriented budgeting** and wider SDG financing measures are important interventions that are being resorted to by various States.
- **Policy and Enabling Environment:**
 - **Fiscal Federalism through higher tax devolution to the States**, implementation of GST and establishment of GST council for the Centre and State governments to deliberate and jointly take decisions.
 - **Addressing Local Priorities:**
 - The 73rd and 74th Constitutional Amendments allowed the Urban Local Bodies (ULBs), to prepare the **District Annual Plans** by involving Gram Sabha/ Ward Sabha for grass root level planning.
 - **Gram Panchayat Development Plan (GPDP)** for preparation of village-level holistic planning at the Gram Panchayat (village council) level, for pooling of resources.
 - **Gram Swaraj Abhiyan(2018)**, as a nationwide campaign to mobilise people and key stakeholders to intensify the local planning processes.
 - **Aspirational Districts Programme:** for rapid transformation of the low-performing districts (115 districts, in 28 States), which have been identified on the basis of indicators in areas of health and nutrition, education, agriculture and water resources, financial inclusion and skill development, and basic infrastructure - including access to road, potable water, rural electrification and individual household toilets.
- **Monitoring and Data System:**
 - **National Indicator Framework (NIF)** with **297 indicators across all 17 goals** and a coordinated system for generating and managing data involving different ministries, subnational governments, UN and other international organisations as well as the civil society.
 - **State Indicator Frameworks (SIF): have been developed by 60% of the States.**
 - **District Indicator Frameworks (DIFs) have been developed by about 30% of the States.**
 - **SDG India Index & Dashboard:** By NITI Aayog to measure progress, rank the performance of the State/UTs and trigger remedial action.

Challenges and Way forward

- **Improvement of the statistical system** both at the national and subnational levels. For eg:
 - **Addition of indicators for targets which are presently not covered in NIF** (NIF currently does not include indicators for 36 out of the 169 SDG targets).
 - **Improving the frequency of data collection** (SDG reporting so far had to depend on data sources such as the National Family Health Survey (NFHS), which usually takes place once in 8-10 years)
 - **Data disaggregation:** by gender, social category, income groups, among others for sharper SDG monitoring.
 - **Improving Data quality:** through third-party independent surveys for data validation, usage of modern tools and technologies of data collection such as tablets and geospatial data and making use of citizen-generated data such as in the Annual Status of Education Report (ASER) by Pratham.
- **Robust monitoring at the local level:** with the SIFs and DIFs as the foundation to further strengthen the ownership of the SDGs among the States. Similarly, the resources available at the Gram Panchayat (GP) level need to be channeled appropriately to realise its mandate of driving local-level planning and development.
- **Awareness and Capacity building of all stakeholders:** especially of the communities and local governments, on all aspects of localisation to increase the commitment, improve participation and collaboration in programme implementation as well as monitoring.
- **SDG financing:** Studies have estimated that India needs to increase its SDG spending by an **additional 6.2% of its GDP until 2030**. The ways and means for this additional financing need to be identified. At the same time, it is crucial to make sure that the budget allocations align with SDG priorities.

- **Potential strategies for SDG financing** include Improving national tax systems, reducing illicit financial flows, infrastructure finance and capital market development, and Foreign Direct Investment promotion which are presently being implemented in India.
- **Analyse good practices and promote peer learning** on a regular basis creating cross-learnings from the journey of all States/UTs in SDG localisation.

Refer the appendix at the end of the document for the details of India's Progress on SDG targets and best practices in SDG Localisation.

1.2. THE CONSUMER PROTECTION ACT, 2019

Why in news?

The Consumer Protection Act, 2019 replacing the earlier 1986 Act came into force.

Need for the new Act

The previous act i.e. the Consumer Protection Act, 1986 suffered from the following major shortcomings:

- **Provided for a single point access to justice**, which was time consuming.
- **Did not cover e-commerce retailers/platforms** under its ambit.
- Was **not in sync with the new market dynamics**, multi-layered delivery chains, and innovative and often misleading advertising and marketing machinery.
- **No provision for the authority to take suo moto action** against any person guilty of a violation under the Act or an unfair trade practice undermining the rights of a consumer.
- **Penal steps could be taken only through a judicial process** before the State or District Consumer Redressal Forums.

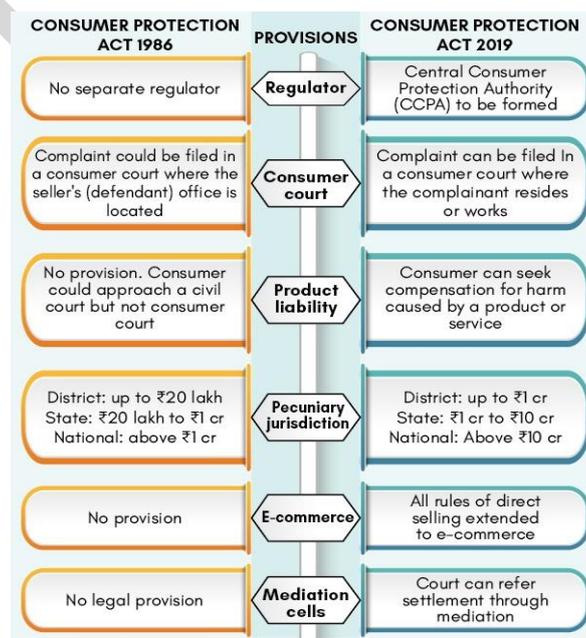
Other differences in the new and the old act can be read in the infographic.

Major Provisions under the 2019 act:

- **Creation of Central Consumer Protection Authority (CCPA)**
 - Its primary objective is to promote, protect and enforce the rights of consumers and will be **assisted by a Director General of Investigation** which will look into cases and submit its report to the Authority.
 - It is **empowered to:**
 - Conduct investigations into violations of consumer rights and institute complaints/prosecution.
 - Order recall of unsafe goods and services.
 - Order discontinuance of unfair trade practices and misleading advertisements.
 - Impose penalties on manufacturers/endorsers/publishers of misleading advertisements.
 - able to file Suo-motu cases on behalf of a class of customers, thereby initiating class action suits
- **Simplification of consumer dispute adjudication process**
 - **State and District Commissions** are now empowered to review their own orders
 - **Empowerment of Consumer Commissions** to enforce their orders.
 - **Deemed admissibility of complaints** if the question of admissibility is not decided within the specified period of 21 days.

Six "consumer rights" provided in the new Act:

- **the right to be protected** against the marketing of goods, products or services which are hazardous to life and property.
- **the right to be informed** about the quality, quantity, potency, purity, standard and price of goods, products, or services to protect the consumer against unfair trade practices.
- **the right to be assured**, wherever possible, access to a variety of goods, products, or services at competitive prices.
- **the right to be heard** and to be assured that consumer's interests will receive due consideration at appropriate fora.
- **the right to seek redressal** against unfair trade practice or restrictive trade practices or unscrupulous exploitation of consumers; and
- **the right to consumer awareness.**



- **Ease of approaching Consumer Commissions** through filing from place of residence/work, e-filing, videoconferencing for hearing.
- **Alternate Dispute Resolution mechanism**
 - A complaint will be referred by a Consumer Commission for mediation, wherever scope for early settlement exists and parties agree for it.
 - **Mediation will be held in the Mediation Cells** to be established under the aegis of the Consumer Commissions.
 - **No appeal against settlement** through mediation.
- **Regarding E-commerce entities:**
 - They are **required to provide information** relating to return, refund, exchange, warranty and guarantee, delivery and shipment, modes of payment, grievance redressal mechanism, payment methods, security of payment methods, charge-back options, etc. including **country of origin** which are necessary for enabling the consumer to make an **informed decision** at the pre-purchase stage on its platform.
 - E-commerce platforms **have to acknowledge the receipt of any consumer complaint within forty-eight hours** and redress the complaint within one month from the date of receipt under this Act. For this purpose, they **need to appoint a grievance redressal officer**.
 - **Sellers cannot refuse to take back goods or withdraw services or refuse refunds**, if such goods or services are defective, deficient, delivered late, or if they do not meet the description on the platform.
 - The rules also **prohibit the e-commerce companies from manipulating the price of the goods or services** to gain unreasonable profit through unjustified prices.
- **Introduction of the concept of product liability:** A manufacturer or product service provider or product seller to be responsible to compensate for injury or damage caused by defective product or deficiency in services.
- **Punishment**
 - The Act provides for punishment by a competent court **for manufacture or sale of adulterant/spurious goods**.
 - The court may, in case of first conviction, suspend any license issued to the person for a period of up to two years, and in case of second or subsequent conviction, cancel the license.
- **Other provisions:**
 - There will be no **fee for filing cases up to ₹5 lakh**.
 - The amount due to unidentifiable consumers will be credited to Consumer Welfare Fund (CWF).
 - The State Commissions will furnish information to Central Government on a quarterly basis on vacancies, disposal, pendency of cases and other matters.
 - It provides for **Central Consumer Protection Council** as an advisory body on consumer issues to be headed by the Union Minister of Consumer Affairs, Food and Public Distribution with the Minister of State as Vice Chairperson and 34 other members from different fields. It will also have Minister-in-charge of consumer affairs from two States from each region- North, South, East, West, and NER.

Possible challenges

- **Lack of clarity over few provisions:**
 - Central Consumer Protection Authority (CCPA) has been set up to promote, protect and enhance consumer rights. While it is laudable initiative, but it is unclear as to how this authority will function and certain function relating to investigations and inquiries.
 - Lack of clarity on how exactly CCPA will function and also on function relating to investigations and inquiries.
 - Appeal against the orders of CCPA can only be preferred before the National Commission. The **circumstances or the criteria under which National Commission shall entertain such cases is still unclear**.
 - It is **unclear whether the existing cases will be transferred** on account of change in pecuniary jurisdiction **or only fresh cases** shall fall under the new jurisdiction.
- **Implementation challenge:** Vacancies at the District Commission levels needed to be filled for effective implementation of the new Act.
- **Consumer awareness:** Steps must be taken to create awareness among the consumers about their rights and relevant legislations enacted to ensure the protection of their rights

Conclusion

The 2019 Act is one of the important steps taken by the central government for enhancing consumer rights and speedy delivering of justice. The new Act touches on many aspects such as Mediation and E-commerce which the world was unaware in 1986. The 2019 Act is a positive step towards reformation, development and enhancing consumer rights.

1.3. ISSUE OF LOCAL RESERVATION IN PRIVATE SECTOR JOBS

Why in News?

Recently, Haryana Cabinet cleared a draft ordinance that seeks to reserve 75% of the jobs in private enterprises for local residents to address the aspect of unemployment of the local population on a priority basis.

Background

- A survey done by the Centre for the Study of Developing Societies (CSDS) in 2016 showed that nearly **two-third of respondents were in favour that people from the state** should be given priority vis-à-vis employment opportunities.
- Similar demands are being raised in other states like **Andhra Pradesh, Madhya Pradesh, Karnataka, Gujarat, Maharashtra etc.**
 - Last year similar 75% job reservation to locals was given in Andhra Pradesh but the matter is sub judice and AP High Court has indicated that it may be unconstitutional.
- Such moves are considered mainly to **promote Inclusive Development**. For example, in Germany, every village has a factory. India could also have industries in villages and provide jobs to the local people for an all-round development. However, there should be an overarching framework at the Union level to promote such development.

Reasons behind demand for local jobs

- **Rising unemployment-** With unemployment figures likely to rise drastically in the backdrop of pandemic and lack of access to skills and low employability, these demands are only going to rise in future.
- **Agrarian Distress-** The agrarian sector is under tremendous stress across the country, and young people are desperate to move out of the sector, hence seeking local jobs.
- **Displacement of landowners-** Since most of the land requirement is met by acquiring private agricultural lands, the landowners are being displaced and deprived of their occupation and thereby the associated loss of income generates demand for local level jobs.
- **Lack of participation of all sections in the workforce-** Several reports like, the State of Working India 2018 have shown that discrimination is one of the reasons for under-representation of Dalits and Muslims in the corporate sector. Reservation could help these sections overcome this discrimination.
- **Perception that Central devolution is insufficient-** especially in the southern states, as they feel successive finance commissions accord a high weightage to poverty and population vis-a-vis development thus majority share goes to the northern states. In this context, local reservation provides them a sense of indirect economic justice.
- **Extent of migration:** According to some estimates drawn from 2011 Census, NSSO surveys and Economic Survey suggests that there are a total of about 65 million inter-state migrants, and 33 per cent of these migrants are workers. These migrants increase the labour market competition which fuels the demand for reservation.

Issues with implementation of the ordinance

- **May not pass the legal scrutiny-** It is violative of Article 14 (Right to equality) and Art 16 (Right to equal opportunity). Moreover, Article 16 does not empower the state government but rather the Parliament to provide reservation in jobs on the basis of residence but that too is limited to public sector.
- **Dangerous for unity of the country-** Such moves could lead to a Pandora's box where other states start implementing such policies, which result in fractures in the unity of India.
- **Concerns of the Industry-** Although, most of the units employ locals only, however, there are certain sectors like chemical technology, textile and biotechnology, where it may be difficult to find locals for the jobs and the units are forced to search outside.

- It will likely facilitate corruption and create **another barrier to ease of doing business.**
- **Difficult to attract investments-** Such a decision may lead to relocation of industries elsewhere and also alienate the potential investors. Lack of investments could further drop the job creation.
- Plan may not impact micro or smaller units as they can still engage localites. However, **medium and large-scale companies and MNCs like** Auto industry which contributes more than 25% of the state GDP of Haryana **will be adversely impacted.**
- Since these industrial units cannot 'import' labourers from elsewhere; the burden of imparting the requisite skills to, and of employing, locals will fall on the units.

Conclusion

Job reservation for locals may not enhance their economic opportunities in the long run. Only, **raising the standard of education and skilling youth** alongside the necessary structural reforms is the only way to increase the size of the economic pie in the absolute sense.

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2. INTERNATIONAL RELATIONS

2.1. INDIA-E.U. RELATIONS

Why in news?

Recently, the **15th India- European Union (EU) Summit** was held through a virtual medium.

Key Outcomes of the Summit

- **'India-EU Strategic Partnership: A Roadmap to 2025'** was adopted to guide cooperation between India and the EU over the next five years.
- Agreed to establish regular **High-Level Dialogue** to guide negotiations on **Broad-based Trade and Investment Agreement (BTIA)** and to address multilateral issues of mutual interest.
- Agreement between **India-EURATOM (European Atomic Energy Community)** on research and development cooperation in the **peaceful uses of nuclear energy** was signed.
- Adopted declarations on **Resource Efficiency and Circular Economy**, decided to **launch a dialogue on maritime security**, renewed Agreement on Scientific cooperation.

Overview of India- E.U. Relations

- **Background**
 - India-EU relations date to the early 1960s, with India being **amongst the first countries to establish diplomatic relations** with the European Economic Community.
 - **Cooperation agreement** was signed in 1994 between two, taking relationship beyond trade and economic cooperation.
 - **First India-EU Summit** took place in 2000. In 2004, the relationship was upgraded to a **'Strategic Partnership'**.
 - A **Delegation for Relations** with India was formally constituted in the European Parliament in 2007.
- **Economic and commercial relations**
 - EU as a block is **India's largest trading partner**, accounting for €80 billion worth of trade in goods in 2019 (11.1% of total Indian trade).
 - Also, EU is **the biggest foreign investor in India**, with €67.7 billion worth of investments made in 2018 (22% of total FDI inflows).
- **Defence and security cooperation**
 - EU and India have instituted several mechanisms for greater cooperation on pressing security challenges like **counter-terrorism, maritime security, and nuclear non-proliferation**.
 - **Information Fusion Centre** – Indian Ocean Region in New Delhi (IFC-IOR) has recently been linked-up with the **Maritime Security Centre** – Horn of Africa (MSC-HOA) established by the EU Naval Force (NAVFOR).
- **Cooperation in Science and Technology**
 - EU is supporting the **Mobilize Your City (MYC) programme** in India currently in three pilot cities to reduce their urban transport-related Green House Gas (GHG) emissions.
 - India and the EU set up an **Energy Panel in 2005** for cooperation in energy and energy security and both cooperate on forums such as **EU-India Clean Energy Cooperation** and **India-EU Water Partnership**.
 - Also, both have official mechanisms in fields such as **Digital Communications, 5G technology, Biotechnology, artificial intelligence** etc.

Concerns in relations

- **Stalled EU-India BTIA:** It is being negotiated since 2007 and both sides have major differences on crucial issues such as
 - **EU's demands:** significant duty cuts in automobiles, tax reduction on wines, spirits etc, a strong intellectual property regime, relaxation in India's data localisation norms, protection to all its items with Geographical Indication etc.
 - **India's demands: 'Data secure' status** (important for India's IT sector); Ease norms on temporary movement of skilled workers, relaxation of Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) norms etc.
- **Trade imbalance:** India accounts for only 1.9% of EU total trade in goods in 2019, well behind China (13.8%).
- **India's perception of EU:** It views EU **primarily as a trade bloc**, preferring bilateral partnerships with Member States for all political and security matters. This is evident from **lack of substantive agreements on matters such as regional security and connectivity**.
- **Brexit:** It is unclear how U.K.'s withdrawal from EU will affect India's relation with EU as whole.
- **Human Rights concerns of EU:** The European Parliament was critical of both the Indian government's decision to scrap Jammu and Kashmir's special status in 2019 and the Citizenship (Amendment) Act.

- **People to People Relations**
 - India and the EU organize Festivals of culture (e.g. **Europalia-India festival**), exchanges on heritage such as **yoga & Ayurveda** etc.
 - Both signed **Horizontal Agreement on Civil Aviation** in 2018 to **boost bilateral travel and tourism**.
 - Both sides also inked the **Common Agenda on Migration and Mobility (CAMM)** in 2016 as a framework for cooperation on migration.
 - There are over **50,000 Indian students** currently studying in various European Universities, many of whom are under EU's **Erasmus Mundus** scholarship programme for higher education.
- **Factors shaping India-EU relations in the current times**
 - **Changing Geopolitical developments:** As highlighted by **EU strategy on India**, released in 2018, EU sees EU-India relations in the context of broader geopolitical developments, **primarily the rise of China**. Impact of China in Europe and Asia (e.g. Belt and Road initiative) has **pushed EU to change the nature of its partnerships in the region**, particularly with India.
 - **Convergence of interests in the Indian Ocean:** Increasing Naval base race and security competition in the Indian Ocean region will impact both Europe and India as the Indian Ocean is the main **conduit for global trade and energy flows**. India, EU see each other as partners in securing the Indian Ocean by **strengthening institutions, rule of law, and a regional security architecture**.
 - **Retreat of the U.S. from global leadership** and uncertainty of US policy under Trump has provided opportunities for EU- India cooperation and trilateral dialogues with countries in the Middle East, Central Asia and Africa.
 - **Strategic rivalry between the US and China:** Both EU and India have a common interest in avoiding a bipolarized world and sustaining a **rules-based multilateral trading system** with the **United Nations and the World Trade Organization** at its core.
 - **Green governance:** After the US exit from the Paris climate agreement, India and the EU stand to gain from a joint leadership on global governance matters such as climate change, clean energy or circular economy.
 - **New emerging world order after COVID-19:** As EU seeks to move away from a global supply chain that is overly dependent on China, India **can emerge as its most natural ally**. EU and India could find a common path in ensuring supply chain resilience to reform the global system in response to health emergencies

Way Forward

- To translate their common values into common action, EU and India can work in **third countries to consolidate democratic processes** and build capacities of transitioning regimes through strengthening electoral and parliamentary institutions.
- Establishing a **trilateral dialogue with other like-minded partners like Japan or Australia** and India can help in improving the EU's visibility in the region
- Negotiations on **BTIA should be concluded in a timely manner** to realize the full potential of EU's trade relationship with India.
- EU can collaborate with India to facilitate **connectivity and infrastructure projects in third countries**, particularly smaller states in South Asia that often fall prey to power politics and fiscal instability resulting from China's loans and political influence as part of its BRI.
- The EU and India can adopt a coordinated approach in their external actions on various shared **sustainable development goals**, such as global energy decarbonization, a modern resource-efficient economy with smart urbanization, and a sustainable environment based on clean energy.
- Thus, as highlighted by **EU strategy on India, adopted in 2018**, India EU should take their relations beyond **"trade lens"**, recognizing their important geopolitical, strategic convergences.

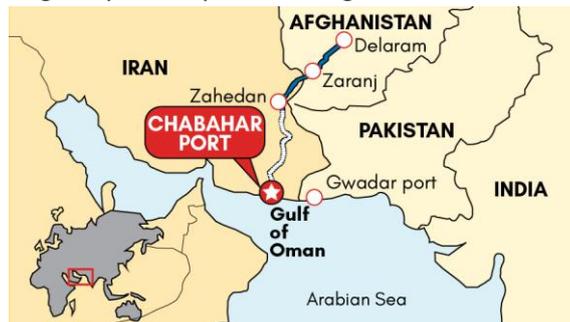
2.2. CHABAHAR - ZAHEDAN RAILWAY LINE

Why in news?

Iran has decided to proceed with the construction of rail line **from Chabahar port to Zahedan**, along the border with Afghanistan, without India.

Background

- In 2016, the **Trilateral Agreement** on Establishment of International Transport and Transit Corridor was signed among India, Iran and Afghanistan.
 - The transit and transportation corridor allows Indian goods to reach Afghanistan through Iran, bypassing Pakistani territory, and complements the **Zaranj-Delaram** highway built by India in Afghanistan in 2009.
- Under this agreement, India committed towards **developing Chabahar port** as well the land-based route connecting the port to Afghanistan.
- India also signed a pact with Iran to provide requisite services for the **construction of Chabahar-Zahedan railway line**, that cuts down travel time from the Chabahar port to the Iran-Afghanistan border.
 - To facilitate it, a Memorandum of Understanding (MoU) between India's IRCON (the specialized constructions organization associated with the Ministry of railways) and the Construction, Development of Transport and Infrastructure Company (CDTIC) of Iran was signed.



Reasons for exclusion of India from the project

- **Delays due to U.S. sanctions:** USA re-imposed sanctions on Iran after withdrawal from Joint Comprehensive Plan of Action. While India was given a special waiver for Chabahar port and rail line, the project suffered due to-
 - bureaucratic delays in USA for actual clearance of the import of heavy equipment.
 - difficulties in finding equipment suppliers and funding partners due to worries they could be targeted by the U.S.
- **Bureaucratic and diplomatic hurdles in India:** such as operational hurdles, delays in dispersal of funds, lack of effective communication and diplomatic coordination etc.
 - For instance, Iran is also going ahead with **developing the Farzad-B gas block** without India.
- **Chinese influence:** There is also an opinion that Iran might be using the proposed China-Iran 25-year deal, to play potential investors against each other

Rising Chinese influence in Iran

- **Belt and Road Initiative (BRI):** Under the BRI umbrella, China is presently strengthening its ties with Iran, Saudi Arabia, UAE, Egypt and other Middle East countries using engagements such as construction of stadiums, railways, industrial parks, 5G highways, clean energy project etc.
- **Recently agreed 25-year comprehensive strategic cooperation between Iran-China:** The draft 25-year, \$400 billion agreement includes allocations in Iran's transport, manufacturing sector and hydrocarbon industries which will give way to Chinese companies, equipment and workers in Iran.
- **Gwadar-Chabahar connectivity:** Iran proposed a **tie-up between** Gwadar and Chabahar last year. It can impinge on India's strategic ties with Iran, restrict the use of Chabahar port for India and aggravate India's security calculus in the immediate Western Indian Ocean.
- **Bandar-e-Jask port:** Iran has offered interests to China in this port located just 350km away from Chabahar. The Bandar-e-Jask port can extend China's control along the Pakistan-Iran coast.
- **Other concerns in the region:**
 - Expanding presence of Chinese submarines in the Indian Ocean.
 - Iran leveraging China and Pakistan as potential investors for the Chabahar Special Economic Zone.
 - The 2019 joint naval exercise between China, Iran, and Russia in Gulf of Oman.

Possible impact on India

- **Access to Afghanistan:** Repeated instances of a disjointed India-Iran bilateral will inevitably result in reduced Indian presence, influence, and leverage at Chabahar, affecting India's relationship with Afghanistan.
- **Countering China's presence in the region:** Indian cooperation projects suffering delays can make it easier for China to expand its footprint in the region (see box).
- **India's leadership in regional connectivity:** In the long run, Chabahar port and the rail project was envisaged to be connected to the proposed **International North-South Transport Corridor (INSTC)** that could link Mumbai to Moscow by sea and land.
 - The INSTC has the potential to open up a more reliable and cost-effective trade route for India to Europe, Russia and Central Asia.

Way forward

- India needs to improve its implementation record of foreign infrastructure projects by fast tracking diplomatic talks and **timely dispersal of funds**.
- To strengthen its relations with Iran, India should leverage on **mutual interests**, as it is the only partner that enjoys a sanctions waiver from the US for development in Iran and has an aversion to a Taliban takeover in Afghanistan.
- India should try to revive talks on INSTC to counter increasing engagement of Iran with China under BRI.
- Diplomatic channels with Iran should be established to convey India's concerns related to Chinese **investments near or in Chabahar port**.
- India needs to find a **balance between its diplomatic ties with Iran and U.S.A.** An effective and clear arrangement that reduces the impact of US sanctions on Iran on India's projects needs to be worked out.
- Although Iran is proceeding with the construction of rail project, it has instigated that India could **join the project at a later stage**. India can use this opportunity to establish productive bureaucratic and diplomatic channels for involvement in the project.

2.3. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS)

Why in news?

Recently, the Permanent Court of Arbitration (PCA) has given the ruling in Enrica Lexie case for killing of two Keralite fishermen.

More about news

- The Enrica Lexie case is an **ongoing international controversy about a shooting off two Indian fishermen** at the western coast of India in 2012 by two Italian Marines.
- In 2015, Italy had filed case against India for detaining its two marines and took the case to **International Tribunal for the Law of the Sea (ITLOS) under United Nations Convention on the Law of the Sea (UNCLOS)**.
 - ITLOS had later referred the matter to **Permanent Court of Arbitration (PCA)**.
- India had claimed that **the marines had violated the freedom of navigation rights under UNCLOS** and should pay compensation.
 - India held that the incident occurred within its contiguous zone, and comes under its jurisdiction.
- In this, now PCA has ruled that:
 - India is entitled to claim compensation from Italy.
 - **However, India does not have jurisdiction to try the Italian marines**, entitled to immunity as they were acting on behalf of a state.
 - It further said that the Italian vessel had violated the right and freedom of navigation of the Indian fishing vessel under the **UNCLOS**.
 - The **award is final and without appeal**, as India is a party to the UNCLOS.
- Indian government **decided to accept the tribunal decision, in tune with Article 51(c) and (d) of the Constitution**.
 - These articles mention about the state needs to **foster respect for international law and treaty obligations and encourage settlement of international disputes by arbitration**.

Permanent Court of Arbitration (PCA)

- It was established by the **Convention for the Pacific Settlement of International Disputes**, concluded at The Hague in 1899.
- It is an **intergovernmental organization providing a variety of dispute resolution services** involving various combinations of states, state entities, international organizations and private parties.
- PCA has a **three-part organizational structure consisting of**:
 - an Administrative Council that oversees its policies and budgets,
 - a panel of independent potential arbitrators known as the Members of the Court,
 - its Secretariat, known as the International Bureau, headed by the Secretary-General.
- It's headquartered is situated in **Hague, Netherlands**.
- **India is its member**.

About UNCLOS

- It is an international agreement that resulted from the third United Nations Conference on the Law of the Sea (UNCLOS III).

- It was adopted in 1982 and **replaced the quad-treaty 1958 Convention on the High Seas** and came into force in 1994.
- It is also **called the Law of the Sea Convention or the Law of the Sea treaty**.
- It **defines the rights and responsibilities of nations with respect to their use of the world's oceans**, establishing guidelines for businesses, the environment, and the management of marine natural resources.
- Currently 167 countries and the European Union have joined in the Convention.
- **India signed the Convention in 1982** and ratified in 1995.
- The Convention has created **three new institutions** on the international scene:

Dispute resolution mechanism under UNCLOS
 UNCLOS provides for a dispute resolution mechanism regarding maritime boundaries in which member states can choose either the

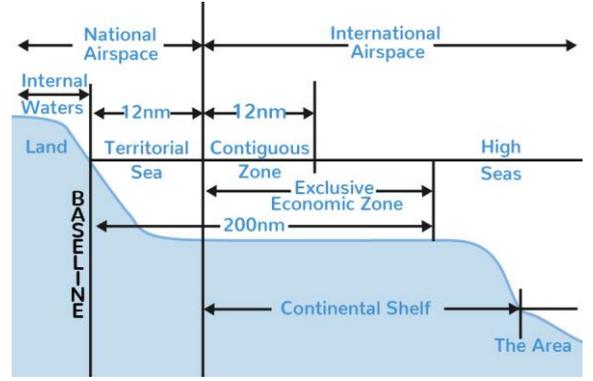
- International Tribunal for the Law of the Sea
- International Court of Justice
- Arbitral tribunal (constituted in accordance with Annex VII, UNCLOS)
- Special arbitral tribunal (constituted in accordance with Annex VIII. UNCLOS).

International Tribunal for the Law of the Sea (ITLOS)	International Seabed Authority (ISA)	Commission on the Limits of the Continental Shelf (CLCS)
<ul style="list-style-type: none"> ● It is an independent judicial body established by the UNCLOS to adjudicate disputes arising out of the interpretation and application of the Convention. ● Disputes relating to the Convention related to the living resources of the sea, protection and preservation of the marine concern the delimitation of maritime zones, navigation, conservation and management environment and marine scientific research. ● It is composed of 21 independent members. ● It is open to States Parties to the Convention and other than States Parties like state enterprises and private entities. 	<ul style="list-style-type: none"> ● It is an intergovernmental body based in Kingston, Jamaica, established by the United Nations Convention on the Law of the Sea. ● It is mandated to organize, regulate and control all mineral-related activities in the international seabed area beyond the limits of national jurisdiction, an area underlying most of the world's oceans. ● All Parties to the 1982 UNCLOS are members of ISA. 	<ul style="list-style-type: none"> ● It has been assigned to play mainly two significant roles in the establishment of the outer limits of the continental shelf beyond 200 nautical miles of a Coastal State. <ul style="list-style-type: none"> ○ to evaluate the claim of a Coastal State for an area of the continental shelf beyond 200 nautical miles. ○ provide scientific and technical advice to the Coastal State in its preparation of its submission of the claim. ● It shall consist of 21 members who shall be experts in the field of geology, geophysics or hydrography, elected by States Parties to the Convention from among their nationals.

UNCLOS divides marine areas into five main zones:

- There is the **low-water line called Baseline along the coast** as officially recognized by the coastal state.
- **Internal Waters:** These are waters on the landward side of the baseline from which the breadth of the territorial sea is measured.
 - Each coastal state has full sovereignty over its internal waters as like its land territory. E.g. bays, ports, inlets, rivers and lakes that are connected to the sea.
- **Territorial Sea:** It extends seaward up to 12 nautical miles (nm) from its baselines.
 - The coastal states have sovereignty and jurisdiction over the territorial sea. These rights extend not only on the surface but also to the seabed, subsoil, and even airspace.
- **Contiguous Zone:** It extends seaward up to 24 nm from its baselines.
 - It is an intermediary zone between the territorial sea and the high seas.
 - The coastal state has the right to both prevent and punish infringement of fiscal, immigration, sanitary, and customs laws within its territory and territorial sea.
 - Unlike the territorial sea, the contiguous zone only gives jurisdiction to a state on the ocean's surface and floor. It does not provide air and space rights.
- **Exclusive Economic Zone (EEZ):** Each coastal State may claim an EEZ beyond and adjacent to its territorial sea that extends seaward up to 200 nm from its baselines.
 - Within EEZ, a coastal state has sovereign rights for the purpose of exploring, exploiting, conserving and managing natural resources, whether living or non-living, of the seabed and subsoil.
 - Rights to carry out activities like the production of energy from the water, currents and wind.

- Unlike the territorial sea and the contiguous zone, the EEZ only allows for the above-mentioned resource rights. It does not give a coastal state the right to prohibit or limit freedom of navigation or overflight, subject to very limited exceptions.
- **High Seas:** The ocean surface and the water column beyond the EEZ are referred to as the high seas.
 - It is beyond any national jurisdiction. States can conduct activities in these areas as long as they are for peaceful purposes, such as transit, marine science, and undersea exploration.



फाउंडेशन कोर्स सामान्य अध्ययन

प्रारंभिक एवं मुख्य परीक्षा 2021

इनोवेटिव क्लासरूम प्रोग्राम

लाइव/ऑनलाइन कक्षाएं भी उपलब्ध

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3. ECONOMY

3.1. MULTIDIMENSIONAL POVERTY INDEX (MPI) 2020

Why in News?

2020 Global Multidimensional Poverty Index was released by the **United Nations Development Programme (UNDP)** and the Oxford Poverty and Human Development Initiative (OPHI).

What is Global MPI?

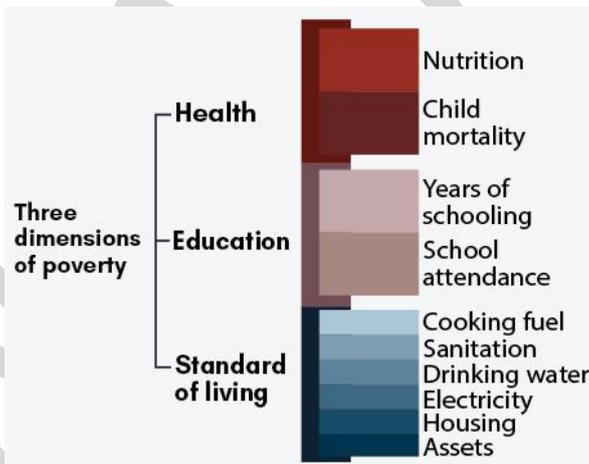
- MPI is the **product of the incidence of poverty** (proportion of poor people) and **the intensity of poverty** (average deprivation score of poor people) and is therefore sensitive to changes in both components.
- The MPI ranges from 0 to 1 and **higher values imply higher poverty**.
- It examines each person's **deprivations across 10 indicators in three equally weighted dimensions**—health, education and standard of living (see infographic) and identify both who is poor and how they are poor.
- In the global MPI, people are counted as **multidimensionally poor if they are deprived in one-third or more of 10 indicators**.
 - Each indicator is equally weighted within its dimension, so the health and education indicators are weighted 1/6 each.
- MPI – with its **information on both the level and composition of poverty** – provides the data needed to pinpoint where and how poverty manifests itself.

Key highlights of MPI 2020

- The 2020 update of the global MPI covers 107 countries and 5.9 billion people in developing regions.
- Across 107 developing countries, **1.3 billion people (22%) live in multidimensional poverty**. Among them 82.3 percent are deprived in at least five indicators simultaneously.
 - Half of multidimensionally poor people (644 million) are children under age 18. One in three children is poor compared with one in six adults.
 - 107 million multidimensionally poor people are age 60 or older—a particularly important figure during the COVID-19 pandemic.

Oxford Poverty and Human Development Initiative (OPHI)

- It is an **economic research centre** within the Oxford Department of International Development at the University of Oxford.
- OPHI aims to build and advance a more **systematic methodological and economic framework for reducing multidimensional poverty**, grounded in people's experiences and values.
- OPHI works towards this by: broadening poverty measurement, improving data on poverty, building capacity and impacting policy
- OPHI's work is grounded in **Amartya Sen's capability approach** and it works to implement this approach by creating real tools that inform policies to reduce poverty.



How is MPI better than other models?

- **Multidimensional approach:** MPI takes advantage of the availability of multipurpose household surveys which allows data on different dimensions to be drawn from the same survey. It identifies the people who experience overlapping deprivations.
 - MPI replaced the Human Poverty Index (HPI) which was in use from 1997-2009.
- **Better Comparison:** MPI can show the composition of multidimensional poverty across different regions, ethnic groups or any other population sub-group, with useful implications for policy.
 - HPI could not identify which specific individuals, households or larger groups of people were poor.
- **Complement to income-based poverty measures:** Income poverty data come from different surveys, and these surveys often do not have information on health, nutrition etc.
 - People may be above the poverty line but still deprived of needs such as housing.

MPI and COVID-19

- COVID-19 affected two indicators of MPI severely: **nutrition and children's school attendance**.
- Progress in tackling multidimensional poverty is at risk.
- It will likely negatively **affect multidimensional poverty through reductions in regular immunizations** because of the disruptions, physical distance measures and parental concerns about exposing children to COVID-19 during regular doctor visits.

- About **84.3% of multidimensionally poor** people live in Sub-Saharan Africa and South Asia.
- In every developing region the proportion of people who are multidimensionally poor is higher in rural areas than in urban areas.
 - 84.2 percent of multidimensionally poor people live in rural areas, where they are more vulnerable to environmental shocks
- 65 countries reduced their global MPI value significantly in absolute terms. **Absolute change** (annualized) is the difference in a poverty measure between two years, divided by the number of years between surveys
- **Largest reduction in multidimensional poverty was in India**, where approximately 273 million people moved out of multidimensional poverty **between 2005/2006–2015/2016**. India also **halved its MPI value in this period**.
 - However, **37.7 crore people** lived under multidimensional poverty as of 2018.

Benefits of using MPI vis-à-vis SDGs

- **Leave No One Behind:** MPI analysis tracks progress on poverty for different groups for example sub-national regions, by rural and urban areas, and by groups such as children, ethnic groups, and caste.
- **Monitoring Progress:** MPI is used to track and compare multidimensional poverty over time. National MPIs are used to compare regions and groups within a country; a regional or global MPI can also compare countries.
- **Integrated, coordinated policy:** MPI is used by senior policy makers to coordinate policy and to understand and track impact of their policies on the poor.
- **Universal relevance:** National and regional MPIs are tailored to the context and policy priorities. They address moderate or acute poverty and reflect contextual values and definitions.

Limitations of MPI

- **Less sensitive:** To be considered multidimensionally poor, households must be deprived in at least six standard of living indicators or in three standard of living indicators and one health or education indicator. This requirement makes the MPI less sensitive to minor inaccuracies.
- **Unable to capture inequality:** While the MPI goes well beyond a headcount to include the intensity of poverty experienced, it does not measure inequality among the poor.
- **Unable to capture Intra-household inequalities:** Intra-household inequalities may be severe, but these could not be reflected precisely because there is no individual-level information for all the indicators.
- **unavailability of data:** There are limits to the cross-country comparability of the MPI. The estimates presented are based on publicly available data and not all countries have data on all indicators. Better and more frequent data on poverty is urgently required.

Global Multidimensional Poverty Index and the Sustainable Development Goals

- It shows the interlinked deprivations of people in the same **household across 10 indicators that relate to SDGs 1** (No Poverty), 2 (Zero Hunger), 3 (Good Health and Well-Being), 4 (Quality education), 6 (Clean water and sanitation), 7 (Affordable and Clean Energy) and 11 (Sustainable cities and communities).
- **MPI and Immunization:** There is a negative, moderate, and statistically significant correlation between global MPI value and coverage of diphtheria, tetanus and pertussis (DTP3) vaccine.
 - Ten countries account for 60% of unvaccinated children, and 40% of children unvaccinated for DTP3 live in just four countries: Nigeria, India, Pakistan and Indonesia.
- **MPI and Education:** Sub-Saharan African countries have the highest percentages of people who are multidimensionally poor and deprived in years of schooling.
- **MPI and rural-urban divide:** for instance, in South Asia 29.2% of overall population is multidimensionally poor compared with 37.6% in rural areas
- **MPI and climate change and the environment:** Poor and disadvantaged people carry a double burden: they are vulnerable to environmental degradation and must cope with immediate environmental threats from indoor air pollution (SDG 3.9), lack of clean water (SDG 6.1) and unimproved sanitation (SDG 6.2).
 - Deprivations in environmental indicators are most acute in Sub-Saharan Africa: at least 53.9% of the population is multidimensionally poor and faces at least one environmental deprivation.
- **MPI and work and Employment:** There is a strong correlation between MPI value and child labour. Agricultural employment plays an important role in raising overall employment and reducing poverty in many developing countries.

3.2. PRIVATE PARTICIPATION IN RAILWAYS

Why in News?

Ministry of Railways has invited **private participation** for operation of **passenger train services** over 109 Origin Destination (OD) pairs of routes using 151 modern trains on existing rail infrastructure.

Background

- Indian Railways (IR) is the **largest passenger and fourth largest freight transporting railway** system globally.
- **Bibek Debroy Committee in 2015** recommended that private entry into running both freight and passenger trains should be allowed.
 - Idea was to **bring in competition** with Indian railways via “liberalisation and not privatisation” in order to allow entry of new operators “to **encourage growth and improve services.**”
 - It also noted that passengers were willing to pay more, if they had guaranteed and better quality of travel and ease of access.
- Consequently, Indian Railway Catering and Tourism Corporation Limited (IRCTC), in which the government is the majority shareholder, was given pilot Tejas operations which were the first trains allowed to be run by a ‘non-Railway’ operator.

About the recent step

- It would be the **first initiative of private investment for running passenger trains over Indian Railways network** attracting investments of an estimated ₹30,000 crore which is expected to begin in 2023.
- **Objectives:**
 - to introduce modern technology rolling stock with reduced maintenance,
 - reduced transit time, boost job creation, provide enhanced safety,
 - provide **world class travel experience to passengers,**
 - **reduce demand supply deficit** in the passenger transportation sector.
- 109 OD Pairs have been formed into 12 Clusters across the Indian Railway network.
 - Each Train shall have a minimum of 16 coaches. Trains shall be designed for a maximum speed of 160 kmph.
- The invitation (officially termed as Request for Qualification (RFQ)) had been issued under the **Make in India policy**. So, the coaches would have to be manufactured in India and the local component would be as specified in the policy.
- **Responsibility of Private Entity:**
 - It shall be responsible for **financing, procuring, operation** and maintenance of the trains.
 - The operation of the trains by the private entity shall conform to the **key performance indicators like punctuality, reliability, upkeep of trains** etc.
 - **Private firms will have the freedom to decide fares and stoppages,** and also the basket of services on offer in these trains.
- **Responsibility of IR:**
 - The **driver and guard of the trains** will Railway officials who will operate these trains, maintain track infrastructure etc.

Why do we need more private participation?

IR faces certain challenges like:

- **Inability to meet demand:** As per Railway Board, 5 crore intending passengers could not be accommodated during 2019-20 for want of capacity, and there was 13.3% travel demand in excess of supply during summer and festival seasons.
- **Lack of modernisation and poor services:** services offered to passengers are considered poor like poor cleanliness, quality of food, safety issues, delays etc.
- **Decreasing modal share of railways:** Despite being more economical mode than road transportation, railways is losing its share in modal transportation mix.
 - An analysis by Economic Survey, shows that a steady shift to other modes of travel was affecting economic growth by as much as 4.5% of GDP-equivalent.
- **Losses in passenger services to IR:** phenomenon of cross-subsidy for passengers in low-cost trains through higher freight tariffs is being implemented. It also adversely affects the growth of freight transport.
- **Need for resources:** Rakesh Mohan Committee observed that Indian Railways over the past decade (1991-2002) has fallen into a vicious cycle of under investment, mis-allocation of scarce resources, increasing indebtedness, poor customer service and rapidly deteriorating economics.

- The **safety clearance of trains** will be done by Railways only.
- Private sector will be allowed to **run these trains for a 35-year period** in return for a share in the revenues they earn, apart from payments in the form of fixed haulage charges and energy charges for using public infrastructure.

Arguments against the move

- **Absence of any independent regulator:** There are apprehensions that if IR itself plays the role of regulator (or there is no independent regulator) then it would be detrimental to the competition and interests of private sector.
 - If same entity is effectively the policy maker, regulator and service provider, then as **Bibek Debroy committee** pointed out, it will be a “**clear conflict of interest**”. It may also lead to corruption as private operators will try to bribe to solve any problem.
 - Government has approved to setup **Rail Development Authority** for promoting competition, efficiency, ensure consumer welfare but it will be mostly advisory in nature and more powers to decide on operational issues are needed.
- **Railways is a public service: Rakesh Mohan committee report** had pointed out that the international experience on privatising railways showed that it was “**exceedingly difficult and controversial**”.
 - For example: When Britain privatized its railways, it offloaded assets including tracks and routes that led to an underinvestment in infrastructure.
- **Unfair competition:** Railways also tend to cross-subsidise passenger fares through freight revenue. This translates to below cost pricing, which will make it difficult for private players to compete.
- **High saturation and over-utilized capacity on popular routes:** since passenger and freight traffic move on same tracks in India, increasing speed or capacity has been difficult. And it **remains to be seen whether the dedicated freight corridors can free up enough capacity**.
 - IR’s golden quadrilateral and its diagonals make up only 15 per cent of the total route of the railways but it transports 52 per cent of passenger traffic and 58 per cent of total freight load.

Way Forward

- **Set up an independent regulator:** As recommended by various expert committees like Bibek Debroy committee, there is a need for such regulator which needs to ensure transparency.
- **Better utilization of existing infrastructure to address congestion:** Prioritize ongoing projects to improve capacity utilization. Timely completion of these projects will also generate more revenue.
- **Rationalize fare structures and subsidies:** Revisit IR’s pricing model to make the passenger and freight segments sustainable. Focus should shift on improving efficiency and quality at the same time.
- **Ensuring quality and less costs:**
 - IR can corporatize the entire production-unit assemblage as a first step. It has the potential of kick-starting public-private partnerships (PPPs) to introduce **better technology in manufacturing of coaches and locomotives**.
 - Another method of ensuring efficiency is having different operators owning and managing seamlessly different segments of the railways, such as rolling stock, tracks, stations and passenger services like catering and cleaning.

3.3. PRIVATISING DISCOMS

Why in news?

The government is planning to privatise the electricity distribution companies (discoms) in Union Territories (UTs) by January 2021.

Overview of the power sector in India

Power generation, transmission, and distribution are the three main processes involved in the power sector.

- **Power generation:** India’s installed capacity for power generation recorded a compounded annual growth rate (CAGR) of 8.9%, an increase from 124 GW to 344 GW between 2006 and 2018. India is now the third largest electricity generator in the world. Also, India is at 106th position in terms of per capita consumption in 2017, according to world energy statistics published by the IEA

- **Transmission:** The generated electricity is then transported over hundreds of kilometres to load centers using transmission lines and transmission towers to supply power to consumers. This stage connects electricity producers and end-consumers. Transmission has taken rapid strides in India, with a CAGR of 7.2% between fiscals 2012 and 2018, raising India's transmission line capacity to 3.9 lakh ckm (circuit kilometre).
- **Distribution:** The third stage which involves the distribution of power to all the consumers across the nook and corner of the country is where the DISCOMs come into the picture. DISCOMs in UTs are administered directly by the central government while the respective state governments govern those in the states.
 - Private DISCOMs are also operational in India but are limited to a few cities such as Tata Power Delhi Distribution Ltd and Reliance Energy Ltd in Mumbai.

Other Key Challenges facing the Power Sector are:

- **Fuel Security Concerns:** Thermal capacity addition is plagued by the growing fuel availability concerns faced by the Industry. While a significant gas based capacity of more than 20,000 MW is idle due to non-availability of gas. Coal supplies by CIL is restricted to around 65% of actual coal requirement by coal based thermal plants, leading to increased dependence on imported coal with the cascading result of high power generation costs.
- **Under-procurement of Power by States:** Increasing power generation costs due to limited fuel availability, poor financial health of State Discoms, high AT&C losses have contributed in suppressed demand projections by State Discoms.
- **Inimical Financing Environment:** Over the last 4-5 years, the leading rates have increased significantly from the time of project appraisal resulting in project cost overrun and hence higher end tariffs.
- **Policy Paralysis:** The micro level policies governing the fuel cost pass-through, mega power policy, competitive bidding guidelines are not in consonance with the macro framework like The Electricity Act 2003 and the National Electricity Policy.

More on news

- Efforts would also be made to privatise a number of discoms in major states such as Uttar Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Jharkhand and Assam.
- In states where privatisation doesn't seem feasible, commissioning of independent directors is being proposed to improve the corporate governance of discoms.

Need for privatisation in discoms

The distribution sector in India continues to be the weakest link in India's electricity value chain due to multiple reasons such as-

- **Indebtedness:** According to the Ministry of Power's (MoP) payment ratification and analysis portal (PRAAPTI) power producers' total outstanding dues owed by distribution firms rose over 47 per cent year-on-year to Rs 1.33 lakh crore in June 2020.
- **Financial incompetency:** There have been multiple reports of DISCOMs delaying payments owed to solar and wind energy developers in Andhra Pradesh, Tamil Nadu, Madhya Pradesh, and Telangana. This has made attracting investments into the sector extremely challenging.
- **Operational inefficiencies** due to huge technical and commercial losses (AT&C), which are primarily caused by power theft, poor payment collection procedures, and inadequate tariff hikes.
 - India's average aggregate technical and commercial loss is at 21.4% leading to overdue bills affecting not only power producers but also contributing to twin balance sheet crisis in the banking sector
 - Banking sector faces the possibility of an estimated ₹ 175,000 crore worth of non-performing assets due to the power sector.
- **Increasing open access transactions:** A steep fall in prices of power generated by solar and wind energy projects are driving their most resourceful commercial and industrial (C&I) customers to engage in private power purchase through open access.
- **Lack of political will and transparency** in dealing with phasing out of energy subsidies.
- **Decline in demand during lockdown:** Agricultural consumers and domestic consumers pay a lower tariff which is compensated by a higher tariff for commercial & industrial establishments. As a result of lockdown, operations of commercial establishments and industries came to a grinding halt, affecting the revenue for DISCOMs.
- **Lack of progress in earlier initiatives:** The government, under various regimes, has tried to improve the condition of DISCOMs in India through relief packages. For eg- under UDAY programme, state governments took over 75% of DISCOMS' debt, issuing low-interest bonds to service the rest of the debt. DISCOMs were

further supposed to reduce instances of operational and financial mismanagement. Although there were some initial signs of progress under UDAY, the program has not been able to help minimize DISCOM losses.

Benefits of privatising discoms

- **Examples from other states:** There are sufficient case studies when private players have been proved to run cash strapped Discoms successfully via more efficiency, increased revenue and improved consumer services. For eg.- The aggregate technical & commercial (AT&C) losses in Delhi after the privatization in 2002 has been brought down from a high of 53% to around 8%.
- **Operational autonomy through** improved network efficiency and lack of political interference.
- **Operational efficiencies:** Privatization will eliminate issues such as payment delays, curtailment, power cuts, and lack of market-based electricity pricing and stimulate economic activity.
- **Better services for consumers:** Smart prepaid meters will allow transparency for consumers and also help DISCOMs reduce AT&C losses and ensures billing accuracy which leaves no scope for human errors.
- **Generating private sector appetite** amongst Indian and international investors, various PPP models will be tested and it will also provide confidence to larger states and utilities to undertake privatisation based on improvements achieved.

Other initiatives by the government to improve the condition of discoms

- **Bailout package of ₹90,000 crore** as part of a ₹20 trillion stimulus package to revive the economy. These funds were to be given to discoms against state government guarantees and accompanied by a temporary tariff reduction.
- **Proposed distribution reforms scheme**—tentatively named Atal Distribution System Improvement Yojana (Aditya)—to cut electricity losses below 12%. The scheme aims to ensure continuous supply of power, adopting models such as privatizing state-run discoms and promoting competition.
- **Power sector reforms**, including implementing the direct benefit transfer (DBT) scheme in the electricity sector for better targeting of subsidies and instilling financial discipline at discoms.
- According to **draft amendments to the Electricity Act, 2003**, the government has pitched for a cost reflective tariff and setting up an Electricity Contract Enforcement Authority to enforce power purchase agreements (PPAs).
- **One-time relaxation in working capital borrowing limits** imposed under Ujwal Discom Assurance Yojana (UDAY). Discoms will be allowed working capital borrowings from banks and financial institutions that may be up to 25% of last year's revenues to clear dues to power generation and transmission firms.
- **New tariff policy** focusing on improving consumer rights, promoting industry and ensuring the sustainability of the sector to be released soon.

Way forward

- **Need replication in states:** Power being a concurrent subject in our federal set up, the Centre may set policy direction, but it is the states that will have to implement, including the decision to privatise. The UTs are a good place to start, though it should be propagated further into the state owned discoms.
 - At the same time, analysts note that the privatisation model will offer little for large states by way of learning, primarily because the ability of private actors to manage the diverse consumer base in large states is not proven.
- **More autonomy to regulatory bodies:** Privatization of DISCOMs will not work until the systemic challenges are addressed. For eg. State Electricity Regulatory Commissions (SERCs) do not formulate tariff orders on time and defer tariff hikes, which adds to the inability of DISCOMs to generate profit.
- **Reinventing revenue model:** Decentralized renewable power generation through rooftop solar and direct sourcing from corporate PPAs has increased in the total energy mix. It is of prime importance for the DISCOMs to reinvent their revenue model that is conducive to the growth of rooftop solar and open access power. This will also enable the next set of reforms for the sector towards the disintegration of content and carriage.

3.4. AFFORDABLE HOUSING

Why in news?

Recently, the Cabinet approved the development of **affordable rental housing complexes (ARHCs)** for urban migrants and poor as a sub-scheme under the **Pradhan Mantri Awas Yojana (Urban)**.

Key Features of the ARHCs Scheme

- Under the scheme, ARHCs shall be developed for exclusive use as rental housing for a **minimum period of 25 years**, using **two models**:
 - **Converting existing vacant government funded housing complexes** through Concession Agreements.
 - **Special incentives for private/public entities** to develop ARHCs on their own available vacant land.
- **Target beneficiaries:** Workforce involved in manufacturing industries, service providers in hospitality, health, domestic/commercial establishments, and construction or other sectors, laborers, long term tourists/ visitors, students etc.
 - Approximately, **3 Lakh beneficiaries** will be covered initially under ARHCs.
- **A Technology Innovation Grant** of Rs 600 Crore will be released for projects using identified innovative technologies for construction.
- **Intended Benefits** of the scheme:
 - Economically productive use of Government funded vacant housing stock.
 - Conducive environment for Entities to develop AHRCs on their own vacant land.
 - New investment opportunities and promotion of entrepreneurship in rental housing sector.
 - Investment under ARHCs is expected to create new job opportunities.

Pradhan Mantri Awas Yojana (Urban)

- PMAY (U) was launched in 2015 to provide **housing for all in urban areas by year 2022**.
- It is implemented by the Ministry of Housing and Urban Affairs (MoHUA).
- The Mission addresses urban housing shortage among the Economically Weaker Section (EWS), Low Income Group (LIG) and Middle-income groups (MIG) categories including the slum dwellers.
- The scheme has **four verticals**:
 - 'In-situ' Slum Redevelopment (ISSR) using land as a resource
 - Credit Linked Subsidy Scheme (CLSS)
 - Affordable Housing in Partnership (AHP) with private or public sector
 - Beneficiary-led Construction/ Enhancement (BLC/ BLE)
- Presently, **105.6 Lakh** houses have been sanctioned and **35.1 Lakh** houses have been completed under PMAY (U).
- The Mission also promotes women empowerment by providing the ownership of **houses in name of female member** or in joint name.

Need for Affordable Housing in Urban Areas

- **Rapid urbanization:** By the year 2030, more than 40% of the Indian population is expected to live in urban India which is likely to create a demand for 25 million additional affordable housing units.
- **Majority in low- and middle-income group:** Urban housing shortage will be primarily driven by Below Poverty Line (BPL), Economically Weaker Section (EWS) and Low-Income Group (LIG) households due to their low disposable income, irregular income, ever increasing real estate prices etc.
- **Better livability:** Affordable housing is fundamental to the health and well-being of people and to the smooth functioning of the economy.
- **To deter illegal encroachment of land:** Rural to urban migration usually leads to development of illegal slums and informal/ unauthorized colonies in peri-urban areas due to lack of affordable alternatives.
- **Resolving urban congestion:** Making housing available at affordable prices close to the place of work and cut down unnecessary travel, congestion and pollution.

Government Initiatives to ensure affordable housing

- **Draft National Urban Rental Housing Policy (NURHP)** was released in 2015 with a vision to create a vibrant, sustainable and inclusive rental housing market in India.
- Affordable housing has been accorded the **infrastructure status** which has associated benefits such as lower borrowing rates, **tax concessions** and increased flow of foreign and private capital.
- **GST rate** on affordable housing projects was lowered from an effective 8% to 1%.
- A dedicated **Affordable Housing Fund (AHF)** was created in the National Housing Bank to boost demand and supply of low-cost homes.
- **Real Estate (Regulation and Development) Act, 2016:** It established the **Real Estate Regulatory Authority (RERA)** for regulation and promotion of the real estate sector. The act aims to protect the interest of home buyers, while ensuring that the sale/purchase of real estate project is carried in an efficient and transparent manner.
- **Draft Model Tenancy Act, 2019** proposes to establish a framework for the regulation of Tenancy matters (residential and commercial) and to balance the rights and responsibilities of landlords and tenants including a process of fast adjudication process for resolution of disputes.

- **Informal Rental housing sector in India:** It leads to exploitation of tenants through inflated pricing, lack of proper maintenance, forced evictions etc.
- **Reverse migration triggered by COVID-19:** Lack of affordable housing, resulting in mass exodus of workers/urban poor living in cities highlighted the need for affordable housing.

Challenges

- **Lack of clear definition for affordable housing:** It should be redefined clearly keeping in view the different geographies in India.
- **Poor access to organized finance:** EWS and LIG categories often find it difficult to secure formal housing finance due to inability to produce formal pay slips and other relevant documentation to establish creditworthiness.
- **Connectivity to workplace:** Lack of affordable and adequately sized land parcels in inner urban localities has driven the development of Affordable Housing to urban peripheries.
- **Archaic Laws:** Landowners find rental housing unattractive as restrictive rent control laws increase the cost of transaction, lower residential yields and put them at high risk of property litigation.
- **Other Issues:**
 - **Liquidity crunch in Non-Banking Financial Companies (NBFCs)** has adversely impacted funding availability.
 - **High land cost in urban cities:** Land often constitutes more than 50% of the project cost for developers making affordable housing projects unviable.
 - **Regulatory hurdles:** Delays in the land use conversion, building and construction approval processes etc, lead to cost escalation.
 - **Low Profitability in affordable sector:** Private real estate developers prefer luxury, high-end and upper-mid housing segment due to their higher returns.
 - **High fees and taxes:** Various forms of taxes and levies like VAT, Service Tax, Stamp Duty etc. increases the cost of home ownership.

Way Forward

- **Inclusive definition “affordable housing”:** It should take into consideration different geographies in India and cover factors such as property taxes, operational and maintenance costs, transport costs, payments of basic utilities such as water, electricity, cooking fuel etc.
- **Innovative micro mortgage financing mechanisms** and the reach of Self-Help Groups (SHGs) can be utilized to ensure that housing finance is available to large sections of LIG and EWS populations.
- **Formalization of rental housing sector** by revising rent control laws to attract investment in the sector. **Single window clearance** and electronic submission of documents for approval for building permits.
- **Focus on Long-term planning and land-management processes:** to balance land and housing supply with projected future housing demand and population growth. Land records can be digitized to improve planning and utilisation of land.
- **Zoning reforms:** Land-use planning tools like Inclusionary Zoning can be used, which reserves land or earmarks zones to be exclusively used for affordable housing.
- **Encouraging Rental management companies (RMCs)** to bring efficiency especially in operation, maintenance and management of large-scale rental housing projects/schemes.
- **Public-private-partnership [PPP] model:** Collaboration between the public and private sectors creates a huge pool of resources and helps in addressing stakeholder concerns.
- **Tapping foreign direct investment (FDI):** Ministry of Housing and Urban Affairs, recently said that it is open to the idea of allowing 100% FDI in affordable rental housing projects.

3.5. SPECIAL LIQUIDITY SCHEME FOR NBFCs AND HFCs

Why in News?

As a part of Aatma Nirbhar Bharat Abhiyaan, **Special Liquidity Scheme for NBFCs/HFCs** was approved last month and RBI has now laid down the eligibility criteria for these lenders to avail the facility.

Background

- Most **NBFCs do not have substantial on-balance sheet liquidity** as they operate via **asset-liability mismatch** i.e. these firms borrow funds from the market for short duration at low interest rate and lend for longer tenures at higher interest rate. So, they need refinancing to repay their own liabilities.
- However, following the **unexpected default by a major shadow lender IL&FS in 2018**, it became tough for other NBFCs to refinance their debt as investors like Mutual funds and other banks turned risk averse.
 - Shadow banking system is a term for the collection of non-bank financial intermediaries that provide services similar to traditional commercial banks but outside normal banking regulations.
- This led to a **liquidity crunch for NBFCs**.
 - Due to liquidity crisis, **NBFCs were forced to reduce lending to MSMEs**, a vital pillar of the Indian economy that contributes majorly to the GDP.
- So, the stress among NBFCs can lead to spillover effects **that can become a systemic risk to whole economy** as well as hinder improvements in banks' asset quality.

About Non-banking finance companies (NBFCs)

- A NBFC is a **company registered under the Companies Act, 1956** engaged in the business of loans and advances, acquisition of governmental or other marketable securities, leasing, hire-purchase, insurance business, chit business.
- **It does not include** any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.
- **Difference from Banks:**
 - **NBFC cannot accept demand deposits** (but some can accept Time deposits and such NBFCs are called Deposit taking NBFCs)
 - **NBFCs do not form part of the payment** and settlement system and cannot issue cheques drawn on itself;
 - **Deposit insurance facility is not available** to depositors of NBFCs
 - Unlike banks, **CRR does not apply on any NBFCs** while a lower SLR of 15% applies only to Deposit taking NBFC.
 - **NBFCs get license under Companies Act, 1956** and Banks under Banking regulation Act.
- **Types of NBFCs:** NBFCs can be categorised under two broad heads:
 - **On the nature of their activity:** includes **Housing Finance Company**, Investment Company, Micro Finance Company/Institutions (MFIs) etc.
 - **On the basis of deposits:** Deposit accepting NBFCs and Non-deposit accepting NBFCs (these are further categorised into systemically important and other non-deposit holding companies (NBFC-NDSI and NBFC-ND)).

Housing Finance Company (HFC)

- A HFC is a company registered under Companies Act, 1956 which primarily transacts or has as one of its principal objects, **transacting of the business of providing finance for housing, whether directly or indirectly**.
- **HFC is considered a NBFC** under the RBI's regulations.
- Last year, regulation of HFCs was handed over to RBI from National Housing Bank.

About the Scheme

- RBI has announced a **special liquidity scheme for non-banking finance companies (NBFCs)/HFCs** through a Special Purpose Vehicle (SPV).
- Scheme aims to help NBFCs and HFCs to **improve their liquidity position and avoid any potential systemic risks to the financial sector**.
 - With asset quality risk for NBFCs/ HFCs set to rise sharply in the coming months due to reduced economic activity, many medium and small-sized players are likely to face severe liquidity challenges.
- The SPV will **purchase short-term papers from eligible NBFCs/ HFCs of debt up to ₹30,000 crore**, who will utilise the proceeds under this scheme solely for the purpose of extinguishing existing liabilities.
 - **SBI Capital Markets**, a unit of State Bank of India, has set up a SPV to manage this operation.
- **Eligibility:** NBFCs and HFCs should have- net non-performing assets (NPAs) less than 6%; net profit in at least one of the last two preceding financial years; not reported under SMA-1 or SMA-2 category during last one year prior to 1 August 2018.



Reasons behind precarious financial situation of NBFCs

- **Difficulties in access to credit:** The mutual fund is among the biggest fund provider to NBFCs via commercial papers and debentures. These investors are getting reluctant to lend post the IL&FS crisis.
 - Recently, a **mutual fund house Franklin Templeton** had to shut down its 6 debt schemes following the unprecedented redemptions fuelled by apprehensions of credit risk.
- **Crisis accentuated by pandemic:** In a recent report, Moody credit rating agency said the inability of borrowers to repay loans amid the Covid-19 crisis, coupled with a six-month moratorium on repayment allowed by RBI, will lead to a disruption of inflow for NBFCs, even as outflow will have to continue.
 - According to ratings firm ICRA, asset quality of HFCs will come under pressure following the economic impact of pandemic as salaried class and self-employed will face the prospect of a job loss or salary cuts and defer home purchases.
- **Multiple regulatory bodies:** RBI doesn't regulate all the NBFCs. Other institutions such as SEBI, Insurance Regulatory and Development Authority (IRDAI), etc. are also involved depending on the type of NBFC.
- **Riskier Lending Pattern:** Unlike banks, NBFCs are less cautious while lending. For example, NBFCs have grown their portfolio of small and micro loans in a big way where there are risks of lack of credit history, scale and historically high NPAs.
 - The unsecured loan segment is also on the rise in the NBFC segment.
- **Cascading effect of Infrastructure Leasing and Financial Services (IL&FS) default:** Default followed by downgrade of IL&FS recently has created a liquidity squeeze for the entire non-banking financial company (NBFC) sector.
- **Delayed Projects:** Many infrastructural projects financed by NBFCs are stalled due to various reasons like delayed statutory approvals, problems of land acquisition, environmental clearance, etc. which has impacted their financial health.

Banks classify borrowers into **special mention accounts** based on their delay in repayment.

- Special mention account-0 (SMA- 0) loans are where the repayment overdue is between one and 30 days,
- SMA-1 between 31 and 60 days
- SMA-2 from 61 to 90 days
- The asset turns NPA after 90 days of being overdue.

Some recent steps taken by the government

- **Targeted long-term repo operations (TLTRO):** It was introduced twice. Under TLTRO 2.0, funds had to be invested in investment grade bonds, Commercial Papers and Non-Convertible Debentures of NBFCs, with at least 50% of the total amount availed going to small and mid-sized NBFCs and MFIs.
- **Partial Credit Guarantee Scheme (PCGS) 2.0** worth Rs 45,000 crore has been launched where sovereign guarantee of up to 20% of first loss will be provided to state-owned banks for purchase of bonds or CPs of NBFCs, MFIs and HFCs having a credit rating of AA or below, including unrated paper with original maturity of up to one year.
- RBI announced a **special refinance facility of Rs 50,000 crore** to NABARD, SIDBI and NHB to help them meet funding requirements of agriculture and the rural sector, small industries, HFCs, NBFCs and MFIs.
- **RBI has prescribed limits for HFCs for exposure** to commercial real estate (maximum 20% of capital fund), capital market (maximum 40% of net worth total exposure) or group entities (25% of owned fund and 15% to single entity)
 - In DHFL, a chunk of retail loans were found to have been diverted to group companies which led to its downfall.

Way Forward

- **Better Regulatory Regime:** The Financial Sector Legislative Reform Commission (FSLRC) recommendation of creating a body with powers to monitor risk-cutting across sectors should be implemented.
- **Timely Project clearances:** Ensuring timely clearances, especially to infrastructural projects is a must to minimise cost inflation of these projects.
 - **Expanding the "Plug and Play" approach** to other sectors can be a possible solution. 'Plug and play' concept normally refers to ready facilities in terms of building, power-water-sewage connectivity, road connectivity, beside other basic things including clearances in hand required to start the industry.
- **Suggestions for RBI:**
 - RBI must encourage NBFC to securitise their assets that can be purchased by banks.
 - RBI may also open special window for mutual funds to get refinance against collateral.
 - A coordinated and consultative approach at this point of time to address the various problems of the sector is critical to national economic health and stability.

3.6. FINANCING OF MSME SECTOR

Why in news?

World Bank and Government of India recently signed a \$750 million **Agreement for Emergency Response Programme** for Micro, Small, and Medium Enterprises (MSMEs).

MSME Sector in India

CLASSIFICATION	MICRO	SMALL	MEDIUM
Manufacturing Enterprises and Enterprises rendering Services	Investment < ₹ 1 crore and Annual Turnover < ₹ 5 crore	Investment < ₹ 10 crore and Annual Turnover < ₹ 50 crore	Investment < ₹ 50 Crore and Annual Turnover < ₹ 250 Crore

- Micro, Small, and Medium Enterprises in India are **classified as per a Composite Criteria** based on Investment in Plant & Machinery/equipment and Annual Turnover (see table).
- Significance of MSME sector in India**
 - Employment generation:** In India, at present, there are about 55.8 million enterprises in various industries, employing close to 124 million people.
 - Of these, nearly 14 per cent are women-led enterprises, and close to 59.5 per cent are based in rural areas.
 - Exports:** The MSME sector accounts for 29 per cent of India’s GDP and 45 per cent of exports.
 - MSME sector also plays a key role in **income augmentation, building rural infrastructure, women empowerment, promotion of traditional goods, innovation etc.**

Challenges faced by MSME sector other than financing

- Limited capital and knowledge
- Technological Backwardness
- Inadequate infrastructure facilities including access to power, water, & road
- Low production capacity and constraints in modernisation & expansions which inhibits the sector to profit from ‘economy of scale’
- Ineffective marketing strategy
- Non-availability of skilled labour at affordable cost
- High competition from cheap imports

Major constraints in Financing the MSME Sector

- Poor access to formal capital:** Only about 8 percent of MSMEs are served by formal credit channels. This can be attributed to factors such as:
 - Lack of credit history and reliable financial statements:** which makes carrying out credit appraisals of MSMEs difficult and results in high transaction costs for lenders.
 - Lack of hard assets:** that are essential for securing formal credit in most cases.
 - Apprehension among lenders due to high default rates on MSME loans:** Between December 2017 and December 2019, the non-performing asset (NPA) rate on MSME loans of public sector banks varied between 16.6 per cent and 18.7 per cent.
 - Low financial and digital literacy:** among MSME operators, limits their ability to seek cheaper formal credit through digital means.
- Limited funding capacity and accessibility of NBFCs and SFBs:** These form key market-oriented channels of credit and respond to the urgent and varied needs of the MSMEs.
- Exclusion of individual entrepreneurs in current schemes:** Large number of entrepreneurs such as truck owners, agriculture equipment owners etc.

Government Initiatives for Financial Support to MSMEs under Atmanirbhar Bharat package

- Emergency Credit Line Guarantee Scheme (ECLGS):** Under the Scheme, 100% guarantee coverage to be provided by National Credit Guarantee Trustee Company Limited (NCGTC) for **Collateral Free Automatic Loans** up to **Rs. 3 lakh crores** to eligible MSMEs and interested MUDRA borrowers, in the form of a **Guaranteed Emergency Credit Line (GECL)** facility.
- Fund of Funds created to infuse equity worth Rs.50,000 crore** in the MSME Sector to help potential MSMEs in expansion.
- Credit Guarantee Scheme for Sub-ordinate Debt (CGSSD):** Guarantee cover worth Rs. 20,000 crores will be provided to the promoters who can take debt from the banks to further invest in their stressed MSMEs as equity.
- Global tenders to be disallowed** for Government tenders up to Rs.200 crore to enable MSMEs to participate in the Government procurement process.
- ICT based system ‘CHAMPIONS’ portal:** has been launched by the Ministry of MSME. The portal will help in handholding MSMEs, providing guidance to grab the new business opportunities and in the long run, become national and international Champions.
- Dues of MSME** will be cleared by the government and Public Sector Units within 45 days.

are not registered as MSMEs and take business loans in their individual capacity. They are currently not eligible for additional lending under ECLGS.

- **Uncertainty during COVID-19 pandemic:** has affected financial stability of MSMEs due to reasons such as delayed payments, burden of fixed costs such as rent and repayment of bank dues, rising raw material prices etc.

Way Forward

- **Expansion of current government schemes** to include individual entrepreneurs and incentivizing individuals to officially register as MSME to gain benefits under various initiatives.
- **Leveraging digital platforms** can play an important role by enabling lenders, suppliers, and buyers to reach firms faster and at a lower cost, especially small enterprises that currently may not have access to the formal channels.
- **Credit Risk Database** for lenders to pool the large amount of data, related to MSME loans, being generated at various lending institutions. This will reduce risk for lenders and help them make informed decisions.
- **Awareness generation** is needed to inform MSME operators of the latest government schemes and programmes.
- **Temporary Deferment of property taxes, rent and other utilities** can be provided to distressed enterprises in order to avoid further costs and liquidity shortfalls.
- **Strengthening NBFCs and SFBs** by focusing on refinance facility for NBFCs and direct support to Small Finance Bank (SFBs) through loans and equity, since they form major sources of credit to MSMEs.

3.7. UNIFIED GAS PRICE SYSTEM

Why in news?

Government is planning to cut down the cost of transportation of natural gas by setting a fixed tariff for the transportation of natural gas for longer distances to boost gas consumption.

Background

- Currently, **tariffs for pipeline usage are divided into zones of 300km**, with the tariff increasing for zones further away from the point where gas is injected.
- Thus, **these tariffs increase the cost for buyers of gas** further away from the point of injection of natural gas. All of India's imported natural gas arrives at terminals on the west coast leading to costs for buyers increasing, the further east they are located.
- The government is **proposing a unified price system with one price** for those transporting gas nearby within 300 km and one price for those transporting gas beyond 300km.
- Also, Petroleum and Natural Gas Regulatory Board (PNGRB) has published a discussion paper on moving from a system where buyers of gas are charged for every pipeline, to a **single charge across a pipeline network**.

Expected benefits of unified gas pricing system

- **Reduced overall cost:** Currently, transport cost accounts for as much as 10% of the final cost of gas to an industry because of low international prices. Usually, it accounts for around 2-3% of the price of natural gas.
- **Reduction in tariffs:** Currently, if a buyer needs multiple pipelines even from the same operator, that transport tariff would increase by adding the tariffs under different zones.
- **Single market:** It would facilitate in **creating a single gas market** by attracting investment to complete the Gas Grid as well as ensuring equitable access to natural gas across the country.
- **Gas based economy:** It would enable improving the affordability of gas across the country and **attracting investments into the gas infrastructure**. This will help achieve government's aim to increase the share of natural gas in the country's **energy mix to 15% by 2030, from 6% today**.
- **Development of new gas markets:** Present system causes wide disparity in pipeline tariffs, and thus it hinders the development of new demand centers in far-flung and remote areas.

Other challenges in gas pricing

- **Pricing mechanism:** Under Domestic Natural Gas Pricing Guideline 2014 **domestically produced gas** is priced at the **average rate prevailing in gas exporting countries** such as the US, UK, Canada, and Russia.

- The formula has **no mention about gas actually imported into India**, which means the pricing of domestic gas is not on the lines of market demand and supply.
- Also, domestic Gas prices are notified with a lag of one quarter. The **time lag of a quarter** mean that the domestic gas price movement is often out of sync with current international prices.
- **Multiple pricing mechanisms:** There are multiple pricing regimes existing in the country for Natural gas supplies, with **Administered Price Mechanism for subsidized sectors such as fertilizers**. This controlled pricing may result in **disincentivizing investments in the sector, especially** foreign players.
- **Not under GST:** As gas prices are not under GST, it has led to varying tax rates on natural gas production and related value chain, such as pipelines and retailing in different states.

Steps taken for better pricing

- **Gas price pooling, 2015:** Under the plan, price of cheaper domestic gas will be averaged or pooled with cost of expensive imported LNG to create a uniform rate for fertilizer plants.
- **Indian Gas Exchange (IGX)** launched recently, as a digital trading platform that will allow buyers and sellers of natural gas to trade both in the spot market and in the forward market for imported natural gas across three hubs —Dahej and Hazira in Gujarat, and Kakinada in Andhra Pradesh.
- **Hydrocarbon Exploration Licensing Policy:** All gas production from new discoveries can be sold at market-based prices, though it remains subject to a price ceiling.

Way forward

- **Decontrolling of prices:** India has to end central controls on gas pricing as it seeks to attract foreign investment to lift local output.
- **Unbundling of transportation and the marketing** of gas is to increase private participation and for the development of the pipelines network.
- **Better regulation:** Strengthen and clarify the roles and responsibilities with regard to the **regulatory supervision of natural gas market activities** (upstream, midstream and downstream).
- **Include under GST: International Energy Agency (IEA)** suggested to ensure gas is treated on a level playing field with other fuels for taxation and is included under the GST.
- **Grant infrastructure status to natural gas pipelines**, to incentivize investments which are prerequisite for increasing natural gas demand and thus reducing cost.

3.8. BUNDLING SCHEME FOR ROUND-THE-CLOCK (RTC) POWER SUPPLY

Why in news?

Recently, Ministry of power issued guidelines **for supply of RTC power to distributors** through a Bundling Scheme, **which is first of its kind scheme in world.**

About Bundling scheme

- It is a plan to **sell renewable energy (RE) and thermal power in a bundle** so that end users can get uninterrupted supply of power.
 - First phase of National Solar Mission provided for such a scheme to facilitate grid connected solar power.
- It will provide **RTC power to DISCOMs from RE sources** complemented/balanced with coal based thermal power.
- Scheme will facilitate renewable capacity addition and **fulfillment of Renewable Purchase Obligation (RPO)** requirement of DISCOMs.
- It will enable **procurement of power at competitive prices** in consumer interest, improve bankability of projects and ensure reasonable returns to the investors.
- Scheme will provide a **framework for an Intermediary Procurer** as an Aggregator/Trader for the inter-state/ intra-state, long-term, sale-purchase of power.
- As per the guidelines:
 - **Power generators have to ensure at least 85% availability** both annually and during peak hours.

National Solar Mission

- It is **one of the eight key National Mission's** which comprise India's National Action Plan on Climate Change (NAPCC).
- Objective of is **to establish India as a global leader in solar energy** by creating the policy conditions for its deployment across the country.
- Mission has set target of deploying 20,000 MW of grid connected **solar power by 2022, which was revised to 1,00,000 MW** in 2015.
- **Mission adopted a 3 - phase approach**, Phase 1 (2012 - 13), Phase 2 (2013 - 17) and Phase 3 (2017 - 22).

- Bidders will have to **supply at least 51% of the power from renewable sources**. Bidders can club smaller thermal projects to tie-up with their renewable projects.
 - RE component can **include solar and non-solar sources** such as wind, hydro, or any combination of the same.
- Bidder will have to pay a **penalty equivalent to 25% of the shortfall** in energy terms.

Benefits of Bundling Scheme

- It **will address issues of intermittency** (random energy generation from RE sources), limited hours of supply and low capacity utilisation of transmission infrastructure.
 - These issues made DISCOMs to procure balancing power from other sources for grid stability and during periods of non-availability of RE
- It will **bring down the overall cost of power** supplied to utilities and will increase RE penetration.
- Through this approach, **thermal power can be utilized to balance RE** and provide RTC power to the DISCOM.
- Bundling will **ease financial burden on DISCOMS** and help them clear their dues. Also, power generators will get payments on time and their money instead of getting blocked can be ploughed back.
- It will help in providing **long-term power tie-up opportunity** to thermal power plant producers, which have been struggling to sell their power in present competitive market.
- It will help obligated entities in **meeting RPO** and also in grid-connected solar power generation.
- It will improve **thermal power capacity utilisation** as new coal-based thermal power plants have quite a high ramp rate (how quickly a power plant's power output is changing).

About Renewable purchase obligation (RPO)

- RPO is a mechanism by which the obligated entities are obliged to **purchase certain percentage of electricity from Renewable Energy sources**, as a percentage of the total consumption of electricity.
 - Obligated Entities include Discoms, Open Access Consumers and Captive power producers.
- RPOs are **categorized as Solar and Non Solar RPO**.
- RPOs are provided under Electricity Act 2003 and the National Tariff Policy 2006.

Concerns about the scheme

- Government will have no role in the bundling, apart from setting rules and **initiative would have to be taken by the power producers themselves**.
- Because of **limited number of potential bidders**, the scheme would not attract very competitive bids and may therefore not be cost attractive for DISCOMS.
- Both thermal and RE projects are facing **payment delays from the states**. Also, several states **do not honor the Power Purchase Agreements** they sign with renewable power projects.
- Scheme **has not addressed concern on the cost** which is highly dependent on cost of coal, on equipment cost in case of solar and on market demand in case of wind.

3.9. MODEL CONCESSION AGREEMENT FOR BOT MODEL

Why in news?

Recently, an **inter-ministerial group (IMG)** has approved changes to the model concession agreement (MCA) used for building privately-funded highways on the **Build-Operate and Transfer (BOT) toll model**.

Background

- BOT toll model accounted for almost **96% of NHAI's all project awards in 2011-12**, which came down almost to zero in the last two fiscals, due to various issues in existing MCA for BOT (Toll) projects.
- This has forced NHAI to shift to **Engineering Procurement and Construction (EPC) and Hybrid Annuity Model (HAM)**. (See box)
- However, overdependence on EPC and HAM is **adversely impacting the finances NHAI**. Thus, new changes in BOT model were proposed to attract private investors.

Key features and expected benefits of modified MCA

- **Revised revenue assessment:** Under the clause, in **every five years during the concession period**, the revenue potential of a project will be re-assessed, against every 10 years now. Therefore, if need be, the **concession could will be extended** early in the tenure of the contract, adding to certainty of cash flows.
- **Land acquisition:** The work order for building highway projects will be issued only when **90 per cent of the land is acquired** and this will form a part of the condition precedent. Delays in land acquisition and approvals

have led to significant delays in project completion and have been the prime reason for significant cost overruns.

- **Dispute resolution board (DRB):** It provides for setting up a dispute resolution board which will act as a continuous dispute resolution mechanism and provides for **timely redressal within 90 days**. This is a welcome step, as **arbitration processes have been dragged for years**, leading to significant lock-up of developers' funds.

Concerns that remain

- **No compensation:** There is no provision for compensation in case a competing road comes in and causes traffic diversion from the project.
- **Reduced traffic due to axle load:** Recent revision permitting vehicles to carry increased load has caused a reduction in traffic volume and thus, loss in the revenue for the developers which is not addressed in the changed MCA.
- **Fast-track resolution of arbitration awards remains a challenge**, as the decision of DRB remains recommendatory in nature and courts remain the arbitration authority for dispute resolution for claims above Rs 25 crore in case the parties do not agree on dispute resolution board for arbitration.

Conclusion

NHAI should look into concerns like traffic risks, and others as Private developers/investors in the BOT (toll) space **seek a firm, clear and bankable concession contract** to ensure elimination of all ambiguities and safeguarding of their investment.

Types of investment models

- **Build Operate and Transfer (BOT) Toll model:** Under this model, a road developer constructs the road and he is allowed to recover his investment through toll collection. There is no government payment to the developer as he earns his money invested from tolls.
- **BOT Annuity Model:**
 - A developer builds a highway, operates it for a specified duration and transfers it back to the government.
 - The government starts payment to the developer after the launch of commercial operation of the project.
- **Engineering, Procurement and Construction (EPC) Model:**
 - Under this model, the **cost is completely borne by the government**. Government invites bids for engineering knowledge from the private players.
 - Procurement of raw material and construction costs are met by the government.
 - The **private sector's** participation is minimum and **is limited to the provision of engineering expertise**
- **Hybrid Annuity Model (HAM)**
 - HAM is a mix of BOT Annuity and EPC models.
 - As per the design, the government will contribute to 40% of the project cost in the first five years through annual payments (annuity).
 - The remaining payment will be made on the basis of the assets created and the performance of the developer.

3.10. NATIONAL LAND MANAGEMENT CORPORATION

Why in news?

The government is planning to set up a **National Land Management Corporation (NLMC)** to facilitate monetizing state-owned surplus land assets in a systematic and specialised way.

Background

- Earlier, **government panel on boosting infrastructure investment** had recommended setting up a National Land Management Corporation which will act as a facilitator for land monetisation and an asset manager for surplus lands owned by government of India and Central Public Sector Enterprises.
 - 'Surplus' land or property are those that are **not needed or are not appropriate for provision of public service** for which the agency owning the property is responsible.
- NLMC would pursue **land lease or concessions** as a primary mode of commercial exploitation, including option of sale of land.
- **Key Responsibilities of NLMC would be:**
 - Development/co-development of land belonging to Central government ministries or CPSEs etc.
 - Maintaining an inventory of public land.
 - Developing model concession agreements for land developments.
 - Raising money from the market backed by land assets.
 - Legal management of litigation/encumbrances relating to land.

- Resettlement and rehabilitation/eviction of occupiers.
- Functions related to change of land usage and revenue management.

Need for such a body in India

- **Absence of specialised organization:** to handle commercial development of government land. Apart from Railways and Defence, other government departments do not have such bodies.
- **Utilisation of the surplus land assets of government and CPSEs:** CPSEs and local bodies can reduce their debt burdens by monetizing their asset portfolio for further investment in creation of assets.
- **Proper utilisation of unused land, acquired by governments:** As per **Government Land Information System** (portal that records total area, geo-positioning maps, details such as ownership rights etc.) there is large amount of land that remains unused by various public sector enterprises.
- **Restricted supply of land:** Excessive holdings by the government generate an artificial scarcity of land for developmental purposes, and increases project costs.
- **Encouraging participation of private sector:** Asset monetization can enhance involvement of long-term institutional investors in the management of infrastructure assets.
- **Freeing up unused resources for investment in infrastructure:** It is estimated that India would need to spend \$4.51 trillion on infrastructure by 2030 to realize the vision of a \$5 trillion economy by 2025.
- **Expedite decision making process:** An independent body can effectively deal with the politically-sensitive issue of land, speeding up the process of land monetisation. It can also identify potential real estate opportunities and optimize value of public assets for the taxpayers.

Way forward

For competent management of public assets, NLMC must ensure that:

- **Land Concession** should follow a competitive and transparent process.
- All stakeholders, public and private, should receive **fair compensation for the land** that they make available, to incentivize further participation.
- Land-owning departments, including states or local bodies, also get a share of the proceeds, to incentivize **release of land for commercial development.**

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4. SECURITY

4.1. MILITARIZATION OF ANDAMAN AND NICOBAR ISLANDS

Why in news?

The Ladakh stand-off with China has catalysed India's efforts to strengthen its military presence at the Andaman and Nicobar Islands (ANI).

More on news

- Government **plans for basing additional military forces**, including facilities for additional warships, aircraft, missile batteries and infantry soldiers at the strategically located Andaman Islands.
- **Runways at Naval air stations INS Kohassa in Shibpur and INS Baaz in Campbell Bay are being extended** to support operations by large aircraft.
- Indian strategic commentators are even recommending to **permit friendly foreign navies access to the ANI's military bases**.

Need to militarize ANI

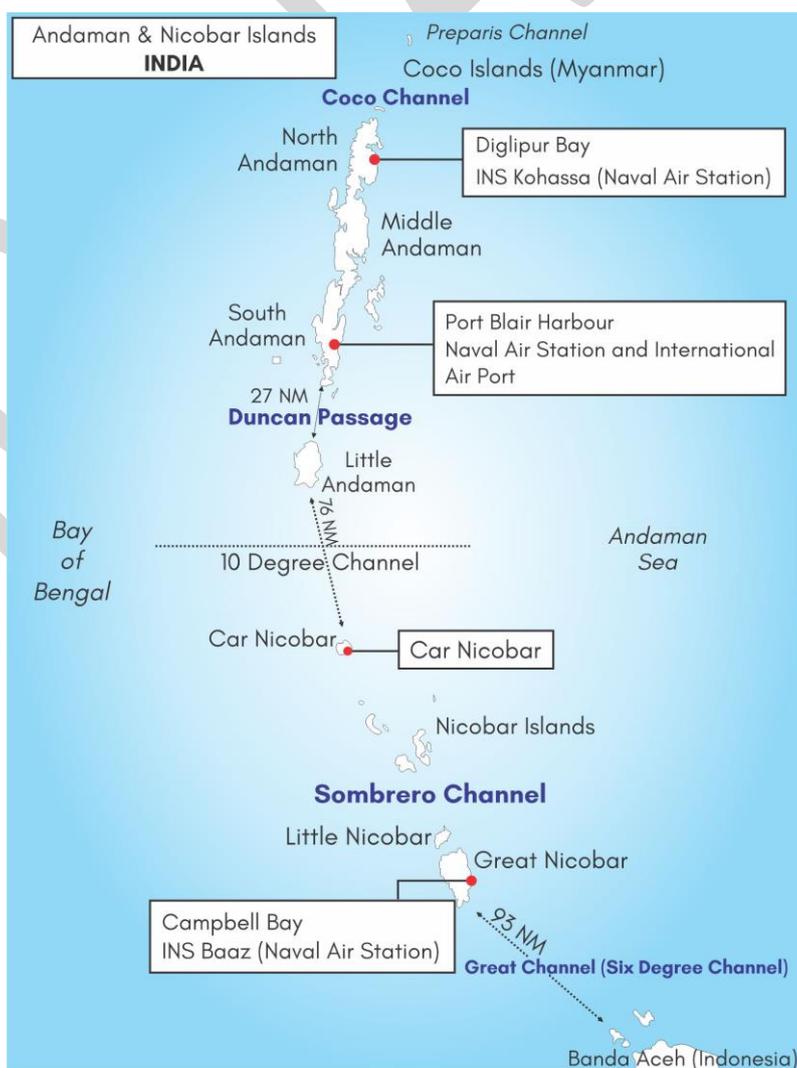
- **Growing Chinese presence:** In recent years, China strengthened its overall presence in **Indian Ocean Region (IOR)**.
 - Examples include deployment of a submarine at Colombo harbour, developing naval bases at Gwadar and Djibouti etc.
- **Strategic location:** These islands **help India to defend its vital stakes in IOR**. To achieve the purpose, India has set up Andaman and Nicobar Tri service Command.
- **Economically important:** These islands dominate the Bay of Bengal which contains important sea lines of communication. **More than 30 percent of the world's seaborne trade passes through this narrow region**.
 - They comprise **30 per cent of India's Exclusive Economic Zone (EEZ)**.
- **Buffer Zone:** These Islands act as a buffer zone **between India and rest of the nations present in IOR**.

Challenges in Militarizing ANI

- **Lack of clarity in approach:** On the matter of the strategic development of the Andamans, **India's defence and foreign policy establishments have not always been on the same page**. This act as a barrier in development of security infrastructure on the islands
 - Given the complexity of India-China bilateral relations, these strategic interactions at the A&N Islands may rile China and lead to further antagonism between the two countries.

About Andaman & Nicobar Islands group

- It is a group of 572 islands, out of which only 38 are inhabited.
- The islands extend from 6° to 14° North latitudes and from 92° to 94° East longitudes.
- The **highest point** is **Saddle Peak (732 m)** located in **North Andaman Island**.
- The **only active volcano in India, Barren Island**, is located in A&N and had last erupted in 2017.
- It also has mud volcanoes have erupted **mud volcano situated in Baratang island** sporadically
- It has often been referred to as India's '**unsinkable aircraft carrier**' to the East.



- Many countries in neighbourhood consider India as a benign and benevolent power. Power projection at islands will change this perception of India.
- **Lack of Infrastructure & Communication:** After several years, an undersea cable link between India's mainland and the islands remains incomplete.
 - Recently, **Submarine Optical Fibre Cable (OFC)** connecting Chennai and Port Blair was laid down to provide connectivity to Andaman & Nicobar Islands. It will enable delivery of faster and more reliable mobile and landline telecom services to Andaman & Nicobar Islands.
- **Islands are inhabited:** Of the 572 islands that make up the Andaman and Nicobar group, only 37 are inhabited. The absence of a human presence on hundreds of these islands has made them vulnerable to narcotics smuggling, intrusion by foreign vessels, and other incursions.
- **Geographic factors:** Heavy rainfall restricts building activity to six months a year and the distance from mainland adds to the cost of construction as all material must be shipped to the islands.
- **Sensitive ecology:** Environmentalists warn that the recent infrastructure projects (as planned by NITI Aayog such as hotels, resorts and a trans-shipment hub at Campbell Bay) could devastate the fragile ecology of the Andaman. Already many islands are facing significant damage from the climate crisis.

Way forward

- India should follow the principle of '**strategic autonomy**' while taking its decision to militarize ANI
 - Strategic autonomy denotes the ability of a state to pursue its national interests and adopt its preferred foreign policy without being constrained in any manner by other states.
- There is a **need to encourage migration from the mainland** and open up some of these strategically located uninhabited islands to tourism. That would give India a stronger physical footprint and would help the country track the movement of vessels and people.
- While developing islands, India **needs to ensure that ecology of the place remains preserved.**

India's presence in Indian ocean:

- **Military Exercises:** MILAN, MALABAR
- **Logistics-sharing agreements:** with the US and Australia, as well as with France, Singapore, and South Korea. A similar logistics-sharing agreement with Japan is in an advance stage of negotiations. Examples include: Logistics exchange at ports Sabang, Changi, Duqm, Agalega, Chabahar etc.
- **A&N Command:** It is the first and only Tri-Service theatre command of the Indian Armed Forces. It patrols India's EEZ to suppress gun running, narcotics smuggling, piracy, and poaching, and conducts maritime surveillance and Humanitarian Assistance and Disaster Relief (HADR) operations.

4.2. NON-PERSONAL DATA

Why in news?

The draft report on **Non-Personal Data (NPD) Governance Framework** was released recently for inviting feedbacks by the committee **headed by Kris Gopalakrishnan.**

Background

- Data is considered a **national resource** that should be utilized for the welfare of the society.
- With **exponential spurt in awareness** regarding the sanctity of personal data and the need to safeguard its privacy, there has also been the **parallel development to regulate non-personal data (NPD) in line to the proposed Personal Data Protection Bill, 2019.**
- Thus, **Ministry of Electronics and Information Technology** constituted a committee of experts which released its report for public consultation, seeking feedback from the public on a proposed NPD Law.

What is Non-Personal Data?

- The draft report defines non-personal data as any **set of data which does not contain personally identifiable information**, in essence means that no individual or living person can be identified by looking at such data.
 - It includes data sets aggregated and collected by **various mobile apps, websites and devices.**
- **Difference from personal data:**
 - Unlike personal data, which contains explicit information about a person's name, age, gender, sexual orientation, biometrics and other genetic details, **non-personal data is more likely to be in an anonymised form.**

- Anonymous data is a data that is **initially personal data but is later made anonymous using certain data transformation techniques**, to the extent that individual specific events are no longer identifiable.
- **Classifications of non-personal data:** The draft report classifies NPD as:
 - **Public non-personal data:** All the **data collected by government and its agencies** such as census, data collected on the total tax receipts or any information collected during execution of all publicly funded works has been kept under the umbrella of public non-personal data.
 - While **Non-Personal Data collected or generated by the Government where such data is explicitly afforded confidential treatment under a law**, like data of land records, public health information, vehicle registration data **shall not constitute Public Non-Personal Data**.
 - **Community non-personal data:** Any **data identifiers about a set of people** who have either the same geographic location, religion, job, or other common social interests will form the community non-personal data.
 - E.g. the metadata (set of data that describes and gives information about other data) collected by ride-hailing apps, telecom companies, electricity distribution companies.
 - **Private non-personal data:** It can be defined as those which are produced by individuals which can be derived from application of proprietary software or knowledge. Private non-personal data is further sub-classified into 'sensitive non-personal data' & 'critical non-personal data'.

Why there is need to regulate Non-Personal Data (NPD)?

- **Sensitivity of data:** Like personal data NPD can also sensitive if it relates to national security or strategic interests, it contains business sensitive or confidential information or it is anonymised data, that bears a risk of re-identification.
- **Rights of citizens over NPD:** Regulation will ensure a community's rights over the community Non-Personal Data.
 - Law must assure that the rights of citizens to the protection of their personal data are always respected, including when their data are properly anonymised.
- **Regulate digital industry:** Organisations have been discovering newer ways to generate value from data and possibility of data monopolies has led to **outsized benefits and create a certain imbalance in the data and digital industry**.
 - Given the **increasing importance and value of data, governments around the world have realised the need to regulate** all types of data, including both personal data and NPD.

Other recommendations of the report:

- **Stakeholders and their roles:** It recognizes natural persons, entities and communities to whom non-personal data (prior to anonymization or aggregation) relates as '**data principals**' and entities which undertake collection, storage and processing of non-personal data as '**data custodians**'.
 - It also enables communities or groups of data principals to exercise their rights through '**data trustees**'.
 - It recognizes '**data businesses**' as a horizontal category of businesses involved in data collection and processing. Based on specific threshold requirements, it proposes a compliance regime to govern such data businesses.
- **Requirement of consent:** It classifies individuals to whom the data relates (prior to anonymization), as the 'owners' of private non-personal data and it recommends obtaining consent of the data principal (at the time of collection) for anonymization and use thereafter.
- **Localisation of data:** It recommends localization of sensitive non-personal data and critical non-personal data, in line with the requirements applicable to localization of sensitive personal data and critical personal data under the Personal Data Protection Bill, 2019 (PDP Bill).
- **Purpose of data sharing:** The Report contemplates three broad purposes for data sharing:
 - **for sovereign purposes may be used by the Government**, regulators and law enforcement authorities, inter alia, for cyber security, crime and investigation, public health and in sectoral developments.
 - **for core public interest purposes** may be used for general and community use, research and innovation, delivery of public services, policy development etc.
 - **for economic purposes may be used by business entities** for research, innovation and doing business. It may also be leveraged as training data for AI/ML systems.

- **Non-Personal Data Authority (NPDA): to be created** for the collection, processing, storage and sharing of NPD.
 - **NPDA will be responsible for regulating** data principal, data custodian, data trustees and data trusts and will need specialised knowledge of data governance, technology, latest research and innovation, etc
 - **NPDA will work in consultation** with Data Protection Authority (DPA), Competition Commission of India (CCI) and other sectoral regulators to deal with issues of data sharing, re-identification, and collective privacy.
- **Creation of a Non-Personal Data Policy Switch as a single digital clearing house:** To address issues around conflicting rules of data trustees over the same body of non-personal data, the report proposes a digital Non-Personal Data Policy Switch.
- **Promote research:** The Report also recommends establishments of data spaces, data trusts and cloud innovation labs and research centers which may act as physical environments to test and implement digital solutions and promote intensive data-based research.
 - The government needs to improve on Open Government Data initiatives, and make high-quality public non-personal datasets available. Moreover, data sharing principles must be applied uniformly to all three categories of non-personal data.

Issues relating to draft report

- **Privacy concerns:** It can spur concerns regarding state surveillance, and potentially discourage consumers to share data with the government or with businesses, stunting innovation and growth.
- **Sync with other laws:**
 - India **does not have a personal data protection law**, the setting up of a committee to regulate non-personal data seems premature.
 - It needs to clear how it might relate to other policy initiatives that might address NPD including potentially **the upcoming e-commerce policy**.
- **Clarity over the role of participants:** Regulation need to be clear, and concise to provide certainty to its market participants, and must demarcate roles and responsibilities of participants in the regulatory framework.
- **Clash with non-copyright data:** India is a signatory to WTO's Trade-Related Aspects of Intellectual Property Rights (TRIPS), which gives intellectual property status to databases and other compilations of data.
 - India has extended copyright protection to computer databases in 1999.
 - In such a scenario, there is need for clear **demarcation between non-personal data that cannot be shared, and non-copyright non-personal data** that can be used as a public resource.

Conclusion

It is important that any regulation that is dealing with non-personal data, must allow for its free flow and provide access to data sets for communal benefits and in building a digital economy.

It must aid innovation and the establishment of a larger ecosystem surrounding data to improve their productivity and competitiveness alongside protecting the privacy rights of the citizens.

4.3. SPACE WARFARE

Why in news?

The U.S. and the U.K. recently accused Russia of test-firing an anti-satellite weapon in space raising concerns of space warfare.

About space warfare

- Space warfare is combat that takes place in outer space. The scope of space warfare includes:
 - **ground-to-space warfare**, such as attacking satellites from the Earth;
 - **space-to-space warfare**, such as satellites attacking satellites; and
 - **space-to-ground warfare**, such as satellites attacking Earth-based targets.
- Advent of Space Warfare **began in 1962** when the US exploded a ground-based nuclear weapon in space, which eventually led to the **Outer Space Treaty of 1967**.
- **Existing and Future Space Weapons:**
 - **Kinetic physical weapons:** These weapons attempt to strike directly or detonate a warhead near a satellite or ground station, such as **Anti-satellite weapons (ASAT)**. ASATs are mainly of two types:
 - **Direct-ascent ASAT weapon** are launched from the ground to strike a satellite.

- **Co-orbital ASAT weapon** are placed into orbit and have maneuvering abilities.
- **Non-kinetic physical weapons:** These are weapons that can have physical effects on satellites and ground stations without making physical contact, e.g. lasers, **high-powered microwave (HPM) weapons**, and **electromagnetic pulse (EMP) weapons**.
- **Electronic attack:** They target the means through which space systems transmit and receive data by jamming or spoofing radio frequency (RF) signals.
 - Spoofing is a form of electronic attack where the attacker tricks a receiver into believing a fake signal, produced by the attacker, is the real signal it is trying to receive.
- **Cyber-attacks:** They can target satellites by monitoring data and traffic patterns, or by inserting false or corrupted data in the system.

Factors responsible for a potential arms race in space

- **Centrality of space in national security and defence:** Early-warning assets, remote-sensing satellites and weather satellites are critical for national defence. Thus, nations are keen on developing counterspace capabilities as deterrent to protect space assets.
- **Rapid developments in space technology:** Emergence of micro and nano satellites, higher maneuvering capabilities among satellites, satellite jammers, compact spy satellites, improved cyber infrastructure etc. have significantly enhanced capacity of a nation to partake in offensive and defensive space operations.
- **Protecting commercial interests in outer space:** Mining and commercial exploitation of asteroids and celestial bodies have potential of becoming a domain of geopolitical contestation.
- **Space being viewed as another war fighting domain:** In a crisis situation or conflict, a state with an anti-satellite capability may find an incentive to either coerce the adversary by threatening to attack, disable or temporarily jam the adversary's satellites.
- **Challenging global order through dominance in space:** Advanced space

Outer Space Treaty (OST), 1967

- It is a **multilateral treaty** that provides the basic framework on **international space law**.
- It is administered by the **United Nations Committee on the Peaceful Uses of Outer Space**.
- **India** is a signatory to this treaty, and ratified it in 1982.
- **Key principles of the OST**
 - **Freedom of exploration and use of space** for the benefit and interest of all countries
 - **Non-appropriation of outer space**, including the Moon and other celestial bodies, by any nation
 - **Prohibition of the deployment of nuclear weapons** or other kinds of weapons of mass destruction in outer space.

Other international treaties for regulation of outer space

- **Moon Agreement, 1979:** It ensures that the Moon and other celestial bodies are used exclusively for peaceful purposes and that their environments are not be disrupted.
- **Liability Convention of 1972** establishes the standards of liability for damage caused by space objects
- **Registration Convention, 1975** requires States to register all objects launched into outer space with the United Nations.
- **Partial Test Ban Treaty (PTBT)** prohibits all testing nuclear weapons in the outer space.

Possible consequences of a war in outer space:

- **Space debris:** Any missile that smashes into a satellite would disperse thousands of bits of debris. This can trigger **Kessler syndrome** where the debris created from these collisions would create even more debris, and continue having a cascading effect.
- Widespread **economic losses** due to destruction of expensive and critical space infrastructure.
- Potential of inflicting extensive **damage to life and property**
- **Difficulties in resolution of conflicts** as certain kinds of attacks in space will not be easily attributable to any one state or non-state actor.
- Risk of a **full-fledged war**.

Global developments that may impact peace in Space

- **USA's Space Force:** US transformed its Air Force Space Command into the U.S. Space Force, dedicated military branch to help protect the interests of the USA in space, deter aggression etc.
- **France released its first French Space Defense Strategy** in 2019, which elevated French military space organization and reassigned control of French military satellites from the French space agency to the military.
- **Iran** recently announced that it has successfully launched a **military reconnaissance satellite**, called **Noor** (Light).
- **Rendezvous and proximity operations (RPOs)** conducted by **U.S.A., China and Russia**.
 - RPOs are generally **conducted for civil/commercial purposes such as servicing, repair and refueling** and inspection of satellites. But countries with satellites near such operations grow highly suspicious, due to potential use of satellites as surveillance devices or weapons.

capabilities of a nation can be prospective tools for asserting its dominance in global politics.

- **Absence of a strong international treaty to counter weaponization of space:** While the PTBT and the OST prohibit weapons of mass destruction in space, they don't explicitly limit other kinds of space weapons, tests, or military space forces.
- **Low levels of transparency and dual-use nature of space program:** Lack of information sharing among nations about their space programmes has created an element of distrust, where each satellite is perceived as a spy or a weapon.

Way Forward

- **A new space treaty is needed:** with features such as robust verification mechanisms on the deployment of space weapons, the principle of non-interference, proximity rules on how close satellites can maneuver to each other, mechanisms of data sharing, missile test notifications and cooperation in the removal of space debris.
- **Arms control agreements** can also be used to prohibit placement of offensive or defensive weapons in space and restrict testing of ASATs to control space debris.
- **Greater cooperation among nations:** with respect to sharing of technological capabilities of satellites that are located closely or pass each other regularly.

India's Counter space capabilities

- **Mission Shakti:** In 2019, India became the fourth country, after **United States, Russia** and **China**, to successfully test a direct-ascent anti-satellite (ASAT) missile that targeted a satellite in Low Earth Orbit.
 - It demonstrated its **capability to interdict and intercept a satellite in outer space** based on complete indigenous technology.
- **Defence Space Agency (DSA)** was established to command the space assets of the Army, Navy and Air Force, including the military's anti-satellite capability.
 - It is also to formulate a strategy to protect India's interests in space, including addressing space-based threats.
- **Defence Space Research Organisation (DSRO)** was also created to provide technical and research support to DSA.
- **IndSpaceEx** (simulated space warfare exercise) was conducted in 2019 to identify key challenges and shortfalls if a conflict escalates in space dimension.



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5. ENVIRONMENT

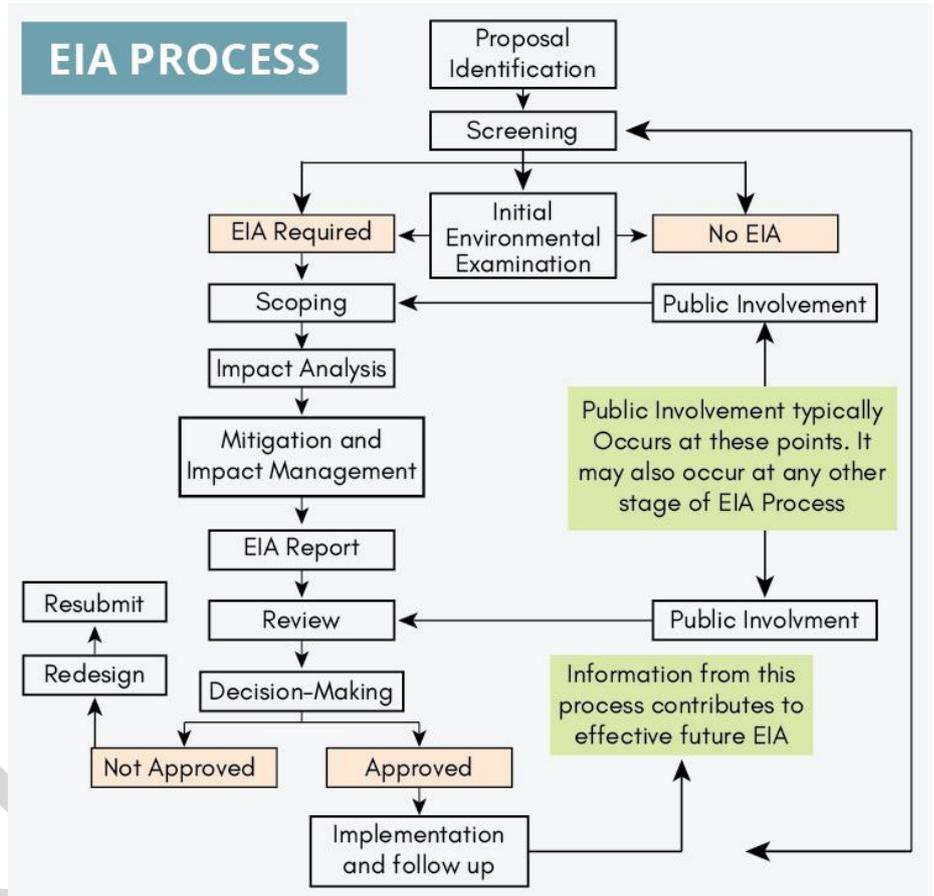
5.1. DRAFT ENVIRONMENT IMPACT ASSESSMENT (EIA), 2020

Why in news?

Ministry of Environment, Forest and Climate Change (MoEF&CC) has published the draft Environment Impact Assessment (EIA) Notification 2020, which replaces the existing EIA Notification, 2006 brought under the Environment (Protection) Act (EPA), 1986.

Background

- India legislated an umbrella Act for environmental protection in 1986 i.e. the EPA after being signatory to the Stockholm Declaration (1972) on Environment and Bhopal gas leak disaster in 1984.
- Under the Act, the country notified its first EIA norms in 1994 setting in place a legal framework for regulating activities that access, utilise, and affect (pollute) natural resources. Every development project has been required to go through the EIA process (under Section 3 of the EPA) for obtaining prior environmental clearance ever since.
- The 1994 EIA notification was replaced with a modified draft in 2006. The government redrafted it again in 2020 to incorporate the amendments and relevant court orders issued since 2006, and to make the EIA “process more transparent and expedient.”



What is EIA?

- Environmental Impact Assessment or EIA is the process or study which
 - predicts the effect of a proposed industrial/infrastructural project on the environment.
 - prevents the proposed activity/project from being approved without proper oversight or taking adverse consequences into account
 - compares various alternatives for a project and seeks to identify the one which represents the best combination of economic and environmental costs and benefits.
- Any project requiring environmental clearance, first needs to undergo a **thorough screening and scoping process by the regulatory authorities** and thereafter a draft EIA report is sent for public consultation.
- Under the existing 2006 law, **projects are categorised into category A and B** where all projects in the **category A need to undergo the process of EIA**. Category B projects are further classified into category B1 and B2, on the basis of their scope and potential impact and only the projects under **B2 are exempted**.

S No.	PARTICULARS	EIA, 1994	EIA, 2006	EIA, 2020
1.	Period for public consultation	30 days	45 days	40 days
2.	Monitoring period	The Project Authorities to monitor projects for compliance with environmental norms every 6 months.	Authorities to monitor projects for compliance with environmental norms every 6 months.	The monitoring frequency has been relaxed to once a year.
3.	Environmental clearance	<p>i) Onus of providing environmental clearance for projects lay entirely on the Central Government</p> <p>ii) There was no division of category for projects mentioned in Schedule 1.</p>	<p>i) Power was decentralised wherein under the new notification the onus of providing environmental clearance for projects was shared between the Central and the State Government.</p> <p>ii) Projects in Schedule 1 were divided into two categories, i.e., Category A projects (national level appraisal) and Category B projects (state level appraisal). National and State Level Environment Impact Assessment Authority were responsible for it respectively.</p>	<p>i) The Onus of providing environmental clearance for projects was divided between the Central and the State Government as before.</p> <p>ii) Projects are divided into three categories- 'A', 'B1' and 'B2', based on the potential social and environmental impacts and the spatial extent of these impacts.</p>
4.	Environmental clearance process	<p>i) Screening</p> <p>ii) Public hearing</p> <p>iii) Obtaining No Objection Certificate ("NOC") from State Pollution Control Board</p> <p>iv) Evaluation of application</p> <p>v) Recommendations</p> <p>This process has to be completed within 90 days</p>	<p>i) Screening</p> <p>ii) Scoping</p> <p>iii) Public hearing</p> <p>iv) Appraisal</p> <p>Category A projects would have to mandatorily undergo environmental clearance and there is no screening process for it.</p> <p>Category B projects would have to undergo screening, to determine whether they belong to Category B1 or Category B2</p> <p>Category B2 is exempted from EIA.</p>	<p>For Category A and B1 projects:</p> <p>i) Scoping</p> <p>ii) Preparing the draft environmental impact assessment ("EIA") report.</p> <p>iii) Public consultation.</p> <p>iv) Preparation of final EIA report.</p> <p>v) Appraisal</p> <p>Category B2 projects which require appraisal have to be placed before the appraisal committee which are:</p> <p>i) Preparation and appraisal of Environment Management Plan.</p> <p>ii) Verification of its completeness by the Authority appointed.</p> <p>iii) Grant/rejection of clearance.</p> <p>Category B2 which don't require appraisal would only have to follow last two steps.</p>
5.	Provision for appeal against prior environment clearance	Not applicable	Not applicable	An appeal can be made to National Green Tribunal against prior environment clearance

Issues with the provisions of draft Environment Impact Assessment (EIA), 2020

• Public Consultation

- It proposes to reduce the period of public consultation hearings to a maximum of 40 days, and reduces from 30 to 20 days the time provided for the public to submit their responses during a public hearing for any application seeking environmental clearance.
- This can particularly pose a problem to those affected people who are forest dwellers or otherwise do not have access to information and technology and those that are not aware of the process itself. Unless a public hearing is meaningful, the **whole EIA process would lack transparency and credibility.**

Other issues with EIA in India

Though established to safeguard the environment, the EIA process, argue activists, often achieved the opposite by offering a façade of legal paperwork for a range of de facto concessions enjoyed by industries. For example,

- **Reports on projects' potential (damaging) impact** on the environment are **frequently shoddy** and consultant agencies that prepare those reports for a fee are rarely held accountable.
 - **Lack of administrative capacity** to ensure compliance often renders long lists of clearance conditions meaningless.
 - **Periodic amendments** exempting one category of industries or the other from scrutiny.
 - On the other hand, **developers complain that the EIA regime dampened the spirit of liberalisation**, leading to red tape and rent-seeking.
- #### Recent industrial mishaps
- **Blowout in Gas Well of Oil India Limited** at Baghjan, Tinsukia District, Assam.
 - Recent processes for expansion and modification of the project (situated only a few kilometres away from protected forest) apparently took place without fresh environmental clearance.
 - **Gas leak at LG Polymers' Visakhapatnam plant.**
 - The plant had been operating without a valid environmental clearance for decades.

- **Wide discretionary powers to government**
 - It also allows the central government to declare some areas as “economically sensitive areas” without a public hearing or environmental clearance, and several “red” and “orange”-classified toxic industries could now operate as close as 0-5 km from a Protected Area.
 - The government also gets to decide on the “strategic” tag for any projects for which no information on such projects shall be placed in the public domain. This opens a window for **summary clearance for any project deemed strategic** without having to explain why.
- **Provisions for post-facto project clearance:**
 - Projects that have commenced operations – by way of construction, installation, excavation, production, etc – without obtaining necessary clearances can be legalised after payment of a penalty
 - **Post facto clearance is the violation of the fundamental principles of environmental jurisprudence** and is contrary to both the precautionary principle as well as the need for sustainable development.
- **Extended period of clearances:** The increased validity of the environment clearances for mining projects (50 years versus 30 years currently) and river valley projects (15 years versus 10 years currently) **raises the risk of irreversible environmental, social and health consequences** on account of the project remaining unnoticed for long.
- **Exemptions:** The new draft **exempts a long list of projects** from public consultation and prior clearance. For example, linear projects such as roads and pipelines in border areas will not require any public hearing. All inland waterways projects and expansion/widening of national highways including roads that cut through forests and dredging of major rivers, will be exempt from prior clearance.
- **Baseline data:** The latest draft EIA notification **does away with the need to carry out studies covering all seasons in a year.** This will lead to less reliable data and projections for pollutants affecting air and water, according to several experts. The end result of the EIA will mask the full environmental impact of a project.
- **Private consultation:** The notification **allows project proponents to engage private consultants for preparing the EIA reports** propelling a situation where expertise and technicalities would be adopted to obscure the process and make it difficult to understand – something that should have been open and comprehensible to the communities for the process to be remotely transparent.
- **Compliance Report Issue:** The draft notification **reduces the frequency of compliance reports** required from project owners **from once every six months to once every year.** During this period, certain irreversible environmental, social or health consequences of the project could go unnoticed.

Conclusion

Various provisions of Draft EIA aimed at facilitating the government’s doctrine of “ease of doing business”. Though the Environmental regulation must balance damage to the environment with sustainable development and possible benefits. Government must incorporate the concerns of all stakeholder before finalising the regulation.

5.2. COVID-19 AND ITS IMPACT ON ENVIRONMENT AND CLIMATE CHANGE EFFORTS

Why in news?

The COVID-19 crisis could mark a turning point in progress on climate change.

Impact of COVID-19 Lockdown on Environment:

It has a **mixed impact** on environment-

- **Reduced Pollution:** There were a marked decline in air pollution (decreased concentrations of NO₂ and PM 2.5), clean beaches due to lack of tourists and reduced noise pollution.
 - For instance, the average Air Quality Index (AQI) for the major Indian cities was between 300-500; after the lockdown, it plunged to 50 to 100.
- **Decline in Carbon Emissions:** Huge decreases in transportation and industrial activity due to COVID-19 lockdown resulted in a drop in daily global carbon emissions of 17% in April.
 - However, CO₂ levels in the atmosphere reached their highest monthly average ever recorded in May - 417.1 parts per million. This is because the carbon dioxide already emitted can remain in the atmosphere for longer times.

- **Increased waste and More plastic:** COVID-19 has vastly increased our use of plastic: gloves and masks and PPE kits, and disposable shopping bags etc. E-commerce has also resulted in more packaging materials, increasing the carbon footprint of e-commerce.
 - There has also been **reduction in waste recycling** as authorities have been concerned about the risk of COVID-19 spreading in recycling centers.

Effects of COVID-19 on Climate Change efforts

Public support for action on climate change increased to a peak prior to the pandemic; government and corporate action was also gathering momentum. COVID-19 has clearly slowed this momentum.

- **International negotiations delayed:** 2020 was supposed to be a “a pivotal year” for efforts to address climate change. COP26 of UNFCCC, World Conservation Congress, Convention on Biological Diversity and 2020 UN Ocean Conference etc. all are postponed.
 - Ahead of the COP26 summit, **196 countries were to announce plans to ratchet up climate actions**, since the plans they submitted in 2015 could still allow global temperatures to rise by a potentially catastrophic 3°C.
 - While the need to mobilize governments to act on climate has never been more urgent, the inability to gather world leaders to address the issue could make it all the more difficult to do so.
- **Less money for climate resilience and renewable energy:** The need for **more emergency services** coupled with a **reduction in tax revenue** has taken an economic toll on governments’ efforts. As a result, some have had to delay and divert funding away from climate resilience projects and renewable energy.
- **Scientific research disrupted:** Due to lockdowns and travel bans, scientists have been unable to travel to do their fieldwork, and there’s a limit to how much some can accomplish with data and computers alone.
- **Deforestation and illegal poaching:** As Brazil, hard hit by COVID-19, is focused on controlling the virus, **illegal loggers and miners** are taking advantage of the situation to cut down large swaths of the Amazon.

Four priorities for COP 26 of UNFCCC:

- The National climate plans – the **Nationally determined contributions (NDCs)** – should show that countries are working to implement the Paris Agreement, and that each new NDC should show more ambition than the previous one.
- All nations should adopt strategies to reach net zero emissions by 2050.
- The development of a robust package of projects and initiatives to help communities and nations adapt to climate disruption and build resilience against future impacts.
- The provision of finance, with developed countries at COP26 delivering on their commitment to mobilize 100 billion dollars a year by 2020.

Learnings of COVID-19 for Environment and Climate Change

As the world is struggling with the rapid-onset COVID-19 crisis, here are some lessons on how to ensure that the recovery from the COVID-19 crisis will put the 2030 Agenda and the Paris Agreement at the center of sustainable development efforts.

- **Put science and scientists first:** In case of COVID-19, collaborative networks of scientist beyond political lines and national borders, has increased the efficiency and speed in research to find a cure.
 - **Learning:** Along with the multilateral political negotiation, well informed climate negotiations mean unimpeded transparency and scientific cooperation, such as the one provided by the Intergovernmental Panel on Climate Change (IPCC).
- **Mobilising Financial resources:** Governments have quickly mobilized financial support to back businesses and expand welfare benefits in response to the COVID-19 pandemic.
 - **Learning:** To avoid a climate catastrophe, climate finance must overcome difficult negotiations and political conflicts. The climate investments also make great economic sense. For example, it is estimated that for every dollar invested in climate resilient infrastructure six dollars are saved.
- **Protect and improve common goods:** Over-exploitation of common goods, without consideration for the long-term needs of our next generations, has resulted in the “**tragedy of the commons**”, with big environmental impacts, including the zoonotic origins of the COVID-19 pandemic.
 - **Learning:** Cases of response to the current pandemic show that previous investments by countries in public health and welfare systems have produced better results. Equally important are investments to restore clean air and water, healthy ecosystems, and other environment and climate goods, which contribute to planetary health.

- **Focus on those already left behind:** The COVID-19 pandemic struck fast and affected those most vulnerable, those who had little means and access to health-care services, and those in nursing homes and homes for persons with disabilities.
 - **Learning:** In the case of climate change, the ones that have been left behind include poor farmers, people who lack access to basic services, people living in slums as well as climate migrants. Climate mitigation and adaptation activities should put these and other vulnerable groups at the center of attention and response.
- **Make the global value chains climate resilient:** The COVID-19 driven disruption in sectors like transport, medicine and tourism was immediate and hard.
 - **Learning:**
 - The **climate crisis with its low on-set characteristics** will drive at least similar if not larger implications in the value chains of main sectors. There is an opportunity to develop systems able to increase the resilience of value chains in climate sensitive sectors; and ensure that critical commodities and services are available to all at times of climate-induced disasters.
 - This will also impact the **supply of funds and finances**, which need to be directed to deal with critical situations, rather than bailing out polluting industries in decline, creating quick stimulus for sustainable and low-carbon commodities and common goods services.
- **Fix and make sustainable the food systems:** The FAO has started documenting the negative impacts of COVID-19 on food security. The impacts of climate change on agriculture have also been extensively documented by the IPCC and **food supply chain** has emerged as the **most crucial global value chain** to be secured against the climate emergency.
 - **Learning:** Many policy options have been proposed and already implemented including ecological rotation of crops, robust estimation of the true cost of food, reducing food waste, fair trade, drastically reducing pesticides, decarbonizing food production and distribution systems.
- **Ensure credible information and not fake news leads the public discussion:** Since the causes and risks of climate change are already well examined, documented and vetted, scientific facts and solutions need to be brought widely to the attention of the public to avoid speculations and misconstrued theories, which only cause anxiety and panic, as is happening around this novel disease.
- **Institutionalise behaviour change:** The lockdown has enabled new behaviours and habits, especially among the corporate workforce, with remote work becoming normalised. Consumption patterns are also changing, with more focus on buying what is locally and easily available. Institutionalising these changes after the lockdown is eased or lifted can go a long way in lowering vehicular emissions, reducing air travel, and reducing the carbon footprints of people and products.

Conclusion

The pandemic has made it clear that failing to act on issues such as climate change and public health cuts into any development gains made in other sectors. Given the growing number of COVID-19 cases, and how communities have been affected along with their ability to cope with climate shocks, the government must factor in climate change in every decision related to the pandemic including devising the green economic recovery plans.

5.3. DECARBONISING TRANSPORT

Why in news?

NITI Aayog in collaboration with International Transport Forum (ITF) have jointly launched the Decarbonising Transport in India project.

More on news

- The project is carried out in the wider context of the International Transport Forum's Decarbonising Transport Initiative and is a **part of Decarbonising Transport in Emerging Economies** family of projects, which supports transport decarbonisation across different world regions.
- **Purpose**
 - Develop a pathway towards a **low-carbon transport system** for India.
 - Design a tailor-made **transport emissions assessment framework for India**

- Facilitate the government with a **comprehensive understanding of present as well as future transport activities** along with the related CO₂ emissions.
- Transport emits around 23% of the energy-related CO₂ that feeds global warming. Without immediate action, its share could reach 40% by 2030 and 60% by 2050.

Concept of Decarbonising transport

- Decarbonisation means **reducing greenhouse gas (GHG) emissions produced as a result of transport**. It includes
 - Emissions released directly during transport
 - Emissions due to related activities - for example emissions from the production of electricity used to power a given mode.
 - **Emissions resulting from the manufacture and/or disposal/recycling of products and vehicles.**

Measures to achieve decarbonisation in transport sector

- **Pull policies** that attract citizens into more efficient modes of transport such as metros, bus rapid transit, and bicycles; emerging trends such as work from home, e-commerce etc incentivising people to travel less.
- **Push measures** that make the use of CO₂ and energy intensive modes less attractive, e.g. reduced and more expensive parking space; high taxes on fuel and polluting vehicles, promoting electric vehicles etc.
- **Land-use policies** such as **Transit oriented development** that enable the use of public transit, walking and cycling by increasing accessibility on short-to-medium distances.
- **Improving Infrastructure:** There is great potential for energy savings in infrastructure, both for new and older assets. This includes escalators, lifts, building insulation, heating, cooling, cogeneration, lighting, etc. Another example is the **increasingly popular production of renewable electricity** from photovoltaic panels installed on roofs of maintenance and parking/stabling facilities when tax or investment incentives are available.
- **Other policies** such as increasing commercial speed and reliability for public modes of transport, such as priority at traffic lights and reserved corridors/lanes such as Dedicated Freight Corridors.

Government Initiative

- **Government of India has initiated several policies and initiatives** for the transportation sector with the objective of enhancing passenger mobility, improving logistics of freight transport, increasing rail use by improving efficiency, raising the average speed, promoting low-carbon transport, and at the same time improving energy security and local benefits of air quality and congestion:

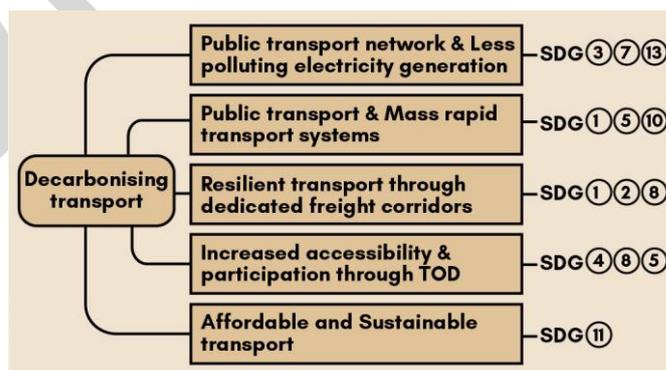
Roads	<ul style="list-style-type: none"> ● National Electric Mobility Mission Plan (NEMMP) and Faster Adoption and Manufacturing of (Hybrid &) Electric vehicles in India (FAME India) ● BS VI norms.
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About Decarbonising Transport initiative (DTI) and Decarbonising Transport in Emerging Economies (DTEE)

- The DTI was launched in 2016 with funding from the ITF and other funding partners including World Bank, European Commission etc.
- The initiative **promotes carbon-neutral mobility to help stop climate change**. It provides decision makers with tools to select CO₂ mitigation measures that deliver on their climate commitment.
- Under it, the **DTEE project** helps national governments and other stakeholders to identify transport measures and establish pathways to reduce transport CO₂ emissions and meet their climate goals and NDCs.
- India, Argentina, Azerbaijan, and Morocco are current participants.
- The **DTEE is a collaboration between the ITF and the Wuppertal Institute**, supported by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

About ITF

- The ITF is an **inter-governmental organisation within the OECD** (Organisation for Economic Co-operation and Development) system.
- It is the **only global body with a mandate for all modes of transport**.
- It acts as a **think tank for transport policy issues** and organises the annual global summit of transport ministers.
- **India has been a member of ITF since 2008.**



	<ul style="list-style-type: none"> • National Policy on Biofuels, 2018 • Remodelling of roads such as widening, expressways, flyovers, signal free movement etc. under Bharatmala Project. • Promoting public transports such as metro rail • High tax rates on polluting vehicles. • Hydrogen fuel based public transport
Railways	<ul style="list-style-type: none"> • Railway Electrification, • Improving energy efficiency of locomotives & trains and fixed installations, green certification for installations/stations, • Dedicated freight corridors. • Exploiting renewable sources of energy • It is all set to transform itself as 'Net Zero' Carbon Emission Mass Transportation Network by 2030.
Airways	<p>AAI has recently outlined a series of major initiatives it has taken to check depletion of ozone layer and emissions through improved air navigation service (ANS) procedures and training. These include :</p> <ul style="list-style-type: none"> • route optimisation, • upgrading of surveillance infrastructure, • upper airspace harmonisation, • continuous descent operations, • collaborative environmental initiatives and ground efficiency improvement programmes • blended bio-jet fuel experiment
Waterways	<ul style="list-style-type: none"> • Development of National Waterways. • LNG propelled vessels.

Way forward

- Opportunities exist to mitigate GHG emissions from India's transport sector and facilitate sustainable mobility by **integrating transportation policies with environment, development, and climate change policies.**
- **The sustainability focus is evident in policies of the Government of India.** For instance, India's National Action Plan on Climate Change (NAPCC) highlights a mix of measures, including higher share of public transport, penetration of biofuels, and significant improvements in vehicle efficiency.
- **Several cities are proactively initiating infrastructure investments** in mass transit, urban planning for better land use transport integration, and upgrading existing public transport. This should be replicated in other cities also to realize the desired mitigation potential

5.4. AGRICULTURAL EMISSIONS IN INDIA

Why in news?

Recently Union Government **launched Green-Ag Project** to reduce emissions from agriculture.

About Green-Ag Project

- It aims to bring at least **104,070 ha of farms under sustainable land and water management** and ensure 49 million Carbon dioxides equivalent sequestered or reduced through sustainable land use and agricultural practices.
- Project will be implemented in **Mizoram, Rajasthan, Madhya Pradesh, Odisha and Uttarakhand.**
- It is **funded by the Global Environment Facility (GEF)**, while the Department of Agriculture, Cooperation, and Farmers' Welfare is the national executing agency.
- Other key players involved in its implementation are **Food and Agriculture Organization (FAO) and the Union Ministry of Environment, Forest and Climate Change (MoEF&CC).**

Global Environment Facility (GEF)

- It was established on the eve of the **1992 Rio Earth Summit.**
- The **World Bank** serves as the GEF Trustee, administering the Fund.
 - GEF funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements.
- The GEF serves as a "**financial mechanism**" to **five conventions**: Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), Stockholm Convention on Persistent Organic Pollutants (POPs), UN Convention to Combat Desertification (UNCCD), and Minamata Convention on Mercury.

Agricultural emissions in India

- In India agriculture and livestock accounts for **18% of gross national emissions**, the third-highest sector after energy and industry.
 - Out of this more than 85% of emissions are due to cattle production system, rice cultivation and ruminant meat and remaining 15% comes from other crops and nitrous oxide emitted from fertilisers.

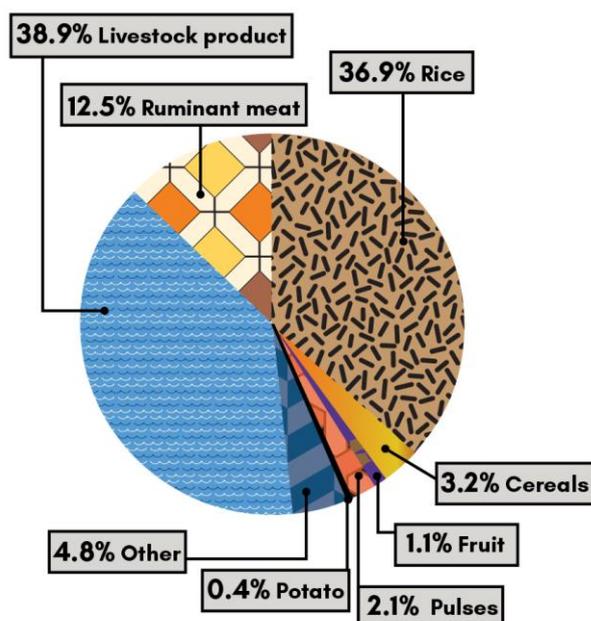
- Most of the GHG emission from Indian agriculture takes places from states like **Punjab, Haryana, UP, Bihar, West Bengal etc.**

- **Impact of agricultural emissions**

- **Pollution**
 - Short-lived climate pollutants (SLCPs) are black carbon materials and particulate matter PM10 and PM2.5 is generated due to burning of stubbles.
 - Fertilisers rich in nitrogen can pollute water and threaten aquatic ecosystems.
- **Greenhouse gases:** Use of excess nitrogenous fertilizers, paddy cultivation and enteric fermentation components which causes global warming.

- **Source of emissions**

- **Enteric fermentation:** is a natural part of the digestive process in ruminant animals such as cattle, sheep, goats, and buffalo. Microbes in the digestive tract, or rumen, decompose and ferment food, producing methane as a by-product
- **Rice cultivation:** GHG emissions from rice cultivation consist of methane gas from the anaerobic decomposition of organic matter in paddy fields due to standing water in the rice fields.
- **Manure management:** GHG emissions from manure management consist of methane and nitrous oxide gases from aerobic and anaerobic manure decomposition processes.
- **Synthetic fertilisers:** GHG emissions from synthetic fertilisers such as urea consist of nitrous oxide gas from synthetic nitrogen additions to managed soils due to volatilisation.
- **Crop residues:** GHG emissions from crop residues consist of nitrous oxide gas deriving from the decomposition of nitrogen in crop residues and burning of crop residues. Eg. Stubble burning in outskirts of Delhi causing rise of particulate matter.
- **Energy use:** Irrigation uses highly inefficient water pumps and accounts for around 70% of the energy consumption of agriculture causing emissions of carbon dioxide, methane and nitrous oxide gases associated with fuel burning and the generation of electricity used in agriculture.



Challenges to reduce agricultural emissions

- **High population & demand:** Due to India's population need of food grain production has substantially increased to feed their demand which creates challenge for sustainable agriculture.
- **Unfair government policies: Highly subsidised nitrogen-based fertilizers in India** lead to farmers overreliance on nitrogen-based fertilizers which are major source of nitrogenous emissions.
- **Poor agro-tech advancement:** Farmers' adoption of the technology largely depends on the socio-economic and political environment, hence farmers with poor socio-economic condition cannot adopt it.
- **Poor knowledge:** To implement available technologies adequate dissipation of knowledge among the farming community is lacking.

Way forward

- **Technological measures**
 - **Adoption of zero tillage** (no-till farming) to minimise disturbing the soil by tillage and reduce emissions from fuel that would have been consumed for tillage operations.

- **Deep placement of manure and fertilizers** into the soil using fertilizer guns to increase nitrogen use efficiency and reduce N₂O emissions.
- **Managing rice water by letting the field dry after irrigating** rather than keeping rice fields continuously flooded will reduce methane emissions without compromising yield. This also requires less energy for water pumping.
- **Institutional measures**
 - **Strengthening of private and public research and development** for sustainable development of agriculture.
 - Timely, simultaneous, and adequate availability of **credit, input, and extension support**.
- **Policy measures**
 - **Counter-productive policies should be avoided**, for example of heavy subsidies provided by the government to nitrogen fertilisers.
 - **Emphasis on biogas production and maximizing aerobic fermentation of manure**. Also, promotion of vermicomposting and keeping decomposed manure in an airtight container or with a proper cover.
- **Other Measures**
 - **Less dependence on ruminant animals, feeding of good-quality feed** to reduce methanogenesis and addition of yeast culture in feeds, supplementing green fodder to reduce enteric emissions.
 - **Mass awareness** about climate change, global warming, and the role of the livestock sector in climate change and the impact of climate change on the livestock sector.

Steps taken by Government

- India's **National Mission for Sustainable Agriculture (NMSA)**, among eight NAPCC missions, aims to tackle agricultural emissions and enhance food security.
- A policy introduced in 2015 made **neem coating of urea compulsory** to reduce nitrous oxide emissions.
- Creating sustainable and climate-resilient agricultural systems is part of India's plan to meet pledge to the United Nations Framework Convention on Climate Change international treaty to **reduce the emissions intensity of its GDP by up to 35% by 2030, compared to 2005 levels**.
- **Soil health cards** to use fertilizers efficiently and according to need of soil.
- India has **installed 200,000 solar water pumps** and another 2.5 million are planned to reduce emissions from energy use in agriculture.
- **Green India Mission**, launched in 2014, which aims to expand tree cover by 5 million hectares and increase the quality of another 5m hectares of existing cover in 10 years.

5.5. METHANE EMISSIONS

Why in news?

Recent studies from the Global Carbon Project (GCP) have shown that methane in the Earth's atmosphere has risen enormously.

About Methane

- Methane is a chemical compound **with the molecular formula CH₄**. It is the main component in natural gas.
- Methane is an **odorless, colorless, tasteless gas that is lighter than air**.
- When it undergoes combustion, it produces a great amount of heat, which makes it very useful as fuel source.
- It is a short lived climate pollutant with **atmospheric residence time of approximately 12 years**.
 - Residence time is the average time it takes for a molecule to be removed from the atmosphere.

Source of Methane

- **Anthropogenic sources:** Anthropogenic sources are responsible for about 60% of global emissions. Some of these sources include :

Global Carbon Project (GCP)

- It is research project founded in 2001 **to slow down and ultimately stop increase of greenhouse gases**.
- It integrates knowledge of greenhouse gases for human activities and the Earth system.
- GCP creates global budgets for three dominant greenhouse gases — **carbon dioxide, methane, and nitrous oxide**.

Key finding of Methane Budget 2020

- Emissions **increased 9%** compared to the last decade.
- Global **increase mainly from anthropogenic sources** between Agriculture and Waste and Fossil Fuel.
- **Tropical regions** in three continents, Africa, Asia and South America, were **responsible for 64% of the entire planet's emissions**, while temperate regions and the Arctic contributed to 32% and four per cent respectively.

- **Fossil fuel production:** Methane is emitted to the atmosphere during the production and distribution of natural gas and crude oil.
 - Coal mining is also a source of CH₄ emissions.
- **Livestock industry:** Domestic livestock such as cattle, swine, sheep, and goats produce CH₄ as part of their normal digestive process.
 - Also, when animal manure is stored or managed in lagoons or holding tanks, CH₄ is produced.
- **Rice cultivation:** As in a natural wetland, flooding a rice field cuts off the oxygen supply from the atmosphere to the soil, which results in anaerobic fermentation of soil organic matter. Methane is a major end product of anaerobic fermentation. It is released from submerged soils to the atmosphere through roots and stems of rice plants.
- **Biomass burning:** Methane emissions arising from biomass burning are a result of incomplete combustion and huge amounts can be produced during large scale burning of woodlands and agricultural waste.
- **Waste management:** Methane is generated in landfills as waste decomposes and in the treatment of wastewater. Methane is also generated from domestic and industrial wastewater treatment and from composting.
- **Global warming :** Methane crystals called clathrates form in cold, oxygen poor undersea sediments. Clathrates are also trapped in permafrost, the permanently frozen soil in the arctic and subarctic latitudes.
 - However, as the planet warms, some of these deep, cold sediments are melting, sending methane bubbling to the surface.
- **Natural source:** include wetlands, gas hydrates, termites, oceans, freshwater bodies and other sources such as wildfires.
 - Natural wetlands are responsible for approximately 80% of global methane emissions from natural sources.

Impact of Methane in atmosphere

- **Climate Impact:** Methane is a very **effective greenhouse gas**. While its **atmospheric concentration is much less than that of carbon dioxide**, methane is 28 times more effective (averaged over 100 years) at trapping infrared radiation.
- **Health Impact:** Methane is a key precursor gas of the **harmful air pollutant**, tropospheric ozone.
 - When inhaled tropospheric ozone can permanently damage lung tissue. It worsens diseases like bronchitis, emphysema, and triggers asthma.
- **Crop productivity:** Tropospheric ozone reduces the health of plants by reducing their ability to photosynthesize and absorb carbon. This impacts crop productivity.

Related information

Global Methane Initiative (GMI)

- It is an international public-private partnership focused on reducing barriers to the recovery and use of methane as a clean energy source.
- India joined GMI in 2004.

Clearing methane using hydroxyl radicals

- **Hydroxyl radical, OH is the main oxidant of CH₄, responsible of about 90% of methane removal** in the atmosphere.
 - Hydroxyl radicals are a form of “sink” because they “scrub” the atmosphere clean of pollutant molecules and break them down. For this reason, OH is known as the ‘**cleanser of the atmosphere**’.

Way forward

Methane mitigation offers rapid climate benefits and economic, health and agricultural co-benefits that are highly complementary to CO₂ mitigation. Therefore, efforts to be taken to develop technologies and practices that reduce methane emissions. Some of the measures include:

AGRICULTURE	<ul style="list-style-type: none"> ▪ Improve manure management and animal feed quality ▪ Apply intermittent aeration of continuously flooded rice paddies ▪ Improve animal health and husbandry by combining herd and health management, nutrition and feeding management strategies ▪ Introduce selective breeding to reduce emission intensity and increase production ▪ Promote farm-scale anaerobic digestion to control methane emissions from livestock
FOSSIL FUELS	<ul style="list-style-type: none"> ▪ Carry out pre-mining degasification and recovery and oxidation of methane from ventilation air from coal mines ▪ Reduce leakage from long-distance gas transmission and distribution pipelines ▪ Extend recovery and utilization from gas and oil production ▪ Recover and use gas and fugitive emissions during oil and natural gas production

WASTE MANAGEMENT	<ul style="list-style-type: none"> ▪ Separate and treat biodegradable municipal waste, and turn it into compost or bioenergy ▪ Upgrade wastewater treatment with gas recovery and overflow control ▪ Improve anaerobic digestion of solid and liquid waste by food industry ▪ Upgrade primary waste water treatment ▪ Divert organic waste ▪ Collect, capture and use landfill gas
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5.6. E-WASTE

Why in News?

Recently, the **Global e waste Monitor 2020 Report** was released.

What is E-Waste?

- It refers to all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use.
- **According to Global e waste Monitor 2020 Report**, in **2019**, the world generated **53.6 Mt of e-waste**, an average of **7.3 kg per capita**, with 21% increase in just 5 years. It will **increase by 38%** between 2020 and 2030.
 - Asia generated the highest quantity followed by the Americas and Europe. Europe ranked first worldwide in terms of e-waste generation per capita with 16.2 kg per capita.

Issues with E waste

- **Hazardous to human health:** The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous
- **Environmental effects of e-waste:** The toxic materials from electronic devices are released into bodies of water, groundwater, soil and air, affecting both land and sea animals.
 - Improper management of e-waste also contributes to **global warming**. A total of 98 Mt of CO₂-equivalents were released into the atmosphere from discarded fridges and air-conditioners that were not managed in an environmentally sound manner.
- **Low recycling capacity:** Almost all e-wastes contain some form of recyclable material, including plastic, glass, and metals; however, due to improper disposal methods and techniques these materials cannot be retrieved for other purposes.
 - **Only 17.4%** of the total e-waste was collected and recycled globally.
- **Dumping in Developing countries:** A large amount of E-waste from developed countries is dumped into developing countries. When electronic devices are dumped in these developing countries the impact is detrimental to the environment of the country and the health of the people.
 - Even with International treaties such as **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes**, illegal shipment and dumping of e-wastes continue to take place.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes

- It was adopted in 1989 and it came into force in 1992.
- The Convention aims to protect human health and the environment against the adverse effects resulting from the generation, transboundary movements and management of hazardous wastes and other wastes.
- It regulates the transboundary movements of hazardous wastes and other wastes and obliges its Parties to ensure that such wastes are managed and disposed of in an environmentally sound manner.

Measures to Manage E waste

- **Formal collection of e waste:** e-waste is to be collected by designated organizations, producers, and/or the government. This happens via retailers, municipal collection points, and/or pick-up services.
- **Recycling e-waste:** Recycling e-waste enables us to recover various valuable metals and other materials from electronics, saving natural resources (energy), reducing pollution, conserving landfill space, and creating jobs.
 - The value of raw materials in the global e-waste generated in 2019 is equal to approximately \$57 billion USD.
- **Improving end-of-life: The circular economy** is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended.

- This is a departure from the traditional, linear economic model, which is based on a take-make-consume-throw away pattern. It relies on large quantities of cheap, easily accessible materials and energy.
- **E-waste Legislation:** Governments around the world are developing national e-waste policies and legislation to deal with the growth of end-of-life electrical and electronic products. Such a policies lay out plans or courses of action and indicate, in a non-binding manner, what can be achieved by a society, institution, or company.
 - **India** passed the first law on e-waste management in 2011
- **E-waste data:** The development of sound policies and legal instruments can only be achieved with better e-waste data. Understanding the quantities and flows of e-waste provides a basis for monitoring, controlling, and ultimately preventing illegal transportation, dumping, and improper treatment of e-waste.
- **Create awareness:** on the environmental benefits of recycling among consumers.
 - Ministry of Electronics and Information Technology (MeitY) has initiated an e-waste awareness programme under Digital India, along with industry associations from 2015, to create awareness among the public about the hazards of e-waste recycling by the unorganised sector, and to educate them about alternate methods of disposing their e-waste.

E-Waste in India

- According to Global E-waste Monitor 2020, **India is the third largest electronic waste generator in the world after China and the USA.**
- The government passed the **first law on e-waste management in 2011**, based on Extended Producer Responsibility
 - It put the onus on the producer for the management of the final stages of the life of its product, in an eco-friendly way, by creating certain norms in tandem with state pollution control boards.
 - However, it did not set collection targets
- Thereafter, **the E-Waste (Management) Rules, 2016 were enacted in supersession of the 2011 Rules.**
 - A manufacturer, dealer, refurbisher and Producer Responsibility Organization (PRO) were also brought under the ambit of these Rules.
 - PRO is a professional organization authorized or financed collectively or individually by producers, which can take the responsibility for collection and channelization of e-waste generated from their products to ensure environmentally sound management.
- The **E-Waste Management Rules, 2016 have been amended by the Centre in 2018.**
 - **E-Waste (Management) Amendment Rules, 2018** objective is to channelize the e-waste generated in the country towards authorized dismantlers and recyclers in order to further formalize the e-waste recycling sector.

5.7. MARINE PLASTIC POLLUTION

Why in news?

A report titled “Breaking the Plastic Wave”- ‘A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution’ pointed that the annual flow of plastic into the ocean could triple by 2040 to 29 million metric tonnes per year, without immediate and sustained action.

The issue of plastic in oceans

- **Gravity of the situation:** Over 300 million tons of plastic are produced every year, half of which is used to design single-use items such as shopping bags, cups and straws. Out of this, **at least 8 million tons of plastic end up in our oceans every year.**
 - **Waste plastic makes up 80% of all marine debris** from surface waters to deep-sea sediments.
 - Plastic has been **detected on shorelines of all the continents**, with more plastic materials found near popular tourist destinations and densely populated areas.
 - Under the influence of solar UV radiation, wind, currents and other natural factors, **plastic fragments into small particles, termed microplastics** (particles smaller than 5 mm) or nanoplastics (particles smaller than 100 nm). This **disperses plastic even farther and deeper into the ocean**, where it invades more habitats and becomes effectively impossible to retrieve.
- **Sources of plastic:** The main sources of marine plastic are land-based, from urban and storm runoff, sewer overflows, beach visitors, inadequate waste disposal and management, industrial activities, construction and illegal dumping. Ocean-based plastic originates mainly from the fishing industry, nautical activities and aquaculture.

- **Impacts:**

- **On marine environment:** Ingestion, suffocation and entanglement of hundreds of marine species such as seabirds, whales, fishes and turtles, and most die of starvation as their stomachs are filled with plastic debris. They also suffer from lacerations, infections, reduced ability to swim, and internal injuries. Floating plastics also contribute to the spread of invasive marine organisms and bacteria, which disrupt ecosystems.
- **On food and health:**
 - **Toxic contaminants accumulate on the surface of plastic materials** which when ingested by marine organisms, enter their digestive systems, and overtime accumulate in the food web and leads to the transfer of contaminants between marine species and humans through consumption of seafood.
 - **Carcinogenic chemicals present in the plastic materials interfere with the body's endocrine system**, causing developmental, reproductive, neurological, and immune disorders in both humans and wildlife.
- **On tourism:** Plastic waste damages the aesthetic value of tourist destinations, leading to decreased tourism-related incomes and major economic costs related to the cleaning and maintenance of the sites.

Concerns with Bio-degradable plastics (particularly those made from plants)

- These are promising alternatives to conventional plastics under the right conditions, but these **conditions are generally not found** in the natural environment, and especially not in the Ocean.
- They are also **energy intensive and expensive** to produce.
- Even in ideal conditions, biodegradability **does not resolve critical issues such as entanglement**, or ingestion by marine animals.

Existing challenges in dealing with the issue

- **Long residual period of plastic:** once the plastic waste enters into the ocean, there is very little we can do to collect it at a meaningful scale, particularly on the ocean floor several kilometres deep. This is in part due to the vast scale of the ocean, and because the plastic particles themselves break down once in the ocean, and become much smaller.
- **Lack of compliance with laws and conventions** partly due to limited financial resources to enforce them. The most important are the 1972 Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (or the London Convention), the 1996 Protocol to the London Convention (the London Protocol), and the 1978 Protocol to the International Convention for the Prevention of Pollution from Ships (MARPOL).
- **Structural flaws:** Under linear plastic system, 95 per cent of the aggregate value of plastic packaging is lost to the

Case in India and its efforts in dealing with the issue

- The country dumps about 600,000 tonnes of plastic waste into the oceans annually. With a coastline of 7,500 kms, India faces a huge challenge in cleaning up its seas.
- Scientists have found that 414 million plastic waste items, weighing 238 tonnes, are polluting Cocos Keeling Islands, a remote archipelago in the Indian Ocean.

Efforts taken:

- India is a **signatory to MARPOL** (International Convention on Prevention of Marine Pollution). In addition, Prevention of Marine Pollution is also dealt with by Merchant Shipping Rules, 2009 under the Merchant Shipping Act, 1958.
- **Periodic surveys of Indian flag vessels** to ensure compliance to the above rules. Foreign vessels are likewise inspected under Port State Inspection regime and heavy penalty is levied in case of non-compliance.
- **Steering committee with stakeholders from all the concerned Ministers and Departments** has been constituted by the Ministry of Environment, Forests and Climate Change. The Committee will co-ordinate the activities, examine proposals and provide guidance to Ministries, State and UT Governments with regard to research, policy planning, deployment of technology, public outreach and education and other facets of the problem of marine plastic littering.
- The government has announced a **number of steps to phase out single-use plastics** with the eventual goal of stopping all usage to reduce the country's plastic footprint **under the Plastic Waste Management (Amendment) Rules 2018**.
- **BIS has come out with an Indian standard** according to which plastic microbeads of diameter 5 mm or less, that are insoluble in water, and solid plastic particles used to exfoliate or cleanse in personal care products are banned.
- **State initiatives:**
 - Kerala's Suchitwa Mission, under which fishermen are engaged in not just finding fish but also plastic that either gets stuck in the fishing nets or floats in the sea. In last 10 months since the project was launched, they have managed to recover 25 tonnes of plastic waste.

economy after a single use cycle and that many plastic products are placed in markets that lack the capacity to collect and treat them economically after use.

- Globally, only 71 per cent of plastic produced is formally collected, and less than 15 per cent is actually recycled.
- **Lack of data:** Consistent definitions and conventions for plastic waste data and metrics are lacking, and there is insufficient transparency regarding the plastic being placed on the global market (type, chemical additives, etc.), trade flows, waste production, consumption, and post-use patterns.

What needs to be done?

- **Multi-pronged approach:** Stemming the tide of plastics entering the Ocean will require a combination of approaches, including limiting plastic use, improving waste collection, infrastructure, and management, and expanding recycling, particularly in the countries where most of the plastic originates.
- **Existing international legally binding instruments should be further explored** to address plastic pollution.
- **Strengthening Collaborations:** between Governments, research institutions and industries to find appropriate technological, behavioural and policy solutions to plastic usage and their disposal.
- **Transition from linear to circular economy:** where resources, such as plastics, are used, recovered and reused over and over again, instead of heading directly to the landfill or the Ocean.
- **Individual's responsibility** to limit plastic usage through carrying reusable water bottle, cloth bag, buying second-hand products etc. as the most effective way to have less plastic in the Ocean is to use less plastic in the first place.

5.8. SUSTAINABLE OCEAN ECONOMY FOR 2050 REPORT

Why in News?

A High Level Panel for a sustainable Ocean Economy commissioned this report to examine the global net benefit of implementing sustainable, ocean-based interventions over a 30-year period (2020-2050).

Key Highlights of report

- **Ability of the ocean to sustain livelihoods and prosperity is eroded** by climate change, overfishing, pollution and a loss of biodiversity and coastal ecosystems.
- **Protecting ocean-based ecosystems** and ensuring the environmental sustainability of ocean-based activities will produce health, environmental and ecological, and economic and social benefits.
- Report provides **benefit-cost ratio over a 30 year period (2020-2050)** by focusing on **four ocean-based policy interventions:**
 - Conserving and restoring mangrove habitats.
 - Scaling up offshore wind production.
 - Decarbonising the international shipping sector.
 - Increasing the production of sustainably sourced oceanbased proteins.
- Sustainable **ocean-based investments will yield benefits at least five times greater** than the costs, with minimum net returns of \$8.2 trillion over 30 years. **It can deliver on three dimensions:**
 - **Protect:** reduce greenhouse gas (GHG) emissions while safeguarding biodiversity

About High Level panel for Sustainable Economy (Ocean Panel)

- **It is a unique initiative of 14 serving world leaders** building momentum towards a sustainable ocean economy, where effective protection, sustainable production and equitable prosperity go hand-in-hand.
 - **India is not a member.**
- It is supported by the UN Secretary-General's Special Envoy for the Ocean.
- It was established in 2018 and **has been working with government, business, financial institutions,** the science community and civil society.
- It aims to provide **pragmatic solutions across policy, governance, technology and finance,** and ultimately develop an action agenda for transitioning to a sustainable ocean economy.

About Benefit-Cost Ratio

- It is developed by **dividing the present value of benefits in 2050 by the present value of costs.**
- **The categories of benefits assessed include** health, environmental and ecological (higher biodiversity, reduced water usage and land-based conflicts, and coastal protection) and economic and social (increased business revenues, household income, jobs and food security).
- **The categories of costs include** costs to business (such as capital investments and increases in operational costs), costs to government (such as costs of regulations, research and development expenditures, enforcement and monitoring costs) and costs to households (such as opportunity costs of forgone activities).

- **Produce:** contribute to sustainably powering and feeding a planet of 9.7 billion people in 2050
- **Prosper:** create better jobs and support more equitable economic growth, household income and well-being.

Return on Investment For	Health benefits from reducing environmental risks	Environmental and ecological benefits	Economic and social benefits	Estimated Benefits and Costs
Conserve and Restore Mangroves	<ul style="list-style-type: none"> • Mangroves are a direct source of food, fuelwood, fiber and traditional medicine for local inhabitants. • Recreational and aesthetic value for physical and mental health. 	<ul style="list-style-type: none"> • Protection from storm surges • Mitigation of climate change and carbon sequestration benefits • Provide many ecosystem services, such as regulating water quality and reducing coastal erosion. 	<ul style="list-style-type: none"> • Commercial fisheries to be \$300–\$600 million per year for the conservation scenarios and \$1.9–\$3.0 billion per year for restoration scenarios. • Significant increase in tourism. 	<ul style="list-style-type: none"> • Every \$1 invested generates a benefit of \$3.
Scale Up Offshore Wind Energy Production	<ul style="list-style-type: none"> • Positive impact on health due to very low CO2 emissions and negligible emissions of mercury, nitrogen dioxide and sulphur dioxide, as well as its zero generation of solid or liquid waste, offshore wind energy production. 	<ul style="list-style-type: none"> • Wind systems require near zero water for energy generation and cooling. • Impact on biodiversity both negative (biological invasions, noise and disturbing vibrations to marine species, collisions between birds and wind turbine) and positive (serving as artificial reefs for many organisms) 	<ul style="list-style-type: none"> • Offshore wind energy can create jobs. • Moving to cleaner energy will lead to job losses in the fossil fuel sector. 	<ul style="list-style-type: none"> • Every \$1 invested generates a benefit estimated at \$2–\$17.
Decarbonise the International Shipping Sector	<ul style="list-style-type: none"> • Reduced PM2.5 from marine engine combustion mitigates ship-related premature mortality and morbidity 	<ul style="list-style-type: none"> • Strong acids formed from shipping emissions can produce seasonal hot spots of ocean acidification in areas close to busy shipping lanes. • Reducing ship speeds could positively impact marine mammals and other species. • Will help avoid the most catastrophic impacts of climate change. 	<ul style="list-style-type: none"> • It can deliver overall efficiency improvements of 30–55% by improving hull shape and materials, larger ships, drag reductions etc. 	<ul style="list-style-type: none"> • Every \$1 invested in decarbonising international shipping and reducing emissions to net zero is estimated to generate a return of \$2–\$5.
Increase the Production of Sustainably Sourced Ocean-Based Proteins	<ul style="list-style-type: none"> • Increase sustainable protein supplies by encouraging more fish consumption over other protein sources • Diversify nutritious food supplies, particularly for poorer coastal communities 	<ul style="list-style-type: none"> • Ocean-based proteins are substantially less carbon intensive than land-based animal proteins • Would also slow the demand for freshwater to support livestock agriculture • Such diet shifts will reduce deforestation 	<ul style="list-style-type: none"> • Rebuilding world fisheries could increase profits from the current negative \$13 billion to a positive \$77 billion per year. 	<ul style="list-style-type: none"> • Every \$1 invested is estimated to yield \$10 in benefits

5.9. COOLING EMISSIONS AND POLICY SYNTHESIS REPORT

Why in News?

United Nations Environment Programme and International Energy Agency jointly released this report.

About the report

- It is based on assessment of development and climate benefits of efficient and climate friendly cooling.
- It also lays out actions that can be taken to deliver efficient and climate friendly cooling for all.

Key Findings

- **Kigali Amendment to the Montreal Protocol** could avoid up to 0.4°C of global warming by 2100.
 - Kigali amendment aims to phase-down production and consumption of hydrofluorocarbons (HFCs), used as refrigerants.
- **Energy efficiency improvements** along with the transition away from super-polluting refrigerants, could avoid greenhouse gas (GHGs) emissions of up to 210-460 gigatonnes over the next four decades.
- **Increasing demand for cooling** is contributing to emissions of HFCs, CO₂, and black carbon.
- **Without policy intervention**, emissions from air conditioning and refrigeration are projected to rise 90% above 2017 levels by the year 2050.
- **Coordinated international action** on energy-efficient, climate-friendly cooling could avoid as much as 460 billion tonnes of GHGs emissions.

Key suggestions for climate friendly and energy-efficient cooling

- International cooperation through **universal ratification and implementation of the Kigali Amendment.**
- **Adoption of National Cooling Action Plans** that accelerate the transition to climate friendly cooling by combining high-level policy ambition with strategies addressing the entire value chain
- Development and **implementation of Minimum Energy Performance Standards (MEPS)** and energy efficiency labelling to improve equipment efficiency as part of the transition to low-GWP cooling.
 - MEPS are tools to increase the energy efficiency of standardized mass manufactured equipments such as refrigerators and ACs.
- **Promotion of building codes and system-wide considerations** to reduce demand for refrigerants and mechanical cooling, including integration of district and community cooling into urban planning, and measures such as improved building design, green roofs, and tree shading.
- **Programmes to reduce peak demand**, including incentives to purchase efficient cooling equipment and use thermal energy storage.
- **Anti-environmental dumping campaigns** to transform markets and avoid the burden of obsolete and inefficient cooling technologies.
- **Sustainable cold-chains** to both reduce food loss – a major contributor to greenhouse gas emissions – and reduce emissions from cold chains.
- **Increase public and private financing** to accelerate the HFC phase-down, promote leapfrogging and enhance energy-efficiency.

India Cooling Action Plan (ICAP)

- It has a long term vision to **address the cooling requirement across sectors** and lists out actions which can help reduce the cooling demand. It was launched in 2019.
- **ICAP provides a 20-year perspective** and outlines actions needed to provide access to sustainable cooling.
- **Plan seeks to**
 - Reduce cooling demand across sectors by 20% to 25% by 2037-38,
 - Reduce refrigerant demand by 25% to 30% by 2037-38,
 - Reduce cooling energy requirements by 25% to 40% by 2037-38,
 - Recognise “cooling and related areas” as a thrust area of research under national Science and Technology Programme,
 - Training and certification of 100,000 servicing sector technicians by 2022-23, synergizing with Skill India Mission.

5.10. VIRTUAL WATER

Why in news?

Experts are suggesting virtual water trade as one of the alternatives to ensure sustainable water consumption.

What is Virtual Water Trade?

- Virtual water (VW) is the water 'embodied' in a product, not in real sense, but in virtual sense. It refers to the water needed to produce a product.
 - Every product has a unique **water footprint** defined as the total volume of fresh water used to produce the goods and services consumed by the individual or community or produced by the business. For eg. on an average, 3000 liters of water are required for producing 1 kg of rice.
- **Virtual water trade (VWT) refers to the import and export of hidden water in the form of products** such as crop products, textiles, machinery and livestock — all of which require water for their production.
 - The concept of virtual water trade was introduced by Tony Allan in 1993 to explain the imports of water intensive products in arid and semi-arid regions in the Middle East and North Africa, and has its foundations in the notion of comparative advantage (CA) propounded by David Ricardo.
 - In comparative advantage theory, nations should export products in which they possess a relative or comparative advantage in production, while they should import products in which they possess a comparative disadvantage.

VWT in India:

- According to the Water Footprint Network (WFN) database, India had the lowest virtual imports of water in the world.
 - **India is a net virtual water exporter** because of agricultural products.
 - India exported 26,000 million litres of virtual water on an average every year between 2006-2016.
 - Rice was the highest exported food product, followed by buffalo meat and maize.
- As a result, **the amount of water taken out of Indian rivers is way more** than that goes back in through natural rainfall and melting snow.
- **Inter-state VWT**, especially of food grains, has revealed an **unsustainable pattern of water usage** in certain parts of India.
- Punjab and Haryana, despite being among the most water stressed regions in the country, have been the source of a majority of water intensive food grains trade to water stressed states like Maharashtra and Tamil Nadu.
- Furthermore, food grains have also been exported from Punjab and Haryana to states that have more favourable agro-climatic conditions and water endowments for the cultivation of food grains, such as Assam and the Northeastern states.
- This 'perverse' direction of inter-state VWT in India has further intensified water scarcity in the already water stressed regions.

Significance of VWT concept

- **Optimising domestic water use:** through imports of water intensive agriculture products, water stressed regions can optimise the use of their already scarce water resources.
 - As in **India where agriculture sector accounts for 78 percent of freshwater usage**. The water 'saved' through VWT can be used towards other ends such as for drinking, sanitation purpose, among others.
- **Conservation of water resource:** Knowing the virtual water content of products creates awareness of the water volumes needed to produce the various goods, thus providing an idea of which goods impact most on the water system and where water savings could be achieved.
- **To achieve water security:** It would direct virtual water flows from relatively wet to relatively dry regions. Net import of virtual water in a water-scarce nation can relieve the pressure on the nation's own water resources. Virtual water can be seen as an alternative source of water.
- **Alternate to mega project:** It will act as an alternate to mega **project such as Interlinking of Rivers (ILR) in India to alleviate regional water scarcity**.
 - It will save huge economic and environment cost.
 - It is estimated that \$125 to 200 billion is the construction cost of the ILR project

Challenges

- **Quantifying the virtual water content of products:** because there are many factors influencing the amount of water used in a production process.

- It does not express the social, environmental nor economic value of the water to local communities. For example: one cubic meter of soil water to produce pasture in the Netherlands for dairy and then export cheese, cannot be compared easily with one cubic meter of groundwater in the desert of Ica in Peru
- **Quantifying virtual water trade flows:** Quantitative research on global virtual water trade has started only very recently and there are no universally accepted norms.
 - Though it is estimated in various studies that dominant virtual water exporters are the USA, Canada, Australia Argentina and Thailand globally. Countries with a large net import of virtual water are Japan, Sri Lanka, and Italy.

Conclusion

VWT from relatively high to low water productivity regions would result in real water savings. For this, Virtual water accounting must take place in national and regional water and agricultural policy analysis. Optimal use of water resources must be made based on the prioritisation of various types of needs and demands for water, including ecosystem needs.

5.11. WATERSHED DEVELOPMENT

Why in news?

The **National Bank for Agriculture and Rural Development (NABARD)** announced a concessional refinance facility for watershed development projects.

More on news

- The **refinance facility** is up to Rs 5,000 crore for banks and financial institutions for on-lending to beneficiaries in its **2,150 watershed development projects**.
- The scheme will help the **reverse migrants**, who have returned to their villages from urban areas following the COVID-19 pandemic, take up new occupations.

What is Watershed Development?

- A watershed is all **the land and water area, which contributes runoff to a common point**. In watershed approach, development is **not confined just to agricultural lands** alone but covers the area starting from the highest point of the area to the outlet of the natural stream.
- **Watershed development** refers to the conservation; regeneration and the judicious use of all the natural resources particularly land, water, vegetation and animals and human development within the watershed.

Benefits of Watershed development

- **Ecological Health:** A healthy watershed conserves water, promotes streamflow, supports sustainable streams, rivers, lakes, and groundwater sources, enables healthy soil for crops and livestock, and also provides habitat for wildlife and plants.
- **Human Health:** A healthy watershed provides safe drinking water, provides food, enables us to adapt to the impacts of climate change more easily by cooling the air and absorbing greenhouse gas emissions, and provides natural areas for people to keep active and recharge our batteries.

Related news

- NABARD also announced Rs5,000 crore grant based scheme for turning **Primary Agricultural Credit Societies (PACS)** into multi-service centers.
- Scheme also includes **computerization of 35,000 PACS** by FY23.
- PACS are **one-stop shops** for meeting the varied needs of the farmers and plays a very important role in rural credit system by performing their activities on **co-operative principles**.
- They provide **short term and medium-term loan** to rural people to meet their financial requirements.



- **Economic Health:** A healthy watershed produces energy and supplies water for agriculture, industry and households. Forests and wetlands help to prevent or reduce costly climate change and flooding impacts, manages drought, contributes to tourism, fisheries, forestry, agriculture and mining industries.

Limitations of Watershed Development in India

- **Lack of holistic approach:** Most of the watershed management programmes in India do not consider the groundwater in the planning and the sole focus is placed on the surface water.
- **Top down approach:** Programmes are undertaken on a highly **regulatory, centralized and target driven approach** and are controlled and regulated from top to bottom.
- **Lack of community participation:** A total lack of ownership of these programmes among the local people and highly mechanistic interventions without paying much attention to community mobilization and social Organisation.
- **Multiple organizations:** At present in India, there are a number of national, international and nongovernment organizations working on watershed development related projects creating both overlaps and gaps.

Way forward

- **Watershed mapping** for all India planning to include all the watersheds as each one affects the other. E.g. All India Soil and Land Use Survey Organisation has released a **Micro watershed Atlas of India** in 2019.
- **Integrated approach:** The larger goals of protecting and conserving hydrologic services and/or managing negative downstream and groundwater impacts remained to be addressed as the micro-watershed approach was carried out in isolation.
- **Creating local ownership:** Some examples such as **Naigaon and Jalgaon watershed management project** where the community participation with “**Pani Panchayats**” created a sense of ownership among the people.
- **Involving NGOs** to mobilize and build the capacities of the villagers and also bring the requisite technical and managerial expertise. E.g. Sujala (for Karnataka Watershed Development) and Gramya (Uttarakhand watershed development) projects.
- **Social Inclusion** by involving all stakeholders in project design and formulation and mainstreaming of women, the poor and vulnerable groups into the decision-making processes is crucial to the sustainability of the project.

Major government steps towards Watershed development:

- **Drought Prone Area Programme (1973–74):** Mainstreaming of drought prone areas through soil and moisture conservation measures.
- **Integrated Wasteland Development Programme (1989–90):** Regenerate degraded non-forest land through silvipasture and soil and water conservation.
- **National Watershed Development Project for Rainfed Areas (1990-91):** Restore the ecological balance, reduce regional disparities, and create sustained employment.
- **Mahatma Gandhi National Rural Employment Guarantee Scheme (2005):** Enhance livelihood security in rural areas by providing guaranteed wage employment in developing watershed.
- **Neeranchal (2016-17 to 2021-22):** World Bank assisted national watershed management project.
- **Prime Minister Krishi Sinchayee Yojna (Watershed Development Component):** Main objectives are to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water.

5.12. HYDROPOWER PROJECTS IN NORTHEAST

Why in news?

The Forest Advisory Committee (FAC) has recently deferred its decision on the controversial **Etalin Hydropower project** located in Arunachal Pradesh.

More on the news

- 3097 MW Etalin Hydropower Project is proposed to be constructed over **Dri and Tangon Rivers**, situated inside the Dibang catchment zone in Arunachal Pradesh.
- The project has been awaiting forest clearance since 2014 and Close to 3 lakh trees are expected to be felled to make way for the dam.
- The dam will divert 5,349 ha of land and affect 2,000 **Idu Mishmi** individuals.

- Dibang valley falls in one of India's **most active seismic zones**.

Benefits of Hydropower Projects in the North-East region

- **Untapped Potential:** In terms of hydro power, the North Eastern (N.E.) Region has the potential of about 58971 MW i.e. **almost 40% of the country's total hydro potential**. Out of which, only 1,727 MW (about 2.92%) has been harnessed as on 1st July, 2020.
- **Addressing the issue of power shortage:** In the financial year 2019-20, the northeastern region recorded the highest power supply deficit (shortfall in supply of power as compared to demand) of 3.7%, while national average was 0.5%. Thus, Hydropower projects can help in steady and decentralized supply of electricity.
- **Economic development:** Self-sufficiency in power generation will aid developmental efforts towards **industrialization and infrastructural development** in the region.
- **Flood control:** Intense monsoon rains cause devastating seasonal floods in the N.E. region every year. Dams can be used to mitigate damage by controlled release of flood water.
- **Navigation:** Difficult terrain and geographical location of the N.E. region pose a challenge to development of road and rail connectivity. Inland waterways can help enhance connectivity of the region to the rest of the nation. Storage reservoirs play a role in maintaining sufficient channel flow downstream, to make the streams navigable in all seasons.
- **Irrigation:** Water stored in reservoirs can be channelized to agricultural fields in the area to meet high demands when rainfall is low. It will help in utilization of fertile tracts of land to spur agricultural activity in the region.
- It is a **renewable source of energy**, is **cheaper as compared to electricity generated from coal and gas fired plants**.

Hydropower

- Hydro electricity is the conversion of the mechanical energy in flowing water into electricity.
- It is generated when the force of falling water from dams, rivers or waterfalls is used to turn turbines, which then drives generators that produce electricity.
- **There are four broad hydropower types:**
 - **Run-of-river hydropower:** a facility that channels flowing water from a river through a canal or penstock to spin a turbine.
 - **Storage hydropower:** typically, a large system that uses a dam to store water in a reservoir.
 - **Pumped-storage hydropower:** It harnesses electricity from water which is cycled between a lower and upper reservoir by pumps. The pumps operate on surplus energy from the system at times of low demand.
 - **Offshore hydropower:** It uses tidal currents or the power of waves to generate electricity from seawater.
- **Classification of Hydro Projects based on Installed Capacity**
 - **Micro:** up to 100 KW
 - **Mini:** 101KW to 2 MW
 - **Small:** 2 MW to 25 MW
 - **Mega:** Hydro projects with installed capacity \geq 500 MW
 - In India, **hydro projects up to 25 MW** station capacities have been categorized as **Small Hydro Power (SHP)** projects.

Major Hydro Electric (H.E.) plants in N.E. India

- **Mizoram:** Tuirial H.E. Project on Tuirial river
- **Nagaland:** Doyang H.E. Project on river Doyang (a tributary of the River Brahmaputra)
- **Assam:** Kopili H.E. Project on Kopili River
- **Arunachal Pradesh:**
 - **Ranganadi H.E.** Project on Ranganadi river
 - **Pare H.E.** Project on river Dikrong (tributary of river Brahmaputra)
 - **Kameng H.E.** Project utilizes the flows from Bichom and Tenga Rivers (both tributaries of the River Kameng).

Concerns related to hydropower projects

- **Geological issues:**
 - **Earthquakes:** India's Northeast is one of the six **most seismically active regions** in the world and large dams are linked to reservoir-induced seismicity.
 - **Landslide risks:** In eastern Himalayan region, landslides are a common phenomenon due to its topography and high rainfall during monsoon. This risk might be increased with hydro power projects disturbing stability.
- **Ecological damage:** The Northeastern region of India is part of the **Indo-Burma biodiversity hotspot**. Hydropower dams involve the setting up of large infrastructure, which in turn lead to deforestation, disruption of forest ecosystems and reduction of biodiversity.

- **Indigenous rights:** People of the Northeast rely heavily on local land and resources for their way of life and traditional existence. Construction of hydropower schemes often result in physical loss of homes and lands, disruption of community networks and loss of cultural heritage and livelihood.
- **Transboundary river management:** The Ganga–Brahmaputra–Meghna Basin is shared between India, China, Nepal, Bhutan and Bangladesh. **Releasing high volumes of water** in upstream reservoirs without prior notice can cause flash floods and even damage dam infrastructure. Large scale water storage can **cause water scarcity and ecological distress** in the lower riparian nations.
- **Sediment management:** The Brahmaputra and Meghna systems, the main river systems in the Northeast region, carry large amounts of sediments. Sediment accumulation in the reservoirs can diminish their life expectancy and reduces the cost- and carbon-efficiency of hydropower projects over time.
- **Financial Constraints** as hydropower projects are more capital intensive and also less lucrative for developers due to increased efficiency and attractive pricing in the solar and wind energy sector in recent times.
- **Regulatory Hurdles:** Delays in environmental and forest clearances and land-acquisition result in time & cost overruns.

Way forward

- Detailed studies should be carried out to determine **possible geological issues and any severe and irreversible ecosystem impacts**.
- **Dams can be designed to withstand the peak stresses** caused by earthquakes by modified dam footing design, by reinforcing the dam structures, and by the use of site improvement techniques.
- **Social Impact Assessments (SIAs)** must be conducted especially in a sensitive region like the Northeast known for its ethnic diversity and socio-culturally vulnerable communities.
- **Develop agreed mitigation and resettlement measures** to promote development opportunities and benefit sharing for displaced and adversely affected people.
- Provide for an **environmental flow requirement** for downstream of the dam site, and mitigate or compensate any unavoidable ecosystem impacts.
- **Local knowledge of communities** should be utilized in project planning, construction, and operation.
- **Hydro-diplomacy** should be a part of foreign policy for effective transboundary river management.
- **Process of granting clearances** should be streamlined and financial viability of projects should be assessed prior to granting clearances.

5.13. TIGER STATUS REPORT 2018

Why in News?

Fourth tiger census report, Status of Tigers, Co-predators, Prey and their Habitat, 2018 shows the count of tigers in India, has risen to 2967, in 2018 from 2,226 in 2014.

More on News

- Report assesses the status of tigers in terms of spatial occupancy and density of individual populations across India.
- **Technologies used in this assessment**
 - **M-STripES** (Monitoring system for tigers - intensive protection and ecological status) using GPS to geotag photo-evidences and survey information, made this exercise more accurate
 - **CaTRAT** (Camera Trap data Repository and Analysis Tool) for automated segregation of camera trap photographs to species.
- During the release of the report, **a water and fodder scheme was proposed within the reserves** so that fewer animals stray out of these reserves and minimizes animal-human conflict.
- It is also **crucial to keep track of their numbers** as Global Tiger Forum, an international collaboration of tiger-bearing countries, **has set a goal of doubling the count of wild tigers by 2022.**
 - India already achieved the target of doubling the count.

Key Findings

- **At 2,967, India hosts 70% of the world's tigers.** Tigers were observed to be increasing at a rate of 6% per annum (2006 to 2018). Nearly a third of India's tigers are living outside tiger reserves.

- **Madhya Pradesh (526) has the maximum number** of tigers followed by Karnataka (524) and Uttarakhand (442).
- **Northeast has suffered losses in population.** Tiger status in Chhattisgarh, Jharkhand and Odisha has steadily declined.
- **Largest contiguous tiger population** in the world of about 724 tigers was found in the Western Ghats (Nagarhole-Bandipur-Wayanad -Mudumalai- Satyamangalam-BRT block).
 - Second largest population of about 604 tigers was found across Uttarakhand and western Uttar Pradesh (Rajaji-Corbett-Ramnagar-Pilibhit-Dudhwa block).
- Nearly **17 of the 50 reserves are approaching the peak of their capacity** at sustaining their populations.
- **Factors that correlate and possibly determine tiger density:**
 - Density would increase with increase in primary prey (chital, sambar and gaur).
 - Density would increase with increase in tiger habitat and its quality.
 - Density should decline with increasing human impacts and decrease in protection regime.
- While the number of **tigers has increased, the same is not true for the co-predators.** In fact, the conservation status of predators like the striped hyena, the Indian wild dog (dhole), jackals and wolves, is a cause of concern in most landscapes.
- **Highest prey densities** were recorded for Corbett, Rajaji, Pench-MP and Bandipur. Tiger Reserves of the North East are plagued with prey depletion due to the practice of bush meat consumption

Reasons for Increase in numbers

- **Increased Conservation efforts:** From 28 in 2006, the number of tiger reserves went up to 50 in 2018, extending protection to larger numbers of tigers over the years.
- **Migrations to areas outside the core:** Healthy increases in core area populations eventually lead to migrations to areas outside the core; this is why the 2018 census has found tigers in newer areas.
- **Increased vigilance:** Organised poaching rackets have been all but crushed. As per reports, there has been no organised poaching by traditional gangs in Central Indian landscapes since 2013.
- **Improved Conditions for breeding:** Tigers are fast breeders when conditions are conducive and increased protection has encouraged the tiger to breed.
- **Rehabilitation of villages:** Villages were shifted outside core areas in many parts of the country that led to the availability of more inviolate space for tigers.
- **Accurate estimation exercise:** Better estimation over the years made it possible that many tigers that eluded enumerators in earlier exercises were counted this time.

Indian Tiger or Royal Bengal Tiger (*Panthera tigris*)

- It is the **tiger species native to India.**
- The largest populations of Bengal tigers are in India, but there are some smaller groups in **Bangladesh, Nepal, and Bhutan.** It may also be present in areas of **China and Burma.**
- India is home to about **70 per cent of global tiger population.**
- Tigers are both a **Flagship and Umbrella species.** As a Flagship species they are important for conservation and as Umbrella species, tiger conservation leads to conservation of other species.
- **Tigers inhabit 13 countries** – Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Russia, Thailand and Vietnam.
- In 2010, these **countries pledged to double the number of tigers by 2022**, which is the Chinese Year of the Tiger.
- **Conservation status of Tiger**
 - **IUCN Red List:** Endangered
 - **Wild life protection Act:** Schedule 1
 - **CITES:** Appendix 1

Related News

- India has decided to **extend CA|TS across all its tiger reserves** for further strengthening and improving management interventions.
 - This brings India's **total number of registered sites to 94** (including sites outside the Tiger Reserves).
- CA|TS is a conservation tool that **sets best practice and standards to manage target species**, and encourages assessments to benchmark progress.
 - Tigers are the first species selected for the initiative.
- It is a partnership of tiger range governments, inter-governmental agencies, institutions, NGOs and conservation organisations.
- **It is being adopted for use beyond tigers**, including potentially jaguars, lions and freshwater dolphins.
- **World Wide Fund for Nature** is helping tiger range countries to implement CA|TS.

6. SOCIAL ISSUES

6.1. NEW EDUCATION POLICY 2020

Why in news?

Union Cabinet has approved the New Education Policy (NEP) 2020.

Background

- In May 2016, 'Committee for Evolution of the New Education Policy' under the Chairmanship of Late T.S.R. Subramanian, Former Cabinet Secretary, submitted its report. Based on this, the Ministry of Human Resource Development (MHRD) prepared 'Some Inputs for the Draft National Education Policy, 2016'.
- In June 2017 a 'Committee for the Draft National Education Policy' was constituted under the Chairmanship of Dr. K. Kasturirangan, which submitted the Draft National Education Policy, 2019.
- NEP 2020 has been formulated after an unprecedented process of consultation that involved nearly over 2 lakh suggestions from 2.5 lakhs Gram Panchayats, 6600 Blocks, 6000 ULBs, 676 Districts.
- The new policy aims to pave way for transformational reforms in school and higher education systems in the country. **This policy will replace the 34-year-old National Policy on Education (NPE), 1986.**

Evolution of Education Policy

- University Education Commission (1948-49)
- Secondary Education Commission (1952-53)
- Education Commission (1964-66) under Dr. D.S. Kothari
- National Policy on Education, 1968
- 42nd Constitutional Amendment, 1976- **Education in Concurrent List.**
- National Policy on Education (NPE), 1986
- NPE, 1986 Modified in 1992 (Program of Action, 1992)
- T.S.R. Subramaniam Committee Report (2016)
- Dr. K. Kasturirangan Committee Report (2019)

Vision of the New Education Policy 2020

- An education system that contributes to an equitable and vibrant knowledge society, by providing high-quality education to all.
- Develops a deep sense of respect towards the fundamental rights, duties and Constitutional values, bonding with one's country, and a conscious awareness of one's role and responsibilities in a changing world.
- Instils skills, values, and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen.

Key Provisions of NEP 2020

The global education development agenda reflected in the **Goal 4 (SDG4) of the 2030 Agenda for Sustainable Development, adopted by India in 2015** - seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. Such a lofty goal will require the entire education system to be reconfigured to support and foster learning, so that all of the critical targets and goals (SDGs) of the 2030 Agenda for Sustainable Development can be achieved.

This National Education Policy 2020 is the **first education policy of the 21st century** and aims to address the many growing developmental imperatives of our country. This Policy proposes the revision and revamping of all aspects of the education structure, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st century education, including SDG4, while building upon India's traditions and value systems. NEP aims for India to have an education system by 2040 that is second to none, with equitable access to the highest-quality education for all learners regardless of social or economic background.

6.1.1. SCHOOL EDUCATION

Dimensions	
Early Childhood Care and Education (ECCE)	<p>Present Status and issues: Quality ECCE is not available to crores of young children, particularly children from socio-economically disadvantaged backgrounds.</p> <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> Universal Access for children of 3-6 years: bring the hitherto uncovered age group of 3-6 years (crucial stage for development of mental faculties of a child) under school curriculum. ECCE will be delivered through Anganwadis and pre-schools that will have teachers and Anganwadi workers trained in the ECCE pedagogy and curriculum.

	<ul style="list-style-type: none"> • Pre-school sections covering at least one year of early childhood care and education will be added to Kendriya Vidyalayas and other primary schools, particularly in disadvantaged areas. • NCERT will develop a National Curricular and Pedagogical Framework for Early Childhood Care and Education (NCPFECCE) for children up to the age of 8. • Implementation to be jointly carried out by Ministries of HRD, Women and Child Development (WCD), Health and Family Welfare (HFW), and Tribal Affairs.
Attainment of Foundational Literacy and Numeracy	<p>Present status and issues: Large proportion of students currently in elementary school - estimated to be over 5 crore in number - have not attained foundational literacy and numeracy, i.e., the ability to read and comprehend basic text and the ability to carry out basic addition and subtraction.</p> <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> • National Mission on Foundational Literacy and Numeracy by MHRD: Under it, States/UTs will prepare an implementation plan for attaining universal foundational literacy and numeracy in all primary schools for all learners by grade 3 by 2025. • National Book Promotion Policy is to be formulated to ensure the availability, accessibility, quality, and readership of books across geographies, languages, levels, and genres. • National Repository of high-quality resources on foundational literacy and numeracy will be made available on the Digital Infrastructure for Knowledge Sharing (DIKSHA).
Curtailing Dropout Rates and Ensuring Universal Access to Education at All Level	<ul style="list-style-type: none"> • Present Status: The Gross Enrolment Ratio (GER) for Grades 6-8 was 90.9%, while for Grades 9-10 and 11-12 it was only 79.3% and 56.5%, respectively - indicating that a significant proportion of enrolled students drop out after Grade 5 and especially after Grade 8. <ul style="list-style-type: none"> ○ As per the 75th round household survey by NSSO in 2017-18, the number of out of school children in the age group of 6 to 17 years is 3.22 crore. <p>Key Provisions under NEP 2020 Policy aims to achieve 100% GER in preschool to secondary level by 2030. Following are the initiatives to achieve this:</p> <ul style="list-style-type: none"> • Providing effective and sufficient infrastructure so that all students have access to safe and engaging school education. • Open and Distance Learning (ODL) Programmes offered by the National Institute of Open Schooling (NIOS) and State Open Schools will be expanded and strengthened with special emphasis on Socio-Economically Disadvantaged Groups (SEDGs). • Tracking students as well as their learning levels through counsellors or well-trained social workers.
Curriculum and Pedagogy	<p>Present status: Our educational system is of General Education in nature. Development of technical and vocational education is quite unsatisfactory. So our education is unproductive. Hence number of educated unemployed persons is increasing day by day.</p> <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> • Restructuring school curriculum and pedagogy in a new 5+3+3+4 design <ul style="list-style-type: none"> ○ 5 years of the Foundational Stage (covering ages 3-8): 3 years of Anganwadi/pre-school + 2 years in primary school in Grades 1-2 ○ 3 years of the Preparatory Stage (covering ages 8-11): Grades 3, 4, 5. ○ 3 years of the Middle Stage (covering ages 11-14): Grades 6, 7, 8. ○ 4 years of the High Stage (covering ages 14-18): Grades 9, 10, 11, 12. • Reduced curriculum content to its core essentials to enhance essential learning and critical thinking. • Experiential learning will be adopted in all stages, including hands-on learning, arts-integrated and sports-integrated education. • Freedom of choosing a variety of subject combination: no rigid separation among 'curricular', 'extracurricular', or 'co-curricular', among 'arts', 'humanities', and 'sciences', or between 'vocational' or 'academic' streams. • Introduction of contemporary subjects such as Artificial Intelligence, Design Thinking, Holistic Health, Organic Living, Environmental Education, Global Citizenship Education (GCED), etc.. • Vocational education through 10-day bagless period sometime during Grades 6-8 where students will intern with local vocational experts such as carpenters, gardeners, potters, artists, etc. • National Curricular Framework for School Education will be developed by the NCERT.

<p>Student Assessment</p>	<p>Present status and issues:</p> <ul style="list-style-type: none"> • The current nature of secondary school exams, including Board exams and entrance exams - and the resulting coaching culture of today - are doing much harm. • These exams also force students to learn a very narrow band of material in a single stream, rather than allowing the flexibility and choice. <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> • School examinations in Grades 3, 5, and 8 which will be conducted by the appropriate authority. • Board exams for Grades 10 and 12 will be continued but redesigned. • National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), will be set up as a standard-setting body under MHRD. • Holistic Progress Card with 360-degree, multidimensional report that reflects the progress as well as the uniqueness of each learner in the cognitive, affective, and psychomotor domains. It will also include self-assessment, peer assessment, and teacher assessment • National Testing Agency (NTA) to serve as a autonomous testing organization to conduct entrance examinations for undergraduate and graduate admissions and fellowships in higher education institutions.
<p>Multilingualism and the power of language</p>	<p>Present status and issues:</p> <ul style="list-style-type: none"> • The medium of instruction particularly in science subjects is English. So rural students who are not well versed in English, cannot study science properly in English. • Indian languages are still underdeveloped and standard publications are not available in Indian language. <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> • Medium of instruction up till grade 5, and preferably till Grade 8 and beyond, will be home language/ mother-tongue/ local language. • 'The Languages of India' a fun project/ activity on to be taken by every student under the '<i>Ek Bharat Shrestha Bharat</i>' initiative. • Three languages formula with greater flexibility. • All classical languages (Sanskrit, Tamil, Telugu, Kannada, Malayalam, Odia) will be widely available in schools as options. In addition, Pali, Persian, and Prakrit will also be widely available as options. • Indian Sign Language (ISL) will be standardized across the country.
<p>Equitable and Inclusive Education-Provisions for Socio-Economically Disadvantaged groups -SEDGs</p>	<p>Present status and issues: According to U-DISE 2016-17 data, about 19.6% of students belong to Scheduled Castes at the primary level, but this fraction falls to 17.3% at the higher secondary level. These enrolment drop-offs are more severe for Scheduled Tribes students (10.6% to 6.8%), and differently abled children (1.1% to 0.25%), with even greater declines for female students within each of these categories.</p> <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> • Setting up of <ul style="list-style-type: none"> ○ Gender Inclusion Fund for female and transgender students ○ Special Education Zones (SEZs)- Large populations from SEDGs to be declared SEZs. • Children with disabilities will be enabled to fully participate in the regular schooling process from the foundational stage to higher education. • Every state/district will be encouraged to establish "Bal Bhavans" as a special daytime boarding school, to participate in art-related, career-related, and play-related activities. • Free school infrastructure can be used as Samajik Chetna Kendras to promote social, intellectual, and voluntary activities. • Special mechanisms for children belonging to tribal groups to receive quality education • Fee waivers and scholarships will be offered to meritorious students from all SEDGs • Additional Schools- Setting-up of additional JNVs and KVs in aspirational districts/SEZs
<p>Robust Teacher Education and Recruitment</p>	<ul style="list-style-type: none"> • New and comprehensive National Curriculum Framework for Teacher Education (by 2021) • By 2030, the minimum degree qualification for teaching will be a 4-year integrated B.Ed. degree. • NTA testing for admission to B.Ed. • Setting-up of National Mission for Mentoring with a large pool of outstanding senior/retired faculty • Teacher Eligibility Tests (TETs) for all teachers across Foundational, Preparatory, Middle and Secondary stage in both public and private schools. • More autonomy to teachers in choosing aspects of pedagogy in classroom teaching

	<ul style="list-style-type: none"> • National Professional Standards for Teachers (NPST) will be developed by the National Council for Teacher Education by 2022. • Restructuring of NCTE- National Council for Teacher Education (NCTE) to be restructured as a Professional Standard Setting Body (PSSB) under General Education Council (GEC).
School Governance	<p>Present status and issues: While government efforts has helped to ensure near-universal access to primary schools, it has also led to the development of numerous very small schools leading to following challenges:</p> <ul style="list-style-type: none"> • They are economically suboptimal and operationally complex to run. Teachers often teach multiple grades and subjects at a time, in which they may have no prior background; • The isolation of small schools also has a negative effect on education and the teaching-learning process. • Small schools also present a systemic challenge for governance and management. <p>Key Provisions under NEP 2020</p> <ul style="list-style-type: none"> • Schools can be organized into complexes or clusters which will be the basic unit of governance and ensure availability of all resources including a strong professional teacher community. • Schools will develop School Development Plans (SDPs). These plans will then become the basis for the creation of School Complex/Cluster Development Plans (SCDPs) • The twinning/pairing of one public school with one private school will be adopted across the country, so that such paired schools may learn from each other, and also share resources, if possible.
Standard-setting and Accreditation for School Education	<p>Present status and issues: At present, all main functions of governance and regulation of the school education system are handled by a single body, i.e., the Department of School Education or its arms. This leads to</p> <ul style="list-style-type: none"> ○ conflict of interests and excessive centralized concentration of power ○ ineffective management of the school system, ○ inability to curb the commercialization and economic exploitation of parents by many for-profit private schools <p>Key Provisions under NEP 2020</p> <p>Clear, separate systems for policy making, regulation, operations and academic matters.</p> <ul style="list-style-type: none"> • Independent State School Standards Authority (SSSA) to be set up by States/UTs. • School Quality Assessment and Accreditation Framework (SQAAF) to be developed by SCERT. • Public and private schools (except the schools that are managed/aided/controlled by the Central government) will be assessed and accredited on the same criteria. • For a periodic 'health check-up' of the overall system, a sample-based National Achievement Survey (NAS) of student learning levels will be carried out by the proposed new National Assessment Centre, PARAKH.

6.1.2. HIGHER EDUCATION

Some of the major problems currently faced by the higher education system in India include:

- a severely **fragmented** higher educational ecosystem;
- **less emphasis on the development of cognitive skills** and learning outcomes;
- **rigid separation of disciplines**, with early specialisation and streaming of students into narrow areas of study;
- **limited access** particularly in socio-economically disadvantaged areas, with few HEIs that teach in local languages
- **limited teacher and institutional autonomy**;
- **inadequate mechanisms for merit-based career management** and progression of faculty and institutional leaders;
- **lesser emphasis on research** at most universities and colleges, and lack of competitive peer-reviewed research;
- **suboptimal governance** and an **ineffective regulatory system**; and
- **large affiliating universities** resulting in low standards of undergraduate education.

This policy envisions a complete overhaul and re-energising of the higher education system to overcome these challenges and thereby deliver high-quality higher education, with equity and inclusion. **The policy's vision includes the following key changes to the current system:**

Institutional Restructuring & Consolidation	<ul style="list-style-type: none"> • All higher education institutions to be consolidated into three types of institutions: <ul style="list-style-type: none"> ○ Research Universities - equal focus on research and teaching ○ Teaching Universities - primary focus on teaching with significant focus on research ○ Autonomous degree-granting colleges - almost exclusive focus on teaching • Affiliation of colleges is to be phased out in 15 years and a stage-wise mechanism is to be established for granting graded autonomy to colleges. • Over a period of time, it is envisaged that every college would develop into either an Autonomous degree-granting College, or a constituent college of a university. • By 2040, all higher education institutions (HEIs) shall aim to become multidisciplinary institutions. • There shall, by 2030, be at least one large multidisciplinary HEI in or near every district. • The aim will be to increase the Gross Enrolment Ratio in higher education including vocational education from 26.3% (2018) to 50% by 2035.
Holistic Multidisciplinary Education	<ul style="list-style-type: none"> • The policy envisages undergraduate education with flexible curricula, creative combinations of subjects, integration of vocational education and multiple entry and exit points with appropriate certification. • An Academic Bank of Credit is to be established for digitally storing academic credits earned from different HEIs so that these can be transferred and counted towards final degree earned. • Multidisciplinary Education and Research Universities (MERUs), at par with IITs, IIMs, to be set up as models of best multidisciplinary education of global standards. • The National Research Foundation will be created as an apex body for fostering a strong research culture and building research capacity across higher education.
Regulation	<ul style="list-style-type: none"> • Higher Education Commission of India (HECI) will be set up as a single overarching umbrella body for entire higher education, excluding medical and legal education. HECI to have four independent verticals - <ul style="list-style-type: none"> ○ National Higher Education Regulatory Council (NHERC) for regulation, ○ General Education Council (GEC) for standard setting, ○ Higher Education Grants Council (HEGC) for funding, ○ National Accreditation Council (NAC) for accreditation. • Public and private higher education institutions will be governed by the same set of norms for regulation, accreditation and academic standards.
Internationalization of HEIs	<ul style="list-style-type: none"> • Internationally relevant curricula, meaningful opportunities for social engagement, quality residential facilities and on-campus support, etc. • An International Students Office at each HEI hosting foreign students will be set up to coordinate all matters relating to welcoming and supporting students arriving from abroad. • High performing Indian universities will be encouraged to set up campuses in other countries, and similarly, selected universities e.g., those from among the top 100 universities in the world will be facilitated to operate in India. • A legislative framework facilitating such entry will be put in place, and such universities will be given special dispensation regarding regulatory, governance, and content norms on par with other autonomous institutions of India. • Research collaboration and student exchanges between Indian institutions and global institutions will be promoted. • Credits acquired in foreign universities will be permitted, where appropriate as per the requirements of each HEI, to be counted for the award of a degree.
Equity and Inclusion	<p>Steps to be taken by Governments</p> <ul style="list-style-type: none"> • Earmark suitable Government funds for the education of SEDGs • Set clear targets for higher GER for SEDGs • Enhance gender balance in admissions to HEIs • Enhance access by establishing more high-quality HEIs in aspirational districts and Special Education Zones containing larger numbers of SEDGs <p>Steps to be taken by all HEIs</p> <ul style="list-style-type: none"> • Mitigate opportunity costs and fees for pursuing higher education • Provide more financial assistance and scholarships to SEDGs • Make curriculum more inclusive • Ensure sensitization of faculty, counsellor, and students on gender-identity issue • Strictly enforce all no-discrimination and anti-harassment rules

6.1.3. OTHER MAJOR PROVISIONS

Financing Education	<ul style="list-style-type: none"> The Centre and the States will work together to increase the public investment in Education sector to reach 6% of GDP. Policy calls for promotion and support for private philanthropic activity in education sector
Technology in education	<ul style="list-style-type: none"> An autonomous body, National Educational Technology Forum (NETF), will be created to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration. Appropriate integration of technology into all levels of education will be done to improve classroom processes, support teacher professional development, enhance educational access for disadvantaged groups.
Adult Education	<ul style="list-style-type: none"> Policy aims to achieve 100% youth and adult literacy. Use of schools/ school complexes beyond school hours and public library spaces for adult education courses. Quality technology-based options for adult learning such as online courses, satellite-based TV channels and ICT-equipped libraries and Adult Education Centres, etc. will be developed.
Online Education and Digital Education	<ul style="list-style-type: none"> A comprehensive set of recommendations for promoting online education in order to ensure preparedness with alternative modes of quality education whenever and wherever traditional and in-person modes of education are not possible, has been covered. A dedicated unit for the purpose of coordinating building of digital infrastructure, content and capacity building will be created in the MHRD for both school and higher education.
Professional Education	<ul style="list-style-type: none"> All professional education will be an integral part of the higher education system. Stand-alone technical universities, health science universities, legal and agricultural universities etc will aim to become multi-disciplinary institutions.
Promotion of Indian Languages, Arts, and Culture	<ul style="list-style-type: none"> Strong departments and programmes in Indian languages, comparative literature, creative writing, arts, music, philosophy, etc. will be launched and developed across the country, and degrees including 4- year B.Ed. dual degrees will be developed in these subjects. Outstanding local artists and craftsman will be hired as guest faculty to promote local music, art, languages, and handicraft, and to ensure that students are aware of the culture and local knowledge where they study. Every higher education institution and even every school or school complex will aim to have Artist(s)-in-Residence to expose students to art, creativity, and the rich treasures of the region/country. High-quality programmes and degrees in Translation and Interpretation, Art and Museum Administration, Archaeology etc will also be created. For each of the languages mentioned in the Eighth Schedule of the Constitution of India, Academies will be established consisting of scholars and native speakers to determine simple yet accurate vocabulary for the latest concepts, and to release dictionaries on regular basis.

6.1.4. ANALYSIS OF NEW EDUCATION POLICY-2020

Significance of the Policy

Some of the **major recommendations and policy changes** in the NEP-2020 can be viewed as below.

- More focus on vocational studies and skill education even in school level:** According to Indian Labour Report, in India only 4 % of the young labour force receives formal vocational education and 6 % in the informal sector. Skill capabilities of the people will help the country to **keep more competitive and developed**. Propagating vocational education with special recognition will **make our youths more employable** and create **opportunities for self-employment** too.
- Allocation of 6% of the GDP in Education sector:** Indian education is far behind the global standard. **India spends 4.6% of its total GDP on education and ranks 62nd in total public expenditure on education per student.** At this crucial juncture, the NEP's 6% target is a welcome move. It is also in **sync with NITI Aayog's target** to improve education quality in the country.
- Restructuring of School education:**
 - Provisions such as including Anganwadi/pre-school, the ECCE within the ambit of formal schooling and extension of Mid-day meals and the breakfast facilities to ECCE segment etc. would help achieve a **nutritious and educated India.**

- **Internships and experiential learning** opportunity provided in the curriculum will **give a flip in harnessing the critical thinking, creativity and innovativeness** of the learners.
- **Examination reforms** shall be brought in laying weightages not much on the rote learning but on application of knowledge as a part of holistic development of the learners.
- **The three language formula for school education:** The learning of the students in mother tongue or local language will become faster and it will provide **avenues to familiarize the various cultural diversities** of the country and at the same time these Indian languages shall remain relevant and vibrant.
 - In fact, all the languages are closely linked with the arts and culture of the speaking community and as such, NEP-2020 spells various activities for **preserving the local arts and culture** associated with the languages. It is an opportunity for the proper **preservation of the endangered languages** too.
- **Transformation of regulatory system of the higher education in India:** With the establishment of a single regulatory body called HECI, there shall no longer be multiple regulatory body for running courses in HEIs. **Special focus is also given to curb the commercialization of education** by formulating multiple mechanism with checks and balances.
- **Multiple Entry and Exit at undergraduate level:** This flexibility could be **good motivation to the students** to pursue the course and complete it conveniently without the issues of dropouts and at the same time the GER in tertiary education may also be improved. Such an option is **quite suitable for vocational studies** too as they have various job roles at different levels of the course **enhancing the avenues for employability** at multiple levels.
- **Campuses of Indian Universities in Foreign Countries:** Collaborations among the institutions shall bring quality and excellence in higher learning. Indians now shall be getting **global level quality education at affordable cost**. However, Government needs to **formulate stringent rules and regulation** for better quality and price and overall check and balances on the operation of foreign universities in India.

Implementation Challenges & Issues with the NEP 2020

- **Funding:** NEP talks about spending 6% of GDP on education. However, such an increase in funding has been proposed earlier but not achieved. This policy also does not elaborate how to raise this fund.
- **Multilingualism:** NEP recommending mother tongue/regional language the medium of instruction till Grade 5—even beyond if this can be done—ignores several realities. With **inter-state migration for employment**, and **India's large diversity of languages**, regional language will hobble some students' learning. It is particularly problematic in light of the **right of the people to move from one state to another** since the inter-state movement shall result in the change of the local language and the mode of education.
- **Vocational Education:** Stress on vocational training from the preparatory stage, many fear, would lead to students from marginalised backgrounds dropping out early to take up jobs. This may also impede a more holistic learning.
- **Legal complexities:** The policy has also been criticised due to the legal complexities surrounding the applicability of **two operative policies namely The Right to Education Act, 2009 and the New Education Policy, 2020**. Certain provisions such as the age of starting schooling will need to be deliberated upon, in order to resolve any conundrum between the statute and the recently introduced policy in the longer run.
- **Federal Setup:** In a federal system like India, where **education is a concurrent subject**, any educational reform can be implemented only with support from the States, and the Centre has the giant task of building a consensus on the many ambitious plans. As an example, the proposed national assessment body or PARAKH and its realization requires active cooperation of as many as 60 education boards across the country.
- **Fear of Commercialisation and privatisation of education:**
 - **Fear of Privatisation:** Many experts argue that NEP, in the name of philanthropic schools and PPP, is laying the roadmap for entry of private players in education, which will further commercialise education and the existing inequalities will be exacerbated.
 - The NEP suggests that admission to all higher education programmes should be based on standardised test scores conducted by the National Testing Authority. This encourages coaching classes and rote memorisation, further eroding the value of examinations and assessments conducted by the schools, colleges, and universities.
- **Lack of detailed thinking may affect the NEP's vision.** For instance, it has proposed a four-year undergraduate programme. A similar experiment in Delhi university failed a few years ago. The then HRD minister had to

withdraw the four- year course, which was implemented without proper thinking, leading to much confusion among students and teachers.

- **Ground realities:** Experiential learning, for instance, through project work requires significant financial resources for procuring project materials and setting up tinkering labs. A pedagogy that ingrains critical thinking requires the assessment of answers to long-form questions. Such activities simply need more teachers, while the reality on the ground is that school systems face chronic and persistent teacher shortages. The bulk of schools pay salaries which are unlikely to attract too many good applicants, and most will certainly worry about the cost of acquiring the 4-year B.Ed. degree for a job that may not be remunerative enough.

Implementing NEP 2020- Way Forward

NEP is multi-faceted and multi-levelled. Policies often fall short of getting implemented due to several pitfalls. Therefore, we need to look into what approaches we should consider making NEP operational.

- Policies often fail due to **conflicting goals and a complete disconnect with previous policies**. The new NEP is a major departure from the previous education policies and addresses their most critical limitations and fault lines. But there is visible continuity in terms of realising universal access to quality education to enable citizens to make India a developed country and a major economy in the world. This **continuity, built into the new NEP**, is certainly a great advantage for its successful execution.
- **Setting the right priorities** is another important step of successful implementation of any policy. There are two key players in the implementation of NEP – the **Ministry of Education** at the Centre and the **stakeholders, which includes state governments, schools and academic institutions**.
 - Ministry of Education will play a pivotal role in the implementation of NEP from the point of providing direction, funding, governance, regulation, and review.
 - Both the players have to set the priorities right and these priorities should be based on both the **short-term and long-term needs of educational institutes**, funding requirements and **realistic deadlines** for achieving the set goals.
- The **Ministry of Education and HECI need to work in tandem with the states** and the educational institutes by collaboratively setting realistic and achievable targets and by tracking progress against critical policy priorities.
- **Attitudinal changes:** Many of the changes that NEP sets out to achieve require **attitudinal changes** by adopting effective teaching-learning processes, academic and administrative procedures. Educational institutes have ample autonomy in NEP to make the education holistic and multi-disciplinary by merely incorporating changes in the institutional functioning without a nudge from anyone.
- **Distinctly outlining the chain of command for implementation** to avoid duplication and overlap of efforts. The **leadership role is paramount** here as they should also be good team players and risk-takers. These leaders need to be self-driven with enthusiasm and high integrity. Absence of such people in policy implementation will lead to a sure policy failure.
- **Define the key performance indicators**, both for the officials in the Ministry of Education mandated to work on NEP implementation and also the stakeholders. It is vital that there is a **periodic review of their performance indicators** with a view to **plug inefficient processes** that impede the policy from being turned into results in a time-bound manner.
- The need to have a **well-thought-out plan with well laid out long-term goals**, its stepwise implementation through short-term goals and periodic evaluation, data-driven review and also legislative reforms cannot be undervalued in the effective implementation of NEP.

6.2. ROLE OF ASHAS DURING PANDEMIC

Why in news?

The ASHAs in Jharkhand, known as “Sahiyas”, have been supporting delivery of health care services to the last mile, especially in the tribal areas during COVID-19.

About Accredited Social Health Activists (ASHAs)

- ASHAs are a community-based functionary under **National Rural Health Mission (NRHM)**.

- ASHA is the **first port of call for any health-related demands** of deprived sections of the population, especially women and children, who find it difficult to access health services.
- ASHA must be **primarily a woman resident of the village- 'Married/ Widow/Divorced' and preferably in the age group of 25 to 45 yrs.**
- She should be a literate woman with **formal education up to Eighth Class**. This may be relaxed only if no suitable person with this qualification is available.
- **Anganwadi workers and Auxiliary Nurse Midwife (ANM)** will act as resource persons for the **training of ASHA.**
- **Major duties of ASHAs:**
 - She counsels women on **birth preparedness, importance of safe delivery**, breastfeeding and complementary feeding, immunization, contraception and prevention of common infections.
 - ASHA takes steps to **create awareness and provide information** to the community on determinants of health such as **nutrition, basic sanitation & hygienic practices.**
 - She works with the **Village Health & Sanitation Committee** of the Gram Panchayat to develop a comprehensive village health plan.
 - ASHA **provides primary medical care** for minor ailments such as diarrhea, fevers, and first aid for minor injuries.

Auxiliary Nurse Midwife (ANM)

- Auxiliary Nurse Midwife is a **village-level female health worker** in India who is known as the first contact person between the community and the health services.
- ANM works at **health sub-centres**. The sub-centre is a small village-level institution that provides primary health care to the community.
- She **holds weekly/fortnightly meetings with ASHA** and discuss the activities undertaken during the week/fortnight.

Role of ASHAs during COVID-19

- **Awareness:** Community awareness through inter-personal communication through: (a) Uptake of **preventive and control measures** including social distancing (b) **Addressing myths and misconceptions.**
- **Surveillance:** Support ANM/Supervisor in house to house surveillance including (a) Ensure uptake of medical services in urban and rural areas and (b) Address **psychosocial care** and stigma and discrimination.
- **Maternal Health:** During the time of disruption in primary health care and OPD services in hospitals due to COVID-19, the ANM and ASHA workers are ensuring **continued care to maternal and new-born health in rural areas.**
- **Household surveys:** ASHAs and ANMs are acting as frontline workers in **household surveys with questionnaires** on symptoms on probable cases and report them to chief medical officers.
- **Tracing and tracking:** The ASHAs also played major role in **tracking 30.43 lakh migrant returnees** in two phases in Uttar Pradesh (UP), one of the hubs of laborer's in India.
- **Creation of quarantine centers:** ASHAs have assisted the Panchayati Raj Department in development of the community quarantine centers, in buildings like Anganwadi centres and primary schools.
- **Arogya Setu App:** They have ensured adoption of Aarogya Setu app at the community level through awareness generation and supporting in its installation.

Challenges faced by ASHAs during the Pandemic

- **Lack of protective gear:** despite being tasked with conducting door to door surveys, there have been instances where they have been given least preference in providing with protective gears.
- **Professional Stigma:** Several ASHA workers face threats of eviction and **aggression from neighbours.** They are not being provided with transportation and food despite the lockdown.
- **No social security:** ASHA workers are even more vulnerable since they have almost no access to social security such as health benefits, leaves, etc. as they are "**volunteer workers**".
- **Caste issues:** A huge portion of ASHAs belong to Lower Castes, are poor and are not very highly educated. People look down on them and frequently disobey their requests of social distancing.
- **Gender based problems:** Pre-COVID, **the men would go out to work** and the ASHAs would bond with the women over things they can't otherwise discuss. But with the lockdown firmly in place, the men are at home; the interaction has become limited.
- **Lack of training:** Whilst government guidelines clearly articulated the role and responsibilities of the ASHAs not all of them are trained or given adequate formal information on COVID-19.

Way Forward

- **Immediate measures:** Provision of surveillance tools and protective gear to strengthen preparedness by ensuring adequate training and use of safety gear (PPEs) to help ASHAs undertake their tasks more effectively.
- **Financial incentives or non-performance-based incentives,** should also be considered to address the absence of financial and non-financial levers to sustain performance in times of crisis.
- **Community support:** There is also an opportunity to improve and leverage the role, and convergence with self-help groups and other community groups.
- **Better pay, health insurance** to ASHA workers, especially those affected by COVID-19.

6.3. LANCET STUDY ON POPULATION TRENDS

Why in news?

A new analysis published in **The Lancet** has projected that the world population will peak in 2064.

Key Findings

- The Study analyzed population trends in **195 countries** to model future population in various scenarios as a function of fertility, migration, and mortality rates.
- **Global Findings:**
 - The global population is **projected to peak at 9.73 billion in 2064** and decline to 8.79 billion by 2100.
 - The **global Total fertility rate (TFR)** is projected to reach **1.66 in 2100** from 2.37 in 2017.
 - **Countries with highest projected population in 2100:** India, Nigeria, China, U.S. and Pakistan.
- **India related findings:**
 - At the current rate of growth, **India's population is likely to peak by 2048** at about 1.61 billion and then decline to 1.09 billion by 2100.
 - India's TFR is forecasted to have a continued **steep decline till 2040**, reaching 1.29 in 2100 (2.3 in 2016).
 - India is projected to have the **largest working-age population** (20–64 years) in the world by 2100.
 - India has **second largest immigration forecasts** (in absolute numbers) in 2100 after USA.
- Findings suggested that continued **trends in female educational attainment** and access to contraception will hasten declines in fertility and slow population growth.
- It forecasted **positive implications for the environment**, climate change, and food production, but possible **negative implications** for labour forces, economic growth, and social support systems in parts of the world with the greatest fertility declines.
- It further called for **policies to adapt** to continued low fertility, while sustaining and enhancing female reproductive health, in the years to come.

Total fertility rate (TFR)

- It refers to total number of children born or likely to be born to a woman in her life time if she were subject to the prevailing rate of age-specific fertility in the population.
- TFR of about 2.1 children per woman is called **Replacement-level fertility (RLF)**.
- TFR lower than RFL leads to a decline in a country's population.

Key Features of Demographic Changes in India In Coming Years

- **Demographic dividend phase:** India is expected to witness a significant **increase in the share of working age population**. Its demographic dividend is expected to peak around 2041, when the share of working-age population will hit approx. 59 per cent.
- **Lower fertility rates:** Population growth in India is set to slow in the next two decades with national TFR to be below replacement level by 2021.
 - **Reduced burden of childcare** can enable more women to enter the workforce, leading to a further increase in labour supply.
- **Larger share of elderly dependent individuals in the later stages:** Share of population over age of 60 in India projected to increase to 20% in 2050 (8.6% in 2011).
- **Inter -State/ intra-State differences in Fertility:**
 - The size of working-age population will start to decline in 11 out of the 22 major states during 2031-41, including in the southern states, Punjab, Maharashtra, West Bengal and Himachal Pradesh.

- On the other hand, working-age population will continue to rise through 2041 in states lagging behind in the demographic transition, particularly Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan.
- The **share of India's young population**, i.e. 0-19 years, has already started to decline and is projected to drop from as high as 41 per cent in 2011 to 25 per cent by 2041. The proportion of elementary school-going children, i.e. 5-14 age group, will also witness **significant declines**.

Suggested Policy Changes to reflect upcoming Demographic Trends

- **Harnessing the Demographic dividend:**
 - Developing human resources through appropriate **education and skill development**.
 - Occupational **health and environmental health programme** to ensure that working population remains healthy and productive.
 - Diplomatic efforts for negotiating **favorable policies on migration** in the global arena.
- **Striving towards gender parity:**
 - Improved access to **higher education for women**
 - Ensuring **equal pay and safe workplace**
 - Overcoming **social barriers** such as Son Meta-Preference
- **Strengthening social infrastructure for elderly population:**
 - Requirement of greater **spending on pensions and geriatric healthcare** with focus on management of non-communicable diseases.
 - Developing opportunities for elderly people to **participate in economic and social activities** and contribute to the national development, such as increasing the age of retirement.
 - Meeting **needs of the widowed women**, since life expectancy in women is higher than in men.
- **Handling interstate and rural to urban migration:**
 - Ensuring uniformity among states through **targeted population control programmes** in high fertility regions.
 - Adequate **arrangements for migrant populations** including affordable housing, employment opportunities, education, health care etc.
 - Developing **employment opportunities in rural areas** through skill development, promotion of Micro and small industries etc.
 - Tackling rapid urbanization and industrialization and their negative environmental impacts through stringent pollution norms and investment in renewable energy.
- **Consolidation of elementary schools:** will be needed in order to keep them viable. Schools located within 1-3 kms radius of each other can be chosen for this purpose to ensure no significant change in access.

Conclusion

- Population policy should be **continuously revised to reflect changes in demography and social conditions**. With projected declines in fertility rates and overall population in the near future, India needs to move ahead from its primary focus on population control measures.
- A **holistic policy** is required that protects our demographic assets while preparing for challenges lying ahead such as the skewed female and child sex ratio, migration, geriatric care etc.

6.4. STATE OF FOOD SECURITY AND NUTRITION IN THE WORLD 2020

Why in news?

Report titled State of Food Security and Nutrition in the World 2020 (SOFI 2020) was released by Food and Agriculture Organization.

About SOFI

- It is annually released by **the Food and Agriculture Organization**, the International Fund for Agricultural Development, UNICEF, the World Food Programme and the World Health Organization.
- The SOFI in the World 2020 report presents the most recent estimates of the **extent of hunger, food insecurity and malnutrition around the world**.

Key findings of the report

- According to the current estimates **nearly 690 million people are hungry**, or **8.9 percent** of the world population which is up by **10 million people** in last one year and by nearly **60 million** in last five years.
- An estimated **2 billion people** in the world did not have regular **access to safe, nutritious and sufficient food in 2019**.
- World is **not on track to achieve SDG of Zero Hunger by 2030**. If recent trends continue, the number of people affected by hunger would surpass 840 million by 2030.
- The **nutritional status of the most vulnerable** population groups is **likely to deteriorate** further due to the health and socio-economic impacts of COVID-19.
- Report highlights that **diet quality is a critical link** between food security and nutrition outcomes that needs to be present as part of all efforts to achieve the hunger, food security and nutrition targets of SDG 2.
- **Healthy diets are unaffordable for more than 3 billion people in the world**. Healthy diets are, on average, five times more expensive than diets that meet only dietary energy needs.
- **Policy suggestions** to reduce the cost of nutritious foods and **ensure affordability of healthy diets**
 - Policies that penalize food and agricultural production (through direct or indirect taxation) should be avoided, as they tend to have adverse effects on the production of nutritious foods.
 - **Nutrition-sensitive social protection policies** to increase the purchasing power and affordability of healthy diets of the most vulnerable populations.
 - Stronger policies towards more **nutrition-sensitive value chains**, including investments in improved storage, processing and preservation to retain the nutritional value of food products, rather than investing in highly processed foods.
 - Policies and investments should also **focus on reducing food losses**, as this can increase affordability of nutritious foods. This can be done by **targeting the parts of the food supply chain where food losses are greatest**.

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7. SCIENCE AND TECHNOLOGY

7.1. NANO TECHNOLOGY IN AGRICULTURE

Why in news?

Recently centre has released 'Guidelines for Evaluation of Nano-based Agri-input and food products' in India.

Nanotechnology in Agriculture

- Nanotechnology refers to a **field of applied science and technology** whose unifying theme is the control of matter on the molecular level in **scales smaller than 1 micrometre, normally 1 to 100 nanometres**, and the fabrication of devices within that size range.
- **Benefits of Nanotechnology in agriculture**
 - **Reduce nutrient run off:** Compared to bulk form of chemical inputs in crops, use of nano-nutrients can reduce nutrient run-off into ground water and thus can reduce environmental pollution.
 - **Increase productivity:** It helps to increase plant productivity and better crop protection for meeting requirements of providing food to growing population.
 - **Increase soil fertility:** In the agri-food areas pertinent applications of nanotubes, fullerenes, biosensors, controlled delivery systems, nanofiltration, etc. proved to be as good in resources management of agricultural field, drug delivery mechanisms in plants and helps to maintain the soils fertility.
 - **Sustainable agriculture:** Nano-based Agri-input and food products in India' will pave the way for significant benefits for our mission on Doubling Farming Income by 2022 and National Mission on Sustainable Agriculture.
- Nano-biotechnology has been an important area for the government of India which had launched a **National Nano Mission in 2007**.
 - The mission looks at the uses of nanotechnology for safe drinking water, materials development, sensors development, drug delivery, etc.
 - **Department of Science and Technology (DST)** is the nodal agency for implementing the nano mission.

Highlights of the guidelines

- Guidelines **apply to Nano-Agri-Input Products (NAIPs), Nano-Agri Products (NAPs) and nano composites**, sensors made from Nanomaterials that require direct contact with crops, food and feed for data acquisitions.
 - They **do not apply to the conventional products or formulations** with incidental presence of natural nanomaterials.
- **Objectives**
 - To help researchers in **development of products** for agriculture and human consumption.
 - To help regulators to **assess quality and safety** of nano based agriculture and food products.
 - To **encourage Indian innovators and industries** to develop new nano-based formulations and products in these sectors.
- Guideline provides for **regulation of NAIPs and NAPs**.
 - **Safety, efficacy, functionality, toxicity and other quality data** for proposed NAIPs and NAPs should be conducted under:
 - Fertiliser (Control) Order, 1985, the Essential Commodities Act, 1955, Insecticides Act 1968,
 - Food and Drug Administration guidelines, Food Safety and Standards Act, 2006,
 - Cattle Feed (Regulation of Manufacture and Sale) Order, 2009

Definitions given in Guidelines

- **Nanomaterial (NM):** These are material that ranges in size from 1 to 100 nm at least in one dimension or any materials that possess improved properties or phenomena because of the effect of dimension(s), even if these dimension(s) fall outside the nanoscale range, up to 1000 nm.
- **Nano-Agri-Input Products (NAIPs):** They are agricultural input preparation containing NMs in any of the three dimensions i.e. zero, one or two on the nanoscale or with an internal or surface structure, intended for applications on crop for the purpose of farming through soil, seed, foliar and drip and other means.
- **Nano-Agri Products (NAPs):** They are agricultural preparation containing NMs in any of the three dimensions i.e. zero, one or two on the nanoscale or with an internal or surface structure, intended for consumption or application in food/feed and their supplements as well as nutraceutical delivery.

- Food Safety and Standards Authority of India (FSSAI).
- **Implementation of standards** should be conducted as per Bureau of Indian Standards (BIS).
 - **BIS** is a national standards body working under the aegis of Ministry of Consumer Affairs, Food & Public Distribution.

Concerns regarding Nanotechnology in Agriculture

- Phytotoxicity and reactivity of nanomaterials in **environment and possible adverse effect** on exposed workers.
 - Concerns of fabrication and validation of nano sensors as well as environmental and health consequences of nanomaterial released from devices.
- Concerns of **Cytotoxic and genotoxic effects** of cellular nanomaterials on Nano Agri Products.
 - Risk of nanoparticles toxicity is higher in plants due to their miniscule size that can easily translocate within plant body.
- Concerns regarding **high aspect ratio, stiffness and bio durability** of nano cellulose.
- **Insufficient economic interest, regulatory issues and public opinion** in relation to nanotechnology in agricultural sector.
- **Lack of knowledge and developmental methods** for risk and life-cycle assessment of nanotechnology in agriculture.
- It **reduces important bacterial diversity** with declining taxa of Rhizobiales, Bradyrhizobiaceae, and Bradyrhizobium (related to nitrogen fixation) in response to these nanoparticles treatment.

7.2. ACCELERATE VIGYAN

Why in news?

Recently, Science and Engineering Research Board (SERB) launched 'Accelerate Vigyan' scheme to push scientific research.

About 'Accelerate Vigyan' scheme

- The scheme is **to boost high-end scientific research and prepare scientific manpower** that can venture into research careers by identifying research potential, mentoring, training and giving hands-on workshops on a national scale.
- **Components of AV scheme:**
 - **ABHYAAS:** To enable and groom potential PG/PhD students by developing their research skills in selected areas across different disciplines or fields.
 - It has two components: High-End Workshops (KARYASHALA) and Research Internships (VRITIKA).
 - **SAMMOHAN programme:** To encourage, aggregate and consolidate all scientific interactions in the country under one common roof.
 - It has two parts: 'SAYONJIKA' to catalogue capacity building activities in science and technology supported by all government funding agencies and 'SANGOSHTI' to facilitate the scientific community to establish an interaction with other individuals and research groups to enhance knowledge exchange.
- It will seek to **garner the social responsibility of the scientific community** in the country and is expected to promote R&D in India.

Science and Engineering Research Board (SERB)

- It is set up through the Science and Engineering Research Board Act, 2008 under **Department of Science and Technology**.
- It aims to **promote basic research in Science and Engineering** and to provide financial assistance to persons engaged in research.

Various schemes to promote scientific research in India

- **Scheme for Promotion of Academic and Research Collaboration (SPARC)** is to support Joint Research Projects through collaboration of top ranked Indian Institutions and globally ranked Foreign Institutions.
- **Impacting Research Innovation and Technology (IMPRINT)** focuses on socially relevant research in higher educational institutions.
- **Prime Minister's Research Fellows (PMRF) Scheme** launched to incentivise the most meritorious students to pursue research in the frontier areas of science & technology by offering fellowship.
- **Uchhatar Avishkar Yojana (UAY)**, which promotes industry sponsored, outcome-oriented research.

8. CULTURE

8.1. GURJARA-PRATI HARAS

Why in news?

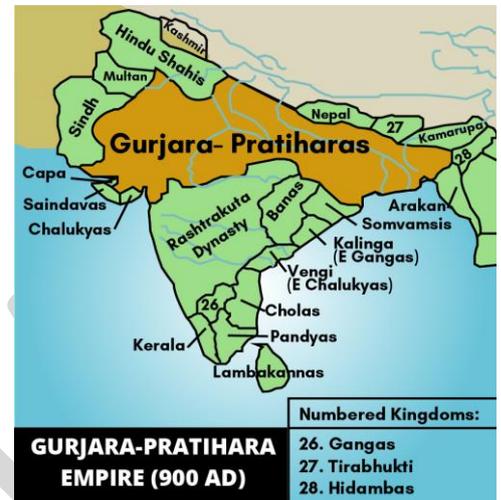
Natesa, a 9th century's rare sandstone idol of Rajasthan temple smuggled out of country in 1998 returned to India.

About Natesa sandstone idol

- Natesa is a rare sandstone idol from the **Pratihara Style of architecture** in Rajasthan.
- It is originally from the **Ghateswar Temple at Baroli, Rajasthan**.
- The sandstone Natesa figure stands tall at almost 4 ft in a rare and **brilliant depiction of Shiva**.
 - A depiction of Nandi (sacred bull calf) is shown behind the right leg of the Natesa icon.
- Pratihara Style of architecture is associated with **Gurjara-Pratihara dynasty around 800-900 AD**.

About Gurjara-Pratihara dynasty

- **Dynasty**
 - Gurjara-Pratihara dynasty **ruled much of Northern India** from the mid-8th to the 11th century.
 - They were one of the first four patrilineal clans of the caste group referred to as the **Rajputs**.
 - The Pratiharas, derived their name from the Sanskrit meaning doorkeeper, **are seen as a tribal group or a clan of the Gurjars**.
 - **Important rulers:**
 - **Nagabhata I** contained Arab armies moving east of the Indus River and rose to fame in the late 8th century CE.
 - **Nagabhata II, Mhir Bhoj (Bhoja) and Mahendrapala I** were the other important rulers of dynasty.
 - The expansion of the Gurjara-Pratihara kingdom involved constant conflicts with other contemporary powers such as the **Palas and the Rashtrakutas known as the tripartite struggle** (refer to infographics).
- **Administration and military**
 - They retained **terms of administration, on line of the Gupta Empire's and Harshvardhana's ideas**.
 - Some areas were administered directly by the centre and some were divided into **provinces (bhukti) and districts (mandala or vishaya), respectively, governed by a governor (uparika) and a district head (vishayapati)**.
 - **Governor and district heads were tasked with collecting land revenue and maintaining law and order** with the help of the army units stationed in their areas.
 - They were **well-known for their cavalry** in which horses were imported from Central Asia and Arabia etc.
 - After Bhoja, military power of he Pratiharas declined, and they suffered defeats under successive kings.
- **Architecture**
 - The Pratiharas extended Gupta architecture tradition by adding a full-fledged mandapa to the single shrine temple and mandovara too got articulated into either the triratha, or the pancharatha plan. E.g. **Gadarmal temple, Badoh-Pathari etc.**
 - Gurjara-Pratiharas were known for their **open pavilion temples**.
 - They are known for their **new space concepts, structural and functional constructs, motifs etc.** together with aesthetic and iconographic norms temples belonging to **Nagara Style of temple Architecture**.
- **Trade/economy**
 - Economy in Gurjara-Pratihara Empire was **mainly dependent on agricultural production** and major source of government revenue at that time was the tax derived from the bulk of agricultural production.
 - **Horses were important commodity** in trade of Gurjara-Pratihara Empire.
- Primary literary sources include the accounts of Arab merchants like **Suleiman, al-Masudi and poet Rajashekhara in court of Mahendrapala I**.



9. ETHICS

9.1. SOCIAL AND EMOTIONAL LEARNING

Why in news?

Recently, UNESCO Mahatma Gandhi Institute for Peace and Sustainable Development (MGIEP) has published a report titled '**The Rethinking Learning: A Review of Social and Emotional Learning for Education Systems**'.

More on news

- The report reviews the latest research on Social and Emotional Learning, its impact on **student health** and **school climate** and its transformative role in **building happier classrooms**.
- MGIEP **works very closely with the Ministry of Human Resource Development**, Government of India as well as various state governments to implement SEL in education systems.

UNESCO MGIEP

The initiative of MGIEP **started in 2009** and it currently operates as an institute out of its **independent office in New Delhi**.

It focuses on achieving the **UN Sustainable Development Goal 4.7** towards education for building peaceful and sustainable societies across the world.

What is Social and Emotional Learning (SEL) and why is it important?

SEL can be defined as the process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions.

In this context, Social and Emotional Learning assumes importance at the neurological level as the **decision making is not purely a rational process**.

- Decisions are a **confluence of the rational and emotional brain**: Earlier, it was assumed that the emotions that arise within us are beyond our control and are part of our natural reactions. But, research suggests that the human brain has the capacity to change and "rewire" in response to experience. (This capacity of the brain is called 'neuroplasticity'.)
- **SEL is also a source of motivation, positivity and ethical behaviour**: SEL can be an essential tool to train the brain towards converting negative emotions, such as fear and anger, to positive ones, such as hope and confidence.
 - It enables humans to calm themselves, resolve conflicts respectfully, and make ethical and safe choices.

Potential of Social and Emotional Learning (SEL) as highlighted in the report

- **Improving academic achievement**: Children who participated in SEL programmes, outperformed those students who did not participate in SEL programmes.
- **Impact of Gross National Income of countries**: Report suggests that the productivity lost for not spending on SEL interventions is about **29% of the Gross National Income**.
- **Boosts returns from Teacher Training**: Preliminary results show an impressive return on investment (ROI) in relation to training of teachers in SEL and SEL based investment in the overall education system.

Can SEL act as a conduit to improve emotional intelligence?

Social and Emotional Learning helps in development of aforesaid capacity by developing qualities like **Empathy, Compassion, Mindfulness alongside Critical Enquiry**. This is elaborately illustrated in UNESCO MGIEP's EMC² diagram:

Can empathy and compassion be taught? - Yes.

- Intrinsic ideals of empathy and compassion can be **entrenched in a child's mind** in the process of acquiring competencies, skills and /or attitudes to recognize and manage emotions, develop caring and concern for others, establish positive relationships, make responsible decisions and handle challenging situations.
- The research as highlighted in the report shows that the **sensitive period for inculcating SEL is to the age of 24**. However, we must not lose sight that neuroplasticity suggests learning happens throughout life. So, **we can always teach ourselves and practice SEL throughout life**.

Who are the stakeholders and what is their role in fostering SEL?

• Role played by Parents:

- In many ways, the parents are the **frontline troops in the quest to building social and emotional competencies**. For instance, if the parents are stressed, the children will automatically begin to exhibit anxiety and stress.
- The ideal situation is of course to have parents who have already gone through some form of SEL training. However, even if parents have not had formal training, basic instincts of kindness and compassion can help take forward the idea of SEL.
- **Case in point: Cooking**
 - Activities such as cooking are great examples whereby **children and parents get to understand the efforts and energy**, a loved one contributes when cooking for the family.
 - Including children and parents in this activity can **contribute towards empathy and compassion building**. It also brings the family closer together in an activity that requires **collaboration and understanding**.

• Role played by the Teachers:

- Teachers act as **central figures in the socialisation** of children outside the context of their homes and serve as important role models, guiding the development of their students' social and emotional competence and learning.
- **Teachers provide relationship skills and social awareness** by building supportive relationships with their students, fostering positive peer relationships, and establishing safe and effective learning environments.
- To ensure that the teachers fulfil the aforesaid responsibilities, they have to be equipped with adequate pedagogical content knowledge, an understanding of their students, an understanding of their local conditions and how all this can be translated to better pedagogical outcomes.

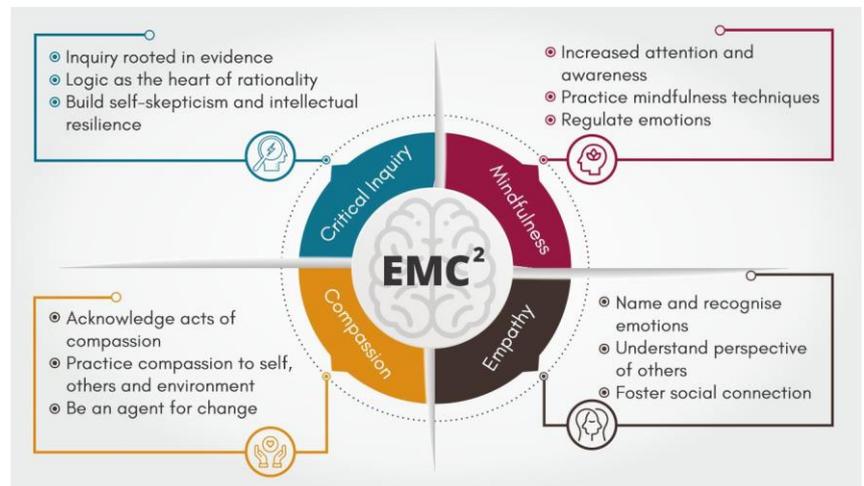
How can SEL be integrated with mainstream education?

The report suggests that integration of SEL in mainstream education cannot be a rigid or one-size fits all approach. In this context the report has highlighted four key aspects for its implementation:

- **Policy Framework:** It will provide the **overall objective, set priorities and goals for SEL** in the given context and subsequently provide and evaluation criteria for future.
- **National and sub-national curricula:** Integrating SEL elements in the curricula provides more clarity to both teachers and students along with generation of an standard of assessment.
- **Specific SEL Programmes:** Many local regions have specific needs with regard to SEL. This facet aims to provide specific skills to students and associated professional training to teachers.
- **Whole school approaches:** The idea is to avoid fragmented adoption. The idea aims at bringing all the stakeholders from school staff, parents and community together to support student learning & development.

Factors that might hinder implementation of SEL

- **Insufficient dosage, duration, and effectiveness:** This occurs when lessons are shortened, provided at less than the recommended frequency or offered sporadically. Lack of continuity limits effectiveness.
- **Fragmentation and marginalization:** This occurs when SEL is not seen as core curriculum and is consequently given a low priority. Inconsistency of teaching undermines learning outcomes.
- **Sole focus on classrooms:** Restricting the focus on SEL to classroom lessons only limits valuable opportunities to generalise and apply learning to other contexts and reduces skills development.
- **Limited staff training:** Teaching SEL skills requires specialised understanding and effective support. Without appropriate training staff competence and confidence for teaching SEL will be limited.



What place SEL has in the New Education Policy (NEP) 2020?

The New Education Policy (NEP) 2020 does not explicitly mention Social and Emotional Learning but the idea is integrated in several dimensions of the policy. Following illustrates the same:

- **Vision of the policy:** The policy states **development of compassion and empathy** as one of the primary long-term objectives of the policy.
- **Principles of NEP:** Principles like Respect for diversity and local context, Equity and Inclusion and Community Participation indirectly encourage inculcation of SEL among students.
- Some specific features which showcase SEL:
 - Adoption of **Activity based and experiential learning** as part of the pedagogical structure encourages peer engagement and community participation.
 - **Physical and Mental Health:** The policy states mandatory Health and Wellness training for students and provision of on campus counsellors to assist students.
 - **Special emphasis on Socio-Economically Disadvantaged sections** which includes Gender identities, disabilities among others may encourage values like equity, tolerance and empathy among students.
 - Other ideas like creation of **textbook with local content and flavour** and encouraging **peer based tutoring** could also be helpful.

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10. SCHEMES IN NEWS

10.1. SCHEMES FOR MEDICAL DEVICES

Why in news?

Recently, Department of Pharmaceuticals (DoP) released guidelines for two schemes -‘**Promotion of Medical Devices Parks**’ and ‘**Production Linked Incentive (PLI) Scheme for Promoting Domestic Manufacturing of Medical Devices**’, to promote manufacturing of High-end Medical devices in India.

Scheme	Scheme for Promotion of Medical Device Parks	PLI Scheme for Promoting Domestic Manufacturing of Medical Devices
Key Features	<ul style="list-style-type: none"> It is a Central Sector Scheme, with a total financial outlay of Rs. 400 Crore, which will support establishment of 4 Medical Device Parks. One-time grant-in-aid will be provided for creation of common infrastructure facilities in selected Medical Device Park proposed by a State Government. <ul style="list-style-type: none"> It will be 90% of the project cost in case of North-East and hilly States and UTs and 70% in case of other States. Maximum grant-in-aid for one Medical Device Park will be limited to Rs 100 crore. State Government shall be responsible for submission of Project Report and providing all project related clearances. <ul style="list-style-type: none"> A State Government can make only one proposal of Medical Device Park. The proposed park shall not be less than 150 acres in area (not less than 100 acres for North Eastern States and Hilly States and UTs). Project Management Agency (PMA) will be nominated by DoP for providing secretarial, managerial and implementation support for effective implementation of the Scheme. 	<ul style="list-style-type: none"> Financial incentives will be given at a rate of 5% of the sales of domestically manufactured medical devices, to a maximum number of 28 selected applicants. <ul style="list-style-type: none"> The disbursement of incentives will be in the form of Direct Bank Transfer. Target Segments under the Scheme: <ul style="list-style-type: none"> Cancer care / Radiotherapy medical devices Radiology & Imaging medical devices (both ionizing & non-ionizing radiation products) and Nuclear Imaging Devices Anesthetics & Cardio Respiratory medical devices including Catheters of Cardio Respiratory Category & Renal Care Medical Devices All Implants including implantable electronic devices Any company registered in India, with Net worth more than 18 crore, is eligible to apply for incentives.
Objectives	<ul style="list-style-type: none"> Creation of world class infrastructure facilities in order to make Indian medical device industry a global leader. Exploit the benefits arising due to optimization of resources and economies of scale. 	<ul style="list-style-type: none"> To boost domestic manufacturing and attract large investments in the Medical Device Sector.
Tenure of the Scheme	Financial Year (FY) 2020-2021 to FY 2024-2025	Financial Year 2020- 21 to Financial Year 2026-27
Implementation	Through State Implementing Agency , a legal entity, set up by concerned State Government.	Through Project Management Agency , appointed by DoP, which is also responsible for providing secretarial and managerial support.
Approval	Proposals under the Scheme will be approved by the Scheme Steering Committee (SSC) constituted by DoP.	The Empowered Committee (EC) , constituted by DoP will consider applications, as recommended by PMA, for approval under the Scheme.

11. NEWS IN SHORT

11.1. STATES TO BE RANKED ON FINANCIAL MANAGEMENT INDEX (FMI) FOR RURAL DEVELOPMENT

- FMI (by Ministry of Rural Development) **ranks the performance of the States on the basis** of certain parameters:
 - Preparation of annual plan, expeditious release of State's share, timely utilization of the funds and submission of the Utilization Certificates etc.
 - Optimum implementation of **Public Financial Management System (PFMS) & Direct Benefit Transfer**.
 - PFMS is a web-based platform that helps in tracking and monitoring of flow of funds to the implementing agencies.
 - Internal Audit and Social Audit.
- **Benefit of the index**
 - **Bring in transparency** and promote the spirit of **competitive, cooperative federalism**.
 - **Optimum utilization of the funds** to ensure efficient implementation of the programmes by State Governments.
 - **Effective use of funds** for the development works at the village level.
 - **Check any irregularities** through audit process.
- On similar lines, recently **Ministry of Panchayati Raj has also decided to conduct an online audit** of 20% of the estimated 2.5 lakh gram panchayats across the country.
 - It is to be conducted through **AuditOnline, an open-source application** under e-panchayat Mission Mode Project by the Ministry of Panchayati Raj.
 - It will **ease access to records**, can be monitored at district, state and Centre level.

11.2. AIM ICREST

- Recently, NITI Aayog's Atal Innovation Mission (AIM), has launched AIM iCREST.
- It is an **incubator capabilities enhancement program** for a robust ecosystem focused on creating high performing Startups. It is a **first of its kind** initiative for advancing innovation at scale in India.
- Under the initiative, the **AIM's incubators are set to be upscaled and provided requisite support to foster the incubation enterprise economy**, by providing training to entrepreneurs, through technology driven processes and platforms.
- It will **help to facilitate an AtmaNirbhar ecosystem** that is capable of nurturing such disruptive startups ecosystem.

- For this AIM has joined hands with **Bill & Melinda Gates Foundation and Wadhvani Foundation**.
- AIM is a **flagship initiative set up by the NITI Aayog** to promote innovation and entrepreneurship across the country
 - Its objective is to **develop new programmes and policies for fostering innovation** in different sectors of the economy, provide platform and collaboration opportunities etc.
 - **Major Initiatives under AIM:** Atal Tinkering Labs, Atal Incubation Centres, Mentor India Campaign, Atal Research and Innovation for Small Enterprises (ARISE) etc.

11.3. CAPITAL PROCUREMENT POWERS TO ARMED FORCES

- Recently, the Defence Acquisition Council delegated special powers to armed forces services for **individual capital procurement programme** worth Rs 300 crore to meet emergent operational requirements.
- It has been done considering the **security environment due to prevailing** situation along the Northern Borders and the need to strengthen the Armed Forces for the Defence of borders.
- This step will **shrink the procurement timelines** and ensure placement of orders within six months and commencement of deliveries within one year.
- There is no cap on the number of procurements programmes and each acquisition under the emergency requirement category should not cost more than Rs 300 crore.

11.4. OPERATION SAMUDRA SETU

- Indian Navy has completed Operation Samudra Setu which was aimed at bringing nearly 4,000 Indian citizens from overseas during the COVID-19 pandemic.
- **Indian Naval Ships Jalashwa, Airavat, Shardul and Magar** participated in the operation.
- Earlier evacuation operations by Indian navy: Operation Sukoon in 2006 (Beirut) and Operation Rahat in 2015 (Yemen).

11.5. FISH CRYOBANKS

- **Ministry for Fisheries, Animal Husbandry and Dairying** has announced setting up of fish cryobanks. This would be the **first time in the world** when "Fish Cryobank" will be established.
- It will facilitate all time **availability of fish sperms of desired species** to fish farmers.

- This will **enhance fish production and productivity** and thereby increasing prosperity among fish farmers.
- **National Fisheries Development Board in collaboration with National Bureau of Fish Genetic Resources** will take up the work to establish Fish Cryobanks.

11.6. CENTRAL ZOO AUTHORITY RECONSTITUTED

- Recently, the Ministry of Environment, Forest and Climate Change has reconstituted the Central Zoo Authority (CZA) to include an expert from the School of Planning and Architecture, Delhi, and a molecular biologist.
 - Now, it consists Union Minister of Environment, Forest and Climate Change as **Chairperson**, 10 members and a Member Secretary
- The CZA is a statutory body under the Ministry of Environment, Forest and Climate Change. It was **constituted in 1992 under the Wildlife (Protection) Act, 1972.**
- **Objective of CZA:**
 - To **complement and strengthen the national effort** in conservation of the rich biodiversity of the country, particularly the fauna as per the National Zoo Policy, 1998
 - **Enforcing minimum standards and norms** for upkeep and healthcare of animals in Indian zoos and to control mushrooming of unplanned and ill-conceived zoos
- **Functions Of CZA**
 - **Evaluate and assess the functioning of the zoos** with respect to the prescribed standards or norms;
 - To **recognize or derecognize zoos;**
 - To **identify endangered species of wild animals** for purposes of captive breeding and assigning responsibility in this regard to a zoo;
 - To **coordinate the acquisition, exchange and loaning of animals** for breeding purpose;
 - To **provide technical and other assistance to zoos** for their proper management and development on scientific lines.

11.7. PROTECTED AREAS - DEHING PATKAI

Assam Government has decided to **upgrade the Dehing Patkai Wildlife Sanctuary to a National Park.**

More on news

- Earlier, National Board of Wildlife's (NBWL) gave conditional clearance to a coal mining project by

Coal India Limited (CIL) in the Dehing Patkai Elephant Reserve

- It is reported that upgradation is to protect the sanctity of the **Dehing Patkai Wildlife Sanctuary from coal and oil mining exploration.**
 - **Wildlife sanctuaries are protected areas** which permit some activities, but no human activity is allowed in a National Park.
- Dehing Patkai Wildlife Sanctuary is referred as '**The Amazon of East**'.
 - **Dehing is the name of the river** that flows through this forest and **Patkai is the hill at the foot** of which the sanctuary lies
- It is the **only rainforest in Assam** which spreads across Tinsukia, Dibrugarh and Sivasagar districts of Assam and also stretches till the State of Arunachal Pradesh. This sanctuary consists of three parts: Jeypore, upper Dihing River and Dirok rainforest
- The Sanctuary is a **part of the Dehing-Patkai Elephant Reserve**, along with the Stillwell Road and the oldest refinery of Asia in Digboi and 'open cast' coal mining at Lido.
- Dehing Patkai sanctuary is home to a number of mammals, **including rarities like** the Malayan sun bear, binturong, crab-eating mongoose, marbled cat, golden cat, fishing cat, and clouded leopard.
 - More commonly seen are mammals such as the barking deer, Assamese macaque, capped langur, tree shrew, and the famed hoolock gibbons.

11.8. KAZI 106F

- It is **India's only Golden Tiger** found in **Kaziranga National Park of Assam.**
- **A golden tiger**, also called tabby tiger or strawberry tiger, is a tiger with a **color variation** caused by a **recessive gene.**
 - **The yellow skin** of tigers is controlled by a set of '**agouti genes**' while the **black stripes** are controlled by '**tabby genes**' and their alleles. **Suppression** of any of these genes may lead to **color variation** in a tiger.
- Golden tigers are characterized by **blonde or pale-golden color and reddish stripes** in place of black like in normal tigers.
- **Concerns:** Their rare skin tone is a result of **excessive inbreeding.**
 - **Inbreeding is defined as** the probability of two alleles in an individual being identical by descent, and is normally the result of mating related individuals.
 - It can increase the chances of offspring being affected by deleterious or recessive traits.
- Tigers resort to inbreeding when their population is almost islanded without connectivity to other

landscapes, which is mainly caused by habitat loss and destruction of corridors.

- **Other Tiger Reserves in Assam** are Manas National Park, Orang National Park & Nameri National Park.

11.9. BLACK PANTHER

- Recently, a Black Panther was spotted in **Kabini Wildlife Sanctuary, Karnataka**.
- In India, the Black Panthers are rarely spotted, and hence are also called '**ghosts of the forest**'.
- They can be found in Kabini Wildlife Sanctuary, Anshi Dandeli Sanctuary (Karnataka), Nilgiri Biosphere Reserve (Tamil Nadu) and Tadoba Andhari Tiger Reserve (Maharashtra).

About Black Panther

- Black Panther refers to **large felines (family of cats)** that are characterized by a **coat of black fur or large concentrations of black spots**.
- In each species, a certain combination of alleles stimulates the production of large amounts of the **dark pigment melanin** in the animal's fur and skin. A melanistic leopard is often called black panther or jaguar.
- **Other influencing factors for appearance of black coat:** The angle of incident light and the animal's life stage, retention of black spots from the juvenile stage, concentrations of dark-coloured fur etc.

11.10. GERMANY TO BECOME FIRST MAJOR ECONOMY TO PHASE OUT COAL, NUCLEAR POWER

- German parliament approved a **bill that envision shutting down the last coal-fired power plant by 2038** and spending some \$45 billion to help affected regions cope with the transition.
- The plan is part of Germany's 'energy transition' - an effort to **wean Europe's biggest economy off planet-warming fossil fuels and generate all of the country's considerable energy needs from renewable sources**.
- Presently, Germany burns the greatest amount of lignite coal worldwide.

11.11. PIED CUCKOO TO BE TRACKED IN MIGRATION, CLIMATE CHANGE STUDY

- Wildlife Institute of India, Indian Institute of Remote Sensing and Department of Biotechnology have begun a **study of the migration of pied cuckoo from Africa to India and back**.
 - It is done by **tagging two of the birds with satellite transmitters**.
- This is for the first time that a bird species is being tagged to **understand its relationship with climate**

patterns like change in monsoon winds, erratic rainfall, seasonal fluctuations, etc

- Arrival of the pied cuckoos has traditionally been **seen as onset of the monsoon**.
- Study is part of a larger project - **Indian Bioresource Information Network (IBIN)**, funded by Department of Biotechnology.
 - IBIN is proposed to be a **single portal data provider on India's bioresource** - plant, animal, marine, spatial distribution and microbial resources.
- **About Pied Cuckoo (Clamator jacobinus or Jacobin Cuckoo)**
 - There are **two populations of Pied Cuckoo found in India**- southern part (resident) and North and Central India (migratory).
 - It is one of the few species that come to India in the summer.
 - IUCN status: Least Concern
 - It is primarily arboreal (lives on trees), lays its eggs in nests that belong to other birds.

11.12. NEW HUMAN FINGERPRINT ON GLOBAL DROUGHT PATTERNS

- According to a new study, **Human-caused climate change has intensified patterns of extreme rainfall and drought** across the globe.
 - **Human Fingerprints** means human influence on global climate. Important human influence includes greenhouse gas (GHGs) emissions and polluting aerosols.
- Since 1950, **human-produced GHGs and particulate atmospheric pollution** have influenced global changes in temperature, precipitation and regional aridity in **two distinct ways**:
 - **Wet-dry patterns** (Intensification of drought and extreme rainfall patterns)
 - **Rainfall is decreasing** over US, central Asia and southern Africa while it is **increasing** in the Sahel region of Africa, India and the Caribbean.
 - Changes are largely driven by increases in GHGs emissions.
 - **Changes associated with shifting of Intertropical Convergence Zone (ITCZ) or Tropical rain belt**.
 - **ITCZ shifted back northward after 1980**, bringing less rainfall to the western US and more to Sahel. This was mainly because **northern hemisphere became warmer** than the southern hemisphere.
 - ✓ Pollution and Greenhouse effect warms the northern hemisphere faster (as predominantly covered by land).

11.13. MINISTRY OF EARTH SCIENCES (MOES) LAUNCHES KRCNET AND MOBILE APP "MAUSAM"

- **Knowledge Resource Centre Network (KRCNet)**
 - It aims to **develop an integrated information system for providing one-point 24x7 access** to the Knowledge products like books, reports, journals etc.
 - It is done under **Digital India initiative**.
 - The traditional libraries of the MoES system will be upgraded into KRC.
- **Mobile App "Mausam" for India Meteorological Department**
 - It will **communicate weather information and forecasts in a lucid manner** without technical jargons.
 - It has **5 services**: Current Weather, Nowcast (localized hourly warnings), City Forecast, Warnings and Radar products.

11.14. INITIATIVES FOR ENERGY EFFICIENCY & PROMOTING E-MOBILITY LAUNCHED

- **Retrofit of Air-conditioning to improve Indoor Air Quality for Safety and Efficiency (RAISE)**
 - It **focuses on improving indoor air quality**, thermal comfort, and energy efficiency in air conditioning system.
 - It is a joint initiative of **Energy Efficiency Services Limited (EESL) and USAID**.
- **India's first public EV (Electric Vehicle) charging plaza**
 - EESL in collaboration with NDMC has established this plaza in New Delhi.

11.15. SUBHASH CHANDRA BOSE AAPDA PRABANDHAN PURASKAR

- This annual award is instituted to recognize the excellent work done by individuals and institutions in India in **the field of Disaster Management**.
- **Only Indian nationals and Indian institutions can apply** for the award.
- It is given by **Ministry of Home Affairs**.

11.16. YUWAAH

- YuWaah is a multi-stakeholder platform that aims to **prepare young people to transition from education and learning to productive work** and active citizenship.
- Recently, Ministry of Youth Affairs and Sports and YuWaah (Generation Unlimited India) together signed on a partnership to **empower young people**.
 - It is being done in **collaboration with UN in India** (UNICEF, UNDP, UNFPA, UNODC, UNEP,

UNHCR and ILO), aims to develop the potential of young people through meaningful engagement and participation in social, civic and community initiatives.

11.17. AATAMANIRBHAR SKILLED EMPLOYEE-EMPLOYER MAPPING (ASEEM) PORTAL

- Ministry of Skill Development and Entrepreneurship launched ASEEM portal and App to **help skilled people find sustainable livelihood opportunities**.
- It is **Artificial Intelligence-based platform** which will map details of workers based on regions and local industry demands and will **bridge demand-supply gap of skilled workforce across sectors**.
- It is developed and managed by **National Skill Development Corporation (NSDC)** in collaboration with Bengaluru-based company Betterplace.

11.18. HIMACHAL PRADESH: FIRST STATE WITH 100% LPG CONNECTIONS

- Himachal Pradesh has become the first state in the country where 100 per cent households have LPG connections.
- Earlier, state launched **Himachal Grihini Suvidha Yojana** to cover the families left-out under **Pradhan Mantri Ujjwala Yojana (PMUY)**.
- PMUY is a **scheme of the Ministry of Petroleum & Natural Gas** for providing free LPG connections to women from Below Poverty Line (BPL) households.

11.19. LEAD POISONING IN CHILDREN

- According to a **new report launched by UNICEF and Pure Earth** (Non-Profit Organization), around **one third i.e. 800 million children globally**, are affected by **lead poisoning**.
 - Nearly **half of these children** live in **South Asia**.
- **About Lead Poisoning**
 - **Lead is a cumulative toxicant** (increasing in quantity in the body over many years) that affects multiple body systems.
 - **Sources of Lead Poisoning**
 - **Ingestion** of lead in water from leaded pipes, lead solder in food cans; and lead in spices, cosmetics, ayurvedic medicines, toys and other consumer products.
 - **Inhalation** through lead from active industry, such as mining and battery recycling; lead-based paint and pigments; leaded gasoline;
 - Informal and substandard **recycling of lead-acid batteries**

- **Adverse health effects**
 - **Young children** are more susceptible to toxic effects and can result in decreased intelligence, behavioral difficulties and learning problems.
 - **Adults exposed to lead** are at risk of developing high blood pressure and kidney damage.
 - **Exposure of pregnant women** to high levels of lead can cause miscarriage, stillbirth, premature birth, low birth weight and malformations.
- World Health Organization and the United Nations Environment Program jointly initiated the “**Global Alliance to eliminate Lead Paint**” to achieve international goals to prevent children’s exposure and minimize occupational exposure to lead paint.
- In India, **Regulation on Lead contents** in households and decorative paints Rules 2016 notified by MOEFCC prohibit manufacture, trade, import as well as export of household and decorative paints containing lead or lead compounds in excess of 90 parts per million (ppm).

11.20. HUMAN GROWTH HORMONE (HGH)

- Recently, Pardeep Singh (2018 Commonwealth Games silver medallist), has been suspended provisionally after his **blood sample tested positive for hGH**.
- hGH is **produced in the body and secreted by the pituitary gland near the base of the brain**. hGH helps in bone, organ and cartilage growth and also helps in repairing damaged muscles.
- It is **banned both in-competition as well as out-of-competition** by World Anti-Doping Agency.
- hGH is known to **increase muscle mass, strength and tissue-repairing effects** etc.

11.21. WINTER DIESEL

- Winter diesel is a **specialised fuel** that was introduced by Indian Oil Corporation **specifically for high altitude regions** and low-temperature regions such as Ladakh, where ordinary diesel can become unusable.
- **Benefits of winter diesel**
 - Contains additives to **maintain lower viscosity** can be used in temperatures as low as -30°C
 - **Higher cetane rating**-an indicator is the combustion speed of diesel and compression needed for ignition.
 - **Lower sulphur content**, which would lead to lower deposits in engines and better performance.

11.22. BLACKROCK ANDROID MALWARE

- It is a new **malware which can steal information like passwords and credit card information** from about 377 smartphone applications, including Amazon, Facebook, Gmail etc.
- **Malware** is the collective name for a number of malicious software variants, including viruses, ransomware and spyware.

11.23. LATENT VIRAL INFECTION (LVI)

- It is an infection that is **inactive or dormant**. Latent infections **last the life of the host** and occur when the primary infection is not cleared by the adaptive immune response.
- These are **opposed to active infections**, where a virus is actively replicating and potentially causing symptoms.
- **Examples of LVI**: Herpes simplex viruses type 1 and 2, HIV, cytomegalovirus etc.
 - Recently, **questions about latency of the SARS-CoV-2 virus** were raised as cases of people who had tested negative for COVID-19 testing positive again after a while emerged.

11.24. BELYO

- It is **country’s first COVID-19 blockchain platform**.
- It will convert COVID-19-related **clinical and vaccination data of citizens** currently from the **physical form into digital assets**.
- This data then can be **retrieved by contact tracing apps** like Aarogya Setu.
- **Developed by**: BelfricsBT, a global blockchain start-up, along with YoSync, a start-up incubated at IIIT Bangalore.

11.25. YELLOW FEVER

- According to recent study, burden and geography of yellow fever is projected to shift to Central and East Africa from West Africa by 2050.
 - **Climate change-related factors**, including temperature and rainfall, would lead to this change in the magnitude and geography of the disease.
- Yellow fever is an **acute viral haemorrhagic disease** transmitted by mosquitoes, belonging to the Aedes and Haemogogus species.
 - The "yellow" in the name refers to the **jaundice that affects some patients**.
- Symptoms of yellow fever include **fever, headache, jaundice, muscle pain, nausea, vomiting and fatigue**.

- Virus is endemic in **tropical areas of Africa and Central and South America.**
 - Endemic disease is one where infection is constantly maintained in a geographic area without any external inputs.
- Vaccine for this disease is available and a **single dose of yellow fever vaccine is sufficient to grant sustained immunity and life-long protection.**
- **WHO launched Eliminate Yellow Fever Epidemics strategy in 2017.** By 2026, it is expected that more than 1 billion people will be protected against the disease.

11.26. MARS MISSIONS

- Recently, **the UAE, USA have launched mission to Mars.**

Hope Mission

- **UAE spacecraft Amal (Hope)** has been launched which is **the Arab world's first mission to Mars.** Hope is the UAE's fourth space mission and first interplanetary mission.
- It will **orbit Mars to study the Martian atmosphere** and its interaction with outer space and solar winds. It will collect data on Martian climate dynamics, which should help scientists understand why Mars' atmosphere is decaying into space.

Mars 2020

- Under this, **NASA's Perseverance rover will seek signs of ancient life and collect rock and soil samples** for possible return to Earth.
- The rover is equipped with specialised **equipment to collect data, analyse weather conditions** that can help plan for future human missions, and produce oxygen from the carbon-dioxide rich atmosphere.
- The mission also includes the **Ingenuity Mars Helicopter.** Ingenuity will be the **first aircraft to attempt controlled flight** on another planet.
- Ingenuity is intended to **demonstrate technologies needed for flying in the Martian atmosphere.** If successful, these technologies could enable other advanced robotic flying vehicles that might be included in future robotic and human missions to Mars.

11.27. ASTEROID 2020 ND

- Recently, **Asteroid 2020 ND** made a **fly-past the Earth.** The asteroid was about **170 meters-long,** moved at a distance 0.034 Astronomical Units (AU) to Earth.
- NASA classified it as the **Potentially Hazardous Asteroids (PHAs)** and also as a **Near Earth Object (NEO).**

- NEOs are **comets and asteroids** moved by the **gravitational attraction of nearby planets** into orbits which allows them to enter the Earth's neighborhood. These objects are **composed mostly of water ice with embedded dust particles.**
- Asteroids with a **minimum orbit intersection distance (MOID)** of **about 0.05 AU,** and bigger than **150 meters in diameter** are considered **PHAs.**
 - MOID is the **distance between the closest points of the overlapping orbits** of two bodies.
 - AU is the **distance between Earth and Sun** and is roughly 150 million km.
- NASA's **Center for Near-Earth Object Study (CNEOS)** determines **the times and distances** of these objects as and when their approach to the Earth is close.
- Scientists have suggested **different ways to ward off such threats,** such as blowing up the asteroid before it reaches Earth, or deflecting it off its Earth-bound course by hitting it with a spacecraft.
 - One such project is, **Asteroid Impact and Deflection Assessment (AIDA),** which includes NASA's Double Asteroid Redirection Test (DART) mission and the European Space Agency's (ESA) Hera.

11.28. INDIA'S FIRST IN-ORBIT SPACE DEBRIS MONITORING AND TRACKING SYSTEM

- It will **provide global real-time earth coverage** by deploying a constellation of cost-efficient nanosatellites in LEO (Low Earth Orbit).
- It will help **international space agencies to track and map the space debris** and minimize the major threat to the future space explorations.
- It has been developed by **Digantara, India's first air and space surveillance company.**

11.29. SIDDI COMMUNITY

- Siddi community has got its **first representative in Karnataka State legislature.**
- They are an ethnic group inhabiting India and Pakistan.
- They are descendants of Africans from North-East and East Africa who were brought to India as slaves, soldiers or servants.
- In India, they are spread **along the coast of Gujarat, Karnataka, Maharashtra and Andhra Pradesh.**
- Current estimated population: 20,000–55,000 individuals.
- **Religion:** Siddis are primarily Sufi Muslims, although some are Hindus and Roman Catholic Christians

11.30. KASHMIR SAFFRON GETS GEOGRAPHICAL INDICATION (GI) CERTIFICATE

- Kashmir saffron is the **only saffron in the world that is grown at an altitude of 1,600 meters.**
- It has **unique characteristics like longer and thicker stigma, natural deep-red colour, high aroma etc.**

11.31. INDIGENOUS MANGO HERITAGE AREA

- Recently, **Kannapuram Panchayat** in Kannur town in Kerala has been declared as **Indigenous Mango Heritage Area.**
- The **Kerala State Biodiversity Board** has identified the area as **heritage zone** in coordination with the **Kannapuram grama panchayat.**
- Kannapuram is home to over **200 varieties of mangoes**, and is home to various indigenous mango varieties.
- As part of the heritage area declaration, **nurseries would be set up at each household** for selling the mango sapling of the varieties available at the household. It is the first of its type in the country.

11.32. HAGIA SOPHIA, TURKEY

- Recently, Hagia Sophia, an iconic Istanbul museum has **been converted into mosque.**
- It was originally built as the cathedral for the capital of the Eastern Roman Empire in the sixth century, and became a mosque in 1453 with the Ottoman conquest of Constantinople.
- In 1934 it became a museum and is now a **UNESCO World Heritage site.**

11.33. GANDHI-KING SCHOLARLY EXCHANGE INITIATIVE BILL

- This bill was recently passed by US House panel.
- It **seeks to establish an exchange program between India and U.S.** to study the work and legacies of Mahatma Gandhi and civil rights leader Martin Luther King Jr.

- It also seeks to **establish Gandhi-King Global Academy**, a conflict resolution initiative based on the principles of nonviolence.

11.34. MAHALANOBIS AWARD

- The first Prof. P. C. Mahalanobis National Award in Official Statistics for lifetime achievement was conferred on Dr. C. Rangarajan in recognition of his outstanding contribution in laying the foundation for holistic reforms in national statistical system.
 - Dr. C. Rangarajan is former Chairman, National Statistical Commission and former RBI Governor.
- Prof. P. C. Mahalanobis National Award was instituted by Ministry of Statistics & Programme Implementation in 2019 for **recognizing outstanding achievement of official statisticians** in Central Government, State Governments and Institutions.
 - **Mahalanobis International Award is also sponsored by** the Ministry of Statistics and Programme Implementation. It recognizes an individual for lifetime achievements in statistics in developing country or region.
- Prof. P. C. Mahalanobis is known as **father of Indian Statistics.** He is the **founder of Indian Statistical Institute (ISI)** and served as an advisor to the Government of India.
 - He founded statistics journal **Sankhya** in 1933 as a publication of the Indian Statistical Institute.
 - He devised the **Mahalanobis model** that was instrumental in formulating India's strategy for industrialization in the Second Five-Year Plan (1956–61). This Model suggested that there should be an emphasis on the heavy industries, which can lead the Indian Economy to a long-term higher growth path.
 - **The Mahalanobis Distance** is widely used in cluster and classification algorithms to detect outliers in multivariate data.

12. APPENDIX

12.1. STATUS REPORT

Kindly note – this is an indicative list that can be useful in answer-writing. Students are advised to go through the list without having to worry out remembering small details. One can pick-up relevant points and data. This serves as a summary of all the initiatives taken by the government that can be linked to different SDGs.

Goals & Major Targets	Efforts	Achievements	Shortcomings and Way Forward
<p>SDG 1 (NO POVERTY)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Eradicate extreme poverty • Reduce poverty by at least 50% • Implement social protection systems and measures • Equal rights to ownership, basic services, technology and economic resources • Build resilience to environmental, economic and social disasters <p>Score: for the country is 50 and ranges between 28 and 72 for the States.</p>	<ul style="list-style-type: none"> • Accelerated economic growth and broader social safety nets through National Social Assistance Programme and MGNREGA. • Access to Basic Services through Pradhan Mantri Jan-Dhan Yojana (PMJDY) Pradhan Mantri Jan Arogya Yojana (PMJAY) programme PMAY (Pradhan Mantri Awas Yojana) etc. • Strengthening Livelihood Opportunities and Skilling Ecosystem through Stand Up India, Skill India, National Apprenticeship Programme, and National Rural and Urban Livelihood Mission, to double farmers' income by 2022 Interventions such as Pradhan Mantri Fasal Bima Yojana and Pradhan Mantri Krishi Sinchayee Yojana. 	<ul style="list-style-type: none"> • Per capita income grew from USD 1,610 in 2015 to USD 2,020 in 2018. • According to national estimates, poverty rate (including extreme poverty and multi-dimensional poverty) in India declined from 37.2% in 2004-05 to 21.92% in 2011-12. • Poverty reduction in rural areas has outpaced that in urban areas. • India's position in the Human Development Index improved by six places between 2014 and 2019 (129th). 	<ul style="list-style-type: none"> • Regional Variance as much of India's poverty is concentrated in rural areas and in low-income States. For eg: Chhattisgarh has 39.9% of people living below poverty while the corresponding figure for Andaman & Nicobar Islands is 1%. • Feminisation of Poverty: especially in rural areas. • Rapid Urbanisation increasing demand-supply gaps in housing, infrastructure, employment, and other economic opportunities and services. • Education, Employment and Human Resource Development: There is a need to refashion education and skill development so that the existing, emerging and future labour force has the capability and requisite opportunities to engage in appropriately gainful employment.
<p>SDG 2 (ZERO HUNGER)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Universal access to safe and nutritious food • End all forms of malnutrition • Double the productivity and incomes of small-scale food producers • Sustainable food production and resilient agricultural practices • Maintain the genetic diversity in food production • Prevent agricultural trade restrictions, 	<ul style="list-style-type: none"> • Ensuring Food security through National Food Security Act (NFSA), 2013, Antyodaya Anna Yojana (AAY), 'One Nation One Card' scheme. • Reforms in PDS such as 100% digitisation of ration card database, computerisation of supply chain management, Aadhaar seeding of ration cards, automation of Fair Prices Shops and installation of electronic-Point of Sales (PoS) machines. 	<ul style="list-style-type: none"> • 97.6% NFSA beneficiaries covered in 2018-19 from 95.2% in 2015-16 • 6 times increase in food grain production from 50 million tonnes in 1950-51 to more than 292 million tonnes in 2019-20 • 11.4 million hectares have been brought under micro-irrigation in 2019. • Average productivity of fruits and vegetables has increased by about 11% between 2013-14 and 2017-18 	<ul style="list-style-type: none"> • Food wastage at harvest, post-harvest, distribution and storage stages. • Social structures also determine food availability, especially for women, whose nutritional requirements are often overlooked. • Continuing high levels of malnutrition, stunting and anaemia as per NFHS-4 (2015-16) • Other issues such as access to nutritious food, water and sanitation, micronutrient

<p>market distortions and export subsidies</p> <p>Score: The overall Index Score for the country is 35 and ranges between 22 and 76 for the States, and between 12 and 73 for the UTs.</p>	<ul style="list-style-type: none"> • Ensuring Nutrition security through Anganwadi Services, Pradhan Mantri Matru Vandana Yojana (PMMVY), Scheme for Adolescent Girls (SAG) under the umbrella Integrated Child Development Services Scheme (ICDS), National Health Mission (NHM), Poshan Abhiyan (National Nutrition Mission and Mid-Day Meal (MDM) for school-going children among others. • Agricultural Productivity and Farmers' Income by implementing a multi-faceted strategy for doubling farmers' income by 2022, soil health cards, Pradhan Mantri Kisan Sampada Yojana etc. 	<ul style="list-style-type: none"> • 2.5 times increase in Land under certified organic farming from 0.72 million hectares in 2013-14 to 1.78 million hectares by march 2018. 	<p>deficiencies and inadequate awareness.</p> <ul style="list-style-type: none"> • With climate change looming large, to sustain food security solution lies in climate-smart agriculture.
<p>SDG 3 (GOOD HEALTH AND WELL-BEING)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Reduce maternal mortality and end all preventable deaths under 5 years of age • Fight communicable diseases and reduce mortality from non-communicable diseases and promote mental health • Prevent and treat substance abuse • Reduce road injuries and deaths • Universal access to sexual and reproductive care, family planning and education • Achieve universal health coverage • Reduce illnesses and deaths from hazardous chemicals and pollution <p>Score: for the country is 61, and ranges between 29 and 82 for the States, and between 50 and 71 for the UTs</p>	<ul style="list-style-type: none"> • Universal Health and Affordable Healthcare through schemes like Ayushman Bharat, Pradhan Mantri Jan Aarogya Yojana etc. • Enhancing Medical Infrastructure: programme for upgrading health infrastructure - from district hospitals to medical colleges has been initiated. • Reducing Maternal Mortality Ratio through Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) strategy, Janani Suraksha Yojana, Dakshata, LaQshya etc • Reducing Neonatal and Under Five Mortality through Integrated Child Development Services (ICDS) Scheme, and Mission Indradhanush. • Eliminating Communicable Diseases through National Vector Borne Disease Control Programme (NVBDCP), Swachh Bharat Mission, 	<ul style="list-style-type: none"> • Out of pocket expenditure (OoPE) as a percentage of total health expenditure has declined from 64.2% in 2013-14 to 58.7% in 2016-17. • Since 2014, 141 new medical colleges have been sanctioned and intake capacity increased. • MMR reduced from 130 in 2014-16 to 122 in 2015-17, which puts it on track to achieve target of <70 by 2030. • Institutional deliveries more than doubled between 2005-06 and 2019-20 from 39% to 94.3% • IMR declined from 37 to 32 between 2015 and 2018. • Under-5 Mortality Rate has declined from 43 in 2015 to 37 in 2017 (more for girls). • Neonatal mortality rate declined from 25 in 2015 to 23 in 2017. • Vaccinations of all children aged between 9-11 months has 	<ul style="list-style-type: none"> • Affordability and the cost of healthcare: Paucity of regulation in the private sector and the consequent variation in quality and cost of services. • Health workforce density: India has a doctor-population ratio of 1:1456, against the WHO benchmark of 1:1000. • Lack of Health Awareness, inadequate preventive care and patient counselling in the health delivery system, lower public priority to health concerns and weaker links between education and health. • India has a rich tradition of alternative medicine, which needs to be researched and tapped into as a part of the mainstream healthcare system. • Leverage technology for transforming the public health scenario in India.

	<p>National AIDS Control Programme (NACP) etc.</p> <ul style="list-style-type: none"> • With respect to Non Communicable Diseases, India has set target to bring down the burden of NCDs based mortality by 25% by the year 2025, expanded National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) to the entire country and enacted Mental Healthcare Act, 2017. • The Government has proposed to set up an Ayurveda hospital in each district with the assistance of the Ministry of Ayush. 	<p>increased from 88.66% in 2016-17 to 91.76% in 2018-19.</p> <ul style="list-style-type: none"> • Decline in the incidence of TB cases (per 100,000 population) from 217 cases in 2015 to 204 cases in 2017 – thereby consistently moving towards complete elimination of TB by 2025. 	
<p>SDG 4 (QUALITY EDUCATION)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Equal access to quality pre-primary education • Free primary and secondary education • Equal access to affordable technical, vocational and higher education • Eliminate all discrimination in education • Universal literacy and numeracy • Education for sustainable development and global citizenship • Increase the supply of qualified teachers in developing countries <p>Score: for the country is 58, and ranges between 19 and 81 for the States, and between 43 and 80 for the UTs</p>	<ul style="list-style-type: none"> • Early Childhood Care, Development and Education through National Early Childhood Care and Education Policy 2013, Integrated Child Development Services (ICDS) Scheme, and National Education Policy. • Elementary and Secondary Education through Right of Children to Free and Compulsory Education (RTE) Act, 2009, Samagra Shiksha Abhiyan, Kasturba Gandhi Balika Vidyalyayas etc. • Higher Education under Rashtriya Uchchar Shiksha Abhiyan (RUSA), India has 993 universities, 39,931 colleges and 10,725 stand-alone institutions. • Skill Development and Vocational Education: through Skill India mission and Pradhan Mantri Kaushal Vikas Yojana (PMKVY). • Conducive Education Facilities that are Child, Disability and Gender Sensitive: Ex. Beti Bachao, Beti Padhao campaign. 	<ul style="list-style-type: none"> • Gross Enrolment Ratio at elementary, secondary, and higher secondary and higher education levels was at 91.64%, 79.6%, 58.6% and 26.3 respectively in 2018-19. • The dropout rates reduced to 2.72% and 9.74% respectively at elementary and secondary levels in 2018-19. • Gender parity has appreciably improved at all three levels. • Between 2015-16 and 2017-18, the proportion of trained teachers increased. • School attendance of children with disabilities, increased from 50.5% in 2001 to 61.1% in 2011. 	<ul style="list-style-type: none"> • Regional disparity in literacy and numeracy skills and level of learning outcomes • The perceptive bias against public sector primary education requires consistent nation-wide efforts. • Higher education in India, still has a low Gross Enrolment Ratio of 26.3% as of 2018-19, and needs to be made more inclusive with stronger incentives for enabling the research and innovation ecosystem. • Lower enrolment of women in STEM, particularly in engineering and technology, which currently stands at 18% in IITs. • The positions of the country's universities in major global university rankings, fall short of the desirable.

<p>SDG 5- (GENDER EQUALITY)</p> <p>Targets:</p> <ul style="list-style-type: none"> • End discrimination and violence against and exploitation of women and girls • Eliminate forced marriages and genital mutilation • Value unpaid care and promote shared domestic responsibilities • Ensure full participation in leadership and decision-making • Promote empowerment of women through technology • Universal access to reproductive rights and health <p>Score: for the country is 42, and ranges between 26 and 52 for the States, and between 27 and 53 for the UTs.</p>	<ul style="list-style-type: none"> • Social Protection and Livelihoods through MGNREGA and Self Help Groups (SHGs). • Skilling and Financial Inclusion through Pradhan Mantri Jan Dhan Yojana (PMJDY), Pradhan Mantri Kaushal Vikas Yojana (PMKVY), MUDRA Yojana etc. • Social Empowerment through Beti Bachao Beti Padhao scheme, SABLA, Maternity Benefit Programme- Pradhan Mantri Matru Vandana Yojana etc. • the number of States with a Gender Budget Cell has increased from 14 in 2015-16 to 23 in 2019-20. 	<ul style="list-style-type: none"> • There are 10 million bank-linked SHGs, with as many as 87.66% being women-exclusive. • Of the 380 million accounts opened so far under PMJDY, 54% were owned by women. In 2017, women's access to bank accounts rose to 77% from 43% in 2014 • During 2014-18, there was a 97% rise in women enrolling in long-term skill development courses. • 50% of Pradhan Mantri Kaushal Vikas Yojana (PMKVY) beneficiaries are women. • 75% of the Mudra Yojana beneficiaries are women. • Representation of women in the lower house of the national parliament increased from 11.4% in 2014 to 14.4% in 2019. • In 2019, women voter turnout rose to 68%, tipping over that of men. 	<ul style="list-style-type: none"> • Between 2015-16 and 2017-18, number of women engaged in managerial positions declined, from 173 to 167, for every 1000 persons. • Female labour force participation in India has shown a declining trend in recent years. • Sex ratio has dropped from 898 in 2014-16 to 896 in 2015-17. • The registered cases of crime against women saw an uptick from 53.9 per 1, 00,000 female population in 2015 to 58.8 in 2018. • Absence of gender-disaggregated data sets is a major challenge which can help identify gaps and challenges. • Access to resources: In rural India, while 75% of rural women workers are engaged in agriculture, women's operational landholding is only 13.96%. Health and nutrition of women and girls is an area of concern.
<p>SDG 6 (CLEAN WATER AND SANITATION)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Universal and equitable access to safe and affordable drinking water for all • End open defecation and provide access to sanitation and hygiene • Improve wastewater treatment and safe reuse • Increase water use efficiency across all sectors • Implement integrated water resources management • Protect and restore water-related ecosystems such as mountains, forests, wetlands etc. 	<ul style="list-style-type: none"> • Safe and Affordable Drinking Water for All through Jal Jeevan Mission and Jal Shakti Abhiyan . • Water Quality monitored by the The Central Ground Water Board. Several programmes are implemented under the National River Conservation Plan such as 'Namami Gange', • Sanitation and Hygiene for All through Swachh Bharat Mission, Clean India Campaign and 10 Year Rural Sanitation Strategy (2019-2029). 	<ul style="list-style-type: none"> • As of July 2019, as many as 81.02% rural habitations have been saturated with access to 40 litres of drinking water per capita per day (LPCD). • About 96% of households have access to an improved source of drinking water. • The country achieved open-defecation-free (ODF) status by constructing over 109 million household and community toilets since October 2, 2014. • As part of SBM, separate toilets for girls have been built in 97.43% schools across the country. 	<ul style="list-style-type: none"> • Localised data systems on water, which are characterised by limited coverage and coordination, is one significant challenge. • Water scarcity and insufficient maintenance constrains the usage of separate toilets. <ul style="list-style-type: none"> ○ By 2030 water demand in the country is estimated to be twice the available water supply. • To improve the conditions of sanitation workers further efforts are needed such as Re-skilling and self-employment avenues for sanitation workers.

<ul style="list-style-type: none"> • Support and strengthen the participation of local communities in improving water and sanitation management. <p>Score: for the country is 88 and ranges between 69 and 96 for States, and between 61 and 100 for UTs.</p>			
<p>SDG 7 (AFFORDABLE AND CLEAN ENERGY)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Universal access to affordable, reliable and modern energy services • Double the improvement in energy efficiency • Enhance international cooperation to promote access, technology and investments in clean energy <p>Score: for the country is 70, and ranges between 50 and 97 for the States, and between 43 and 97 for the UTs,</p>	<ul style="list-style-type: none"> • National Energy Policy endorses the core elements of SDG 7 namely, universalising access to electricity and clean cooking fuel, privileging renewable energy in the energy mix and enhancing energy efficiency. • Towards Universal Access to Electricity through Pradhan Mantri Sahaj Bijli Har Ghar Yojana – Saubhagya. • Focus on Renewable Energy: target of 450 GW by 2030, as part of its Nationally Determined Contributions to have 40% of its cumulative electric power installed capacity from non-fossil fuel sources. • Access to Clean Cooking Energy through Pradhan Mantri Ujjwala Yojana, National Biogas and Manure Management Programme, etc. • Improving Energy Efficiency through the National Mission for Enhanced Energy Efficiency (NMEEE), BEE’s Super-Efficient Equipment Programme (SEEP), UJALA scheme etc. • Strengthening International Cooperation: Indo-German Energy Programme – Green Energy Corridors (IGEN-GEC), and establishment of International Solar Alliance. 	<ul style="list-style-type: none"> • Nearly all households in all of India’s 603,175 villages have been electrified. • India’s ranking on the parameter of ‘getting electricity’ on the World Bank’s Ease of Doing Business Index has swiftly climbed from 137 in 2014 to 22 in 2019. • Renewable energy installed capacity has grown to 132 GW in March, 2020, from 75 GW in March, 2014. Globally, India stands third in renewable power generation, fourth in wind power and fifth in solar power. • Renewable energy cost is lowest in the Asia-Pacific region. • Saving of 47 billion kWh energy and reduction of CO2 emission to the tune of 38 million tonne per year under UJALA scheme. • Households using clean cooking fuel increased from 63.1% in 2015-16 to 96.2% in 2018-19. 	<ul style="list-style-type: none"> • Marked dependency on imports (>85%) in the case of solar panels and equipment. • Paucity of sufficient human resources, capabilities, technologies and funds, for supporting renewable energy domestic capacity addition. • Expanding supply of electricity at a faster rate to meet existing unmet industry, commerce, and household demand and rising future demand.
<p>SDG 8 (DECENT WORK AND ECONOMIC GROWTH)</p> <p>Targets:</p>	<ul style="list-style-type: none"> • Structural Reforms through Goods and Services Tax regime, Substantial reduction in corporate tax, FDI 	<ul style="list-style-type: none"> • From 2014-15 to 2019-20, in real terms, India’s economy grew at a CAGR of 7.01%. 	<ul style="list-style-type: none"> • While agriculture employs about 50% of India’s workforce, it contributes less than 20% to GDP. There is thus

<ul style="list-style-type: none"> • Sustainable Economic Growth • Diversify, innovate and upgrade for economic productivity • Promote policies to support job creation and growing enterprises • End modern slavery, trafficking, and child labour • Protect labour rights, promote safe working environments and decent work with equal pay. • Promote beneficial and sustainable tourism that creates jobs and promotes local culture and products. • Universal access to banking, insurance and financial services <p>Score: for the country is 64, and ranges between 27 and 82 for the States, and between 43 and 64 for the UTs</p>	<p>liberalisation, Insolvency and Bankruptcy legislation etc.</p> <ul style="list-style-type: none"> • Funding Small Enterprises through Start-up India, MUDRA scheme etc. • Ease of Doing Business Reforms such as consistent improvements in ease of starting a business, easy access to power and credit, resolving insolvency etc. • Decent Work and Labour Welfare: over 40 Central Acts, and multiple State level Acts, govern labour related matters including some specifically catering to the needs of women and children. • Skilling Ecosystem through National Skill Development Mission, Pradhan Mantri Kaushal Vikas Yojana (PMKVY) etc. 	<ul style="list-style-type: none"> • India has the third largest entrepreneurship ecosystem, and third highest number of unicorns. • Number of new firms in the formal sector grew from 2014 to 2018 at 12.2%. • The number of start-ups increased from 503 in 2015-16 to 32,577 in 2019-20 • Start-ups created 60,000 direct and 1.3-1.8 lakh indirect jobs. • Loans amounting to more than INR 11.8 trillion (USD 157.3 billion) have already been disbursed under MUDRA. • Over 10 million students have been trained under the National Skill Development Mission and 8.7 million under the PMKVY. • Trade across borders has led to meteoric jump of 79 positions in Ease of doing business ranking to 63 in 2019 from 142 in 2014. 	<p>a pressing need to increase agricultural productivity and create alternative channels of employment.</p> <ul style="list-style-type: none"> • A population with minimum educational proficiency is necessary to tap into the benefits of increased employment opportunities. • India fares poorly in health indicators areas such as life-expectancy, Infant Mortality Rate, and levels of stunting and anaemia, especially among women thus affecting worker productivity. • Nearly 80% of workers are employed in the unorganised sector and more than 90% in informal employment which is not covered under the majority of labour laws. • Unemployment rate (15-59 years) is quite high.
<p>SDG 9- (INDUSTRY, INNOVATION AND INFRASTRUCTURE)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Develop sustainable, resilient and inclusive infrastructures • Promote inclusive and sustainable industrialization • Upgrade all industries and infrastructures for sustainability • Enhance research and upgrade industrial technologies • Increase access to financial services and markets • Universal access to information and communications technology <p>Score: for the country is 65, and ranges between 8 and 88</p>	<ul style="list-style-type: none"> • Design and Innovation Ecosystem: The share of expenditure on R&D on Intellectual Properties Products to the GDP has increased from 3.52% in 2015-16 to 3.91% in 2017-18 and also strengthened the office of Controller General of Patents, Designs and Trade Marks (CGPDTM) by the appointment of a large number of examiners and controllers, engagement in active R&D collaboration with more than 44 countries. • Start-up Ecosystem through Start-up India programme. • Infrastructure Development through Bharatmala programme and Sagarmala project. 	<ul style="list-style-type: none"> • Examination and registrations of designs and patents increased in 2018-19. • Per day Road construction pace increased to 29.7KM in 2018-19 from 17 km per day in 2015-16, with total investment in the sector increasing by more than three times between 2014-15 and 2018-19. • Cargo handling capacity of 13 major ports have increased by 89% from 2014-15. • The turnaround time of ships, (key indicator of efficiency) reduced between 2010-11 and 2018-19 from 4.67 days to 2.48 days. • India's rank has improved: 	<ul style="list-style-type: none"> • There is moderation in growth of IIP from subdued manufacturing activities due to slower credit flow, reduced lending by NBFCs, tapering of domestic demand etc. • India's material intensity is six times that of Germany's. Understanding need to be enhanced to ascertain whether the major issues are around efficiency or technology or are structural in nature. • Indian industry consumes large quantities of water and generates billions of tonnes of solid and hazardous waste. Significant increase in treatment and recycling capacities is needed

<p>for the States, and between 0 and 100 for the UT</p>	<ul style="list-style-type: none"> • Telecommunications: India's internet user base has exceeded 665 million by the end of June 2019, as compared to 252 million in 2014. Total telephone connections in India grew by 18.8%, from 996 million in 2014-15 to 1183 million in 2018-19. <ul style="list-style-type: none"> ○ Cheapest mobile data at \$0.26 per GB, compared to global average of USD 8.53. 	<ul style="list-style-type: none"> ○ to 68 in 2019 in Global Competitiveness Index (WEF). ○ From 76 in 2014 to 52 in 2019 in The Global Innovation Index (WIPO). ○ 10 places from 54 in 2014 to 44 in 2018 in Logistics Performance Index (World Bank), • from 52 in 2015 to 34 in 2019 in Tourism Competitiveness Index (WEF). 	<ul style="list-style-type: none"> • COVID-19 pandemic has put forth severe breaks on the momentum of global economic growth.
<p>SDG 10 (REDUCED INEQUALITIES)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Promote universal social, economic and political inclusion • Ensure equal opportunities and end discrimination • Adopt fiscal and social policies that promotes equality • Improved regulation of global financial markets and institutions • Enhanced representation for developing countries in financial institutions • Responsible and well-managed migration policies <p>Score: for the country is 64, and ranges between 19 and 94 for the States, and between 33 and 94 for the UTs</p>	<ul style="list-style-type: none"> • Promoting Income Growth through MGNREGA, Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), Code on Wages, 2019, Pradhan Mantri Garib Kalyan Yojana etc. • Promoting Equality of Opportunities and Outcomes through The Right to Free and Compulsory Education (RTE) Act, 2002, Samagra Shiksha programme, Pradhan Mantri MUDRA Yojana etc. • Expanding Social Protection Measures through The National Social Assistance Programme (NSAP), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) etc. • Empowering through Financial Inclusion: Pradhan Mantri Jan Dhan Yojana (PMJDY), The Pradhan Mantri Mudra Yojana (PMMY) etc. • Promoting Sustainable Migration and a Migrant-friendly Support System through Inter-State Migrant Workmen Act. 	<ul style="list-style-type: none"> • Gross Enrolment Ratio currently stands at 91.6 and 79.6 per cent, for elementary and secondary levels, respectively. • Dropout rates for the same levels have reduced to 2.72 per cent and 9.74 per cent, respectively, in 2018-19. • Under the Pradhan Mantri MUDRA Yojana, in 2018-19, 22%, 26 % and 62% of the loan accounts belonged to SC/ST, OBC and women entrepreneurs respectively. • Life and personal accident insurance schemes (PMJJBY and PMSBY together) have now achieved an outreach of 254.5 million subscribers and APY has more than 22.3 million subscribers (with increased enrolment for women). • 28.3% seats in State legislative assemblies occupied by persons belonging to SC/ ST communities and 44.4% seats in panchayati raj institutions held by women. 	<ul style="list-style-type: none"> • Both the geography and demography of inequality and exclusion in India are diverse, posing challenges for identification, monitoring, and effective resolution. • Rising elderly people population stepping up demand for a wide variety of social protection and security measures. • Public service delivery, gets impeded due to a range of issues including human resource capacity • Rapid urbanisation, and changing settlement and employment patterns interact with existing vulnerabilities to create complex problems.
<p>SDG11 (SUSTAINABLE CITIES AND COMMUNITIES)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Safe and affordable housing 	<ul style="list-style-type: none"> • Inclusive, safe, resilient and sustainable Urban Transformation through Atal Mission for Rejuvenation and Urban Transformation 	<ul style="list-style-type: none"> • As of 2019-20, 96 per cent wards have 100 per cent door to door waste collection as compared to 41 per cent in 2015-16. • Waste processing has significantly increased 	<ul style="list-style-type: none"> • Financial autonomy, taxation powers and fund generation capabilities of Urban local bodies are the areas of concern.

<ul style="list-style-type: none"> • Affordable and sustainable transport systems • Inclusive and sustainable urbanization • Protect the world's cultural and natural heritage • Reduce the adverse effects of natural disasters • Provide access to safe and inclusive green and public spaces <p>Score: for the country is 53, and ranges between 22 and 79 for the States, and between 33 and 83 for the UTs.</p>	<p>(AMRUT), Smart Cities Mission (SCM) etc.</p> <ul style="list-style-type: none"> • Housing for All under Pradhan Mantri Awas Yojana (PMAY). • Sustainable Urbanisation and Mobility through National Urban Transport Policy (NUTP) and National Mission on Transformative Mobility. 	<p>from 17.97 per cent in 2015-16 to 60 per cent in 2019-20.</p> <ul style="list-style-type: none"> • Since the launch of the Smart Cities Mission, 5,151 projects worth more than INR 2 trillion (USD 26.7 billion) are at various stages of implementation. • Number of houses completed in urban areas increased from 0.727 million in 2015-16 to 3.2 million in 2019-20 	<ul style="list-style-type: none"> • Climate change impacts increase the vulnerability of cities and put further stress on the adaptive capacities of the poor living in them. • Integrated and spatially distributed urbanisation with an emphasis on small and medium cities and towns, along with promotion of linkages with rural areas.
<p>SDG 12 (RESPONSIBLE CONSUMPTION AND PRODUCTION)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Implement the 10-year sustainable consumption and production framework • Achieve the sustainable management and efficient use of natural resources. • Halve global per capita food waste • Responsible management of chemicals and waste • Substantially reduce waste generation through prevention, reduction, recycling and reuse. • Promote sustainable public procurement practices • Promote universal understanding of sustainable lifestyles • Remove market distortions that encourage wasteful consumption <p>Score: for the country is 55, and ranges between 30 and 100 for the States, and between 39 and 77 for the UTs.</p>	<ul style="list-style-type: none"> • Sustainable Food Systems through National Mission on Sustainable Agriculture (NMSA), Soil Health Management (SHM) climate change strategies etc. • Sustainable Tourism: Comprehensive Sustainable Tourism Criteria for three major industry segments, namely, tour operators, accommodation and beaches, backwaters, lakes and rivers sectors. In addition, integrating tourism with local culture and economic development, promoting community participation. • Sustainable Construction and Buildings through The Green Rating for Integrated Habitat Assessment (GRIHA), Energy Conservation Building Code (ECBC) etc. • Resource Efficiency: control over resource extraction rate and improving material productivity, reduce import dependency for the majority of the 'most critical' materials, such as, cobalt, copper and lithium. • NITI Aayog initiated the process with the formulation of the Draft 	<ul style="list-style-type: none"> • 100 % source segregation of waste in 75% of municipal wards. • India ranks 9th in the world in land under organic agriculture. 	<ul style="list-style-type: none"> • According to the FAO, up to 40 per cent of the food produced in India is wasted, virtually frittering away a lot of water, fertilizers, and other resources that go into producing food. • Improvement of sustainability by strengthening cooperation among all producers and simultaneously raising awareness and consciousness among consumers about sustainable consumption choices.

<p>SDG 13 (CLIMATE ACTION)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Strengthen resilience and adaptive capacity to climate-related disasters • Integrate climate change measures into national policies, strategies and planning. • Improve education, awareness-raising and human and institutional capacity to meet climate change • Implement UN Framework Convention on Climate Change <p>Score: for the country is 60, and ranges between 27 and 71 for the States, and between 30 and 100 for the UTs.</p>	<p>National Resource Efficiency Policy (NREP).</p> <ul style="list-style-type: none"> • Climate Action in Policies, Strategies and Planning through the National Action Plan on Climate Change (NAPCC) and State Action Plan for Climate Change (SAPCC). • India and Global Responsibilities: India actively participates in the United Nations Framework Convention on Climate Change (UNFCCC), Paris Agreement in 2015 and spearheaded the International Solar Alliance (ISA). • Generating Clean Energy by promoting solar energy through various fiscal and promotional incentives, green cess on coal, Perform, Achieve and Trade (PAT) scheme, Renewable Energy Certificate (REC) etc. • Reducing Emission Intensity through National Electricity Policy, 2018, Bharat Standards for vehicle emission norms, ethanol blending etc. • Improving Disaster Risk Reduction and Preparedness through National Cyclone Risk Mitigation Project, International Coalition for Disaster Resilient Infrastructure (CDRI) etc. 	<ul style="list-style-type: none"> • India is ranked among the top ten countries in the Climate Change Performance Index 2020 on account of low levels of per capita emissions and energy use, and 'well-below-2°C' renewable energy targets. • Reduction in emission intensity of GDP by 21 per cent. • 7.43 bn kwh energy savings per year under street lighting program and 5.12mn tonnes of CO2 Annual GHG emission reduction. 	<ul style="list-style-type: none"> • Improving Disaster Resilience: there is a growing need for technology-driven response systems as well as resilient infrastructure – power and telecom, rural connectivity and transport, and housing and storage. • Gender mainstreaming in the State Action Plan for Climate Change (SAPCC) needs further expansion, especially in the climate adaptation programmes. • Emergent issues of ethics, equity and inclusivity would have to be addressed while moving towards the new wave of industrialisation with focus on digitalisation and automation.
<p>SDG 14 (LIFE BELOW WATER)</p> <ul style="list-style-type: none"> • Reduce marine pollution • Protect and restore marine and coastal ecosystems • Reduce ocean acidification • Promote sustainable fishing and end subsidies contributing to overfishing • Increase the economic benefits from sustainable use of marine resources • Increase scientific knowledge, research 	<ul style="list-style-type: none"> • Containing Marine Pollution along the country's coastline through the Coastal Ocean Monitoring and Prediction System, Online Oil Spill Advisory System, National Oil Spill Disaster Contingency Plan, 2014. • Protecting Marine and Coastal Ecosystems: India has 25 MPAs in the peninsular region and 106 in islands, collectively spanning about 10,000 sq.km. 	<ul style="list-style-type: none"> • Maximum sustainable yield in fishing increased from 3.7 million tonnes per year in 2015-17 to 5.3 million tonnes per year in 2017-18. • Area under mangroves increased to 4975 sq. km in 2019 from 4740 sq. km in 2015. • India is the fourth biggest seafood exporter. 	<ul style="list-style-type: none"> • As the Living Planet Report 2018 points out, the oceans around India are experiencing high fishing intensity; declining catch faced by the fisherfolk across the shoreline. The key future objective is to improve sustainability in the sector. • There is increasing awareness of new sustainability practices in fishing around the Indian coast but the same needs scaling up.

<p>and technology for ocean health</p> <ul style="list-style-type: none"> • Implement and enforce international sea law <p>Score: for the nine coastal States ranges between 23 and 65.</p>	<ul style="list-style-type: none"> • Conserving Mangroves and Coral Reefs through Mangrove For the Future (MFF), Wildlife Protection Act, 1972, Environmental Protection Act, 1986, Coral Bleaching Alert System (CBAS) etc. • Promoting Sustainable Marine Fishing through establishment of a Potential Fishing Zone Advisory programme, Integrated National Fisheries Action Plan, National Marine Fisheries Policy, 2017 etc. 		<ul style="list-style-type: none"> • Sustainability certification of fishing practices is a new area in which substantial breakthrough is needed. It provides the opportunity of increasing market access at the international level and of improving long-term sustainability in fishing operations. • Building up domestic institutional capacity for auditing, certification and labelling, which can considerably bring down the costs. • The graduation from artisanal vessels to mechanised boats has not led to sustained enhanced earnings, or better working conditions or greater control over the market dynamics, leading to higher levels of indebtedness.
<p>SDG 15 LIFE ON LAND</p> <p>Targets:</p> <ul style="list-style-type: none"> • Conserve and restore terrestrial and freshwater ecosystems • End deforestation and restore degraded forests • End desertification and restore degraded land • Ensure conservation of mountain ecosystems • Protect biodiversity and natural habitats • Protect access to genetic resources and fair sharing of the benefits • Eliminate poaching and trafficking of protected species • Prevent invasive alien species on land and in water ecosystems • Integrate ecosystem and biodiversity in governmental planning <p>Score: for the country is 66, and ranges between 40 and 100 for the States, and between 37 and 100 for the UTs.</p>	<ul style="list-style-type: none"> • Managing Forests through The National Afforestation Programme (NAP), National Mission for a Green India (GIM), Joint Forest Management (JFM) etc. • Conserving Wetlands and Water bodies through Forest Act, 1972; the Wildlife (Protection) Act, 1972; the Water (Prevention and Control of Pollution) Act, 1974; Wetland (Conservation and Management) Rules 2017 etc. • Combating Desertification through Integrated Watershed Management Programme, the National Afforestation Programme and the National Mission for Green India. • Conserving Biodiversity: The National Biodiversity Authority operationalises the access and benefit-sharing provisions of the CBD through a national 	<ul style="list-style-type: none"> • Area covered under different afforestation schemes increased from 1.38 million ha in 2015-16 to 1.68 million hectare in 2017-18. • India has exceeded the terrestrial component of 17 per cent of Aichi target 11, and 20 per cent of corresponding NBT relating to areas under biodiversity management. • Only 0.08 per cent of the species recorded in India are critically endangered as against 0.3 per cent of all species recorded globally. • The number of Protected Areas has increased from 759 to 903 and number of Community Reserves has increased from 44 to 163 in the last five years, improving the scope for community participation in wildlife protection. 	<ul style="list-style-type: none"> • Problems of chemical contamination and pollution, plastic invasion and rapid extraction of natural resources must be met by sustainable industrialisation strategies. • Increased technology alternatives, infrastructure development and efficient resource mobilisation need to be rolled out to sufficiently advance green industrialisation choices. • Challenges remain in terms of development of necessary knowledge and skills, preparation/adoption of norms and protocols for various geo-ecological zones.

	network of Biodiversity Management Committees and People Biodiversity Registers.		
<p>SDG 16 (PEACE, JUSTICE AND STRONG INSTITUTIONS)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Reduce all forms of violence and related death rates everywhere. • Protect children from abuse, exploitation, trafficking and violence • Promote the rule of law at the national and international levels and ensure equal access to justice for all. • Combat organized crime and illicit financial and arms flows • Substantially reduce corruption and bribery • Ensure responsive, inclusive and representative decision-making • Strengthen the participation in global governance • Ensure public access to information and protect fundamental freedoms <p>Score: for the country is 72, and ranges between 52 and 86 for the States, and between 64 and 94 for the UTs.</p>	<ul style="list-style-type: none"> • Reducing Violence: India has ratified the UN Convention on the Rights of the Child (CRC). • Access to Justice through The Rights of Persons with Disabilities Act, 2016 • Accountable Institutions : An independent judiciary the Comptroller and Auditor General (CAG) of India, Lokpals and Lokayuktas. • Transparent and participatory governance through The Right to Information Act, 2005, Digital India campaign, PRAGATI platform etc. • Ethics in Governance through statutes like the Prevention of Corruption Act, the Whistle blowers Protection Act, • Fugitive Economic Offenders Act, 2018 etc. • Legal Identity for all through Aadhaar 	<ul style="list-style-type: none"> • Between 2015 and 2018, the crime rate per lakh population has dropped by 34 per cent. • Over 90% population covered under Aadhaar unique identity system. • Digital Payment Transactions increased to 38 billion in 2019-20 from 21 billion in 2017-18. 	<ul style="list-style-type: none"> • Inadequacy of comprehensive and disaggregated data. • Internet access and digital literacy need further improvement. • Concerns about data privacy and security in Aadhaar.
<p>SDG 17 (PARTNERSHIPS FOR THE GOALS)</p> <p>Targets:</p> <ul style="list-style-type: none"> • Mobilize resources to improve domestic revenue collection • Implement all development assistance commitments • Assist developing countries in attaining debt sustainability • Invest in and strengthen the science, technology and innovation capacity for least-developed countries • Knowledge sharing and cooperation for access to science, technology and innovation 	<ul style="list-style-type: none"> • Augmenting Domestic Resource Mobilisation: through Multilateral Convention on Mutual Administrative Assistance in Tax Matters (MCMAATM) and allied initiatives for information sharing and other cooperation among countries. • Improving Public Expenditure Efficiency: through monitorable Output-Outcome Monitoring framework (OOMF) Public Finance Management System (PFMS) and Integrated Financial Management System (GIFMIS). • Promoting Entrepreneurship and the Private Sector: by 	<ul style="list-style-type: none"> • India has improved its tax-to-GDP ratio in the last six years, to 17-17.5 per cent. • Direct Benefit Transfers (DBT) has helped eliminating leakages worth INR 1.7 trillion (USD 23 billion) • FDI equity inflows in India stood at USD 456.79 billion during the period from April 2000 to December 2019, • India was among the top 10 recipients of FDI in 2019. • India has committed a total of USD 150 million over a decade to the India-UN Development Partnership Fund. 	<ul style="list-style-type: none"> • Subjective assessments of the Indian policy and regulatory environment by global financial institutions and rating agencies raise the costs of private financial flows to India affecting long-term finance for infrastructure and other investments that are crucial for achieving the SDGs. • There is need for international cooperation for curbing illicit financial flows, defining aid unambiguously and establishing robust systems for monitoring commitments made by donor countries.

<ul style="list-style-type: none"> • Promote a universal trading system under the WTO • Increase the exports of developing countries and remove trade barriers for least-developed countries • Enhance global macroeconomic stability • Enhance the global partnership for sustainable development • Further develop measurements of progress 	<p>amending the Patent Rules, 2003 and Trade Mark Rules, 2017.</p> <ul style="list-style-type: none"> • Strengthening South-South Cooperation through Indian Technical & Economic Cooperation (ITEC) programme in 160 countries, Line of credits and ODA, e-VidyaBharati project, IBSA Fund etc. • Coalition Based Approach: through Coalition for Disaster Resilient Infrastructure (CDRI), International Solar Alliance (ISA). • COVID-19 and India's Global Response: deployment of Rapid Response Teams, a COVID-19 Emergency Fund, SAARC COVID-19 Information Exchange Platform (COINEX) • Improving Data, Monitoring and Accountability: National Indicator Framework (NIF) has been adopted to monitor the progress and NITI Aayog has developed the SDG India Index to measure and rank the performance of States and UTs. 	<ul style="list-style-type: none"> • More than 300 Lines of Credit (LoC) totalling USD 30.66 billion to 64 countries so far. • A grant assistance fund of USD 600 million established. 	<ul style="list-style-type: none"> • High-income nations that are a part of the Development Assistance Committee (DAC) need to honour their commitments of providing 0.7 per cent of GNI as ODA that is critical to provision of global public goods such as climate change mitigation, conservation of ecosystems and biodiversity as well as management of pandemics like the COVID-19.
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12.2. GOOD PRACTICES IN LOCALISING SDGS

SDG 1	<ul style="list-style-type: none"> • KUDUMBASHREE is the poverty eradication and women empowerment programme implemented by Kerala jointly with the National Bank for Agriculture and Rural Development. The Mission has over the last two decades drastically transformed the lives of women through grassroots level initiatives that have empowered them economically and socially.
SDG 2	<ul style="list-style-type: none"> • BREAST MILK BANK was established in the Aspirational District of Ramanathapuram, Tamil Nadu to provide access to breast milk for low birth weight, pre-term and orphan babies. The initiative helped improve rates of breastfeeding in the district. • CENTRALISED KITCHENS FOR BETTER NUTRITION: In the Aspirational District of Nandurbar, Maharashtra, central kitchen has been set up by the Tribal Development Department of the State Government to provide hot and nutritious meals to children in residential schools, known as Ashram Shalas. This central kitchen caters to 28 ashram schools with a capacity up to 10,000 students.
SDG 3	<ul style="list-style-type: none"> • YSR AAROgyASRI SCHEME Towards achievement of universal health coverage for BPL families, the Government of Andhra Pradesh is implementing the YSR Aarogyasri Health Insurance Scheme. The scheme has established a demand-side mechanism that mobilises and channels additional public financing to health, introduced an explicit benefits package, pioneered cashless care and fostered public private partnerships.
SDG 4	<ul style="list-style-type: none"> • UNNAYAN BANKA SMART CLASSROOM MODEL Unnayan Banka implemented in the Aspirational District of Banka, Bihar, is an initiative that envisages 'quality education for all', using latest technologies. In Banka, learning outcomes improved from 17% to 54% with 90% attendance. Following the success of this innovation, the model has now been successfully implemented in all districts of Bihar and other Aspirational Districts such as Godda (Jharkhand), Ramgarh (Jharkhand), Dhubri (Assam), Namsai (Arunachal Pradesh) and Dhenkanal (Odisha).
SDG 5	<ul style="list-style-type: none"> • Children First: The Child Protection Unit in the Aspirational District of Muzzafarpur performs an integrated role in child rights, health and education. This unit mobilises the community and emphasises the importance

	of gender equality, reduction of mortality rates and relevant indicators pertaining to children and women. Such activities have been drawing a large number of people, especially girls and women.
SDG 6	<ul style="list-style-type: none"> • 'TAANKA' TECHNIQUE FOR WATER CONSERVATION: The Aspirational District of Sonbhadra became the first district in Uttar Pradesh to employ the traditional taanka technique to propel its efforts for rainwater harvesting and water conservation, popular in the water-parched state of Rajasthan. • SUBSURFACE DAMS: To address the issue of water shortage, the Aspirational District of Y.S.R Kadappa, Andhra Pradesh, has constructed sub surface dams on river Papagni. After the intervention, water percolation of the surface runoff to the sand layers, and in the adjoining alluvium along the river has increased the water table, resulting in increased water availability for sustainable irrigation practices.
SDG 7	<ul style="list-style-type: none"> • SURYASHAKTI KISAN YOJANA (SKY): The Government of Gujarat has launched a solar power scheme for farmers - Suryashakti Kisan Yojana (SKY) enabling them to generate electricity for their captive consumption and to sell the surplus power to the grid for augmenting income.
SDG 9	<ul style="list-style-type: none"> • EASE OF DOING BUSINESS IN MUMBAI AND DELHI - construction permits Municipal Corporation of Delhi and Municipal Corporation of Greater Mumbai have introduced fast track approval systems for issuing building permits with features such as Common Application Form (CAF), provision of using digital signature and online scrutiny of building plans. Doing Business 2018 and 2019 reports, showed that the time for construction permits reduced from 128.5 to 99 days in Mumbai, and from 157.5 to 91 days in Delhi, between the years.
SDG 10	<ul style="list-style-type: none"> • SWEEKRUTI SCHEME: The scheme was formulated by the Government of Odisha to provide equal opportunities and protect the rights of the transgender community through scholarships, skill upgradation and entrepreneurship development, training, support for critical health care and group insurance support, legal aid, counselling and guidance services for the community.
SDG 11	<ul style="list-style-type: none"> • BHUBANESWAR ONE, ODISHA Implemented by Bhubaneswar Smart City Limited (BSCL), Bhubaneswar One, is an e-portal that integrates geo-spatial data from all the Government and private organisations for providing easy and hassle-free information to residents and tourists. • MANGROVE BOARDWALK PANAJI, GOA Panaji Smart City Development Limited, the Smart City SPV of the Government of Goa has developed a 'Boardwalk' in the midst of mangroves in Panaji creating ecologically sustainable green spaces.
SDG 12	<ul style="list-style-type: none"> • DECENTRALISED SOLID WASTE MANAGEMENT ALAPPUZHA, KERALA: The urban local body in coordination with district Suchitwa Mission (Cleanliness Mission), implements a project called 'Nirmala Bhavanam Nirmala Nagaram' (Clean Homes, Clean City). The project focuses on decentralised solid waste management through segregation and treatment of wet waste at the source. The project has received global recognition from the UNEP and the city has been recognised as one of the five top model cities in the world for sustainable management of solid waste.
SDG 14	<ul style="list-style-type: none"> • The SINDHUDURG MAINSTREAMING PROJECT in Maharashtra has invested heavily in a multi-pronged approach to improve the sustainability of fisheries, protect the rights of access of artisanal fishers, act against illegal fishing activities, and build sectoral partnerships to diversify and improve the livelihoods of coastal communities. • ECO-LABELLING initiatives are being promoted for sustainably managing marine fisheries. An eco-labelling intervention in Kerala seeks to harness consumer power to bring about positive change in the fisheries sector.
SDG 16	<ul style="list-style-type: none"> • POLICE UNCLE TUTORIAL: Launched in 2019, Police Uncle Tutorial is a one of a kind initiative by the Police Department in the Aspirational District of Simdega in Jharkhand. This unique concept targets dropouts and academically weak students of Grade X, in the left-wing extremism affected areas of the district, where children are more susceptible to crime.

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