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NOTE:

Dear Students,

Memorisation and recollection of information in Current Affairs is as important as understanding the articles. In order to enhance the learning outcomes from the Monthly Current Affairs Magazine, we are introducing following additions:

A thematic based colors has been used in the document in the boxes, tables etc to enable easy identification and recollection of various concepts and topics.

Questions are an important tool to assess and retain information. To enable this we are adding a Smart Quiz at the end of each section in the document for practicing the questions.

A wide variety of infographics have been added to ensure smoother learning experience and enhanced retention of the information. This will also help in effective presentation of information in the answer writing as well.

Places and persons in news are being presented in an objective manner through Maps, Tables & Pictures. This will help in easier recollection of factual information.

1. POLITY & GOVERNANCE

1.1. ONLINE DISPUTE RESOLUTION

Why in news?

Recently, **NITI Aayog** has planned to launch a new first-of-its-kind **Online Dispute Resolution (ODR) handbook** in India.

What is Online Dispute Resolution (ODR)?

- ODR is the **resolution of disputes outside courts**, particularly of small and medium-value cases, using digital technology and techniques of **alternate dispute resolution (ADR),** such as negotiation, mediation, and arbitration.
- ODR realizes the notion that 'courts should be a service not a place'.
- The **developments in information and communication technology (ICT)** and **increased access to internet** has played a key role in ODR.
- ODR play a key role in achieving the ideal enshrined in Indian constitution of **'access to justice' for all**.

Design Principles of ODR Platform

- Accessibility and Equality
- Interoperability
- Data-Driven Development
- Scalability
- Privacy, Security, and Trust by design
- Modularity
- Resilience
- User-Centricity
- Portability
- Data Empowerment
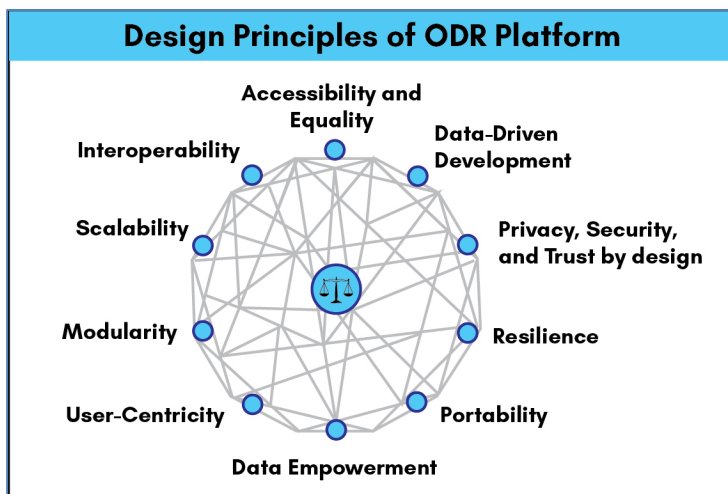
Evolution of ODR in India

2006
National Internet Exchange of India adopted **.IN Domain Name Dispute Resolution Policy (INDRP)** which provided for Online Dispute Resolution.

2018
Ministry of MSME launched SAMADHAAN portal to address delay of payment disputes involving Micro and Small Enterprises.

2020
Government of India launched Vivaad se Vishwas Scheme for efficient resolution of tax disputes through ODR.

2020
Chhattisgarh conducted first virtual Lok Adalat and provided conciliation services through video conferencing.

2017
Ministry of Law and Justice issued a statement to urge government agencies to resolve disputes through online arbitration.

2019
E-ADR Challenge was launched to identify and support ODR start ups.

2020
NITI Aayog established a Committee under the **chairmanship of Justice (Retd.) A.K. Sikri** to broad-base the use of ODR in India.

2020
Department Related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice, in their report called for introduction of technology in arbitration and conciliation processes.

Present status of ODR in India

- **e-Courts Mission Mode Project**: Under the leadership of the **E-Committee for monitoring the use of Technology and Administrative Reforms** in the Indian Judiciary, the project continues to advocate and work towards greater reliance on ICT tools in the justice delivery process.
- **Conducting e-Lok Adalats**: The COVID-19 pandemic has provided an impetus to the authorities to use online mechanisms in their daily functioning. As a consequence, India saw the organisation of various e-Lok Adalats across States. The **first e-Lok Adalat** organised by the **Chhattisgarh**.
- **Virtual Courts**: The Supreme Court has observed that some cases could partly or entirely be concluded 'online' and recommended the **resolution of simple cases** like those concerning **traffic challans and cheque bouncing** through online mechanisms.
- **RBI's ODR Policy on Digital Payments:** In 2019, the **Nandan Nilekani led High level Committee** on Deepening Digital Payments, established by Reserve Bank of India recommended the s**etting up of a two-tiered ODR system** to handle complaints arising out of digital payments.
- **Draft National E-Commerce Policy**: The policy suggests the **use of an electronic grievance redressal system** including dissemination of compensation electronically for disputes arising from e-commerce.

Benefits of ODR

- **Cost effective:** ODR offers a cost-effective mode of dispute resolution for the disputants as well as the neutrals. ODR has the potential to **reduce legal costs** by **reducing time for resolution** and by doing away with the need for **legal advice**.
- **Convenient and quick dispute resolution:** ODR can address delays by **providing a faster and more convenient**

FOUR LAYER MODEL FOR ACCESS TO JUSTICE

- ODR
- ADR
- COURT

- Legal Health Promotion
- Dispute Avoidance
  - Legal guidance and assistance for those with grievances
- Dispute Containment
  - Out of court settlement and mediation
- Dispute Resolution
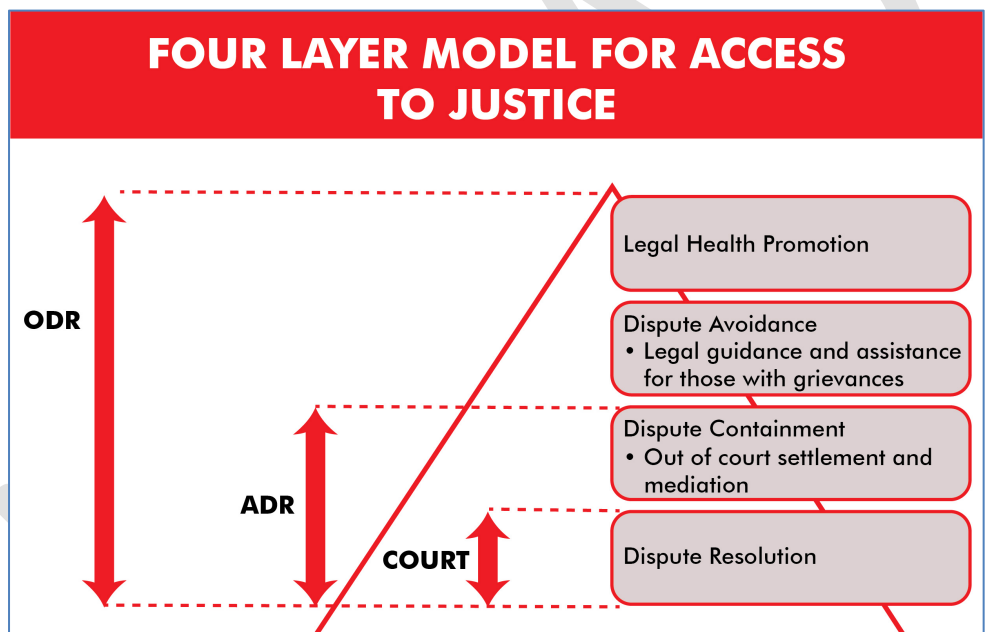
process for resolution of disputes, also **eliminates the need for travel and synchronization** of schedules.
- **Increased access to justice:** ODR tools such as **online negotiation and mediation** are premised on **mutually arriving at an agreement** and hence they make the dispute resolution process less adversarial and complicated for the parties which in turn increase access to justice.
- **Removes unconscious bias:** ODR processes **lessen the unconscious bias of the neutral** while resolving disputes. ODR platforms detaches audio visual cues relating to the gender, social status, ethnicity, race, etc. and helps in **resolving disputes based on the claims and information submitted** by the disputing parties, rather than who these parties are.
- **Improved legal heath of the society:** Greater access to dispute resolution processes will result in improved legal health of the society where individuals and businesses are aware of their rights and have the means to enforce them which will result in **improved 'Ease of Doing Business'** rankings for India especially on the **'enforcement of contracts'** parameter.
- **Complete transformation of the legal paradigm:** The new paradigm provides an opportunity to accord dignity and respect to every citizen in an effective, efficient and expeditious manner and it allows for a **comprehensive vision of justice,** which is **fair in its decisions and processes**, **transparent in its conduct**, **enforceable and legitimized by the State,** and above all **accessible to all** advancing equity.

Challenges faced in adoption of ODR:

- **Structural Challenges:**
  - **Digital literacy**: In India, **digital literacy often varies across age, ethnicity and geography**. This digital divide needs to be addressed to ensure that ODR is adopted by the society at large and not remain limited to urban areas.

- o **Digital infrastructure:** A broad base adoption of ODR will require **essential technology infrastructure** across the country which includes access to computers, smart phones and medium to high bandwidth internet connection for atleast the length of time it takes to conduct meaningful hearings.
  - o **Gender divide in access to technology:** As per **Internet India Report 2019, women constitute only 1/3rd of internet users in India** and **28 percent in rural areas**. Such gender divide in accessing the internet might result in uneven access to ODR services, thereby exacerbating the gender divide that already exists in terms of access to justice through traditional courts.
- **Behavioural Challenges:**
  - o **Lack of awareness regarding ODR:** The lack of awareness regarding ODR translates into litigants and businesses having low confidence in ODR processes and restricted application of ODR in sectors with huge potential for such as MSME, consumer disputes etc.
  - o **Role of the government and the PSUs:** According to the **Ministry of Law and Justice**, government departments are a party to around '**46 percent' of court cases**. Adoptions of ODR to resolve inter and intra Governmental disputes would be a key step in boosting confidence in the process.
- **Operational Challenges:**
  - o **Privacy and confidentiality concerns:** Greater integration of technology and reduced face to face interactions create new challenges for privacy and confidentiality which include **online impersonation, breach of confidentiality** by circulation of documents and data shared during ODR processes, **tampering of digital evidence** or digitally delivered awards/ agreements.

PRINCIPLES THAT CAN BE ADOPTED FOR CREATING ODR MECHANISMS

| Education and evaluation are key stages of ODR | Technological solutions need to be geared towards cyber security | Having open principles to guide the developments in ODR | Important to have clarity on the enforce-ment of final agreements |

  - o **Archaic Legal Processes:** The archaic process does not work well with the end-to-end online process of dispute resolution and **create barriers for ODR**. Further, in India there is **no provision for online notarization** of documents. As per the **Notaries Rule 1956**, notarization of documents can only be done in person.
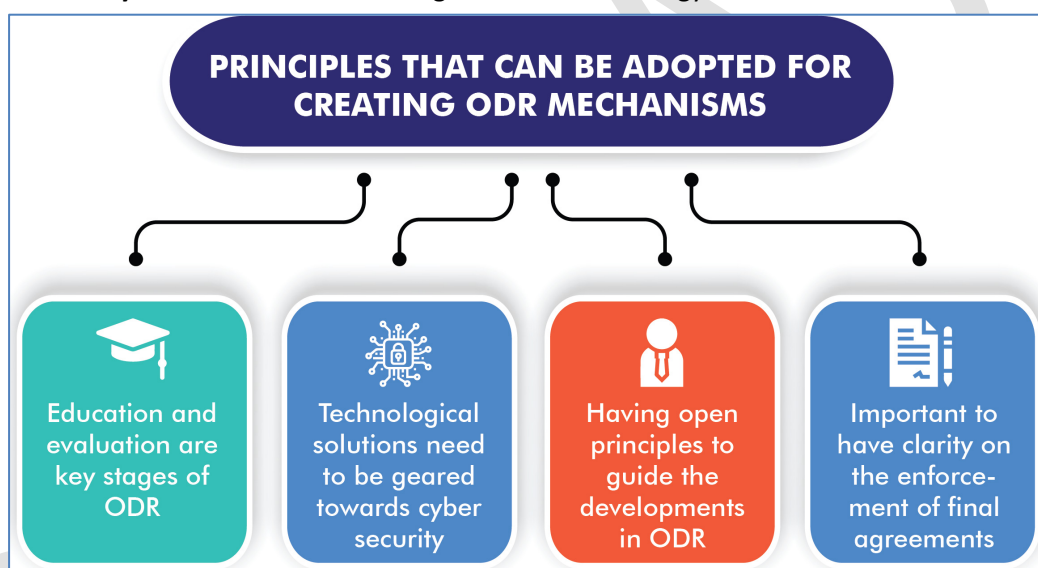
Way forward

- **Increase physical access to infrastructure and technology:** It can only be achieved by the combined efforts of two key stakeholders namely, the Government and Judiciary.
- **Increase digital literacy:** To unlock the true potential of ICT, users of such technology should be digitally literate.
- **Capacity building:** It is important that various actors undertake **collaborative efforts to introduce training and certification programmes** for enhancing capacity of mediators to scale up mediation in the country.
- **Adopt ODR for Government litigation:** The Government can **mandate certain categories of disputes** be resolved through ODR before approaching courts.
- **Regulation of ODR:** With new players entering the field of ODR, it is necessary that the regulatory model **protects the rights of the end users** while ensuring that over-regulation does not stifle innovation.

1.2. PARLIAMENTARY FUNCTIONING

Why in news?

Recently, many high impact Bills were introduced and passed in the Parliament in a haste which has raised multiple questions regarding fading business inside the Parliament.

Recent instances of reduced Parliament Functioning

- **No Bill scrutiny in Budget session**: There has been the **absence of careful scrutiny of Bills**. During the budget session 2021, 13 Bills were introduced, and not even one of them was referred to a parliamentary committee for examination.
    - **For example**, hasty passage of Government of National Capital Territory of Delhi (Amendment) Bill, 2021, the Mines and Minerals (Development and Regulation) Amendment Bill, 2021, etc, indicates a sign of renunciation by the Parliament of its duty to scrutinise Bills, rather than as a sign of efficiency.

CONSEQUENCES OF REDUCED FUNCTIONING OF PARLIAMENT

- Lack of Accountability of Parliament
- Vacuum in governance that has increasingly been filled by an activist judiciary
- Compromised legislative business
- Role of the legislature disturbs the balance of power
- Lack of avenues to express dissent
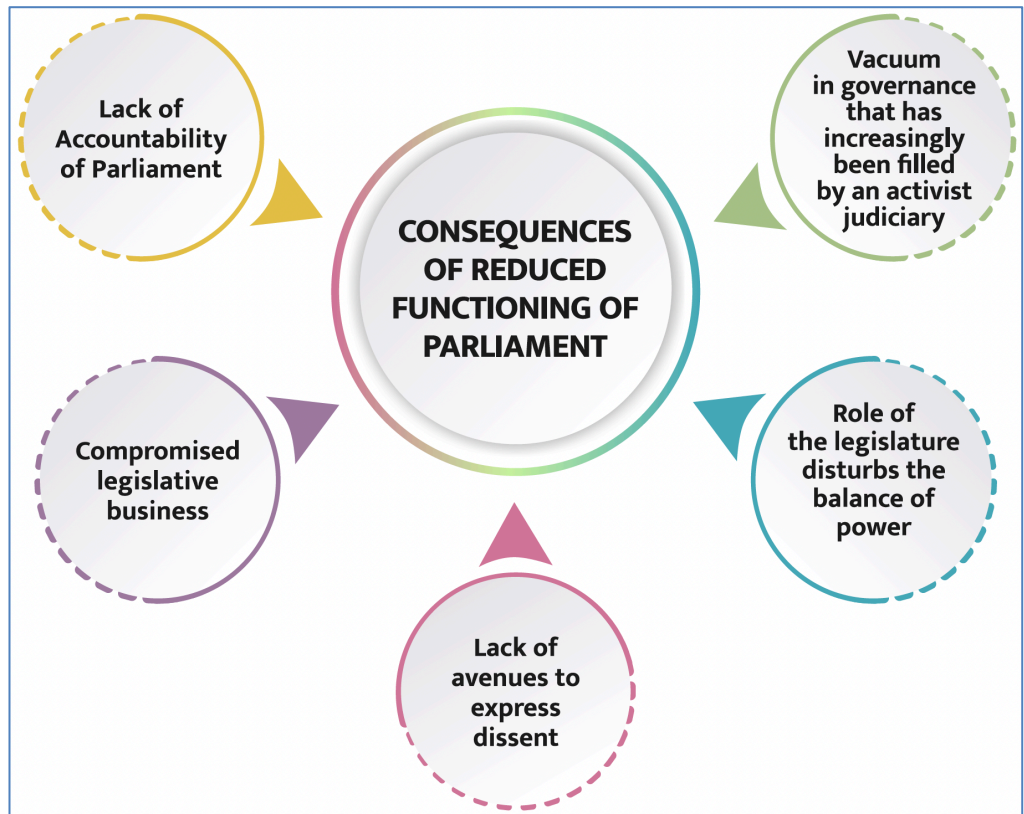
- **Decreasing trend of bills referred**: The 14th and 15th Lok Sabha saw 60% and 71% of bills referred to committees. This number has dipped sharply to just **27% in the 16th Lok Sabha** and just **11% in the 17th Lok Sabha** (2019-present).
- **Reducing attendances:** Average attendance in the Lok Sabha dipped to 71% and in the Rajya Sabha to 74%.
- **Use of Money Bill route**: The last few years have seen the dubious practice of marking Bills as 'Money Bills' and getting them past the Rajya Sabha.
    - The Finance Bills, over the last few years, have contained several unconnected items such as **restructuring of tribunals, introduction of electoral bonds, amendments to the foreign contribution act a**s well as labelling of Aadhaar Act as money bill.
- **Lack of discussion of Union Budget**: The Constitution empowers the Lok Sabha to approve the expenditure Budget of each department and Ministry. The Lok Sabha, in recent budget session, had listed the budget of just five Ministries for detailed discussion and **discussed only three** of these.
    - 76% of the total Budget was approved without any discussion.
- **Absence of Deputy Speaker**: **Article 93 of the Constitution** states that the House of the People shall choose two members of the House to be respectively Speaker and Deputy Speaker. However **in the current Lok Sabha** there has been lot of absence of a Deputy Speaker.

Why it is important to ensure proper functioning of the parliament?

- **Central role in Democracy**: Parliament has the central role in our democracy as the representative body that checks and balances the work of the government.
- **Examine Legislative proposals**: Parliament is expected to examine all legislative proposals in detail, understand their nuances and implications of the provisions, and decide on the appropriate way forward.

3 designated roles for Parliament in a democracy

1. Responsible for legislation - laws of the land.
2. Should engage in discourse and debate on issues concerning nation and citizens.
3. Must ensure accountability of governments - on policies or actions- to the people.

- **Fulfilling constitutional mandate**: In order to fulfil its constitutional mandate, it is imperative that Parliament functions effectively.
  - **Articles 75** of the Constitution provides that the Council of Ministers shall be **collectively responsible** to the House of the People.
- **Representative body**: Being a diverse country, a well functioned Parliamentary system in India must uphold the grounds of **representativeness, responsiveness and accountability**.

How Parliamentary Functioning can be improved?

- **Increase the number of sittings**: Parliament should have more sitting dates and a clear plan of those dates. The **National Commission to Review the Working of the Constitution** has recommended the minimum number of sittings for Lok Sabha and Rajya Sabha be fixed at **120 and 100** respectively.
- **Research support to Members of Parliament**: Institutional research support will allow committees to examine issues that are technical in nature and serve as expert bodies to examine complex policy issues.
- **Committee referrals**: Requiring that all bills and budgets are examined by committees and **extend the tenure of committee members** so as to fully utilise their technical expertise on a particular subject in legislative work.
- **Regular Monitoring**: There is a need to formulate mechanism for a regular assessment of the performance of the committee.
- **Responsible Opposition**: Members must question, object and suggest alternative courses of action, but they must do so through reasoned and persuasive argument.
  - **Shadow Cabinet** allows for detailed tracking and scrutiny of ministries and assists MPs in making constructive suggestions.
- **Public feedback**: A widespread debate, over Parliamentary functioning in the country, must be undertaken by the government, which would encourage people's participation in the long run.

Conclusion

There is need to examine all legislative proposals in detail, understand their nuances and implications of the provisions, and decide on the appropriate way forward. In order to fulfil its constitutional mandate, it is imperative that Parliament functions effectively by imbibing the spirit of **3Ds i.e., Debate, Discussion and Deliberation.**

1.3. STATE AND REGULATION OF TEMPLES

Why in News?

In the midst of the recent electoral campaign in Tamil Nadu, a movement to free Hindu temples from state control under Hindu Religious and Charitable Endowments (HR&CE) laws gained some traction.

Background

- The practice of State control over religious institutions began during the colonial rule in the Bengal and Madras Presidency in 1817.
  - **Madras Hindu Religious Endowments Act of 1925** which was the first enactment that related purely to Hindu religious endowments.
- Since then several States, like **Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Kerala, Maharashtra, Odisha, Himachal Pradesh, Bihar, Madhya Pradesh and Rajasthan**, among others, have put in place some form of legislation for the management of Hindu Religious Institutions.
- These laws mostly involve setting up of administrative bodies such as HR&CE departments with functions involving overseeing the functioning & administration of temples, appointment of non-hereditary trustees, approval of budgets, etc.
  - In some cases, they are also empowered to appoint Executive Officers, or government officers to directly oversee and manage temple administration.
- However, in recent times several questions have been raised on the efficacy, need and constitutional validity of State control over religious institutions, specifically temples.

Constitutional provisions relating to regulation of Religious institutions

- **Article 25 (2) allows the State** to make any law that:
- **Regulates or restricts any economic, financial, political or other secular activity** which may be associated with religious practice.
- **Provides for social welfare and reform** or the throwing open of public Hindu religious institutions to all classes and sections of Hindus.

- **Article 26** provides all religious denominations the freedom to manage religious affairs, which includes freedom to-
- **Establish and maintain institutions** for religious and charitable purposes;
- Manage its own affairs in matters of religion;
- Own and acquire movable and immovable property; and
- Administer such property in accordance with law.

Entry 28 of the Concurrent List under Schedule VII of Indian constitution: 'Charities and charitable institutions, charitable and religious endowments and religious institutions'

State can restrict the rights provided under Articles 25 and 26 on the grounds of **public order, morality and health.**

Arguments in favour of State intervention in management of temples

- **Social reforms**: Several reforms have been brought through HR&CE laws such as challenging hereditary priesthood, ensuring non discrimination in entry in public temples etc.
- **India's secularism does not promote rigid separation of state and religion**: The concept of secularism in India is distinct from their western antecedents. India's secularism limits the divide between the state and religion.
- **Adequate representation of all sections**: Temple management bodies have often been prone to be taken over by dominant groups due to historical imbalances in social power, which leads to perpetuation of social evils such as caste discrimination in several cases. Government intervention can help enhance representation of such marginalized sections.
  - o For instance, the Tamil Nadu HR&CE Act, mandates that where a Board of Trustees for a temple needs to be appointed by the HR&CE Department, one of the three persons should be a member of Scheduled Caste or Scheduled Tribe communities.
- **Efficient management of temples**: Charitable Endowment Act exists for better administration and preservation of temples and the endowed properties and to ensure that Hindu public endowments were being put to use for the true purposes for which the endowments were first made
- **Large volume of funds**: Several temples in India manage sizable amounts of movable and immovable assets. A certain level of Government oversight is needed to ensure that their funds are being properly applied and to prevent financial irregularities.
- **Importance of temples for local economy**: The complex and networked temple economy have provided and continue to provide employment opportunities and livelihood to a host of people, such as priests, artists, performers, flower and puja materials vendors, cooks, etc.

Prevalent issues pertaining to state interference in the matters of Temple management

- **Discrimination with respect to other religions**: The Act violates Articles 14 (right to equality) and 15 (prohibition of discrimination on grounds of religion) of the Constitution since there is an absence of such enactments governing institutions belonging to other religious denominations.
- **Ineffective in ensuring representation of women on temple boards:** Absence of women at the highest level of decision-making is disappointing.

- **Lack of spiritual connect**: There is a widespread contention that Government appointed Trustees and Committee Members lacked vision and were appointed without consideration for their commitment to religiosity and maintaining the legacies of temples, and capacities to manage.
- **Corrupt practices in Management of Temple Property**: Cases have been reported where government functionaries were involved in cases of mis-allocation of temple lands or stalls, misappropriation and misuse of temple funds, idol thefts etc.
- **Erosion of Cultural Capital**: State control exercised through centralized power structure has been counterproductive to nurturing cultural capital which requires deep commitment and local management.
- **Politicization of temple bodies**: The memberships of temple boards and trusts and appointments of executive officers are beset with political motives.
- **Dismal record in maintaining the archaeological nature of the structures**: There are critical gaps in effectiveness in archaeological control of work on temples in active use, due to the lack of proper application of available technical knowledge and skill by Government employees.
- **Undue interference in religious practices and traditions**: Government interference has led to grievances like interruption of ancient lineage of priesthood, discontinuing usage of temple collections to set up ved pathshalas and educational institutions for teaching Indian philosophy.
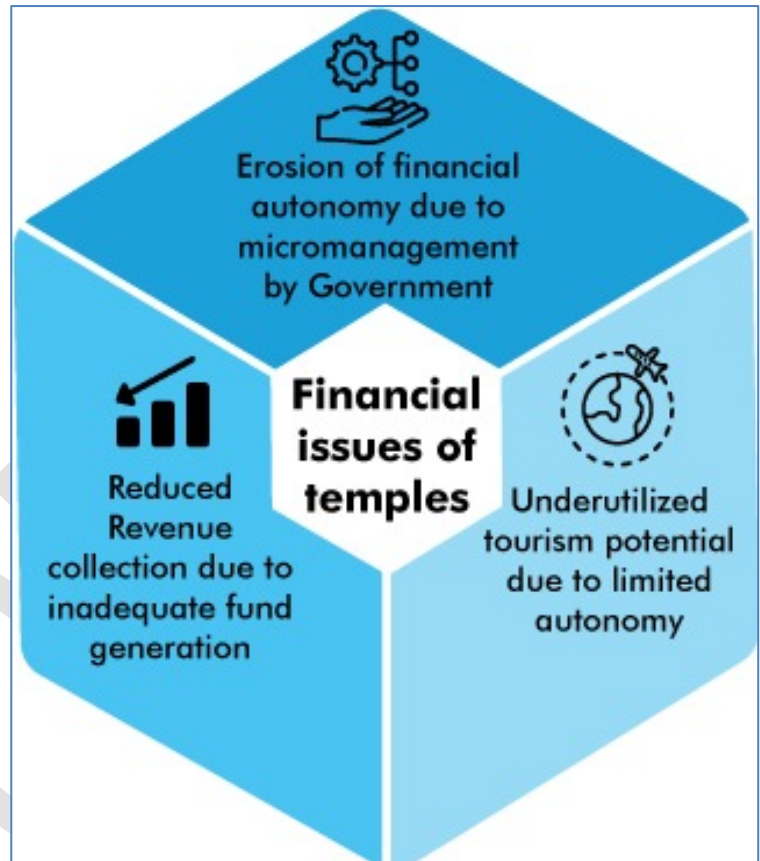
Way Forward

The need of the hour is in creating a Governance and management eco system that ensures better ethical standards, accountability and management of temples; maintenance of their assets and strengthening the cultural capital. This can be achieved through steps such as:

- **Maintaining a glass wall between spiritual and administrative domains**: The administration will play more supporting and enabling role than supervisory and regulatory role.
- **Building and strengthening institutions internally**: The governing principle should be one of maximum restrain by Government and building societal institutions to manage spiritual and administrative functions internally.
  o Temple Board should be set up with members representing various ecosystem of temples, like mutts, trustees, agama specialists, researchers and academicians, and professionals like CAs and lawyers etc and also ensure representation of women.
- **Club temples on the basis of hub and spoke model**: in which larger and administratively strong temples support smaller temples in the region. The more endowed temples with surplus funds will support less endowed and weaker temples.
- **Enhancing transparency in government functioning:** to hold the state responsible to the administrative standards prescribed under the law.
- **Public (general public) Partnership**: A balanced composition of Board at Apex level and of Committees at temple level that will ensure that no particular segment dominates, and independent voices are heard and independence is maintained.
- **Restricting role of HR & CE department:** to regulatory, and supportive functions such as inventorying, recording, and protecting all the assets of all categories of temples; secretariat functions; laying down rules of appointments; handling Vigilance, Public Grievances and complaints of general public, employees, harassments, and pilgrims etc.

Supreme Court Judgments regarding temple management	
Case	**Judgment**
N. Adithyan vs Travancore Devaswom Board, (2002)	The Supreme Court opened priesthood in public temples (including Brahmanical ones) to all castes.
Ratilal v. State of Bombay	The SC had ruled that the power to take over the administration in the event of mal administration financial/mis-management certainly cannot be termed as violation of Article 26(b) of the constitution of India.
Shirur Math case	In this case, Supreme court for the first time declared what is an essential part of religion, and it says that this shall be ascertained regarding the tenets and doctrines of that religion itself.
Dr. Subramaniam Swamy V. State of Tamil Nadu and Ors., 2014	SC also noted that State's power to regulate a temple does not mean the power to supersede the administration of a temple for an indefinite period.
Kerala's Padmanabhaswamy Temple Case	The Supreme Court granted the erstwhile Travancore royal family the shebaitship rights (right to manage a temple) for the properties belonging to Sri Padmanabhaswamy temple in Kerala. It also directed the setting up of administrative committees for its management.

2. INTERNATIONAL RELATIONS

2.1. INDIA'S ECONOMIC DIPLOMACY IN SOUTH ASIA

Why in news?

Globally, it is considered that India has a troubling habit of over-promising and under-delivering from trade to infrastructure development in South Asia.

Economic Diplomacy

- Economic diplomacy is the art of serving economic security and strategic interests of the country by the use of economic instrument in conduct of State to State relations.
- The Indian classic on diplomacy, namely, **Kautilya's "Artha Shastra"** has recognized the relevance of **"Saam, Daam, Dand and Bhed"** in conduct of diplomacy. It is designed to influence policy and regulatory decisions of foreign governments as well as those of international organizations. It goes beyond trade and investment to the resolution of multiple causes of international conflicts.
- Economic diplomacy is being pursued at different levels to achieve objectives such as
  o Projection of **India as a major economic power**
  o **Multilateral trade and economic negotiations**
  o Energy security
  o Regional and bilateral trade agreements
  o Access to foreign resources like **promotion of foreign investments** in India
  o **Realization of political objectives** through economic action
  o **Promotion of exports and Indian businesses abroad**

Success of India's Economic Diplomacy in South Asia

- **Infrastructure:** India is committed to **support neighbouring countries** in its journey to emerge as a united, sovereign, democratic, peaceful, stable, prosperous and inclusive nation.
  o **For example,** reconstruction of the **Salma dam (Afghan-India Friendship Dam)**, **Zaranj-Delaram road** give access to **Afghanistan's Garland Highway**, construction of the 900-megawatt (MW) Arun III hydropower project in Nepal etc.
- **Neighbourhood first policy:** It is part of India's foreign policy which aims at **promotion of regional peace**, economic integration and

> **SASEC**
> - It is formed in 2001 which comprises **seven countries** namely **India**, Bangladesh, Bhutan, Maldives, Nepal, Sri Lanka and **Myanmar**.
> - It aims to **increase economic growth** by building cross-border connectivity, **energy cooperation,** promote regional prosperity, and build a better quality of life for the people of the sub-region.
> - SASEC countries share a **common vision of boosting intraregional trade and cooperation in South Asia**, while also developing connectivity and trade with Southeast Asia through Myanmar, to the People's Republic of China, and the global market.
> - The **Asian Development Bank (ADB)** serves as **Secretariat** to the SASEC Program.

developing a regional strategy based on India's natural geographical advantages, **improves cross border connectivity**, shared cultural heritage, and preeminent strategic position. This policy also helps in reduction of the influence of China in the South-Asian countries.
- **Investment**: Assistance in material and services has been extended by India to South Asian countries time and again. With its aspiration for global leadership, India has **established COVID- 19 emergency fund** for SAARC countries.
- **Energy**: Energy cooperation is a main focus of the **South Asia Sub-regional Economic Cooperation (SASEC)** program.
  o **For example**, India recently approved plans to invest $1.69 billion to build transmission and distribution lines to carry electricity from Nepal.
  o The **Rooppur Nuclear power project** is an initiative under **India and Russia** to undertake atomic energy projects in Bangladesh.
- **Tourism:** South Asia has emerged as an attractive tourist destination due to its natural and cultural diversity, and price competitiveness. Tourist from the neighbourhood comprise approximately a third of the total foreign tourist arrivals in India.

o In 2019, the **World Economic Forum's Travel and Tourism Competitiveness Index (TTCI**) ranked South Asia as the most improved region since 2017. Within this, **India** has shown the greatest **improvement in rank** among the top 25% countries, from 40th in 2017 to 34th in 2019.

Issues with India's Economic Diplomacy in South Asia

- **Trade:** India has Trade Imbalance with South Asian countries and is reflected as**:**
  o **Intra-regional trade**: South Asia's intra-regional trade is the lowest globally, constituting only 5% of the region's total trade. The current integration is just one-third of its potential with an annual estimated gap of $23 billion.
  o **Protectionism**: According to global trade data, trade restrictiveness index is 2 to 9 times higher for imports from South Asia than rest of the world in case of India, Nepal, Sri Lanka and Pakistan
  o **Disproportionate cost of trade**-The South Asian regional trading cost is 20% higher than ASEAN.
- **Connectivity**: Integrated Check Posts set up at borders have suffered under cumbersome procedures, like additional **checks of trucks and delays in paperwork** that consume both time and profits.

TRANS-AFGHANISTAN PIPELINE
Route of the turkmenistan-Afghanistan-Pakistan-India (TAPI) natural gas pipeline

Source: Asian Development Bank

  o India has a troubling habit of over-promising and under-delivering. For Example, **Bangladesh-Bhutan-India-Nepal Motor Vehicles Agreement (BBIN-MVA), Turkmenistan, Afghanistan, Pakistan and India (TAPI) gas pipeline** etc.
- **Infrastructure**: In most of the countries India has taken up projects such as **road and railway lines, establishing integrated border checkpoints, and hydropower projects** but there is witnessed delivery deficit in these projects.
  o **For example**, In Nepal, the Police Academy, expected to be complete 32 years ago, is still in limbo.
  o **Maitri Power Project** is 50:50 joint venture between **Bangladesh's state-owned Power Development Board** and **India's National Thermal Power Corporation (NTPC).** This project was to be completed by 2016. However, till now, only 60% of the work has been completed.

BANGLADESH-BHUTAN-INDIA-NEPAL CORRIDOR

- **Discrimination in Aid**: India has shown extraordinary generosity toward the Maldives, Nepal, Bhutan, and Afghanistan. In its budgets, India provided more aid to these four countries than the rest of the countries of SAARC, leading to **insecurity among other neighbors**.
  o For instance, in the 2019 budget, Bhutan received 28.1 billion rupees, Nepal got 10.5 billion rupees, the Maldives got 5.8 billion rupees, but **Sri Lanka got only 2.5 billion rupees**. Sri Lanka sees this as discrimination in aid, feeling India offers more to those strategically more essential.
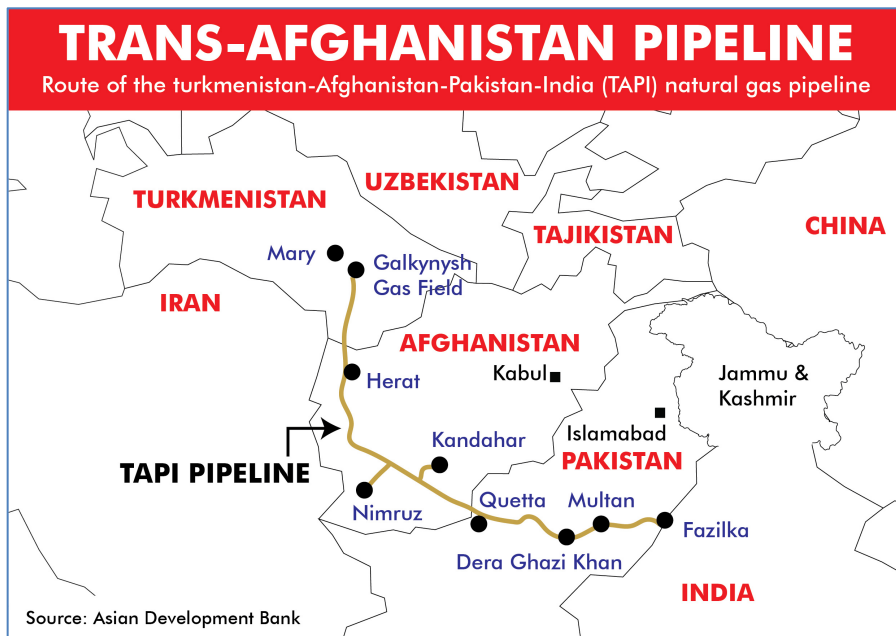
- **Migration**: Policies like The Citizenship (Amendment) Act, National Register of Citizens put forth protectionist approach which is insensitive to the realities of identity and migration in the subcontinent.
- **Institutional hurdles**: Dysfunctional reputation of institutions such as **SAARC (South Asian Association for Regional Cooperation)** is a result of not only **short-sighted economic policies** and the contentious India-Pakistan relationship, but also of the deep **mistrust in key bilateral relationships**. The mistrust defining these relationships has stemmed from complex domestic politics.
- **Energy**: South Asia has witnessed a **growing imbalance between energy demand and its supply** from indigenous sources resulting in increased import dependence.
  - Access to the significant energy resources in the neighboring countries is denied, which **increases the cost of energy supply and reduces energy security** of the individual countries and of the region as a whole.
  - The World Bank estimates that regional cooperation and engagement will yield energy savings of about $17 billion in capital cost reductions through 2045.
- **China Factor**: China has extensively made inroads into the South Asian region through **Belt and Road Initiative (BRI)** which has emerged as the most crucial instrument in China's soft power diplomacy in South Asia.
  - China has been **increasing its investments** in South Asia due to India's neglect over the years.
  - **For example**, China has been busy completing the **East-West highway** that traverses Nepal and is also working on a railway line from **Tibet to Lhasa**. It has many projects underway in Bangladesh, Sri Lanka and Afghanistan as well.

Way Forward

- **Energy Security**: The countries in the South-Asian region could benefit significantly by **strengthening the mechanism of energy trade** through improved connectivity. Therefore, greater cooperation within South Asia could be one of the most effective ways to deal with the regional energy deficit and **ensure energy security** of the region.
- **Regional Infrastructure**: A stronger connectivity not only **strengthens the intra- and inter– regional trade** but also generates higher income and prosperity and hence regional infrastructure must be prioritised.
- **Strengthening Institutions**: Reforming the institutional hurdles is necessary if India desires to overcome its neighbors' misperceptions and compete with Chinese investments in South Asia. For this, India must **eliminate non-tariff barriers and other trade barriers**, strings-attached aid, and complete all the existing projects to regain the neighbors' trust.
- **Trade and Investment**: India must increase its **investments and trade** with neighboring countries to reap the benefits of **greater regional and economic integration**, making India open rather than being closed to its neighbors' economies.
- **Use of improved technology**: To manage the **transportation and security** of the South-Asian region, technology will help to **reduce trade costs** through higher efficiency and by managing additional traffic. A **stronger regional cooperation** with other regions and countries is thus imminent in order to secure the technology to manage the transportation corridors, trade and security.

2.2. BAY OF BENGAL INITIATIVE FOR MULTI-SECTORAL TECHNICAL AND ECONOMIC COOPERATION (BIMSTEC)

Why in news?

Recently, the 17th meeting of foreign ministers of BIMSTEC member countries took place.

More about news

- The meeting, **chaired by Sri Lanka, was held in virtual mode** with the participation of all BIMSTEC Member States.
- The meeting **endorsed the BIMSTEC Master Plan for Transport Connectivity** for adoption at the next BIMSTEC Summit and **three MoUs / Agreements** for signing at the next BIMSTEC Summit, namely
  - The BIMSTEC Convention on **Mutual Legal Assistance in Criminal Matters**
  - MoU on Mutual **Cooperation between Diplomatic Academies/Training Institutions** of BIMSTEC Member States
  - Memorandum of Association on the **Establishment of BIMSTEC Technology Transfer Facility (TTF)** in Colombo, Sri Lanka.

- They encouraged Member States to **complete their internal procedures for adoption of the BIMSTEC Charte**r and endorsed Rationalization of Sectors and Sub-sectors of cooperation under the BIMSTEC framework which will be adopted at the next BIMSTEC Summit.
- The meeting welcomed the proposal of the Chair to hold the **Fifth BIMSTEC Summit in Sri Lanka** in next few months.
- The meeting took note that the **BIMSTEC Centre for Weather and Climate, being hosted in India, is fully functional** with the state of the art facilities to provide Disaster Early Warnings.

About BIMSTEC

- Conceived in **1997,** through the **Bangkok Declaration,** BIMSTEC is a grouping of seven countries **(refer infographics).**

THE BAY OF BENGAL COMMUNITY

Few facts and figures about BIMSTEC member countries

(21% of global population)

$2 TRILLION+ Combined GDP of BIMSTEC countries 1.5 billion their combined population

Intra-BIMSTEC trade

Nepal 59.1%

India 3%

Bangladesh 11.6%

Myanmar 36.1%

Thailand 3%

Sri Lanka 18.4%

GDP per capita* (PPP in 2016)

Nepal	$2,483
Bangladesh	$3,587
Myanmar	$5,732
India	$6,583
Bhutan	$8,918
Sri Lanka	$12,337
Thailand	$16,946

Intra-BIMSTEC trade share in a country's total trade, Bhutan trade figs N/A
Sources: Trade data from ORF online, GDP from Camega India

- It aims to **accelerate economic growth and social progress** among members across multiple sectors.
- It was **headquartered in Dhaka in 2011** and its first secretary general was appointed in 2014.
- There are **14 Priority Areas of Cooperation under BIMSTEC:** Trade & Investment, Technology, Energy, Transportation & Communication, Tourism, Fisheries, Agriculture, Cultural Cooperation, Environment and Disaster Management, Public Health, People-to-People Contact, Poverty Alleviation, Counter-Terrorism and Transnational Crime, Climate Change.

Institutional Mechanism under Bangkok Declaration

Annual Ministerial Meetings hosted by the Member States on the basis of alphabetical rotation

Senior Officials Committee Meets on a regular basis as and when required

BIMSTEC Working Group comprising Ambassadors/Representatives from Member States

Specialized Task Forces and other mechanisms as deemed necessary by the Senior Officials

- **Some key agreements** signed by BIMSTEC members include a convention for combating terrorism, transnational organised crime and illicit drug trafficking. However, this **awaits ratification.**
- **BIMSTEC Grid Interconnection** signed during the BIMSTEC Summit in Kathmandu, Nepal, in 2018, aims to promote an **optimal power transmission in the BIMSTEC region.**
- The BIMSTEC is unique as far as regional organisations are concerned because **it straddles two contiguous regions** South Asia and Southeast Asia.

Relevance of BIMSTEC for India

- **Emergence of Indo-Pacific:** The recent resurgence of strategic and economic interests in the Bay, as part of a larger maritime strategic space, namely, the Indo-Pacific, has helped BIMSTEC gain salience as a promising sub-regional grouping.
  o The Bay, being the key transit route between the Indian Ocean and the Pacific Oceans, is now poised to become "a zone of geopolitical rivalry among major powers and of regional conflict."
- **Alternative to SAARC:** Due to setbacks to the South Asian Association of Regional Cooperation (SAARC), largely owing to Pakistan's obstructions BIMSTEC has emerged as the "preferred platform" for regional cooperation in South Asia.
- **Alternative to BRI:** India is skeptical over the involvement of China in the almost-annulled Bangladesh-China-India-Myanmar (BCIM) Economic Corridor. Also, India's non-participation in China's Belt and Road Initiative (BRI), make it more important to strengthen India's own strategic and economic ties in South Asia.
  o India's Act East Policy and within it BIMSTEC, in particular is seen as a critical alternative to the country's non-participation in the BRI.
- **Tackling traditional but shared threats:** The Bay is plagued by a variety of non-traditional security threats, such as illegal migration and armed piracy. Consequently, the important issues of freedom of navigation in the waters, controlling transnational threats, harnessing and sharing the Bay's natural wealth, and promoting infrastructural and people-to-people connectivity become common to the BIMSTEC member countries.
- **No border dispute:** BIMSTEC is seen to be progressing well mainly because member countries do not have major border disputes. Any small scuffles, like the Nepal-India map row, can be resolved bilaterally.

Challenges of BIMSTEC

- **Dormancy:** BIMSTEC has come under scrutiny mainly due to dormancy in initial years. Since its inception the world has gone through drastic changes marked by a huge push towards globalisation, a global financial crisis, China's strategy to the Belt-and-Road Initiative (BRI) and, most recently, the COVID-19 pandemic. However, Much of BIMSTEC's objective of ensuring shared and accelerated growth has remained only on paper.
- **Stalled FTA process:** Amongst economic agreements, the Free Trade Agreement (FTA) is particularly important for all member states. In 2018, India aggressively pushed for the conclusion of a long-pending FTA among BIMSTEC nations but differences between India and Thailand over market access for professionals, duty cuts on traded goods and policy relaxation stalled the process.
- **Exclusion of other regional countries:** The fact that other countries in the Bay of Bengal like Malaysia, Singapore and Indonesia have not been involved even as dialogue partners has also been a point of contention.
- **China's leveraging capability:** The recent military coup in Myanmar will queer the pitch for BIMSTEC as some sanctions are imposed by Western countries. Myanmar's dependence on China may increase if the latter leverages its veto power in the UN Security Council (UNSC) to foil sanctions proposed by the UN body. The coup will also pose challenges for India since Myanmar may face public agitation and intensified ethnic strife. The other major impediment is the festering issue of the Rohingya refugees who fled from Myanmar to Bangladesh and India.

Way forward

- **Recognition to Changing Geopolitical Milieu:** BIMSTEC must recognise that the geopolitical situation has been affected adversely by China's actions in its geographical periphery, in the South China Sea, Hong Kong, Taiwan and India. China's intrusive geopolitical and geoeconomic role in Nepal and deepening economic and military engagement with other South Asian countries that are members of BIMSTEC, are likely to have an adverse impact on the organisation.
- **Decision based on majority:** BIMSTEC has been slow on the come-up because unlike bodies like the EU or ASEAN, it is based on consensus-building which takes time. BIMSTEC could replace the consensus based decision making process to majority based decision making.
- **India's leadership:** It is argued that many small member countries see India assuming a "big brother" posture. Therefore, India needs to bridge this trust deficit by projecting itself as an equal partner to other BIMSTEC member-countries. This will ensure better integration in the region.
  o Moreover, **making COVID-19 vaccine widely affordable** will be a humanitarian imperative requiring international cooperation. India, with the capacity to produce the bulk of the world's supply of vaccines, should be at the forefront of this effort.

- Considering its "Act East Policy," **India has a major stake in bringing together South and Southeast Asia**n countries in this common endeavor, which will have long-term consequences for the balance of power in the Indo-Pacific.
- **Prioritising multilateralism:** The focus in the Bay region remains primarily on enhancing bilateral ties, with multilateralism yet to gain ground. There is both need and scope for improving people-to-people connectivity in the region, as well as facilitating tourism diplomacy, academic and student-exchange programmes, and cross-border public health initiatives.
- **Move beyond reactive regionalism:** This is necessary for overcoming the stagnation. It can begin on a note of recognising the massive economic importance of the Bay for two reasons: its location is strategic, connecting the product markets across South Asia; and it is home to potent market catalysts including social capital (diversity, cultural vibrancy); physical (maritime connectivity); human (cheap labour); and natural (minerals and forests). BIMSTEC can therefore serve as an apt medium for enhancing cooperation in operationalising new frameworks of technology, geopolitics, environment and society.

Conclusion

To truly integrate the region, rigorous and sustained initiatives by states must be complemented by popular enthusiasm and national civil society initiatives. Suitable institutional innovations are necessary to rejuvenate the organisational structure, which will be aided by official commitments as well as popular interest. Media can play a crucial role in this context, tapping into the rich repository of culture, heritage, political history and the prospect of a common future that the countries share.

2.3. ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS (OPCW)

Why in news?

India's Comptroller and Auditor General (CAG), has been appointed as external auditor of the Organisation for the Prohibition of Chemical Weapons (OPCW).

More on news

- **Conference of the State Parties of OPCW** selected CAG as the **External Auditor for a 3-year term** starting in **2021**.
- In the past also, India's **CAG has held the position of External Auditor of OPCW** during the period from **1997 to 2003.**

India's relation with OPCW

Audit of other Global Bodies by CAG

• Comptroller and Auditor General of India is currently the **External Auditor** of:
  o **World Health Organization (2020-2023)**
  o **Food and Agriculture Organization (2020-2025)**
  o **Inter Parliamentary Union (2020-2022).**
• CAG is the Chair of the **United Nations Panel of External Auditors.**
• CAG is also **member** of the **Governing Boards** of **International Organization of Supreme Audit Institutions (INTOSAI).**

- **India is a signatory** to the **Chemical Weapons Convention (CWC)** and **member of Executive Council of OPCW**.
- Pursuant to provisions of the Convention, India **enacted the Chemical Weapons Convention (CWC) Act, 2000**.
- Under the Act, **National Authority Chemical Weapons Convention (NACWC)** has been **established for implementing the provisions of the convention**.

About OPCW

- It was established by the **Chemical Weapons Convention** in 1997 (see box).
- **Structure of OPCW**

OPCW

Executive Council - It consists of 41 OPCW Member States that are elected by the Conference of the States Parties and rotate every 2 years.

Technical Secretariat - It is charged with verifying states' compliance with the convention.

Conference of the States Parties - It is the highest decision-making body of the organization.
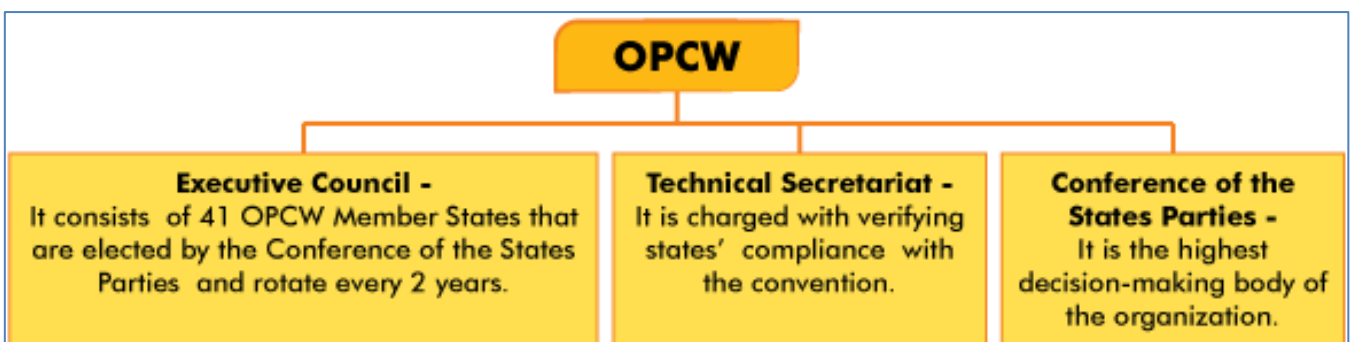
- It is **authorized to perform inspections** to verify that signatory states are complying with the convention, which includes a **commitment to grant inspectors full access to chemical weapons sites.**
- It also **performs testing of sites and victims** of **suspected chemical weapons attacks**.
  - OPCW's **Investigation and Identification Team (IIT),** established in 2018 is responsible **for identifying the perpetrators of the use of chemical weapons in the Syrian Arab Republic.**
  - Recently, IIT released 2nd report, which concluded that **units of Syrian Arab Air Force used chemical weapons in Saraqib, Syria** in 2018.
- The **OPCW is not a United Nations (UN) organisation**, however, it ha**s a working relationship with the UN.**
  - By the 2001 Relationship Agreement between the OPCW and the United Nations, the **OPCW reports on its inspections and other activities to the UN** through the office of the UN Secretary-General.

Destroy all existing chemical weapons.

Provide assistance and protection to States Parties against chemical threats.

OPCW strives to fulfil the Convention's mandate to:

Foster international cooperation to strengthen implementation of the Convention and promote the peaceful use of chemistry.

Monitor chemical industry to prevent new weapons from re-emerging.
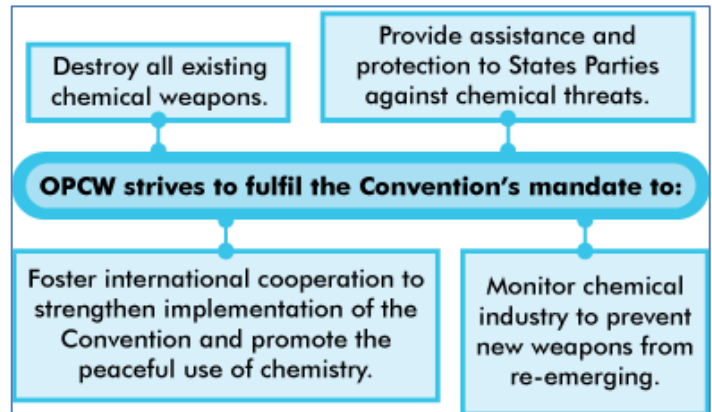
Chemical Weapons Convention (CWC)
- Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction- 1993 (also known as CWC) was adopted by the **Conference on Disarmament** in **1992**.
- The treaty **entered into force in 1997**.
- It aims to eliminate an entire category of weapons of mass destruction by **prohibiting the development, production, acquisition, stockpiling, retention, transfer or use** of chemical weapons by States Parties.
- A unique feature of the Convention is its incorporation of the **'challenge inspection'**, whereby any State Party in doubt about another State Party's compliance can request a surprise inspection.
  - ✓ Under the 'challenge inspection' procedure, States Parties have committed themselves to the **principle of 'anytime, anywhere' inspections** with **no right of refusal.**

International efforts at chemical disarmament
- **The Strasbourg Agreement (1675)**
  - It was the **first international agreement** limiting the use of chemical weapons.
  - It was **signed between France and Germany** prohibiting the use of poison bullets.
- **Brussels Convention on the Law and Customs of War (1874)**
  - It was signed to:
    - ✓ **prohibit** employment of **poison or poisoned weapons**
    - ✓ **prohibit** use of **arms, projectiles or material** to cause unnecessary suffering
  - The **agreement never entered into force**.
- **Hague Convention (1899)**
  - It came into existence during **Hague Peace Conference**.
  - Contracting parties agreed to '**abstain from the use of projectiles, the sole object of which is the diffusion of asphyxiating or deleterious gases**.
- **Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925)**
  - Commonly known as the **Geneva Protocol**, it was signed post World War-I due to public outcry at horrors of chemical warfare and to prevent its recurrence.
  - However, the protocol **does not prohibit** the development, production or possession of chemical weapons.
  - It **only bans the use** of chemical and biological weapons in war.

2.4. SUPPLY CHAIN RESILIENCE INITIATIVE

Why in news?

India, Japan and Australia have launched the Supply Chain Resilience Initiative (SCRI).

What is SCRI?

- In the context of international trade, supply chain resilience is an **approach that helps a country to diversify its supply risk across a group of supplying nations** instead of being **dependent on just one or a few**.
- SCRI, initially proposed by Japan, **aims to create a virtuous cycle of enhancing supply chain resilience** with a view to eventually attaining **strong, sustainable, balanced and inclusive growth** in the region.

- It will focus on:
  - **Sharing best practices** on supply chain resilience
  - Holding events to provide opportunities for stakeholders to **explore the possibility of diversification of their supply chains.**
- It also includes commitment by 3 nations towards measures to **support enhanced utilisation of digital technology** and **supporting trade and investment diversification**.

Need for SCRI

- **Reduce overdependence on one country**: When assembly lines are **heavily dependent on supplies from one country**, the impact on importing nations could be crippling if that source stops production for involuntary reasons, or even as a conscious measure of economic coercion.
- **To recover from future disruptions**: A **resilient supply chain can respond and recover quickly to disruptions** by returning to original situation or by moving to a new, more desirable state in order to increase customer service, market share and financial performance.
- **COVID-19 impact**: COVID-19 pandemic has created **need to address weaknesses of several traditional supply chains**. The imposition of lockdowns and halt in production across locations severely affected global distribution of inputs and final products.
- **Trade tensions across the globe: Trade wars** between China and the United States have threatened supply chains and triggered a **rise in economic nationalism**. E.g., in Australia, exports like beef, barley has been targeted by China amid deteriorating ties between the two nations.
- **Decouple from China:** By **disengaging strategic supply chains** like, semiconductors, pharmaceuticals, etc. from China, and repositioning them, proponents of the SCRI **hope to** decouple from China **in a broader strategic sense.**
- **Geopolitics**: It is also seen as organized effort to **develop a coalition of like-minded countries for taking on an assertive China** in the Indo-Pacific.

Challenges to SCRI

- **India, Japan and Australia have overwhelming dependency on Chinese exports** for primary goods. The existing supply chains have been **built over decades on principles of economic efficiency**. Hence, restructuring supply chains away from China is challenging.
- Building a new supplier infrastructure in a different country or region **takes considerable time and money**. Even with government incentives, it can take years for a country to build a local base capable of supplying raw materials or products.
- Industries today rely heavily on modern technologies such as automation, robotics, lean manufacturing etc. It is **harder to find alternative sources for sophisticated equipment** such as electronics as most of the raw materials (graphite, lithium etc.) are in limited locations.
- To **remain competitive globally**, firms cannot charge higher prices for their goods because consumers expect lower prices - especially due to existing conditions of pandemic and recession.

Way forward

- **Diversification of Sources**: To address heavy dependence on one medium- or high-risk source (a single factory, supplier, or region) it is **better to add more sources in locations not vulnerable to the same risks.**
- **Hold safety stock**: In absence of alternate suppliers, firms should determine quantity of extra stock to be held. **In event of disruption, safety stock can help reduce loss of revenue** when placed correctly along the value chain.
- **Process Innovations**: New technologies such as 3-D printing, automation, continuous-flow manufacturing **allows companies to lower costs and be flexible** in manufacturing products. They also make factories environmentally sustainable.
- **Nearshoring**: Regional/local supply chains can **reduce geographic dependence on global networks** and shorten cycle times for finished products.

2.5. US EXIT FROM AFGHANISTAN

Why in news?

US has announced that all American troops would be withdrawn from Afghanistan by September 11, 2021, the 20th anniversary of the 9/11 attacks, thus bringing to end the country's longest war.

About the issue

- Following the September 11 terrorist attacks on the United States (US) in 2001, the **U.S., together with its NATO allies led a military campaign against Al Qaeda and the Taliban government** in Afghanistan that harboured and supported it.
  - The **Taliban emerged in the early 1990s** and **ruled Afghanistan from 1996 to 2001.** It imposed a brutal version of Sharia law that included public executions and amputations, and the banning of women from public life.
- The **US has about 14,000 troops in Afghanistan**, to train, advice and assist Afghan forces to oversee military operations in the country so as to prevent any resurgence of the Taliban group.
- **The US engagement has continued for nearly 20 years**, involving heavy human and economic cost but without a clear victory over the Taliban.
  - The number of civilians, mostly women and children, killed or injured by airstrikes in Afghanistan has risen 39% year on year.
- **In the intervening time, an elected Afghan government has replaced the Taliban,** and most measures of human development have improved. But approximately a third of Afghanistan is still a "contested" area.
- The **US and the Taliban signed a landmark deal in Doha** in February 2020 to bring lasting peace in war-torn Afghanistan and allow US troops to return home.
- Peace in Afghanistan now hinges upon the success of intra-Afghan negotiations which makes the **future of Afghanistan very uncertain** post US withdrawal. This uncertainty could also lead to a set of broader **geopolitical implications for the entire region including India.**

Implications for the region

- **Reversal of the gains in Afghanistan:** With possibility that peace talks would offer the Taliban a legal stake in the Afghan political scenario.
  - It is being apprehended that major advances that Afghans have achieved in democracy and living standards will be rolled back.
- **Risk of civil war**: The regional players are divided in factions and have a long history of taking sides in Afghan civil wars. However, they all supported American-led intervention and the resultant new Afghan government.
  - But, with their deteriorating relationship with US (sanctions on Russia and Iran, trade war with China), it is apprehended that the cohesion will now erode which may again lead to civil wars in and around the region.
- **Global refugee crisis:** A wider civil war in Afghanistan will see a return to high levels of inter-ethnic violence redolent of the 1979–2002 period. This will, in turn, exacerbate the global refugee crisis further threatening social cohesion and political stability in regions as far as Europe.
- **Changing power equations:** United States' military withdrawal and the resultant power vacuum is expected to require more involvement from geographically proximate powers wishing to safeguard their own interests. (See box).

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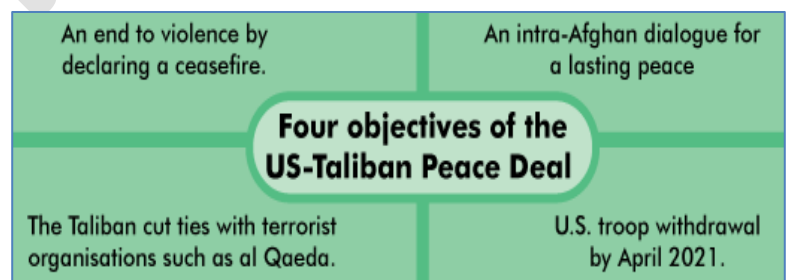
- **Resurgence of terrorism:** The Islamic State is active in Afghanistan, and so are several other designated terrorist groups in the Afghanistan-Pakistan border region. The pressure on terrorist groups will be reduced, allowing them more time, space, and resources to organize far-flung attacks.
  - For instance, some of the most active militants in Afghanistan are of Central Asian–rooted groups such as the Islamic State Khorasan Province, which, unlike the Taliban, has broader regional ambitions.

Concerns for India

- **Limitations of existing approach:** India has always supported "an Afghan-led, Afghan-owned and Afghan-controlled process for enduring peace and reconciliation in Afghanistan.
  - Continuing with its current policy of keeping engagement limited to democratically elected government would leave India vulnerable and isolated in a scenario of Taliban entering into some form of power-sharing engagement with the Afghan government.
- **Security Threats:** Historically, Taliban owing to close relations with ISI, has trained, and financed militants such as Lashkar-e-Taiba and Jaish-e-Mohammad for operations in India. It resulted in many attacks such as the 2001 Parliament attack.
  - Also, terror outfits such as the Haqqani network, have targeted Indian workers and institutions in Afghanistan in the past. Increased Pakistani influence in Afghanistan may make India more susceptible to terrorism post US withdrawal.
- **Strategic interests at stake:** Since 2001, India has extended developmental assistance to tune of around $3 billion to foster a strong relationship with Afghanistan. Over the past two decades, it was able to use its presence in the country to ensure strategic encirclement of Pakistan and thwart Pakistan's strategic depth doctrine. The US' withdrawal may change India's standing in Afghanistan.
- **Absence of safety net:** Most of India's assistance initiatives in Afghanistan have been supported by security associated with the presence of the United States and allied forces. Post-U.S. withdrawal, India would require new partners to guarantee the security of its interests and programs within Afghanistan.

Interests of various countries in the region
- **Russia:** Russia's security concerns in the region encompass factors such as the drug trade, human trafficking, illegal migration, and, terrorism which will likely propel Russia to entrench its security involvement with Central Asian states.
- **China:** Afghanistan holds both security and economic value. Instability in Afghanistan could have an impact on the China Pakistan Economic Corridor and a Taliban regime in Afghanistan might end up stirring unrest in the Xinjiang Autonomous region, home to the Uighur minority. Also, Afghanistan has large rare earth mineral reserves that is expected to spark Chinese interest as it is developing itself as a global leader in renewable energy technologies.
- **Iran:** An Afghanistan dominated by the Taliban's presence will push the country into Saudi Arabia's sphere of influence – a move detrimental to Iran's regional standing.
- **Pakistan:** Using Afghanistan led by Taliban as a strategic backyard in order to counter the influence of India in Afghanistan and to unleash instability in Kashmir **(Strategic depth doctrine).**

HUMANITARIAN ASSISTANCE
- Supply of 1.1 million MT of wheat to Afghanistan
- The Indra Gandhi Institute of Child Health (IGICH) – a 400-bed hospital that caters to the well-being of children from all across the country

ECONOMIC DEVELOPMENT
- Private investments into Afghanistan, such as through the India Afghanistan Trade and Investment Show in 2017
- 116 new 'High Impact Community Development Projects' in 31 provinces of Afghanistan

INFRASTRUCTURE
- 218km road from Zaranj to Delaram to help move goods & services to Iran border
- 220kv DC transmission line from Pul-e-Khumri to Kabul and a 220/110/20kV sub-station at Chimtala
- India-Afghanistan Friendship Dam (Salma Dam)
- New Afghan Parliament

CONNECTIVITY
- Chabahar Port development
- Direct Air Freight Corridor between India and Afghanistan established in 2017

5 PILLARS THAT DRIVE INDIA'S DEVELOPMENT PARTNERSHIP WITH AFGHANISTAN

CAPACITY BUILDING
- More than 3,500 Afghans undergoing various training programmes in India
- 1,000 scholarships per annum to Afghan nationals under Indian Council for Cultural Relations (ICCR)
- 500 Indian Technical and Economic Cooperation (ITEC) slots to Afghanistan annually to strengthen its administration and governance

Way forward for India

India has always restricted itself from playing an active role in security or the peace process. With this stability at risk, India needs to urgently reposition its priorities.

- **Establishing diplomatic contacts with a politically empowered Taliban** will be crucial to safeguarding India's existing and future economic interests in the country, including those linked with Central Asian energy markets and broader connectivity projects.
- **A more assertive and broader approach** is needed to effectively manage the threats to its security emanating from the war-torn country. **Enhanced cooperation with the Afghan intelligence service** and the National Directorate of Security would enable India to better protect its interests.
- **Continued Training and Investments:** India should provide more military training to Afghan security forces and invest in longer-term capacity-building programs. Given the continued levels of violence and the impact of the COVID on the Afghan economy, India should expand its development assistance.
- **Regional Cooperation:** India should look to broaden its engagements with Iran and Russia, explore opportunities for cooperation with China, and find common ground with the United States on Afghanistan's future.
- **Broader Diplomatic Engagement:** India should consider appointing a special envoy dedicated to Afghan reconciliation that can ensure that Indian views are expressed at every meeting, broaden engagement with the Afghan government and other political actors, and reach out to certain Taliban representatives.

Conclusion

It is time for India to build upon this goodwill and play a more pro-active role to ensure that peace and development in Afghanistan continues uninterrupted.

2.6. IRAN-NUCLEAR AGREEMENT

Why in News?

With the ongoing EU mediated indirect negotiations between USA and Iran, the hopes on the revival of Iran Nuclear deal with possible USA reentry has reached a new high.

Iran's Nuclear Programme
- Iran started its nuclear programme in 1950s with USA help under **Atoms for peace** initiative.
- Iran signed the **Non-proliferation Treaty** in 1968 as part of the 62 original signatories and ratified it in 1970.
- But in 2005, IAEA found Iran in non-compliance to the **NPT safeguards agreement** leading to nuclear related sanctions on Iran by UN Security Council.
- After years of negotiations, **in 2015 Iran agreed** to curb its nuclear programme with access to inspection in exchange for sanctions relief.

URANIUM ENRICHMENT PROCESS

Increase the concentration of **U-235** atoms, by removing **U-238**, means it can be used for nuclear fuel or bombs.

Natural uranium	Low-enriched	High-enriched	Weapons-grade
contains 0.7% U-235	fuel for commercial nuclear power plants 5% U-235	fuel for nuclear research reactors 20% U-235	90% U-235

■ U-235
■ U-238

Iran is limited to 3.67% U-235

What is Iran-nuclear Agreement?

- The Iran nuclear agreement, also known as the **Joint Comprehensive Plan of Action (JCPOA),** is an accord signed between **Iran and P5+1** nations (US, UK, China, Russia, France and Germany) in 2015.
- The **High Representative of the European Union** for Foreign Affairs and Security Policy were part of it and UNSC endorsed it through **United Nations Security Council Resolution 2231.**

Strict Limitations on Iran Nuclear Programme	Extensive monitoring of Nuclear Facilities	Relief to Iran from Sanctions
• Cap on Enrichment at 3.67%. • Reduce stockpiles of enriched uranium to 300kg. • Reduce the number of installed centrifuges with limitations on R&D activities.	• Allow inspection of nuclear facilities by IAEA. • Investigation of past activities by IAEA.	• End of trade and financial sanctions by USA. • End of Oil embargo by EU and allow Iran access to Swift electronic banking system.

- The objective of the deal was to cut off Iran's ability to pursue a nuclear weapon and reverse economic sanctions by through various steps. **(see infographic)**

TIMELINE OF JCPOA

2016 ▸ **2017** ▸ **2018** ▸ **2019** ▸ **2020** ▸

2017 (top):
- US imposes new non nuclear sanctions on Iran.
  - Sanctions under **new categories included counter-terrorism, human rights** etc.
- A UN report higlights Arms embargo violation by Iran.

2019 (top):
- US announces **withdrawal from JCPOA.**
- **Sanctions are reimposed on Iran** with other new sanctions.

2016 (bottom):
- **Iran starts compliance to JCPOA.**

2018 (bottom):
- UK, France and Germany established INSTEX.
  - (**INSTEX or Intrument in Support of Trade Exchanges** is a trade mechanism created to allow European entities to maintain trade with Iran).
- US **ends secondary sanctions exemption for countries** buying Iranian oil.
- Iran **increases Uranium enrichment to 4.5%.**

2020 (bottom):
- Targeted killing of Iranian major by US.
- Iranian cabinet **declares nonadherence to JCPOA.**

Developments in Iran-Nuclear Agreement

The **changed political regime in 2020 in USA has been the driving force** behind in the efforts to revive the deal by re-entry of USA in the agreement.

Effect of revival of the deal on all stakeholders

- **Iran:** The deal will remove the prevalent economic sanctions and will help kick-start the economy. But at the same time, Iran would be subject to various conditions with regard enrichment of uranium and transparency within its nuclear facilities.
- **States concerned with Iran's nuclear program:** US, Israel, Saudi Arabia among others aim to curtail Iran's capacity of nuclear enrichment.
  - Although, countries like USA are by-and-large satisfied with the deal, countries in the neighbourhood of Iran want stricter control over the nuclear programme.
- **Iran's economic partners:** These include European nations with business interests with Iran, importers of Iranian fuel including South Asian countries and countries directly affected by the Iranian economy i.e., West Asian countries.
  - By opening Iran's economy, revival of the deal will directly benefit Iran's economic partners.
- **Iran's geopolitical partners:** USA's exit from the deal in 2018 paved the way for improved ties with other global powers, in particular with Russia and China. For example, in 2019, Russia, Iran and China held joint naval drill in the Gulf of Oman.
  - Successful revival of the agreement can tilt Iran's geopolitical balance away from China-Russia and towards Western powers.

Impact on India

India has an **economic as well as strategic relationship with Iran**. India is a major importer of the Iranian crude and has a strategic relationship with Iran through projects like **Chabahar Port, International North-South Transportation Corridor (INSTC)** and **Ashgabat Agreement.**

Revival of the project can have following impact on India-

- **End of sanctions on oil imports** from Iran which has been in place since 2019.
- **Restarting of the Chabahar port project** which has been in limbo since US's exit in 2018.

Challenges in functioning of the treaty

The treaty can positively impact and satisfy the fears of a large spectrum of nations. But implementation of the treaty since 2015 has highlighted following cracks:

- The deal is **Temporary in nature i.e., its applicability is limited till 2026.**
- **USA's unilateral exit** has created a **trust deficit** among the other members of the agreement.
- **Neither USA and its allies nor Iran public** are completely satisfied with the agreement. This makes the agreement unstable and susceptible to breaking.

Conclusion

The revival of Iran nuclear agreement is vital, but the re-entry of the USA and deal's implementation is marred with challenges. In this context, efforts have to made to ensure continuous engagement. The crisis created by COVID-19 can be used as an opportunity by all members to undertake a more constructive and long-term engagement.

3. ECONOMY

3.1. WHOLESALE PRICE INDEX

Why in News?

The annual rate of Wholesale Price Index (WPI) stood at 7.39% for the month of March, 2021 over March, 2020 which is **the highest wholesale inflation rate since October 2012.**

About WPI

- The Wholesale Price Index (WPI) reflects **changes in the average prices of goods at the wholesale level** — that is, commodities sold in bulk and traded between business or entities rather than goods bought by consumers.
- **It does not consider the price of services** and does not reflect the consumer price situation in the country.
- **Released by**: Economic Advisor in the Ministry of Commerce and Industry
- **Base year:** Its base year is 2011-12 (revised in 2017 from 2004-05)
- **Components of WPI:** The index is based on the wholesale prices of a basket of 697 commodities categorised under three groups — Primary articles, Fuel and power and Manufactured products.

> **Significance of WPI**
> - Used as a **deflator of various nominal macroeconomic variables** including Gross Domestic Product (GDP).
> - Used for the purpose of **escalation clauses** in the supply of raw materials, machinery and construction work.
> - Global investors track WPI as one of the **key macro indicators** for their investment decisions.
> - WPI based **inflation estimates** serve as an important determinant, in formulation of trade, fiscal and other economic policies by the Government.
> - WPI also has sub-index called **WPI Food Index (**aggregate of WPI for Food Products under Manufactured Products and Food Articles under Primary Article) which along with Consumer Price Index (CPI) Food Price Index published by Central Statistics Office (CSO) helps to **monitor the food inflation effectively**.

COMPONENTS OF WPI BASKET

PRIMARY ARTICLES (117 ITEMS) — Weight: 22.62%
- **FOOD ARTICLES:** Cereals, Paddy, Wheat, Pulses, Vegetables, Fruits, Milk, Eggs, Meat & Fish, Condiments & Spices etc.
- **NON-FOOD ARTICLES:** Fibres, Oil Seeds, Minerals, Crude Petroleum etc.

FUEL & POWER (16 ITEMS) — Weight: 13.15%
- Coal, Electricity & Mineral oils like Petrol, Diesel, LPG, etc.

MANUFACTURED PRODUCTS (564 ITEMS) — Weight: 64.23%
- **MANUFACTURED PRODUCTS:** Textiles, Apparels, Paper, Chemicals, Plastic, Cement, Metals etc.
- **MANUFACTURED FOOD PRODUCTS:** Sugar, Tobacco Products, Vegetable & Animal Oils, & Fats etc.

Wholesale Price Index (WPI) vs. Consumer Price Index (CPI)		
	WPI	**CPI**
Indicates	Change in average prices for bulk sale of commodities at the first stage of transaction	Average change in prices at retail level paid by the consumer
Covers	Goods only	Both Goods and Services
Base Year	2011-12	2011-12
Published by	Office of Economic Advisor (Ministry of Commerce and Industries)	National Statistical Office (Ministry of Statistics and Programme implementation)

Reasons for surge in WPI

- **Supply disruptions:** Pandemic induced local lockdowns and supply disruptions have resulted into supply disruptions causing rise in prices.

- **Depreciation of Rupees**: The rupee has been depreciating because of the Reserve Bank of India (RBI)'s measures to keep the interest rate on government bonds low. Also, the outflows by foreign portfolio investors have placed an additional pressure on the rupee.
  - A decline in the external value of rupee makes India's imports, particularly crude oil, metals and edible oils more expensive.
- **Rise in price of commodities**: The prices of crude oil, petroleum products and basic metal substantially increased in March 2021 as compared to the corresponding month of last year.
- **Seasonalilty of products**: As summer sets in, perishable products (especially vegetables) usually sees higher inflation.
- **Unreliability of data:** The sharp rise in annual rate in March can be attributed to the low base as data for March 2020 was computed with a low response rate that could have given lop-sided results.
  - Month-on-month (March 2021 over February 2021) rate of inflation stood at 1.57 %.

Implications

- **Increase in retail inflation:** There are concerns that the higher inflation on the wholesale side could eventually spill over to the retail level in the following months, especially if the new lockdowns and restrictions hit supply chain.
  - Retail inflation has already climbed to 5.52% in March as fuel and transportation costs increased alongside some categories within the food basket.
- **Policy rate cuts:** Although WPI numbers are not the Reserve Bank of India's main metric for the purpose of setting monetary policy; the sharp spike may result in Monetary Policy Committee looking at precautionary rate cuts.
- **Higher inflationary expectations**: The apprehensiveness about future inflation may result in people making purchases earlier than planned and cause a rise in actual current inflation.
- **Dual pressure on economy**: Higher inflation and restrictions due to COVID-19 may weaken Indian economy further resulting into various disruptions such as higher unemployment.

Conclusion

Though CPI gives much clearer picture of Inflation than WPI, it is important not to overlook the surge in WPI. The rise in WPI may be indicative of the real inflation rise in future which may have disruptive effects on the economy.

3.2. PRADHAN MANTRI AWAAS YOJANA-GRAMIN (PMAY-G)

Why in News?

Ministry of Rural Development has recently informed that **92% of the target has been achieved in the 1st phase** of Pradhan Mantri Awaas Yojana – Gramin (PMAY-G).

Housing Shortage and PMAY-(G) Targets

Housing Shortage Estimation

4.39 crore –Working Group on Rural Housing for 12th Five Year Plan (2012-17)
3.47 crore – Census, 2011
4.03 crore –Socio Economic and Caste Census (SECC), 2011

2.95 crore PMAY-G houses targeted to be constructed by 2022 in 2 phases

| Phase-I | Period: 2016-2019 | Target: Construction of 1 crore PMAY-G Houses |
| Phase-II | Period: 2019-2022 | Target: Construction of 1.95 crore PMAY-G Houses |

About Pradhan Mantri Awaas Yojana – Gramin (PMAY-G)

- PMAY-G was **launched in 2016** by restructuring **Indira Awaas Yojana (IAY).**
  - IAY was launched during 1985-86 as a **sub-scheme of RLEGP** (Rural Landless Employment Guarantee Programme).

- o It was made an **independent scheme** from 1996.
- **Objective:** Scheme aims at **providing a pucca house, with basic amenities**, to all **homeless and those households living in kutcha and dilapidated house**, by 2022.
- **Eligibility**: Identification of beneficiaries **as per the housing deprivation parameters and exclusion criteria** prescribed under Socio Economic Caste Census (SECC) 2011 after **due verification by Gram Sabha**.
- The Criteria for **Automatic Inclusion** is as follows (refer infographics).
- **Unit Size**: Minimum size of the unit is 25 sq. mt. which includes a dedicated area for **hygienic cooking**.
- **Unit Assistance**: Rs. 1.20 lakh in plains and Rs.1.30 lakh in hilly states, difficult areas and IAP districts.
- **Sharing Pattern**: 60:40 between Centre and State in plain areas,
  - o 90:10 for North Eastern States, 2 Himalayan states, 1 U.T. of Jammu & Kashmir (subject to change), and
  - o 100 % Central Share for Union Territories including the UT of Ladakh.
- **Other Features:**
  - o Single State Nodal Account & 100 % **Direct Benefit Transfer.**
  - o **AwaasSoft**: Workflow and transaction-based Service Delivery Platform to **facilitate e-governance** of PMAY-G.
    - ✓ **AwaasApp**: a mobile application used to **monitor real time** progress of house construction through **date and time stamped and geo referenced photographs** of the house.
  - o **Evidence based Monitoring**: progress of construction through **geo-tagged photographs.**
  - o **Convergence with other programmes** for basic amenities.
    - ✓ Provision of toilets at Rs. 12000/- (**through Swachh Bharat Mission (G ramin))** and 90/95 days of unskilled wage labour under **MGNREGA** over and above the unit cost.
  - o **Quality of house construction**: Rural Mason Training, House Design typologies etc.
  - o **Sensitization of the Beneficiaries:** Awaas Diwas (Housing day) is conducted in **every block / group of panchayats** for the sensitization of the beneficiaries.
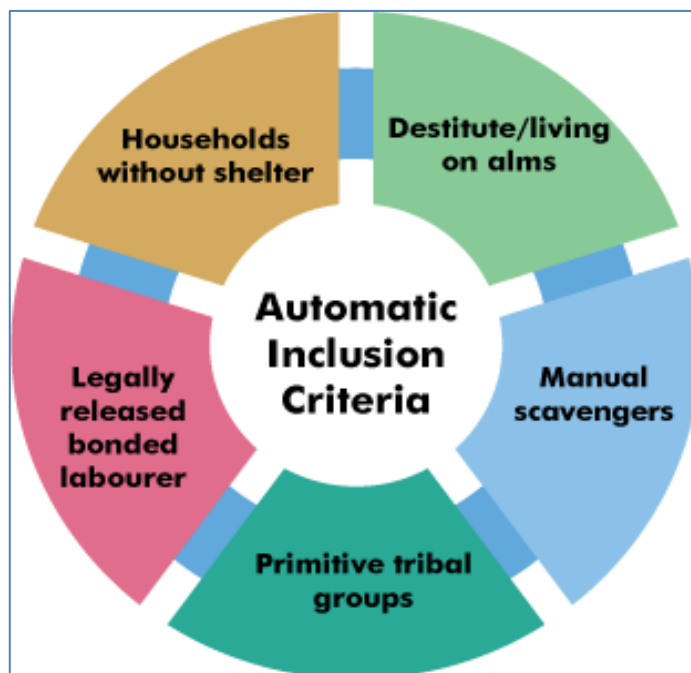
PMAY-G during COVID-19 Pandemic
- In the FY 20-21, **less than 6% of houses sanctioned under the scheme have reached completion**, with COVID-19 stalling progress.
- Nationwide, the Ministry's target was to **sanction 63 lakh houses** in 2020-21. **Only 34 lakh** were actually sanctioned, and **only 1.9 lakh of those had reached completion** at the end of January.
  - o Implementation was affected at the ground level due to **unavailability of construction materials, labour, delay in inspection of stages of house construction** and so on.
  - o However, states like Odisha and Jharkhand which are the **source of large migrant worker populations** saw some progress by **engaging migrant workers** in house construction activities in the rural areas.

Governance & Accelerated Livelihoods (GOALS) project
- In partnership with the Ministry of Rural Development (MoRD), **UNDP (United Nations Development Programme),** through the GOALS project, helps promote affordable housing for the rural poor.
  - o The first component of this has been to **provide beneficiary households with a wider range of choices** in terms of housing designs, materials and construction technologies.
  - o These choices are **tailored to local conditions**, aim to enhance **user benefits** and **reduce the environmental footprint** of housing.

3.3. SWAMITVA SCHEME

Why in News?

Recently, Prime Minister of India launched the distribution of e-property cards under the SWAMITVA scheme on National Panchayati Raj Day.

About SWAMITVA Scheme

- It is a **Central Sector Scheme** that aims to provide an **integrated property validation solution for rural India**, engaging the latest Drone Surveying technology, for demarcating the inhabitant (Aabadi) land in rural areas.
  - o It aims to **update the 'record-of-rights' in the revenue/property registers** and **issue property cards to the property owners** in rural areas.
- It is a **collaborative effort** of the Ministry of Panchayati Raj (MoPR) (Nodal Ministry for implementation of the scheme), State Panchayati Raj Departments, State Revenue / Land Records Departments and Survey of India (technology partner for implementation).

- **The Scheme is divided into two Phases:**
  - o **Phase I** - Pilot Scheme (April 2020-March 2021) Six pilot States (Haryana, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and Uttarakhand) covering approx. 1 lakh villages and CORS network establishment in Punjab and Rajasthan
  - o **Phase II** (April 2021 – march 2024) -Complete survey of remaining villages.
- **Components of the scheme**
  - o **Establishment of CORS network**: Continuously Operating Reference Stations (CORS) is a network of reference stations that supports establishment of Ground Control Points, which is an important activity for accurate Georeferencing, ground truthing and demarcation of Lands.
  - o **Large Scale Mapping (LSM) using Drone**: Rural inhabited (abadi) area would be mapped by **Survey of India** using drone Survey to generate **high resolution and accurate maps** based on which, property cards would be issued to the rural household owners.
  - o **Information, Education and Communication**: Awareness program to sensitize the rural population about the surveying methodology and its benefits.
  - o **Enhancement of Spatial Planning Application "Gram Manchitra**": The digital spatial data/maps created under drone survey shall be leveraged for creation of spatial analytical tools to support preparation of Gram Panchayat Development Plan (GPDP).
  - o **Online Monitoring and reporting dashboard** would monitor the progress of activities.
  - o **Program Management Units**: The scheme will be implemented through the regular departmental mechanisms, which will be assisted by Programme Management Units at the National and State level.

Benefits of SVAMITVA

ISSUANCE OF PROPERTY CARD	MINIMISE PROPERTY DISPUTES	BETTER QUALITY GPDP	OTHER BENEFITS
• Villagers can easily avail Home / Property loans. • Coverage of Properties by property tax. • Automatic creation of Property Tax Determination Sheet. • Automated Tax collection. • Increase in liquidity of land parcels in the market. • Increase in the financial credit availability to the village.	• Protection of civil rights of villagers. • Prevention of the encroachment by identifying public land. • Exact area of revenue will be known. • Records and map for taxation of the village, construction permits etc. will be available at Gram Panchayat.	• Using the maps created under survey for preparing GPDP. • Maps provide decision support system and helps in development and execution of planning activities.	• Ease in implementation of agriculture schemes such as PM-KISAN, Fasal Bima Yojana etc. • Aid relief and compensation work in disaster affected areas.

Issues in implementation of the scheme

- **Reluctance in community:** Land and boundaries are sensitive topics among rural people, which can discourage them to participate in such policy reforms.
- **Exclusion of vulnerable people:** Dalits, women, tenant farmers and tribal communities are often excluded from accessing land, even though they may legitimately have a claim.
- **Lack of functional market in rural areas** for the using land as marketable collateral.
- **Regular updating of the created records:** Different authorities for creation (Survey of India) and maintenance (States' Revenue Department) of records may create impediments in regular updating of created records.
- **Center- State Coordination:** With center being the nodal agency and states being the implementation agency there have been certain issues related to smooth implementation of the scheme especially related to monitoring and ownership of the scheme.
- **Legal loopholes:** The Scheme places the responsibility of carrying out appropriate amendments to the revenue laws for its implementation on the respective state revenue departments. However, careless review of these laws can create legal loopholes.
    - For example, in Haryana, the scheme has been implemented under its Panchayati Raj Act. However, the Act only empowers the panchayat to prepare the maps and not to create the associated land records. Thus, there is a possibility of disputes.
- **Missed opportunity of women empowerment:** Single women form a significant share of the population but are often devoid of property ownership. The scheme in its current design is missing an opportunity to enable recognition of women's ownership rights as it issues property cards based on "possession" and not "inheritance".

Way Forward

- **Engaging the community from the beginning**: Involving the community and ensuring high level of transparency can create an environment of greater acceptance of the process and reduce potential for disputes.
- **Protecting the most vulnerable people:** It would be important to build safeguards in the implementation process to ensure legitimate claims of the most vulnerable people are not crowded out.
- **Establish a grievance redressal system:** A grievance redressal system will effectively addresses people's concerns in a transparent and fair manner and will aid in smooth implementation of the program.
- **Enable markets to work:** States should simplify the legislative and regulatory procedures to build consumer confidence and encourage transactions in these areas.
- **Fostering healthy competition among states:** It can expedite progress under the scheme. For this a credible system or an index to verify achievement and rank states should be implemented.

- **Devising the appropriate monitoring system**: Given that there is considerable autonomy in the way states will choose to implement this scheme, it is important to evaluate the scheme's performance on desired outcomes.
- **Empower Gram panchayats**: They should also be authorised to revise property tax records at the time of land record updates to ensure robust and consistent revenue collection.
  - A GIS-based-based software may be provided to panchayats to manage property and taxation records.
- **Ownership rights to women**: States can consider recognizing possession based ownership rights to single women.

Conclusion

Modernising land records is one of the foundational steps towards mending and reimagining broken institutional arrangements, which are pivotal in today's circumstances. This scheme will go a long way towards building financial strength and independence of the local self-governance institutions, the Gram Panchayats.

3.4. COPYRIGHT (AMENDMENT) RULES, 2021

Why in news?

Recently, the **Ministry of Commerce & Industry** has notified Copyright (Amendment) Rules, 2021.

What is a copyright?

- A Copyright is a **form of intellectual property protection** granted under the Indian law to the **creators of original works of authorship** such as-
  - **Literary works** including computer programs, tables and compilations including computer databases which may be expressed in words, codes, schemes or in any other form, including a machine readable medium.
  - **Dramatic, musical and artistic works.**
  - **Cinematographic films** and **sound recordings.**
- These rights include the **right of adaptation, right of reproduction, right of publication, right to make translations, communication to public** etc.

Copyright regime in India

- In India, the copyright regime is governed by the **Copyright Act, 1957** and the **Copyright Rules, 2013**.
  - The Copyright Rules, 2013 was last amended in 2016 through the Copyright Amendment Rules, 2016.
- **India is signatory to following International Copyright treaties:**
  - **Berne Convention, 1886:** It is for the **Protection of Literary and Artistic Works** under which **Indian copyright law applies to anything published or performed in India,** regardless of where it was originally created.
  - **The Universal Copyright Convention (UCC)**: It gives protection for **original literary, artistic and scientific works.** Under the provisions of the UCC, the contracting countries have to **provide a set of 'minimum rights' to the rightful owner of the work.**
  - **Trade related aspects of Intellectual Property Rights (TRIPS)**: The treaty of TRIPS was signed under the aegis of World Trade Organisation (WTO) in 1995. The provision of TRIPS Agreement are the most extensive and rigorous in nature as these protect all forms of IPR collectively including Copyrights and other related rights.
  - **WIPO Copyright Treaty, 2002:** It is a **Special agreement under Berne Convention** and it has been adopted by **96 contracting parties**.
    - ✓ It has provisions to **extend the protection of copyrights** contained therein to the **digital environment** to address 'on-demand' and other interactive modes of access.
  - **WIPO Performances and Phonograms Treaty (WPPT), 2002:** It deals with rights of two kinds of beneficiaries, particularly in digital environment- **performers** (actors, singers, musicians etc.), and **producers of phonograms** (Sound recordings).
    - ✓ The treaty empowers right owners and recognizes moral rights of the performers for the first time & provides exclusive economic rights to them.
- **India is not a signatory to Rome Convention.**
  - The Rome Convention secures protection in **performances for performers, in phonograms for producers of phonograms and in broadcasts for broadcasting organizations**.

✓ **WIPO (World Intellectual Property Organization)** is responsible for the administration of the convention jointly with the International Labour Organization (ILO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

International Copyright Treaties

The Berne Convention

The Universal Copyright Convention

The Rome Convention

Trade Related Aspects of Intellectual Property Rights

WIPO Copyright Treaty and WIPO Performances and Phonograms Treaty
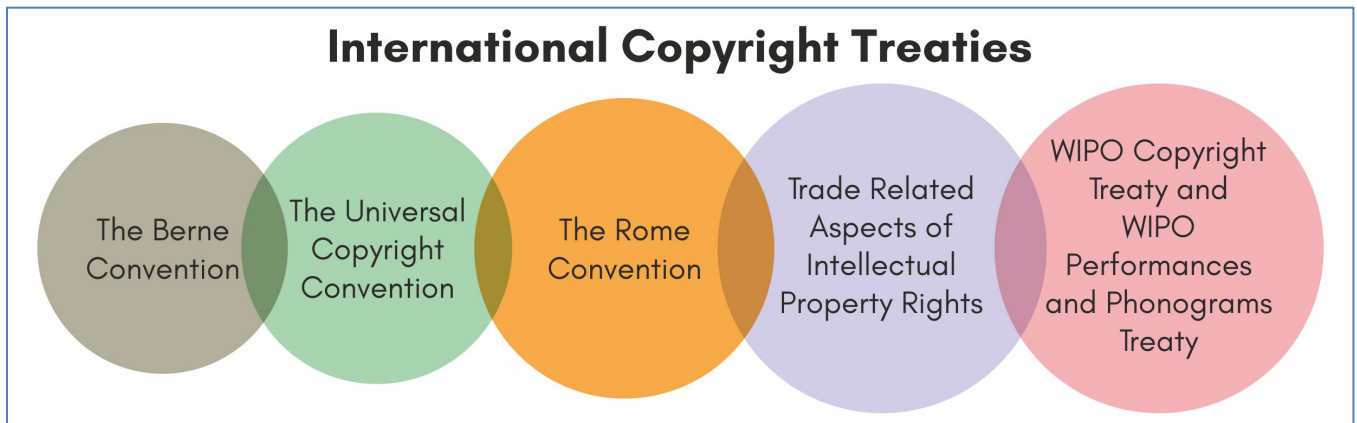
In this context, the amendment to the Copyright (Amendment) Rules, 2021 aims to **bring parity of the rules with existing legislations** and **enable smooth adoption of electronic means as primary mode of communication and working** in the Copyright Office.

Provisions of new amendment

- **Publication in official gazette:** It included a new provision that **eliminates the mandatory requirement** of publication in the Official Gazette.
- **Royalty management**: It aims to **encourage accountability and transparency** by introducing new provisions to deal with the undistributed royalty amounts and use of electronic and traceable payment methods for collection and distribution of royalties.
- **Registration of software works:** The compliance requirements for **registration of software works have been reduced** and the applicant can file the first 10 and last 10 pages of source code, or the entire source code if less than 20 pages, with no blocked out or redacted portions.
- **Annual Transparency Report:** The copyright societies will be required to draw up and make public an Annual Transparency Report for each financial year. It is aimed to **reinforce transparency** in working of copyright societies.
- **Institutional mechanism:** The amendments have harmonised the Copyright Rules with the provisions of **Finance Act, 2017** whereby the **Copyright Board has been merged with Appellate Board**.
- **Powers to High Courts**: New rules replace powers in favour of the **Intellectual Property Appellate Board (IPAB)** from the Copyright Board but due to **newly notified Tribunals Reforms** (Rationalization and Conditions of Service) Ordinance, 2021 that has abolished the IPAB, all the powers that are supposed to vest with the IPAB are actually vesting with the **High Courts**.
- **Time limit:** The time limit for the Centre to respond to an application made before it for registration as a copyright society is extended to 180 days.

Challenges for the enforcement of copyright rules in the digital domain

- **Piracy:** It is a form of **online copyright infringement**, wherein games, movies, software, etc. are sold and distributed without the knowledge or permission of the original creator.
- **Reproducing work in digital domain**: The facility of reproducing and disseminating copyrighted works via the Internet at zero cost pose a great challenge.
- **Public Vs Private Use**: The **Copyright Act of 1957** provided for distinction between the reproduction of particular content in public and private domain but since one person can transfer material to several people through the internet, the copyright laws regarding public and private spaces have become difficult to enforce.
- **Issue of Enforcing Liability**: The major issue with regards to copyright infringement over the internet is liability as it is **important to determine where the liability lies** to enforce punishment against the offender. However, there can be involvement of several people in one issue related to copyright infringement over the internet.
  - **For example in Kerala in 2012**, the anti-piracy cell ended up tracing the IP addresses of around a thousand people who were involved in illegal uploading and downloading of a movie.

- **Lack of legislative harmony**: There is a lack of harmony between the state IPR laws about copyright violation on the internet. The varying domestic laws regarding digital piracy and copyright infringement in different states make effective implementation very troublesome.

Way forward

- **Legal Approach**: There is a need for new approach through legalisation of certain practices in order to ensure that the copyright system continues to fulfil its basic function i.e., **protection of creators** and encouragement **of creativity**.
- **Harmonization of state laws**: Since there are differences in the laws about copyright breach in different states which makes it difficult to take quick action. So, it is important to have **uniformity** in the domestic cyber laws regarding copyright breach.
- **Determination of liability**: There are several cases where it is difficult for the courts to decide who exactly will be liable in case of copyright violation. Therefore, it is important to have clear cut rules that govern liability in cases where multiple countries are involved.
- **Human resource capability:** There is a huge need of well skilled and trained human resource that can detect copyright infringement and can stop it as well as enforce legal protection.

SMART QUIZ

You can scan this QR code to practice the Smart Quiz of Economics at our open test online platform for testing your understanding and recalling of the concepts.

4. SECURITY

4.1. NAXAL VIOLENCE

Why in news?

In an encounter between central paramilitary forces and Maoists in Chhattisgarh's Sukma, 22 personnel died.

Naxalism in India

- Naxalism is a form of **armed insurgency against the State** motivated by leftist/maoist ideologies and thus is **also known as Left Wing extremism (LWE) or Maoism**.
- The Naxal insurgency in India **originated in a 1967 uprising in Naxalbari, West Bengal** by the Communist Party of India (Marxist). They are the group of people who believe in the political theory derived from the teachings of the Chinese political leader Mao Zedong.
- The Naxalites claim to represent the most oppressed people in India, those who are often left untouched by India's development and bypassed by the electoral process.
- The conflict is concentrated in the Eastern part of the country, particularly an area known as the **Red Corridor** spread across the states of Chhattisgarh, Odisha, Jharkhand, Bihar and Andhra Pradesh.

Areas affected by Naxal violence

SHRINKING RED CORRIDOR

What a recent MHA survey has said about Left Wing Extremism-affected districts

DISTRICTS ADDED TO LWE-AFFECTED LIST

CHHATTISGARH: Kabirdham
KERALA: Wayanad,Malappuram, Palakkad
MADHYA PRADESH: Mandla
ODISHA: Boudh,Angul
ANDHRA PRADESH: West Godavari

SOME DISTRICTS REMOVED FROM LWE-AFFECTED LIST

ODISHA: Keonjhar, Mayurbhanj, Ganjam, Gajapati, Dhenkanal, Jaipur
BIHAR: Patna, Bhojpur, Sheohar, Sitamarhi, Begusarai, Khagaria
CHHATTISGARH: Sarguja, Korea, Jashpur

ANDHRA PRADESH: Prakasam, Kurnool, Anantapur
JHARKHAND: Deogarh, Pakur
MAHARASHTRA: Aheri

THIRTY MOST-AFFECTED LWE DISTRICTS

CHHATTISGARH: Sukma, Rajnandgaon, Narayanpur, Kondagaon, Kanker, Dantewada, Bijapur, Bastar
JHARKHAND: Bokaro, Chatra, Garhwa, Giridih, Gumla, Hazaribagh, Khunti, Latehar, Lohardaga, Palamu, Simdega West, Ranchi, Singhbhum
ODISHA : Koraput, Malkangiri
TELANGANA: Bhadradri
BIHAR : Lakhisarai, Jamui, Gaya, Aurangabad
ANDHRA PRADESH: Visakhapatnam
MAHARASHTRA: Gadchiroli

- **Counterinsurgency operation by the Centre and affected states** have helped to bring down Maoist sponsored violence. **Covid-19 pandemic and the national lockdown** also proved a massive blow for Maoists, as it cut critical supplies for many months.
- As a result, **LWE related incidents were down by 47 per cent** between 2015 and 2020 as compared to incidents in the preceding six years from 2009 to 2014.
- Presently, 90 districts in 11 states in the country are considered LWE affected.
- **Chhattisgarh and Jharkhand continue to account for 69.10% incidents** of naxal violence across the country.

Causes for Spread of Left Extremism

Land Related Factors	- Evasion of land ceiling laws. - Existence of special land tenures (enjoying exemptions under ceiling laws). - Encroachment and occupation of Government and Community lands (even the water-bodies) by powerful sections of society. - Lack of title to public land cultivated by the landless poor. - Poor implementation of laws prohibiting transfer of tribal land to non-tribals in the Fifth Schedule areas

	• Non-regularisation of traditional land rights.
Governance Related Factors	• Corruption and poor provision/non-provision of essential public services including primary health care and education. • Incompetent, ill-trained and poorly motivated public personnel • Misuse of powers by the police and violations of the norms of law. • Perversion of electoral politics and unsatisfactory working of local government institutions. • In 2006, Forest Rights Act was enacted. But Forest Bureaucracy continued its hostility towards it.
Displacement and Forced Evictions	• Eviction from lands traditionally used by tribals. • Displacements caused by mining, irrigation and power projects without adequate arrangements for rehabilitation. • Large scale land acquisition for 'public purposes' without appropriate compensation or rehabilitation.
Livelihood Related Causes	• Lack of food security • Disruption of traditional occupations and lack of alternative work opportunities. • Deprivation of traditional rights in common property resources.

Important Initiatives for LWE affected states

'Police' and 'Public order' being State subjects, the primary responsibility of meeting the challenge of Left Wing Extremism (LWE) lies with the State Governments. However, the MHA and other central ministries supplement the security efforts of the State Governments through various schemes such as:

- **National Policy and Action Plan** implemented by MHA since 2015 is a multi-pronged strategy in the areas of security, development, ensuring rights & entitlement of local communities etc. to combat LWE.
- **Major Sub –Schemes under Scheme Modernization of Police Forces for 2017-21**
    o **Security Related Expenditure (SRE) Scheme** (approved in 2017): aims at strengthening the capacity of the LWE affected States to fight against the LWE problem in an effective manner.
    o **Special Central Assistance** (SCA) for 30 most LWE affected districts to fill the critical gaps in Public infrastructure and Services,
    o **Special Infrastructure Scheme** (SIS) including construction of 250 Fortified Police Stations in LWE affected states.
    o **Assistance to Central Agencies for LWE management Scheme**
    o **Civic Action Programme** (CAP) to bridge the gaps between Security Forces and local people through personal interaction.
    o **Media Plan Scheme** to counter the Maoist propaganda.
- **Infrastructure development initiatives**
    o **Road Requirement Plan-I and II (RRP-I&II)** is being implemented by Ministry of Road Transport & Highways, for improving road connectivity in affected districts.
    o **LWE Mobile Tower Project** and approval of Projects under Universal Service Obligation Fund (USOF) to improve mobile connectivity.
    o **The National Technical Research Organization** (NTRO) is assisting the Security Forces in anti-Naxal operations by providing Unmanned Aerial Vehicles (UAVs).
- **Skill Development related Schemes**
    o **ROSHNI** is a special initiative under, Pandit Deen Dayal Upadhyaya Grameen Kaushalya Yojana which envisages training and placement of rural poor youth from affected districts.
    o **ITIs and Skill Development Centres** have been established in LWE affected districts.

SAMADHAN

It is a strategy of MHA to frame short term and long-term policies to tackle LWE. It includes:

8 PILLARS OF FIGHTING MAOISM

- **S** Smart leadership
- **A** Aggressive strategy
- **M** Motivation and training
- **A** Actionable intelligence
- **D** Dashboard based KPIs
- **H** Harness technology
- **A** Action plan for each theatre
- **N** No access to financing

- **Institutional measures**
  - o **Black Panther combat force** - A specialised anti-Naxal combat force for Chhattisgarh on the lines of Greyhounds unit in Telangana and Andhra Pradesh.
  - o **Bastariya Batallion** – A newly formed batallion of CRPF with tribal youth from four highly naxal infested districts of Chhattisgarh along with adequate female representation.
  - o **Separate vertical in the NIA** has been created for investigating cases.
  - o **Multi-disciplinary groups to check funding of Naxalites** - MHA has formed multi-disciplinary groups with officers from central agencies, including from the IB, NIA, CBI, ED and DRI, and state police to choke the financial flow to Maoists.
- **Constructively engaging youth through education**: Seeing the success of educational hub and a livelihood centre in Dantewada district, the government has now opened up livelihood centres, known as **Livelihood Colleges**, in all the districts.
- **Other measures**:
  - o **More bank branches** have been opened to ensure financial inclusion.
  - o **All India Radio stations** in Bastar broadcast regional programmes to increase entertainment options.

Prevailing issues in handling LWE

- **Negligence of established standard operating procedures** at times leads to loss of valuable lives of security personnel.
- **Structural deficits and deficiencies** such as putting IPS on deputations into almost every senior position in CRPF ignoring the decades of experience within the Force.
- **Sluggish Capacity building** of police forces, for example – in Chattisgarh, there are about 10,000 vacancies in different ranks in state police and 23 sanctioned police stations have yet to be set up.
- **LWEs are well trained in guerilla warfare (**fast-moving, small-scale actions)**.**
- **Inefficient technology of mines detection:** Present technology is unable to detect deep planted mines under the road.
- **Laundering of funds:** Naxal leaders operating in Bihar and Jharkhand are laundering extorted money through acquiring movable and immovable assets.

> **Success story: Grey Hounds in Andhra Pradesh**
> - In 1989, Andhra Pradesh set up Greyhounds, **an elite force trained in jungle warfare** and counter-Maoist strategy that carried out pin-pointed operations with great success.
> - This was **coupled with a surrender-and-rehabilitation policy** and setting up of the Remote and Interior Area Development Department to ensure that welfare schemes and infrastructure projects were tailored for Maoist areas.
> - Nearly 10 years after the formation of the Greyhounds, by 1999, the state police started getting an upper hand. With the occasional setbacks, by 2011, Andhra Pradesh finally managed to eliminate the Maoists.
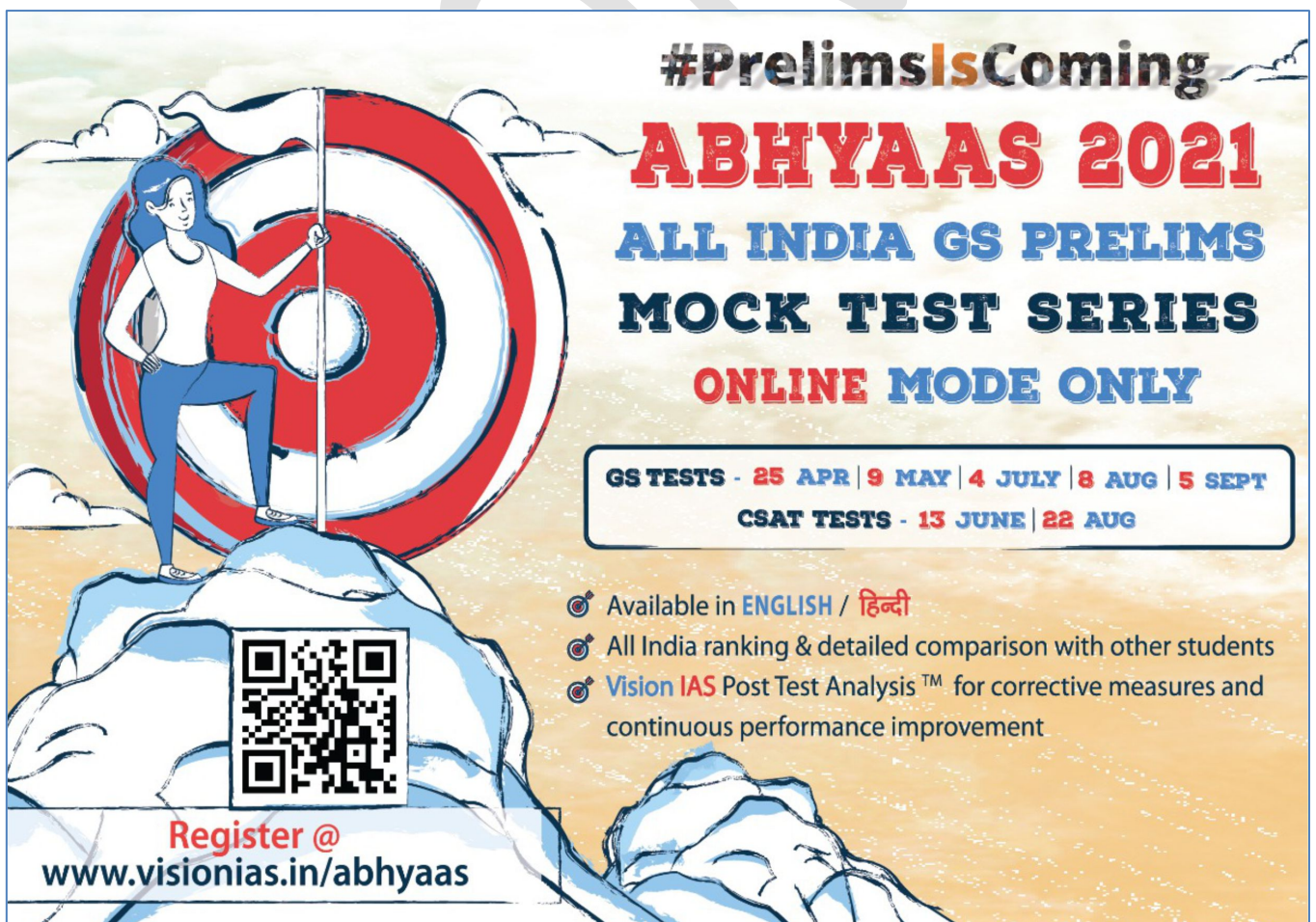
Way forward

The two-pronged policy of proactive policing and holistic development is showing results and must be continued for significant results in the future. This includes:

- **Learning from best practices: Grey hounds in Andhra Pradesh** have been successful in minimising Maoists activities to a large extent. Similarly, as **Chhattisgarh police** have experience in tackling Maoists in Bastar, they are now coordinating with the bordering States to strengthen intelligence and ground presence.
- **Eliminating the root cause of the problem** that is leading to the alienation of tribals in this area. The focus should now be on building roads, increasing administrative and political access of the tribals, improving reach of government schemes etc.
- **Cooperative federalism**: Centre and states should continue with their coordinated efforts where Centre should play a supportive role with state police forces taking the lead.
- **Forest Rights:** Effective implementation of the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Rights) Act, 2006.
- **Financial empowerment:** Introduce measures to encourage formation of 'Self Help Groups' (SHGs) to improve access to credit and marketing and empower the disadvantaged.
- **Infrastructure development:** For implementing large infrastructure projects, particularly road networks that are strongly opposed by the extremists can be undertaken with the help of specialised Government agencies like the Border Roads Organisation instead of local contractors.

- **Leveraging the use of technology:** Such as micro or mini-UAVs or small drones, high-resolution PTZ cameras, GPS tracking, hand-held thermal imaging, radar and satellite imaging to minimize loss of lives of security personnel. Also, technologies like trackers in weapons and biometrics in smart guns must be used, to check the use of looted arms by the militants.
- **Choke funding:** The nexus between illegal mining/forest contractors and transporters and extremists which provides the financial support for the extremist movement needs to be broken through establishment of special anti-extortion and anti-money laundering cell by State Police.
- **Role of the media in building trust and awareness generation:** Support of media must be taken in order to change the sympathetic attitude of people towards the Maoists, to dispel the fear created by the Naxalites in the minds of people and instil confidence among them that the State is by their side.
- **Open the channels for political dialogues:** With their domination being very weak and confidence low, it is the best time to have a peace dialogue with rebels.

5. ENVIRONMENT

5.1. SUSTAINABLE FOOD SYSTEMS

Why in news?

India held the **first National Dialogue on agri-food systems (at Delhi)** for exploring national pathways towards creating sustainable and equitable food systems.

More on news

- The dialogue was conducted as consultative processes precursor to **first ever UN Food Systems Summit** to be held in **September 2021** to strategize the **actions for change in global Agri-food systems**.
- The Summit will **focus on pathways to shape food systems nationally and globally** to accelerate progress in the **Sustainable Development Goals 2030**.
- The Summit is planned to be participatory and consultative for **5 Action Tracks:**
  - o **Action Track 1**: Ensure safe and nutritious food for all
  - o **Action Track 2**: Shift to sustainable consumption patterns
  - o **Action Track 3**: Boost nature-positive production
  - o **Action Track 4**: Advance Equitable Livelihoods
  - o **Action Track 5**: Build resilience to vulnerabilities to shock and stress
- **India has volunteered** to the **Action Track 4: Advance Equitable Livelihoods** for the Summit. But India's participation is has been in other areas as well.

IMPACT OF SUSTAINABLE FOOD SYSTEMS
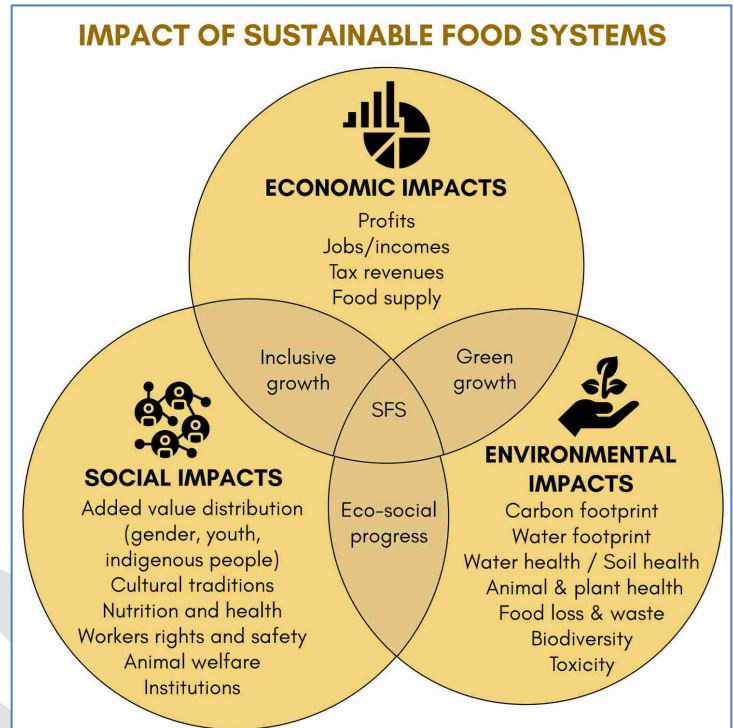
About Sustainable Food Systems

- Food systems encompass the **entire range of actors and their interlinked value-adding activities** involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries.
  - o It also involves **economic, societal and natural environments** in which they are **embedded**.
- Food system is **composed of sub-systems** (e.g., farming system, waste management system, input supply system, etc.) and interacts with other key systems (e.g., energy system, trade system, health system, etc.)
- A **structural change in the food system can originate from a change in another system**; for example, a policy promoting more biofuels will have a significant impact on the food system.

- A **sustainable food system (SFS)** is a **food system that delivers food security and nutrition for all in such a way that**:
  - o It is **profitable throughout** (economic sustainability)
  - o It has **broad-based benefits for society** (social sustainability)
  - o It has a **positive or neutral impact on the environment** (environmental sustainability)
  - o **Need of future generations** are not compromised.

International efforts on Sustainable Food Systems

• **FAO-UNEP Sustainable Food Systems Programme (SFSP)**
  o It was **started in 2011** with support from **Government of Switzerland**.
  o Its objective is to :
    ✓ **Spearhead efforts to improve resource use efficiency.**
    ✓ **Reduce the pollution intensity of food systems** from **production to consumption.**
    ✓ **Address issues of food and nutrition security.**
• **Food and Land Use Coalition (FOLU)**
  o It is a **self-governing coalition** composed of over 30 organizations established to transform the global food and land use systems.
  o It was established in 2017 **at United Nations General Assembly.**

Challenges for Sustainable Food Systems in India

- **Scarcity of Land**: Scarcity of land combined with poverty and inability to take risks, lack of access to credit and inputs and poor market access, severely limit the sustainability of food and agriculture systems.
- **Low productivity of agriculture:** Capital formation in the agriculture sector is low (15-19% of GDP) in comparison with other sectors (approx. 40% of GDP).
- **Green House Gas Emissions from agriculture:** Majority of agricultural GHG emissions occur at the **primary production stage** and are generated through the production and use of agricultural inputs - water, fertilisers, and pesticides.
- **Stubble Burning:** Burning of crop residue causes damage to **micro-organisms present in the upper** layer of the soil as well as **its organic quality.** It also contributes to **environmental pollution.**
- **Low water use efficiency:** The **overall irrigation project efficiency** in **developed countries is 50 – 60%** as compared to **only 38% in India**.
- **Outdated legacy incentives and policy support**
  - Subsidies on irrigation water and power have led to **overexploitation of groundwater**.
  - **Fertiliser subsidies, particularly urea**, have led to **imbalanced application of nutrients** in the crop cycle, besides **degrading the soil.**
  - **Policy biased in favour of rice and wheat,** at the opportunity cost of many nutritious and climate-resilient crops.

Way forward

- **Sustainable farming practices:** A crop management system that promotes the **use of organic manures, bio-fertilizers and bio-pesticides** and judicious use of agrochemicals.
- **Effective implementation of land use policy measures:** Revisiting the legislation on the **ceiling on land holdings, tenancy** etc. from the perspective of livelihood and sustainable food and nutrition security is necessary.

> **India's initiatives in the direction of Sustainable Food Systems**
> - **National Mission for Sustainable Agriculture (NMSA)** aims at making agriculture more productive, sustainable, remunerative and climate resilient by:
>   - It was included as **one of the 8 missions under National Action Plan on Climate Change** in 2008 and operationalized from 2014-15.
> - **Pradhan Mantri Krishi Sinchayi Yojana (PMKSY)** aims to Introduce sustainable water conservation practices, among others.
> - **Paramparagat Krishi Vikas Yojana** which aims promotion of commercial organic production through certified organic farming.

- **Adoption of modern irrigation methods:** Promotion of **water efficient technologies** such as sprinkler and drip irrigation can increase the efficiency of surface water use in agriculture.
- **Crop diversification:** To tackle the **twin challenges of climate change and malnutrition**, diversifying existing cropping systems to more nutritious and environment-friendly crops is need of the hour.
- **Adoption of technology: E.**g., Turbo Happy Seeder (THS) machine can uproot the stubble and also sow seeds in the area cleared. The **stubble can then be used as mulch** for the field.
- **Research and Innovation:** It will play a key role in achieving the goal of sustainable and nutritious food systems by development of suitable crop varieties with desired traits like yield, climate-resilience and nutritional qualities**.**
- **Consumer Behaviour:** For crop diversification to succeed, **healthy and diversified diets need to be incorporated and promoted in the menu of Indian consumer**. Post-COVID-19, this positive trend for healthier foods is expected to further rise.

5.2. THE SECOND WORLD OCEAN ASSESSMENT

Why in News?

Recently, United Nation released the Second World Ocean Assessment.

About the World Ocean Assessment

- Concerned by the declining state of the ocean the **United Nations General Assembly**, established the regular process for global reporting and assessment of the state of the marine environment.
- The first World Ocean Assessment was completed in 2015.
  - It concluded that many parts of the ocean had been seriously degraded which may produce a destructive cycle of degradation.

- The second World Ocean Assessment provides an update to the first Assessment.

Key Findings

- **Key Drivers:** Drivers that have the greatest influence on the marine environment and its sustainability are:
  - **Population growth and demographic changes**: The extent to which an increasing global population places pressure on the marine environment varies, depending on a range of factors, including where and how people live, their consumption patterns and technologies used to produce energy, food and materials, provide transport and manage waste.

Provisioning Services
- Provides benefits such as fuel and timber (e.g., mangroves), biochemicals, natural medicines, pharmaceuticals, raw materials.
- Provides seafood essential for food security especially in developing nations.

Regulating Services
- Influences biologically mediated processes such as carbon fixation and oxygen release, etc.
- Enables climate mitigation and regulation.
- Helps to keep at bay pests and diseases.
- Plays an important role in the prevention of coastal erosion and shoreline stabilization.

Ecosystem Services provided by Marine and Coastal Ecosystems

Cultural Services
- Maintenance and creation of social capital, education, cultural identity and traditions.
- Provides inspiration to artists
- The iconic nature of underwater cultural heritage captures archaeological and historical information such as past human seafaring and behaviour.
- Provides recreational services.

Supporting Services
- Maintain the net primary productivity of various ecosystems.
- Provides suitable reproductive habitats and nursery grounds for aquatic species.
- Provides the ecological niches and refuge for wild animals and plants.
- Act as pollution sinks, enable the storage and recycling of nutrients and support water cycling.

  - **Economic activity**: As the global population has grown, demand for goods and services has increased, with associated increases in energy consumption and resource use.

How marine ecosystems generate economic benefits

Marine ecosystem

Functions
- Biogeochemical cycling
- Flow of energy
- Biological productivity
- Niche, refuge, habitat

Structure
- Biotic (living) marine animal and plant communities
- Abiotic (non-living) components of the marine environment

Ecological production →

Ecosystem services

Goods
Fish harvests, water, genetic material

Services
Recreation, tourism, erosion control, storm protection pollution control, habitat provision

Cultural benefits
Religious, heritage, bequest values

Demand ←
Benefits ←

Economic System

Human well-being

Production of goods and services

  - **Technological advances**: Innovations have enabled outcomes for the marine environment that are both positive (such as increasing efficiencies in energy generation) and negative (such as overcapacity in fisheries).
  - **Changing governance structures and geopolitical instability**: Improved methods of cooperation and implementation of effective policies across some regions have contributed to reducing some pressures on the ocean.
  - **Climate change**: Anthropogenic greenhouse gas emissions have continued to rise, causing further long-term climate changes, with widespread effects throughout the ocean that will persist for centuries and affect the ocean.
- **Trends in the physical and chemical state of the ocean:** The assessment discusses key trends in marine environment such as:
  - **Decrease in dissolved oxygen concentrations** for most ocean regions mostly due to **temperature-driven solubility decrease**.
  - **Expansion of oxygen-depleted zones**.
  - **Total sea ice extent has been declining rapidly in the Arctic**, but trends are insignificant in the Antarctic.
  - **Global warming is affecting many circulation systems:** The impacts of ocean circulation changes include a regional rise in sea levels, changes in the nutrient distribution and carbon uptake of the ocean and feedbacks with the atmosphere, such as altering the distribution of precipitation.
  - **Marked pattern of salinity changes:** with surface and subsurface patterns providing clear evidence of a **water cycle amplification** over the ocean.
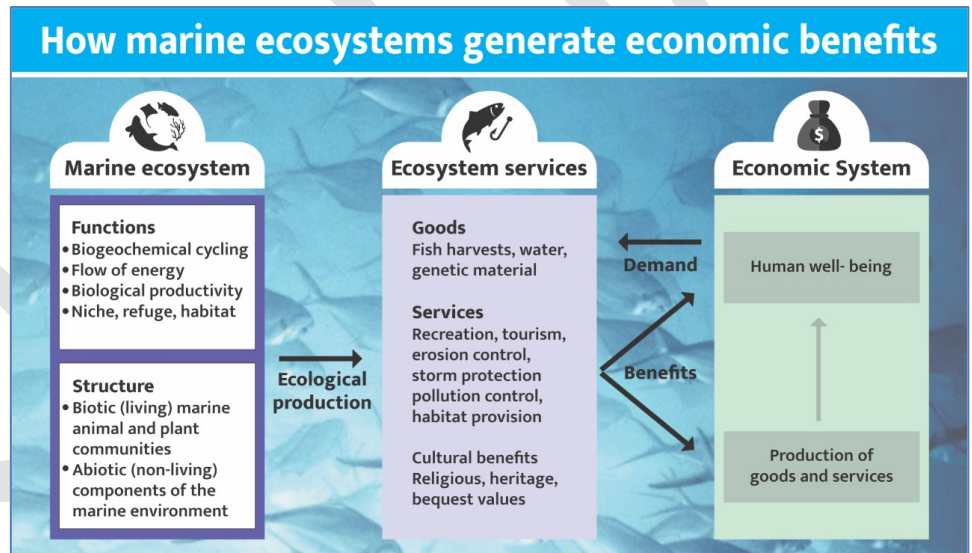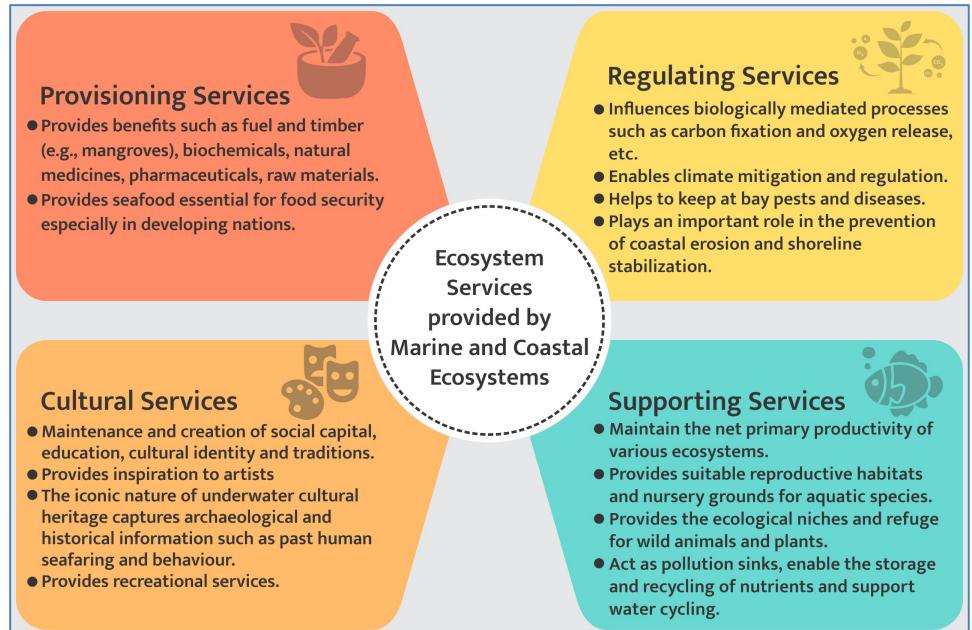
- o **Rise in sea levels**: Thermal expansion from a warming ocean and land ice melt are the main causes of the accelerating global rise in the mean sea level.
- o **Ocean acidification**: An increase in atmospheric CO2 levels, and a subsequent increase in carbon in the oceans, has changed the chemistry of the oceans to include **changes to pH (acidification) and aragonite saturation**.
  - ✓ Aragonite is a form of calcium carbonate that many marine animals use to build their skeletons and shells.
- o **Increases in ocean heat content** are observed practically throughout the global ocean.

Pressures on Ocean Ecosystem

Pressures from Changes in Climate and atmosphere
- Upper-ocean warming
- Increase Ocean acidification and deoxygenation
- Decrease in inorganic nutrient inputs
- Increase in the vertical separation of layers of water (stratification)
- Extreme climate events like Marine heatwaves and tropical cyclones
- Sea level rise

Anthropogenic pressures
- Bottom trawl fisheries and overfishing of prey
- Fishery by-catch threatening
- Targeted harvesting
- Marine pollution
- Habitat loss and alteration due to activities such as Coastal development
- Land-based pollution
- Anthropogenic noise from sources such as vessels, oil and gas exploration and extraction, industrial activities and sonar
- Ship strikes and accidents like Oil Spills Eutrophication of the coastal ocean

Other pressures
- Invasive Species
- Climatic risks resulting from the sudden release of large amounts of methane from marine hydrates

- • **Suggestions for sustainable use of ocean:**
  - o **Holistic management of ocean resources:** through eased capacity in transboundary cooperation, the strengthening of science-policy capacity, greater coordination between social and natural sciences and between science and civil society, including industry, and the recognition of traditional knowledge, culture and social history.
  - o **Integration of multidisciplinary observation systems:** for improved monitoring of significant changes in physical and biogeochemical environments and their impacts on ecosystems and society and to gain a much better understanding of the effects of pollutants, including anthropogenic noise, on the marine environment.
  - o **Efficient management and governance of marine areas:** Several key capacity-building and technology-transfer requirements in this field include-
    - ✓ Training and expertise in marine management and governance linked to the relevant science.
    - ✓ Learning within and between nations and regions (i.e., knowledge and technology transfer).
  - o **Reduce the input of pollutants into the ocean:** in particular through the introduction of cleaner production, quieter technologies and cheaper and readily deployable wastewater-processing technologies.

> **Related news: Blue Nature Alliance**
> - • It is a global partnership founded and led by five core partners: **Conservation International**, The Pew Charitable Trusts, **The Global Environment Facility**, Minderoo Foundation, and the Rob & Melani Walton Foundation.
> - • Their aim is to advance **Ocean Conservation Areas**, inclusive of Marine Protected Areas, Other Effective Area-based Conservation Measures, Indigenous Protected Areas, and other innovative place-based interventions designed to achieve biodiversity conservation outcomes.
> - • The alliance is working on large-scale efforts in **Fiji's Lau Seascape, Antarctica's Southern Ocean and the Tristan da Cunha island group** to collectively secure protections over 4.8 million square kilometers of the ocean.

- o **Regional and international cooperation and improved implementation of international law:** as reflected in the United Nations Convention on the Law of the Sea to safeguard ocean benefits.
- o **Adoptiong ecosystem appoach:** The implementation of the 2030 Agenda for Sustainable Development requires management grounded in the ecosystem approach in order to achieve the integrated set of global priorities and objectives set out in the Sustainable Development Goals.
  - ✓ The ecosystem approach is one of the most significant approaches to ocean management, consisting of the environmental, social and economic management of human interactions with oceans and coasts at multiple levels (transboundary, regional, national and local).

Conclusion

The Assessment proves that to prevent further destruction of oceans, greater cooperative and integrated action must be taken by world leaders, through joint research, capacity development and sharing data, information and technology. It also calls for coherent overall approach to addressing the cumulative impacts of human behaviour on oceans and marine ecosystems.

5.3. MARINE LITTER

Why in news?

Countries from across the oceans decided to **tackle marine plastic litter** under the ambitious global project called '**GloLitter Partnerships Project**'.

About Marine Litter

- Marine litter is any **persistent, manufactured or processed solid material discarded** into the sea or rivers or on beaches or brought indirectly to the sea with rivers, sewage, storm water or winds. It is a **form of marine pollution.**
- At least **8 million tons of plastic end up in our oceans** every year, and make up **80% of all marine debris** from surface waters to deep-sea sediments.
  - o A plastic bottle **can last up to 450 years** in the marine environment.
- Recent research has suggested that the amount of **discarded plastics will outweigh the amount of fish** in our oceans by 2050.

Causes of Marine Litter

- **Land-based pollutants:** 80% of marine pollution originates on land. Main sources of marine plastic are **urban and storm runoff, sewer overflows, tourism and recreational use of the coasts, industrial activities** etc.

> **GloLitter Partnerships Project**
> - The Project is implemented by the **International Maritime Organization (IMO) and the Food and Agriculture Organization of the United Nations (FAO)**, with initial funding from the Government of Norway via the Norwegian Agency for Development Cooperation (Norad).
> - The project aims to help the maritime transport and fishing sectors move towards a **low-plastics future**.
> - To achieve this goal, this initiative will assist developing countries to apply best practices for **prevention, reduction and control of marine plastic litter** from those sectors.
> - **Food and Agricultural Organization** is a **specialized agency of United Nations** that leads international efforts to **defeat hunger. Headquartered in Rome**, Italy.
> - **International Maritime Organization** is **United Nations specialized agency** with responsibility for the safety and security of shipping and the **prevention of marine and atmospheric pollution** by ships.

> **Other forms of Marine Pollution**
> - **Chemical pollution:** Chemical pollution is the **introduction of harmful contaminants**. Common **man-made pollutants that reach the ocean include pesticides, herbicides, fertilizers**, detergents, oil, industrial chemicals, and sewage. Crude oil **lasts for years in the ocean and is difficult to clean up**
> - **Light pollution:** Light pollution **penetrates under the water**, creating a vastly different world for species near urban environments. Light **disrupts the normal cues associated with circadian rhythms.**
> - **Noise pollution:** The increased presence of loud or persistent sounds from ships, sonar devices, and oil rigs **disrupts natural noises in the marine environment.** Unnatural noises **interrupt communication (whales use echolocation), disrupting migration, hunting, and reproduction patterns** for many marine animals.

- **Consumerism and urbanisation:** Rapid urbanisation **along the world's coastlines** has seen the growth of coastal 'megacities' (cities with a population of 10 million or more).
  - o According to IUCN, 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 etc
- **Microplastics**: 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).

- **Other factors** include:
  - **Sea based sources** like abandoned, lost or discarded fishing gear, shipping activities and ocean mining.
  - **Shortage of financial resources** and **poor practices** in managing solid wastes,
  - I**nsufficient understanding** among the public of the potential consequences of its actions,
  - **Inadequate legal and enforcement** systems.

Effects of Marine Litter

On marine environment	On food and health	Economic loss:

• **Death of marine species** due to ingestion, suffocation and entanglement of marine species.
  o An **estimated one million sea birds** die each year due to plastic debris clogging their digestive tracts
• Floating plastics contribute to **the spread of invasive marine organisms and bacteria**, causing loss of biodiversity.
• Excessive nutrients (from Agri runoff) trigger **massive blooms of algae** that rob the water of oxygen, creating **dead zones.**
  o Dead zones are the areas which can **no longer sustain life** because they have low or zero oxygen. There are now around **500 of these dead zones** around the world.
• Plastic litter can become **concentrated in certain areas called gyres** as a result of oceanic currents. E.g., North Pacific Gyre, known as the **Great Pacific Garbage Patch** (see fig).
	• Fish and other marine life ingest microplastics which in turn can **find their way into the human food chain** through biomagnification and bioaccumulation.
	  o Bioaccumulation is the **accumulation over time of a substance** and especially a contaminant in a living organism.
	  o Biomagnification the process by which a compound (such as a pollutant) increases **its concentration in the tissues of organisms as it travels up the food chain.**
		• Coastal communities are facing **increased expenditure on beach cleaning, public health and waste disposal.**
		• Plastic strewn beaches, garbage filled waters and sea devoid of marine life adversely **affects tourism industry.**
		• The shipping industry is impacted by **higher costs associated** with fouled propellers, removing litter and managing waste in harbours.
		• The fishing industry faces **reduced and lost catch, damaged nets and other fishing gear**, which also affects coastal aquaculture.

Global initiatives to reduce marine litter

- **London Convention/Protocol** (1972 Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter) is **one of the first global conventions to protect the marine environment** from human activities.
  - London protocol to the convention entered **into force in 2006.**

The Great Pacific Garbage Patch

  - It regulates the **dumping of wastes from ships**, permitting only certain types of non-harmful waste to be dumped.
- **MARPOL:** IMO's International Convention for the Prevention of Pollution from Ships (MARPOL) has regulations on **prevention of pollution by garbage**, **which prohibits the discharge of plastics** (including fishing gear) into the sea from ships.
- **The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA): It is** a **unique intergovernmental mechanism** to counter the issue of land-based pollution.
- **GPML (**The Global Partnership on Marine Litter): GPML was launched at the **United Nations Conference on Sustainable Development (Rio+20)** in June 2012. It seeks to address the global problem of marine litter by:
  - Providing a mechanism for **cooperation and coordination**;
  - Harnessing the expertise, resources and enthusiasm of **all stakeholders.**
  - Making a significant contribution to the achievement of the **2030 Agenda**, in particular **SDG 14.1** (By 2025, prevent and significantly **reduce marine pollution of all kinds**, particularly from land-based activities, including marine debris and nutrient pollution).

5.4. THE NAGOYA PROTOCOL ON ACCESS AND BENEFIT-SHARING (ABS)

Why in news?

Recently, Brazil became the 130th country to ratify the Nagoya Protocol.

Nagoya Protocol on ABS

- It was adopted on 29 October 2010 in Nagoya, Japan as a **supplementary agreement to the Convention on Biological Diversity**.
- It entered into force on 12 October 2014, 90 days after the deposit of the fiftieth instrument of ratification.
- **Objective: Fair and equitable sharing of benefits** arising from the utilization of genetic resources, thereby contributing to the **conservation and sustainable use of biodiversity.**
  - **Utilization includes research and development** on the genetic or biochemical composition of genetic resources, as well as subsequent **applications and commercialization**.
- The Nagoya Protocol applies to **genetic resources** as well as **traditional knowledge (TK) associated with genetic resources** that are covered by the CBD and the benefits arising from its utilization.
- **3 Core obligations for its contracting Parties:** Access obligations, **Benefit**-sharing obligations, Compliance obligations
- **Tools and mechanisms to assist implementation**
  - Establishing **national focal points (NFPs) and competent national authorities (CNAs)** to serve as contact points for information, grant access or cooperate on issues of compliance
  - **Access and Benefit-sharing Clearing-House:** It is a web based platform to share information to support the implementation of the Nagoya Protocol.
  - **Capacity-building** to support key aspects of implementation. Based on a country's self-
  - **Targeted financial support** for capacity-building and development initiatives through the Nagoya rotocol's financial mechanism, the **Global Environment Facility [EF).**
  - Awareness-raising, Technology Transfer

SUPPLEMENTARY AGREEMENTS

Cartagena Protocol on Biosafety aims to ensure the safe handling, transport and use of living modified organisms (LMOs). It was adopted on 29 January 2000 and entered into force on 11 September 2003.

Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety provides international rules and procedures in the field of liability and redress relating to LMOs. It entered into force on 5 March 2018

Nagoya Protocol on ABS

WORKING PROCEDURE OF ABS

GENETIC RESOURCES

TRADITIONAL KNOWLEDGE

PROVIDERS

USES

- Prior informed consent (PIC) being granted by a provider to a user
- Mutually agreed terms (MAT) between both parties to ensure the fair and equitable sharing of genetic resources and associated benefits.

USERS

Related information

Indigenous people and traditional knowledge

- Indigenous and marginalised people had the **knowledge to** protect forests and **restore the world's relationship with nature.**

- However, the **world vaguely acknowledges** the traditional practices of different tribal and forest dwelling communities for protection of the environment.
- **Youths of tribal** and other indigenous communities are **unaware of the treasure trove of centuries-old traditional wisdom** of their ancestors.
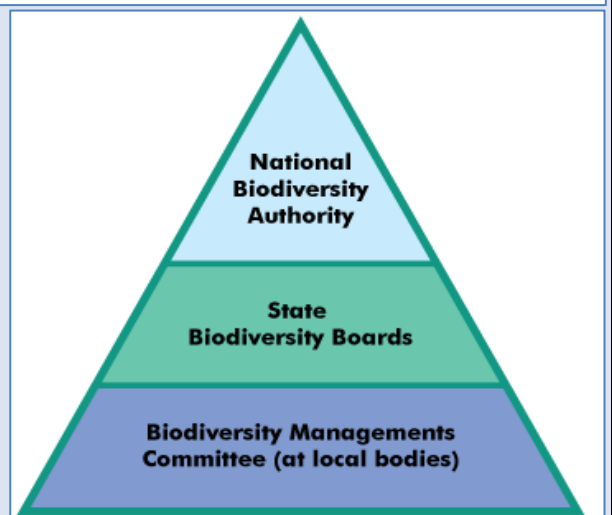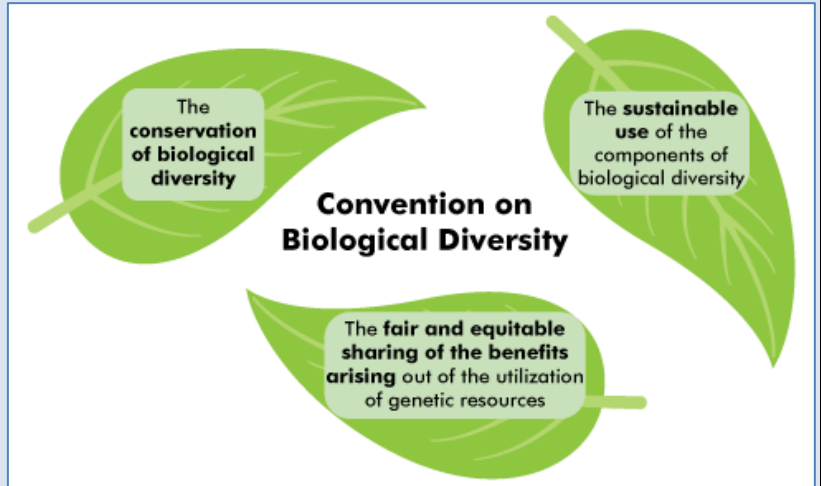- Nature-based solutions should be implemented in a way that recognises and **supports the traditional knowledge and practices of indigenous youth** and promote their forest-based livelihood.

About the UN Convention on Biological Diversity (CBD)

- The CBD provides a **global legal framework for action on biodiversity.** The CBD entered into force on 29 December 1993.
- It's a **near universal convention** with a participation of 196 member countries.
- **Conference of the Parties (COP)** is the governing body of the CBD. It **meets every two years, or as needed,** to review progress in the implementation of the Convention, to adopt programmes of work, to achieve its objectives, and provide policy guidance.
- **Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA)** assists the COP. It is made up of government representatives with expertise in relevant fields, as well as observers from non-Party governments, the scientific community, and other relevant organizations.
- The **Secretariat of the CBD (SCBD)** is based in **Montreal,** Canada. Its main function is to assist governments in the implementation of the CBD and its programmes of work, to organize meetings, draft documents, and coordinate with other international organizations and collect and spread information.
- **Global Biodiversity Outlook (GBO)** is the flagship publication of the CBD.
- **India and CBD**
  - India being a signatory to CBD, enacted the **Biodiversity Act in 2002**. It has **same objectives** as that of CBD
  - The Act has a **3 tier institutional Structure** (refer to the infographics) for facilitating its implementation.aqaa

The conservation of biological diversity

The sustainable use of the components of biological diversity

Convention on Biological Diversity

The fair and equitable sharing of the benefits arising out of the utilization of genetic resources

National Biodiversity Authority

State Biodiversity Boards

Biodiversity Managements Committee (at local bodies)

5.5. NATIONAL CLIMATE VULNERABILITY ASSESSMENT REPORT

Why in news?

Recently, **Department of Science and Technology (DST)** has released the report titled '**Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework'**.

About the report

- The report aims to **carry out a current-climate state-level and district-level vulnerability** assessment for India and also **building the capacity of states to carry out vulnerability assessments** using a **common methodological framework**.

IPCC-AR5 "Risk Management and Assessment Framework" depicting the risk arising at the intersection of Hazard, Vulnerability and Exposure
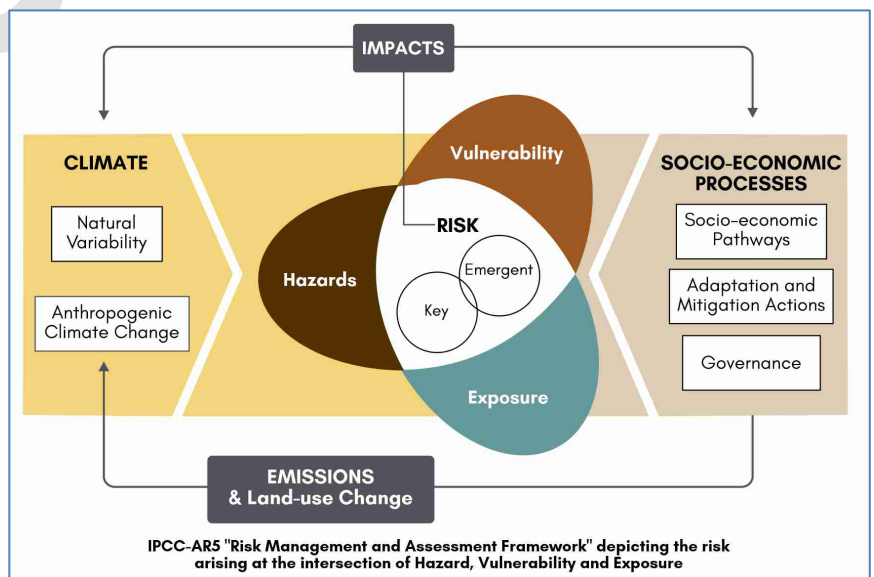
- Based on an all-India assessment, this report identifies the **most vulnerable states and districts in India** with respect to current climate risk and the main drivers of vulnerability using a **Vulnerability Index (VI)**.
  - ✓ The assessment is based on a set of **common indicators and common methodology**. States also carried out district-level vulnerability assessments individually.
- It is essential for **prioritising investment in climate adaptation**.
- It involves **active participation of States and Union Territory governments** based on capacity building exercises which will help policymakers in initiating appropriate climate actions.
- It is part of **two national missions** of the **National Action Plan on Climate Change (NAPCC)**.
  - ○ **National Mission for Sustaining the Himalayan Ecosystem (NMSHE)**- It aims to prevent melting of the Himalayan glaciers and to protect biodiversity in the Himalayan region.
  - ○ **National Mission on Strategic Knowledge for Climate Change (NMSKCC)-** It builds a dynamic and vibrant knowledge system that informs and **supports national policy and action** for responding effectively to climate change challenges, while **not compromising on the nation's growth goals.**

> **Global Climate risk Index**
> - It is released by **Germany-based think tank Germanwatch.**
> - It indicates a level of **exposure and vulnerability to extreme events,** which countries should understand as warnings in order to be prepared for more frequent and/or more severe events in the future. In the CRI 2021, **data from 180 countries were analysed**.
> - India has improved its ranking from 5th in CRI 2020 to **7th in CRI 2021.**
>
> **NAPCC**
> - In 2008, India announced NAPCC that **includes eight ambitious goals** set for the country to tackle climate change.
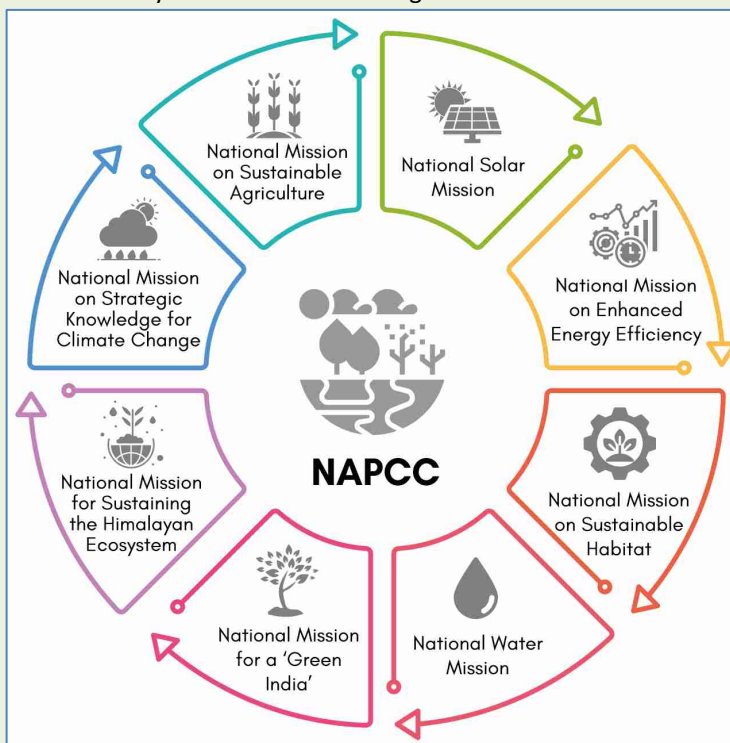>
>
>
> **IPCC**
> - It is created by the **World Meteorological Organization (WMO)** and the **United Nations Environment Programme (UNEP)** in 1988.
> - It has currently **195 members**.
> - It provides **regular assessments of the scientific basis of climate change,** its impacts and future risks, and options for adaptation and mitigation.

- The risk assessment framework is based on the **Fifth Assessment Report of the Intergovernmental Panel on Climate Change, i.e., IPCC-AR5** (IPCC, 2014) which **defines the risk of climate change** at the intersection of 'Hazard', 'Exposure' and 'Vulnerability'.

Key indicators of the assessment (14)				
Socio-economic and livelihood	Agricultural	Biophysical	Institution and Infrastructure	Health
1. Percentage Below Poverty Line Population 2. Share of income from natural resources. 3. Women participation in the workforce.	4. Share of horticulture in agriculture. 5. Share of marginal and small landholdings. 6. Yield variability of food grain. 7. Area under crop insurance. 8. Area under rainfed agriculture.	9. Lack of forest area per 1,000 rural population.	10. Implementation of MGNREGA. 11. Road and rail connectivity.	12. Density of health care workers 13. Vector borne diseases 14. Water borne diseases

Key findings of the report:

- **State-level vulnerability indices**: These indices vary over a **small range of 0.42-0.67** which means all states must deal with concerns related to vulnerability.
- **District-level vulnerability indices:** These indices also vary within a **small range of 0.34 - 0.75**.
  - o **Assam, Bihar, and Jharkhand** have over 60% districts in the category of highly vulnerable districts.
- **Vulnerability indices (VI):** These indices are **relative measures** which mean that all districts or states are vulnerable, but some are relatively more vulnerable than others, requiring prioritised adaptation interventions.
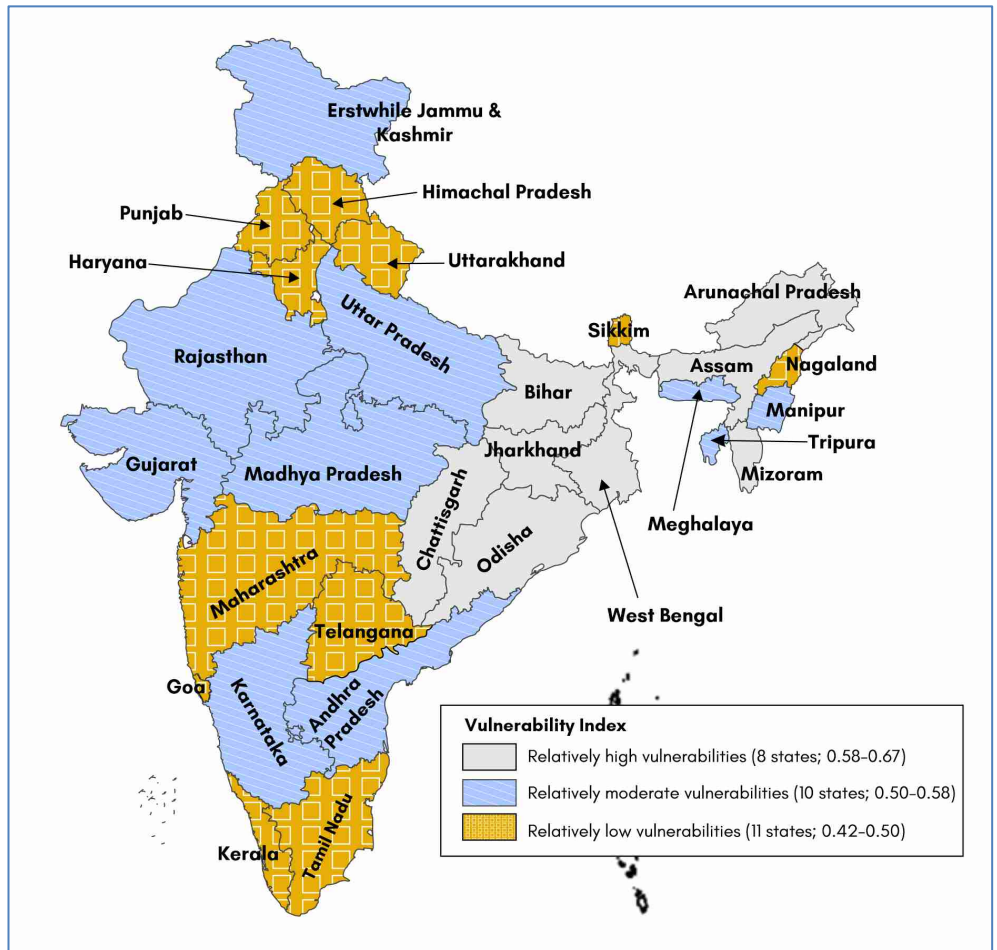
Application of the vulnerability assessment:

- **Ranking and identification:** It can assist in ranking and identification of the most vulnerable districts and states and help states prioritise adaptation planning and investments.
- **Funding mechanism:** It is critical for **developing adaptation projects** for the **Green Climate Fund, Adaptation Fund,** and funds from multilateral and bilateral agencies.
- **Catalyst for INDC target:** It will facilitate **India's Nationally Determined Contributions (INDC)** under **Paris Agreement,** which aims to adapt better to climate change by **enhancing investments in development programmes in sectors vulnerable to climate change,** particularly agriculture, water resources, health sector and regions such as Himalayan region, coastal regions, etc.
  - o It may also **aid to plan disaster management**.
  - o It contributes in the assessment of climate change impacts and vulnerability, the formulation, monitoring and evaluation of a National Adaptation Plan, and the development and implementation of resilience of socio-economic and ecological systems.
- **Evidence based policy making**: The vulnerability assessments carried out by the states can supplement revised **State Action Plan on Climate Change**, as per the outline provided by the Ministry of Environment, Forest and Climate Change (MoEFCC).

Way Forward

- **Climate risk index:** A vulnerability assessment is a first step towards adaptation planning. There is need for **development of climate change risk index**, followed by risk ranking of states and districts, where risk should be based on **hazard, vulnerability, and exposure framework.**
- **Capacity building:** All State Climate Change Centres funded by the DST, Government of India are interested in developing a Risk Index for states. It requires **building capacity for risk assessment** and adaptation planning.
- **Generation of data:** It is important for risk assessment. There is need of a **strategy for data generation** for climate change risk and vulnerability assessment and adaptation planning.

5.6. STATE OF THE GLOBAL CLIMATE 2020

Why in news?

Recently, World Meteorological Organization (WMO) released its annual report 'State of the Global Climate, 2020'.

About the report

- The WMO issued the first state of the climate report in 1993. The report was initiated due to the **concerns** raised at that time **about projected climate change.**
- In the recent report all key climate indicators and impact information provided show **relentless, continuing climate change,** an increasing occurrence and **intensification of high-impact events and severe losses** and damages affecting people, societies and economies.
- **Key findings**
  - The **past six years**, including 2020, have been the **six warmest years on record**. Temperatures reached **38.0 °C at Verkhoyansk, Russia**, the highest recorded temperature anywhere north of the Arctic Circle.
  - The report provides **five key indicators of irreversible changes** in the global climate

Indicators	Findings
Greenhouse Gases	Notwithstanding the economic slowdown due to the COVID-19 pandemic, emission of major greenhouse gases increased in 2019 and 2020. More to it, the level of greenhouse gas emission will be higher in 2021.
Oceans	In 2020 the oceans had the highest heat content on record. Over 80% of the ocean area experienced at least one marine heat wave in 2020.
Sea-level rise	Since 1993 sea-level has been rising. However, there was a blip in summer of 2020 that recorded a drop in sea level. It is due to the La Niña induced cooling. "Sea level has recently been rising at a higher rate partly due to the increased melting of the ice sheets in Greenland and Antarctica."
The Arctic	In 2020, the Arctic sea-ice extent came down to second lowest on record.
The Antarctica	The Antarctic ice sheet has exhibited a strong mass loss trend since the late 1990s. This trend accelerated around 2005. Currently, Antarctica loses approximately 175 to 225 Gt per year, due to the increasing flow rates of major glaciers in West Antarctica and the Antarctic Peninsula.

About World Meteorological Organization (WMO)
- Established in 1950, the WMO became a **specialized agency of the United Nations in 1951.**
- It is headquartered at **Geneva, Switzerland.**
- Its mandate is in the areas of **meteorology** (weather and climate), **operational hydrology and related geophysical sciences.**
- WMO has **187 Member States (including India) and 6 Member Territories.**
- It has **6 regional associations** are responsible for the coordination of meteorological, hydrological and related activities within their respective Regions:
  - Africa,
  - Asia
  - South America
  - North America, Central America and the Caribbean
  - South-West Pacific
  - Europe

WMO STRATEGIC PLAN 2020-30
Long-Term Goals

1 Services	2 Systems	3 Science	4 Support to members	5 Smart organization
Better Serve societal needs	Enhance Earth System observations and predictions	Advance targeted research	Close the capacity gap	Strategic realignment of WMO structure and programmes

Strategic Plan → Operations

← Monitoring and Evaluation →

5.7. NEW EMISSION NORMS FOR COAL-FIRED POWER PLANTS

Why in news?

The **Ministry of Environment, Forests, and Climate Change (MoEFCC)** had **pushed the deadline** for thermal power plant (TPP) by upto three years for **complying emission norms** in the country.

Background

- In 2015, MoEFCC notified environmental norms for particulate matter, sulphur oxides, nitrogen oxides and mercury and water use for coal based TPPs.
- Initially, India had set a **2017 deadline** for thermal power plants to **install flue gas desulphurisation units that cut emissions of sulphur dioxides**. But this was postponed to varying deadlines for different regions, ending in 2022.
- The **deadline was pushed to December 2022** for all power stations in the country in view of implementation issues and challenges.

Need of new guidelines

- Coal- based power is a **resource-intensive** and **polluting industry** and contributes to air pollution.
  - o Major pollutants from coal-fired power plants are **oxides of nitrogen (NOx), sulphur dioxide (SO2) and particulate matter (PM)**.
- According to **Centre for Science and Environment (CSE)**, TPPs account for more than **60 percent** of total industrial emissions of **particulate matter**, **45 percent of SO2**, 30 percent of NOx, and more than 80 percent of mercury in the country.
  - o These are also **responsible for 70 percent of the total freshwater withdrawal by all industries.**
- The emission from TPPs **causes lung diseases, acid rain and smog.**
- Till 2015, power plants in India were required to meet only the PM emission norms which was less stringent than similar norms in China, the US and Europe. There were **no national regulations for SO2, NOx and mercury emissions** from power plants.

> **Flue Gas Desulphurisation (FGD)**
> - It is a set of technology used to **remove sulfur dioxide (SO2) from exhaust flue gases** generated in furnaces, boilers, and other processes due to thermal processing, treatment, and combustion.
> - It involves **wet scrubbing or dry scrubbing**. Wet scrubbing is most common.
> - It is highly reliable, and energy and utility savings.
>
> **Central Pollution Control Board (CPCB)**
> - It is a **statutory organisation** which was constituted in 1974 under the **Water (Prevention and Control of Pollution) Act, 1974**.
> - It was entrusted with the **powers and functions** under the **Air (Prevention and Control of Pollution) Act, 1981**.
> - It serves as a field formation and also provides **technical services to the Ministry of Environment and Forests** of the provisions of the Environment (Protection) Act, 1986.

Key Highlights of new guidelines

- **Creation of task force**: A task force will be constituted **by the Central Pollution Control Board (CPCB)** to categorise thermal power plants (TPPs) in **three categories on the basis of their location** to comply with the emission norms within the different time limit.
  - **Category A:** TPP **within 10 kilometres** of the National Capital Region (NCR) and **in cities with more than 10 lakh population** to comply with **new emission norms by the end of 2022**.

India's SO_2, NO_x, and $PM_{2.5}$ (primary) emission by sources

  - **Category B:** In **non-attainment cities** (those cities which are not meeting National Ambient Air Quality Standards) and **those within 10 kilometres of critically polluted areas** have to meet the norms **by December 31, 2023.**
  - **Category C:** Coal-fired power plants in the **rest of the areas** have to comply with the new standards by **December 31, 2024**.
- **Exemption on ground of retirement:** TPPs declared to **retire before December 31, 2025** are not required to meet the specified norms in case such plants **submit an undertaking** to the CPCB and the CEA (Central Electricity Authority) for **exemption on ground of retirement**.
- **Penalty provisions:** In case of non-compliance, a **penalty of up to 0.20 rupees per unit** will be levied for electricity generated for continuing the operations beyond the deadlines.
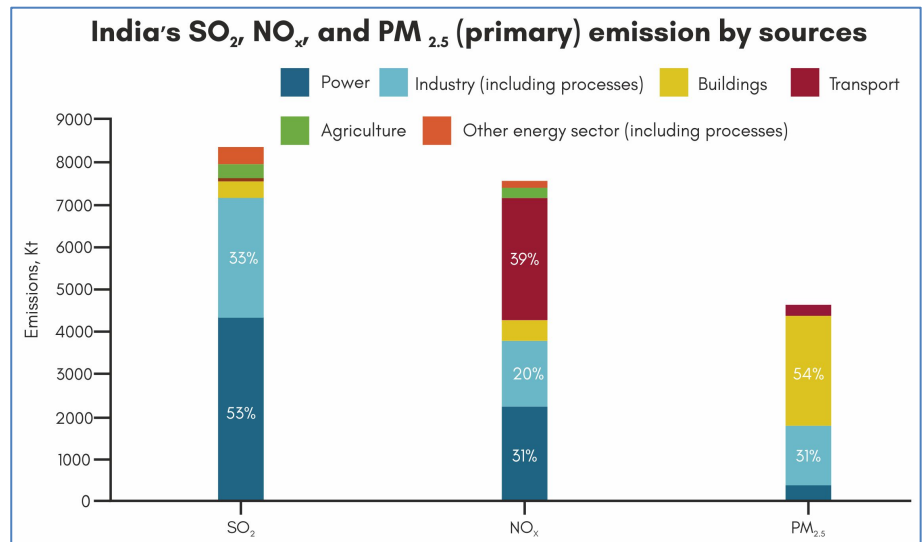
Issues in implementation of guidelines

- **Weak penalty regime:** Since the penalty is **generation-based**, the fine for a smaller capacity non-complying plant operating at a lesser load (generally old plants) also reduces considerably.
- **Compensation designed to favour polluters:** Instead of investing in costlier technologies such as flue-gas desulfurization, which comes at a cost of 45 lakh / MW, it would then be much easier for plants, especially in Category C, to pay a penalty as low as Rs 5 lakh / MW, thereby favouring polluters.
- **Exemption to old plants:** A new category for retiring plants has been created in the current amendment without specifying which these plants are. It **highly favours old, inefficient polluting plants** that are scheduled to retire by 2025.
- **Delay in implementation:** The new extension means about 72 percent of the coal-based capacity will now continue to pollute for another two-three years given the extension.

Way forward

It is necessary to take **strict action against the plants which will not meet the 2022 deadline**. Simultaneously, a push needs to be given to initiatives such as **Methanol Economy program** that aims at reducing greenhouse gas (GHG) emissions & converting Indian coal reserves and municipal solid waste into methanol leading to independence from import while creating new jobs by setting up Methanol Production Plants.

5.8. GLOBAL ENERGY REVIEW 2021

Why in news?

Recently, **International Energy Agency (IEA)** released the annual Global Energy Review which assesses the **direction of energy demand and carbon dioxide emissions** that are taking in 2021.
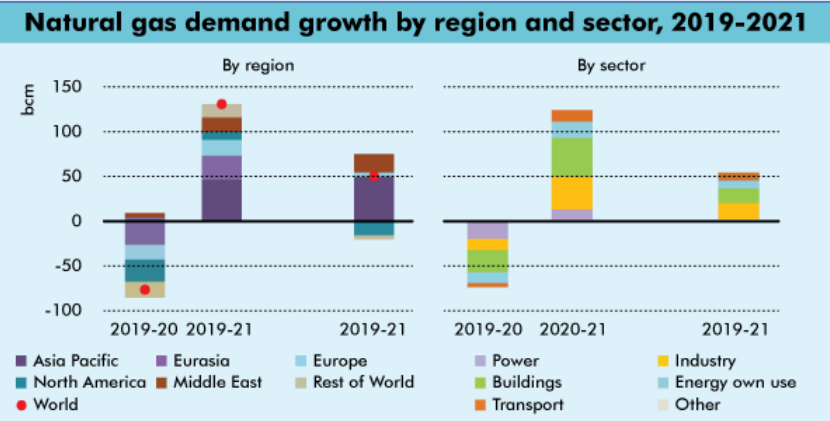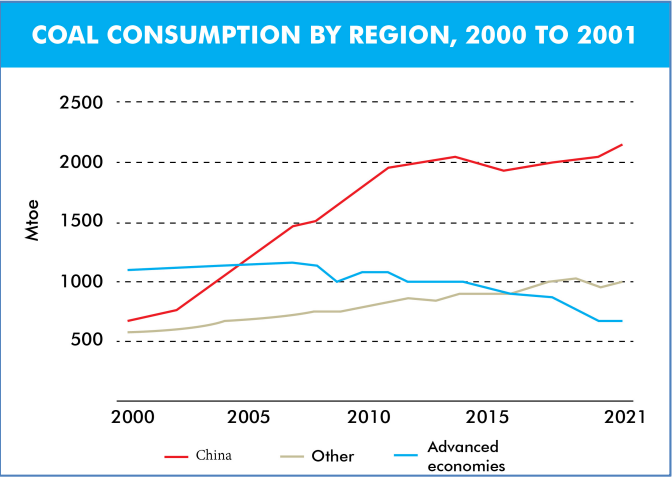
About IEA

- The IEA is an **autonomous intergovernmental organisation within the OECD framework**, headed by its Executive Director.
- The **Governing Board is the main decision-making body** of the IEA. It is composed of energy ministers or their senior representatives from each Member country.

- It was **created in 1974** to help **co-ordinate a collective response to major disruptions** in the supply of oil.
- It mainly **focuses on its energy policies** which include **economic development, energy security and environmental protection**. These policies are also known as the **3 E'S of IEA**.
- It advocates policies that will enhance the **reliability, affordability and sustainability of energy**.
- A candidate country to the IEA **must be a member country of the OECD**. In addition, it must demonstrate several requirements. These are:
  - Crude oil and/or product reserves equivalent to 90 days of the previous year's net imports
  - A demand restraint programme to reduce national oil consumption by up to 10%;
  - Legislation and organisation to operate the Co-ordinated Emergency Response Measures (CERM) on a national basis;
  - Legislation and measures to ensure that all oil companies under its jurisdiction report information upon request;
  - Measures in place to ensure the capability of contributing its share of an IEA collective action.
- **India** became an **associate member** of IEA in 2017.

Key Findings:

Economic impacts of Covid-19	- The Covid-19 pandemic continues to impact global energy demand. **Global economic output is expected to rebound by 6% in 2021,** pushing the global GDP more than 2% higher than 2019 levels. **Global energy demand** is set to increase by **4.6% in 2021**, surpassing pre-Covid-19 levels. **Global oil demand** was more than **20% below pre-crisis levels**. Overall, oil demand was down by almost 9%. **Coal demand dropped by 4%.** The largest declines in coal use for electricity generation were in advanced economies is down by 15% which accounts for more than half of coal's global decline. **Renewables usage grew by 3%** in 2020, largely due to an increase in electricity generation from solar PV and wind energy.
Oil	- Sluggish demand for transport oil is mitigating the rebound in emissions. Despite an expected annual increase of 6.2% in 2021, **global oil demand is set to remain around 3%** below 2019 levels as the aviation sector remains under pressure. - A full return to pre-crisis oil demand levels would have pushed up CO2 emissions a further 1.5%.
Coal	- Global coal demand in 2021 is **set to exceed 2019 levels** and approach its 2014 peak. Coal demand is on course to **rise 4.5% in 2021**, with **more than 80% of the growth concentrated in Asia, led by China.** - China alone is projected to account for **over 50% of global growth**. - The **power sector accounted for only 50% of the drop** in coal-related emissions in 2020. But the rapid increase in coal-fired generation in Asia means the power sector is expected to account for 80% of the rebound in 2021. COAL CONSUMPTION BY REGION, 2000 TO 2001
Natural Gas	- Among fossil fuels, **natural gas is on course for the biggest rise** relative to 2019 levels. - Natural gas demand is set to **grow by 3.2% in 2021**, propelled by increasing demand in Asia, the Middle East and Russia. This is expected to put Natural gas demand growth by region and sector, 2019-2021

	global demand more than 1% above 2019 levels. o Nearly **three-quarters of the global demand growth in 2021** is from the **industry and buildings sectors**, while electricity generation from natural gas remains below 2019 levels.
Renewables	• Renewables remain the success story of the Covid-19 era. **Demand for renewables grew by 3% in 2020** and is set to **increase across all key sectors** like power, heating, industry and transport in 2021. • Renewable electricity generation in 2021 is set to **expand by more than 8%,** to reach 8300 TWh (terawatt hour), the **largest year-on-year growth on record** in absolute terms. • Renewables are set to **provide 30% of electricity generation worldwide in 2021**, their biggest share of the power mix since the beginning of the Industrial Revolution and up from less than 27% in 2019. • Renewables provide more than **half of the increase in global electricity supply** in 2021, with **Solar PV and wind** expected to contribute **two-thirds of renewables' growth.** o China is likely to account for almost half the global increase in renewable electricity generation, followed by US, EU and India.
Electricity	• Electricity demand is **heading for its fastest growth in more than 10 years**. • Electricity demand is due to **increase by 4.5% in 2021**. This is almost **five times greater than the decline in 2020**, cementing electricity's share in final energy demand above 20%. o Almost 80% of the projected increase in demand in 2021 is in emerging market and developing economies with China alone accounting for half of global growth. o Demand in advanced economies remains below 2019 levels.
Nuclear	• Nuclear power **rebounds and increases 2% in 2021**, reversing only half of the decline in output that took place in 2020. • Nuclear remains the **largest single source of low-carbon generation** in advanced economies. o Electricity generation from nuclear reactors **decreased by around 4% – the largest decline** since the aftermath of the Fukushima accident in 2011. Major reductions took place in the EU (-11%), Japan (-33%) and the US (-2%).

5.9. INDIAN RHINO VISION 2020

Why in news?

The **Indian Rhino Vision 2020 (IRV 2020)** has officially come to a close with the **translocation of two rhinos** to **Manas National Park** from Pobitora Wildlife Sanctuary in Assam, India.

Indian Rhino Vision 2020 (IRV 2020)

- It was **eighth round** of rhino translocation under IRV 2020.
- It was **designed by Rhino Task Force 2005** with a target to **achieve rhino population to 3,000 by 2020 in seven protected areas in Assam.**
  - These areas include Kaziranga national park, Pobitora national park, Orang national park, Manas national park, Laokhowa wildlife sanctuary, Burachapori wildlife sanctuary and Dibru Saikhowa wildlife sanctuary.
- It also aims to **reduce the risk to the rhino population**, mainly from poachers by spreading the population in multiple parks with enough habitats to encourage population growth.
- It was a **joint programme** of the **Assam Forest Department**, **Worldwide Fund for Nature India (WWF-India), Bodoland Territorial Council, International Rhino Foundation (IRF)** and **US Fish & Wildlife Service**. The program was implemented with the help of the forest department, College of Veterinary Sciences, WWF India, IRF, WTI, Aaranyak (wildlife NGO in Guwahati) and others.
- The translocated rhinos helped Manas National Park get back its **World Heritage Site status in 2011**.

Success of IRV 2020

- Indian rhino numbers have increased from about 2,575 to more than 3,550 - a **38% increase in 9 years.**
  - **According to WWF- India data in 2012**, more than 91 percent of Assam's rhinos and about 80 percent of India's rhinos count are concentrated within Kaziranga national park, with a few in Pobitora wildlife sanctuary.

Greater One-horned Rhino (Indian Rhino)
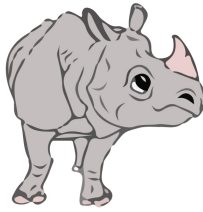
- **Three rhino species are found in Asia** namely **Sumatran rhino, Javan rhino and Indian rhino.**
- Indian rhino is the **largest of all rhino species.**
- Asian rhinos are **excellent swimmers** and can easily swim across rivers.
- It is commonly found in **India, Nepal, Bhutan and Pakistan.** In India, they are found in Assam, West Bengal and Uttar Pradesh.
- Protection Status:
  - **IUCN Status: Vulnerable.**
  - CITES: Appendix 1.
  - Wildlife Protection Act, 1972: Schedule I.

Sumatran Rhino
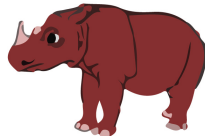
- Asian Rhino.
- Two horns.
- **IUCN Status: Critically Endangered.**

Javan Rhino
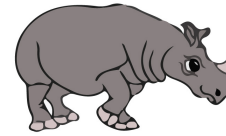
- Asian Rhino.
- One horn.
- **IUCN Status: Critically Endangered.**

White Rhino
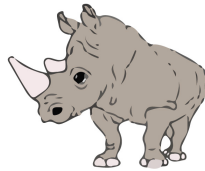
- African Rhino.
- Two horns.
- **IUCN Status: Near Threatened.**

Black Rhino

- African Rhino.
- Two horns.
- **IUCN Status: Critically Endangered.**

RHINO DISTRIBUTION

- Pilbhit (U.P., India)
- Shukjaphanta (Nepal)
- Dudhwa (U.P., India)
- Katarniaghat (U.P., India)
- Bardiya (Nepal)
- Gorumara (W.B., India)
- Jaldapara (W.B., India)
- Buxa (W.B., India)

INDIA

- Parsa (Nepal)
- Chitwan (Nepal)
- Valmiki (Bihar, India)
- Manas (Assam, India)
- Pobitora (Assam, India) (Assam, India)
- Orang (Assam, India)
- Laokhowa, Burachapori
- Kaziranga (Assam, India)
- Pani-dihing (Assam, India)
- Dibru Saikhowa (Assam, India)
- Pani-dihing (Assam, India)

— NATIONAL STATE BOUNDARY
HISTORICAL DISTRIBUTION
CURRENT DISTRIBUTION
POTENTIAL HABITAT

- IRV 2020 is helping to re-populate those areas where the habitat is still suitable by **translocating animals** from other rhino protected areas, such as Pobitora and Kaziranga National Parks.
  - Manas, which did not have even a single rhino 10 years ago, has now become home to 20 rhinos.
- It helped to **reduce the death of the rhinos from poaching** and sickness.
- It helped to **move the IUCN status of Indian rhino from endangered (since 1986) to vulnerable in 2008**.

Other Conservation efforts for Rhinos

- **National Rhino Conservation Strategy:** It is launched by the **Ministry for Environment, Forest and Climate Change (MoEFCC)** in 2019 on the occasion of **World Rhino Day** to conserve the **greater one-horned rhinoceros.**
  - It aims to work for the conservation of the species under **five objectives** which includes strengthening protection, expanding the distribution range, research and monitoring, and adequate and sustained funding.
  - The conservation initiative for rhino has also **enriched the grassland management** which helps in **reducing the negative impacts of climate change** through carbon sequestration.
  - It calls for **active engagement between India and Nepal** to protect the species.
  - As per the strategy, the single population of rhinos in **Sukla-Phanta (Nepal), Valmiki Tiger Reserve (India) and Chitwan National Park (Nepal) and Dudhwa (India)** is separated by the political boundary between the two countries.
- **New Delhi Declaration on Asian Rhinos 2019:** India collaborates with **Bhutan, Nepal, Indonesia and Malaysia** to increase the population of **three species of Asian rhinos**, including the Greater one-horned rhinoceros found in the Indian sub-continent.
  - It includes studies on health issues of the rhinos, their potential diseases and taking necessary steps.
  - It also aims at **collaborating and strengthening wildlife forensics** for the purpose of investigation and strengthening of trans-boundary collaboration among India, Nepal and Bhutan for the conservation and protection of the Greater one-horned rhino.

5.10. EARTHQUAKE MANAGEMENT

Why in News?

A massive earthquake of **6.4 magnitude on the Richter scale hit Assam** recently.

About Earthquake

- An earthquake is a **series of vibrations on the earth's surface** caused by the generation of elastic (seismic) waves due to **sudden rupture within the earth crust** during release of accumulated strain energy.

Seismic Zone Map of India: –2002

About **59 percent** of the land area of India is liable to seismic hazard damage

Zone	Intensity
Zone V	**Very High Risk Zone Area** liable to shaking Intensity IX (and above)
Zone IV	**High Risk Zone** Intensity VIII
Zone III	**Moderate Risk Zone** Intensity VII
Zone II	**Low Risk Zone** VI (and lower)

Zone II 40.93
Zone III 30.79
Zone IV 17.49
Zone V 10.79

LEGEND
- Zone II
- Zone III
- Zone IV
- Zone V

- India has seen some very damaging earthquakes like **Koyna (1967), Assam (1988) Latur (1993) and Bhuj (2001)** earthquakes.
- As per **Earthquake Disaster Risk index (EDRI) report (2019)**, in the last 25 years, India has witnessed several moderate earthquakes that caused **around 40,000 deaths**, largely due to collapse of buildings.
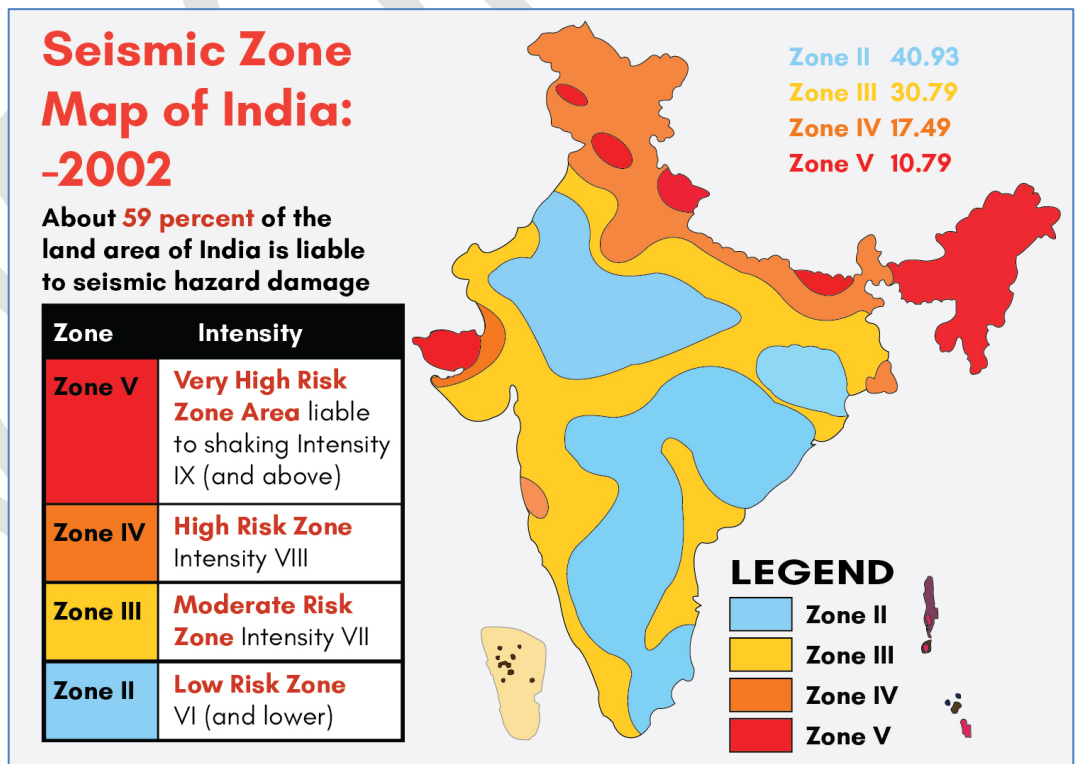
- The occurrence of several **devastating earthquakes in areas hitherto considered safe from earthquakes** indicated that the built environment in the country is **extremely fragile** and our ability to effectively respond to earthquakes is inadequate.

Earthquake Management in India

- **Seismic code:** The **first seismic code** was developed and implemented after the **1935 Quetta earthquake** for reconstruction in **Baluchistan (now in Pakistan)**.
  - o First **national seismic code** was developed in 1962. However, effective implementation of the building codes remains a major challenge.
- **Earthquake Engineering**: The **institutionalization of earthquake engineering** in the country started in the late 1950s.
  - o **National Information Centre of Earthquake Engineering (NICEE)** undertakes various **capacity-building activities** by publishing and disseminating information, and by increasing awareness among students and professionals **through conferences and workshops.**
  - o During 2003–2007, a **comprehensive National Programme on Earthquake Engineering Education (NPEEE)** was implemented.
- **NDMA Guidelines (2007)**: National Disaster Management Authority (NDMA) guidelines suggest following **six Pillars for Earthquake Management in India:**

Earthquake Measurements: Magnitude vs Intensity
- Magnitude measures the **energy released** at the source of the earthquake. It is measured using **Richter scale.**

Classification of earthquakes	
Category	**Magnitude on Richter Scale**
Slight	Upto 4.9
Moderate	5.0 to 6.9
Great	7.0 to 7.9
Very Great	8.0 and more

- **Intensity** measures the **strength of shaking produced** by the earthquake at a certain location.
  - o It is measured using **Mercalli Scale** which is composed of increasing levels of intensity that **range from observable quake impacts from light shaking to catastrophic destruction.**
  - o Intensity is reported by **Roman numerals from I to X** with a **progressive increase in shaking and damage**, highest being at X.

Seismic Waves Radiate form the Focus of an Earthquake
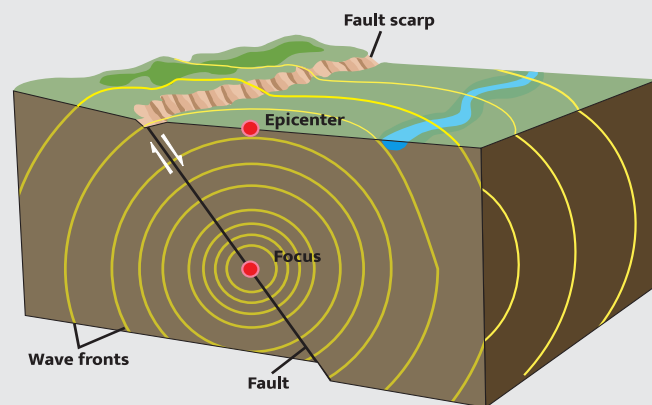
Critical areas of concern for the management of Earthquake in India
- **Lack of awareness** among various stakeholders about the seismic risk;
- Inadequate attention to **structural mitigation measures** in the engineering education syllabus;
- **Inadequate monitoring and enforcement** of earthquake-resistant building codes and town planning bye-laws;
- **Absence of systems of licensing** of engineers and masons.
- **Absence of earthquake-resistant features** in non-engineered construction.
- **Lack of formal training** among professionals in earthquake-resistant construction practices;
- **Lack of adequate preparedness** and response capacity among various stakeholder groups.

NDMA
- Disaster Management Act, 2005 envisaged the creation of National Disaster Management Authority (NDMA), **headed by the Prime Minister** as the **apex body for Disaster Management** in India.
- It is mandated to **lay down the policies, plans and guidelines** for Disaster Management to ensure timely and effective response to disasters.

Pillar	Related activities
Earthquake-resistant design and Construction of new structures	• Training of professionals • Dissemination of documents • Undertaking pilot projects on earthquake resistant construction. • Undertaking mandatory third party detailed technical audit.
Seismic strengthening and retrofitting of lifeline and priority structures	• Developing inventory of existing built environment. • Assessing vulnerability of constructions and prioritising vulnerable structures • Undertaking retrofitting to strengthen vulnerable structures
Regulation and Enforcement	• Seismic Design Codes • Municipal Acts, Regulations, & Bye-laws • Licensing & Registration of Professionals and Certification of Artisans • Scrutiny of Designs and Building Permissions • Risk Transfer Mechanisms • Participation of Financial Institutions
Awareness and Preparedness	• Sensitisation of Different Stakeholders • Emergency Plans and Mock Drills • Streamlining of NGOs and Volunteer Groups • National and State Earthquake Disaster Management Plans • District to Community level Preparedness Plans • Vulnerability Mapping of the Land Areas
Capacity Development (Including Education, Training, R&D and Documentation)	• Education in Schools and Colleges. • Technical Education and capacity Building of Professionals • Earthquake Research and Development • Documentation and Dissemination
Emergency Response	• Trigger-based Categorisation • Response Plans for Different Trigger Levels • NDRF (National Disaster Response Force) and other Emergency Response Teams • Emergency Equipment, Logistics and Medical Response Capability.

- **International Collaboration**:
  - o To fulfil the **Sustainable Development Goal-9** that focuses on building resilient infrastructure, India announced the launch of **Coalition for Disaster Resilient Infrastructure (CDRI)** at the Climate Action Summit in 2019.
    - ✓ CDRI is a multi-country, multi-stakeholder Coalition aims to promote **knowledge exchange and provide technical support** to countries on implementing disaster resilient infrastructure.
  - o India also works closely with the **United Nations International Strategy for Disaster Reduction (ISDR).**
    - ✓ ISDR is a **global framework for the promotion of action** to reduce social vulnerability and risks of natural hazards and related technological and **environmental disasters.**

5.11. CLOUDBURSTS

Why in news?

Recently **'cloudbursts'** were observed **in Uttarakhand's Chamoli, Tehri and Rudraprayag districts.**

What is Cloudburst?

- Cloudbursts are **sudden and extreme rainfall events** over a limited area in a short span of time.
- The **India Meteorological Department (IMD)** defines a cloudburst as any event where **100 millimetres of** rainfall have fallen in a span of an hour over a region that is 20-30 square kilometres in area.
- It is very difficult to predict the cloud bursts due to its very small scale in space and time.
- It is generally more common in India during the **south west monsoon season** that begins in June.

Factors of Cloudburst: Deforestation, Global Warming, Climate Change, Construction on hill plains and seismic zones, Concretisation of flood plains and river banks
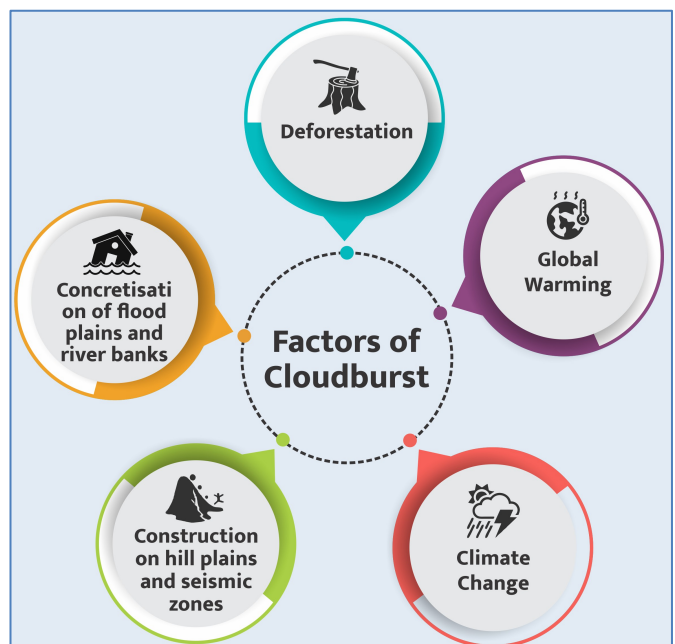
- **National Disaster Management Authority (NDMA)** is the nodal agency responsible for monitoring the relief operation.

How does it happen?

- A cloudburst occurs when **moisture-carrying air moves up a hilly terrain**, forming a **vertical column of clouds known as 'cumulonimbus' clouds.** Such clouds usually cause **rain, thunder and lightning**. This upward motion of the clouds is known as an **'orographic lift'**.

- Cloudbursts do **happen in plains as well,** but there is a greater probability of them **occurring in mountainous zones.**

- Raindrops, instead of dropping down, are carried upwards by the air current. **New drops are formed and existing raindrops gain in size**.
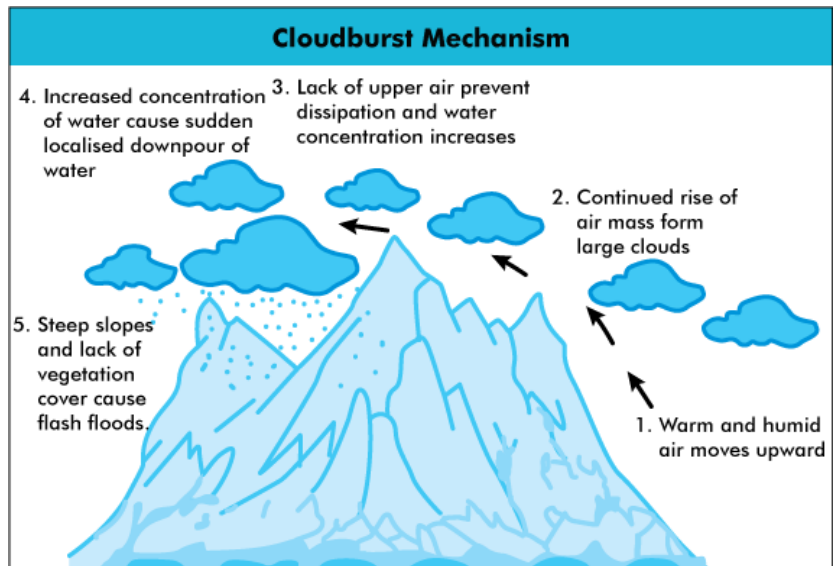
Cloudburst Mechanism

4. Increased concentration of water cause sudden localised downpour of water

3. Lack of upper air prevent dissipation and water concentration increases

2. Continued rise of air mass form large clouds

5. Steep slopes and lack of vegetation cover cause flash floods.

1. Warm and humid air moves upward

  - o After a point, the raindrops become too heavy for the cloud to hold on to, and they drop down together in a quick flash.
  - o **Hilly terrains aid in heated air currents** rising vertically upwards, thereby, increasing the probability of a cloudburst situation.

- The energy necessary for the cloudburst comes from the **upward motion of air**. Cloudbursts mostly occur at **elevations between 1,000-2,500 metres above sea level**.

- The moisture is usually provided by a low pressure system (usually associated with cyclonic storms in the ocean) over the Gangetic plains associated with low level winds flowing in from the east.

- Sometimes **winds flowing in from the north-west also aid the occurrence of cloudbursts**. The many factors that have to come together to make a cloudburst event happen make them highly unlikely.

Impact of Cloudburst

- **Flash flood:** It usually happens downstream from the storm as heavy rains produce more water than the area can handle.

- **Landslides**: Mountainous terrain adds momentum to large amounts of water gushing down, leading to landslides, mudslides and flooding.
  - o Sheet erosion and landslides contribute substantially to soil loss resulting in the **decline of productivity of agricultural land.**

- **Loss of life and property**: It is the consequences of **heavy rain in the hilly terrain** that causes loss of human lives and destruction of infrastructure.

Way Forward

- **Radar Network**: To monitor the cloud burst, there is need to have **dense radar network over the cloud burst prone areas** or one need to have a **very high resolution weather forecasting models** to resolve the scale of cloud burst.

- **Best practice**: A useful model in cloudburst mitigation is **Copenhagen climate adaptation plan** which has organized a **cloudburst master plan coupled with concretization plans and creation of canals**. The plan is envisioned with a view to cope with the effects of climate change.

- **Avoiding constructing settlements** in fragile shops and along the streams.

- **Imparting training to the rural people** for minimizing damage.

SMART QUIZ

You can scan this QR code to practice the Smart Quiz of Environment at our open test online platform for testing your understanding and recalling of the concepts.

6. SOCIAL ISSUES

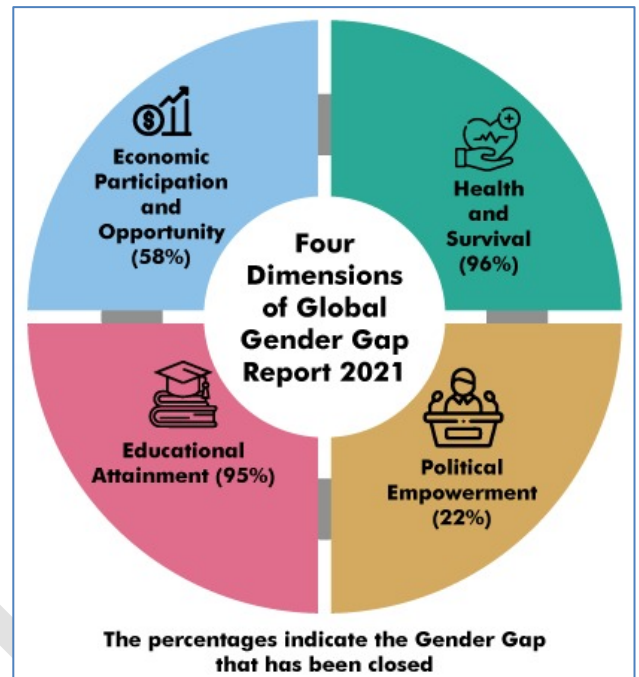## 6.1. GLOBAL GENDER GAP REPORT

Why in news?

Recently, World Economic Forum (WEF) released **Global Gender Gap Report 2021**.

Global Gender Gap Report

- Global Gender Gap Index was **first introduced by the WEF in 2006** as a framework to benchmark progress on disparities between women and men **across countries, and over time.**
- Global Gender Gap Index measures **scores on a 0 to 100 scale** and scores can be interpreted as the **distance to parity** (i.e., the percentage of the gender gap that has been closed).
- Global Gender Gap Report 2021 benchmarks **156 countries** across **four thematic dimensions (in bracket, percentage of the gender gap that has been closed at global level).**

Key highlights of report

- The overall global gender gap is projected to **close in 135.6 years** (which is a **significant increase from 99.5 years** in previous report).
- Global top 10 continues to be **dominated by Nordic countries**, with —Iceland, Norway, Finland and Sweden—in the **top five**.
- **South Asia is the second-lowest performer** after the Middle East and North Africa combined, bridging 62.3% of its gender gap.

Four Dimensions of Global Gender Gap Report 2021

Economic Participation and Opportunity (58%)

Health and Survival (96%)

Educational Attainment (95%)

Political Empowerment (22%)

The percentages indicate the Gender Gap that has been closed

World Economic Forum

- It was established in 1971 as a **not-for profit foundation** and is headquartered in **Geneva, Switzerland.**
- It is the **International Organization for Public-Private Cooperation** and engages the foremost political, business and other leaders of society to shape global, regional and industry agendas.

- **Impact of the COVID-19 Pandemic on Gender Gap:**
    - Women experienced **both higher unemployment rates and a more subdued re-entry** into employment. E.g., ILO estimates project that **5% of all employed women lost their jobs** globally versus 3.9% of employed men.
    - There is a more **severe destruction of overall roles in industries with higher participation of women**, such as the Consumer sector, Media and Communication etc.
    - **Longer "double-shift" of unpaid work** in a context of school closures and limited availability of care services have contributed to an overall **difficulty in maintaining work-life balance** among women with children.
- **Gender Gaps in Jobs of Tomorrow:**
    - Future gender gaps are likely to be driven by **occupation segregation in emerging roles**, which in turn would lead to wage inequality.
    - Roles common among **low- to middle-income women are likely to be disproportionately represented** among jobs destroyed by automation.
    - **Gender gaps are more likely** in fields that require disruptive technical skills, e.g., in Cloud Computing women make up just 14% of the workforce. Similar is the case in Engineering, Data and AI etc.
- **Shaping a Gender-Equal Recovery:** Report made following recommendations:
    - **Further investments are needed in the care sector** which remains poorly funded, partially informal in nature and providing low wages.
    - Policies and practices for **overcoming occupational segregation** by gender by re-deploying and re-employing women in emerging jobs.
    - **Effective mid-career reskilling policies for women**, combined with managerial practices which embed sound, **unbiased hiring and promotion** practices.
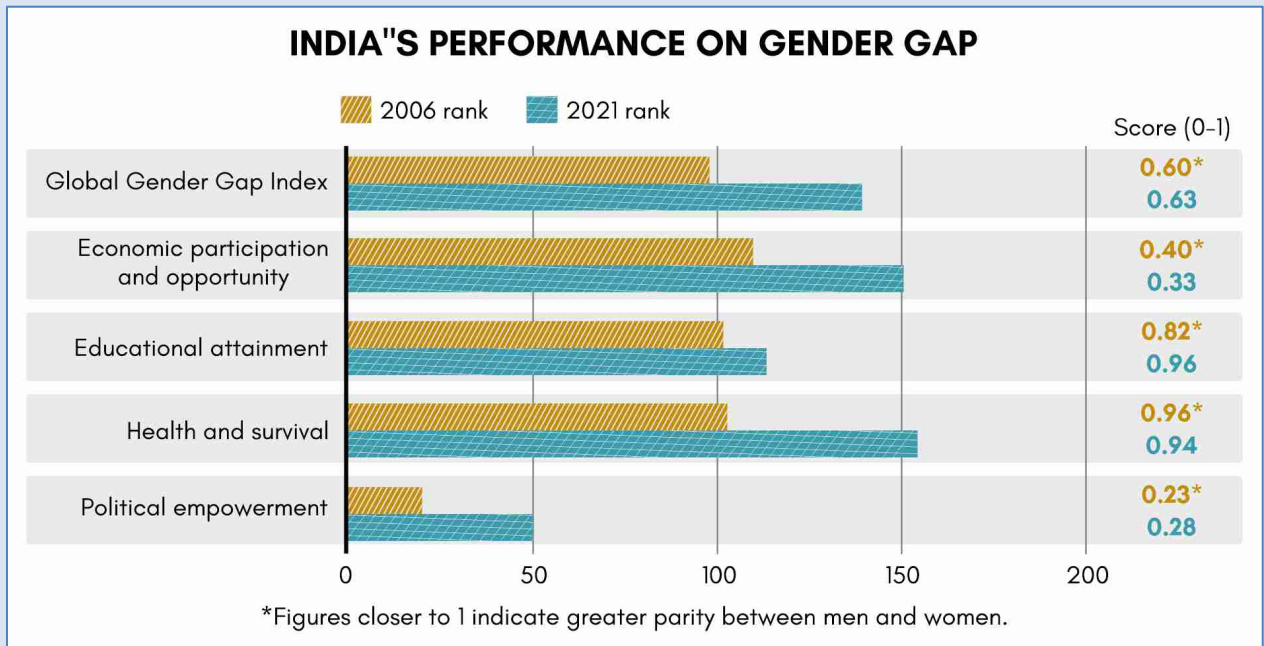
- o Countries are invited to join the **Global Accelerators Learning Network**, which helps create **informal exchange on successful local initiatives** between countries. The Accelerator model focuses on:
  - ✓ **Hardwire gender parity** into the post COVID-19 world of work,
  - ✓ **Close gender gaps** in remuneration between and within sectors,
  - ✓ **Enable women's participation** in the labour force,
  - ✓ **Advance more women** into management and leadership.

Performance of India
- India has **slipped 28 places (as compared last year) to rank 140th** among 156 countries.
- India is the **third-worst performer among South Asian countries**, with Pakistan and Afghanistan trailing and Bangladesh being at the top.
- India has closed **62.5% of its gender gap** to date. India's indicators across parameters are as follows:

INDIA"S PERFORMANCE ON GENDER GAP

🟨 2006 rank   🟦 2021 rank

Score (0–1)

	2006 rank	2021 rank	Score (0–1)
Global Gender Gap Index	~100	~140	0.60* / 0.63
Economic participation and opportunity	~110	~150	0.40* / 0.33
Educational attainment	~100	~110	0.82* / 0.96
Health and survival	~100	~155	0.96* / 0.94
Political empowerment	~20	~50	0.23* / 0.28

(scale: 0, 50, 100, 150, 200)

*Figures closer to 1 indicate greater parity between men and women.

Political empowerment	• There is a significant **decline in the number of women ministers** (from 23.1 per cent in 2019 to 9.1 per cent in 2021). • **Share of women in parliament** remains stagnant at 14.4%.
Health and survival dimension	• India is **among the five worst performers.** • Wide sex ratio at birth gaps is due to high incidence of **gender-based sex-selective practices.** • **More than one in four women has faced intimate violence** in her lifetime.
Educational Attainment	• On this subindex, 96.2% of the gender gap has been closed, with **parity achieved in primary, secondary and tertiary education**. • Yet, gender gaps persist in terms of literacy: **one third of women are illiterate** (34.2%) compared to 17.6% of men.
Economic participation and opportunity	• Women's labour force participation rate saw **a decline from 24.8 percent to 22.3 percent**. • In addition, the **share of women in professional and technical roles** declined further to 29.2 percent. • Women's estimated earned income is **only one-fifth of men's.**

6.2. WOMEN AND MEN IN INDIA REPORT

Why in news?

Recently, Women and Men in India report, 2020 was released by National Statistical Office.

About National Statistical Office (NSO)
• NSO is the **statistics wing of Ministry of Statistics and Programme Implementation (**MoSPI) and consists of the Central Statistical Office (CSO), the Computer center and the National Sample Survey Office (NSSO). o MoSPI has **two wings**, one relating to **Statistics** and the other **Programme Implementation**. • NSO acts as the **nodal agency for planned development of the statistical system** in the country and lays down and maintains norms and standards in the field of statistics.

Key Highlights

Population related statistics	• India's **projected population in 2021 is 136.13 Crore with 48.65% female population**. • The projected **sex ratio** is likely to increase from 943 in 2011 to **948 in 2021**. • Sex ratio at birth was **899 in 2016-18 against 896 in 2015-17.** (Higher in rural areas than urban). • Women's **mean age at marriage at all India level in 2018 is 22.3 years** which showed an increase of 0.2 years from 2017.
Health Statistics	• **Infant Mortality Rate (IMR)** has **decreased** from 39 in 2014 to **32 in 2018**. • **Maternal Mortality Ratio (MMR) decreased** from 212 in 2007-09 to **113 in 2016-18.** • **Total Fertility Rate (TFR)** for literate population of rural India was observed at **2.3 as compared to1.7 in urban areas**.
Education	• At all India level, the **literacy rate has increased from 73 in 2011 to 77.7 in 2017** (female and male literacy rate at 70.3 and 84.7 respectively). • Only **3.1 % females and 4.5 % males** were pursuing **technical/professional courses**.
Participation in Economy	• In rural sector, **Worker Population Ratio (WPR) was 19.0 for females and 52.1 for males**. o In **Urban sector**, the ratio is 14.5 for females and 52.7 for males. • Majority of the females (59.6%) and males (57.4%) workers were **self-employed** in rural area. • In urban sector, 54.7% females and 47.2% males were **regular wage/salaried employee**. • **Casual labour** among the female workers and male workers were **higher in rural area as compared to urban.** • On an average **134 minutes were spent in a day by females** for "Unpaid care giving services for household members" against 76 minutes spent by males on the same activity.
Participation in Decision Making	• Percentage of female electors participating in General Elections went up **from 65.6% in Sixteenth to 67.2% in Seventeenth Lok Sabha Elections**. • There is an **upward trend in the number of female candidates contested as well as elected** from 14th to 17th Lok Sabha General Election.
Impediments in Empowerment	• In 2019, three major crimes viz. **Cruelty by Husband and Relatives (31%), Assault on women with intent to outrage her modesty and Kidnapping & Abduction** constituted 71% of the total crime committed against women. • Percentage **of differently-abled persons** was 1.9% for females and 2.4% for males.

6.3. REPRODUCTIVE HEALTH

Why in News?

Recently UNFPA launched the **State of World Population Report, 2021** titled My Body Is My Own.

Key highlights of the report

55% of women are empowered to make choices over health care, contraception and ability to say yes/no to sex

75% of countries legally ensure full, equal access to contraception

Key findings of the Report

80% of countries have laws supporting sexual health and well-being.

56% of countries have **laws and policies supporting comprehensive sexuality education**

• The report measures women's access to bodily autonomy through their **power to make their own decisions about their reproductive health care, contraceptive use and sexual relations**.
• Despite **constitutional guarantees of gender equality** in many countries, worldwide, on average, women enjoy **just 75 per cent of the legal rights** of men.

Reproductive Health and India

• World Health organisation (WHO) defines **reproductive health** as a state of complete **physical, mental and social well-being** and not merely the absence of disease or infirmity, **in all matters relating to the reproductive system** and to its functions and processes.
• **Reproductive matters encompass rights** that enable individuals to make **informed choices and decisions regarding their sexual and reproductive health needs**, and to do so free from discrimination, coercion and violence.
• In India, according to NFHS-4 (2015-2016), **only about 12% of currently married women (15-49 years of age) independently make decisions** about their own healthcare.
• **Regarding the power to decide about use of contraception**,
   o Only 8% of currently married women (15-49 years) do it **independently,**
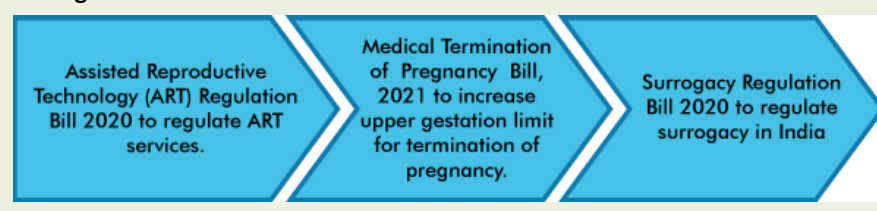
- o **For nearly 1 in 10 women, it is the husband** who largely takes decisions about the use of contraception.
- **Information provided to women about contraception is limited**, e.g., Only 47% women using a contraceptive were informed about the side effects of the method.

Barriers to reproductive Health

- **Lack of accessibility:** Decisions about contraception and reproductive health care are sometimes **impeded by the distance to clinics and facilities**, especially in rural areas.
  - o Majority of women and girls in India continue to experience **delays or denials in accessing safe, quality and legal abortion care**.

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Key programmes for addressing Reproductive Health of women in India
- **National Health Mission 2013** included following components:
  - o Reproductive Maternal Neonatal Child and Adolescent Health (RMNCH+A) programme.
  - o **Janani Suraksha Yojana (JSY)** to reduce maternal and neo-natal mortality by promoting institutional delivery.
- **Rashtriya Kishor Swasthya Karykram 2014** to enable all adolescents to realize their full potential by making **informed and responsible decisions related to their health**.
- **Pradhan Mantri Surakshit Matritva Abhiyan (PMSA)** to provide assured, **comprehensive and quality antenatal care**, free of cost, universally to all pregnant women**.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY), a maternity benefit programme** in accordance with the provision of the **National Food Security Act, 2013.**
- **Following three legislations were proposed to protect the reproductive rights of women.**

Assisted Reproductive Technology (ART) Regulation Bill 2020 to regulate ART services. → Medical Termination of Pregnancy Bill, 2021 to increase upper gestation limit for termination of pregnancy. → Surrogacy Regulation Bill 2020 to regulate surrogacy in India

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- **Availability related issues**: Absence of adolescent- and youth-responsive services, **shortages of preferred methods of contraception, poor-quality** or poorly managed services, services that are staffed by judgmental providers and **lack of privacy**.
- **Inadequate Policies**: such as non-recognition of **marital rape**, absence of **Comprehensive Sexuality Education (CSE)** as per international standards, health systems' guidelines may be based on a more **conservative interpretation of the law.**
- **Marital practices: Women experiencing abuse in marriage** are more likely to test positive for HIV and other sexually transmitted infection. Also, a study in India **documented negative reproductive health consequences of child marriages**.
- **Age based Discrimination**: For e.g., **Unequal access by adolescents** to sexual and reproductive health information and services.
- **Structural obstacles:** R**eligion and gender norms** can influence the extent to which laws are implemented or enforced.

United Nations Population Fund (UNFPA)
- It is the United Nations **sexual and reproductive health** agency.
- It is an **international development agency** that promotes the right of every woman, man and child to enjoy a **life of health and equal opportunity.**
- The State of World Population is an **annual report** published by the UNFPA.
- UNFPA supports countries in **using population data for policies and program** to reduce poverty and to ensure that
  - o Every pregnancy is wanted,
  - o Every birth is safe,
  - o Every young person is free of HIV/AIDS, and
  - o Every girl and woman is treated with dignity and respect.

- **Lack of related data:** Women's informed decision-making is **poorly measured, and data are missing or not regularly produced** on women's use of health services as well as on laws guaranteeing full and equal access to reproductive health care.
- **Lack of literacy and awareness about rights:** The shortening of formal education for girls has a **real impact on their reproductive health and their ability to** make autonomous decisions.
  - o A study showed that, the notion of consent within marriage is considered irrelevant because **sex is thought to be a marital duty** and therefore not a matter of consent.

Global Conventions supporting Reproductive rights

- International Covenant on **Economic, Social and Cultural Rights**, 1996.
- Convention on the **Elimination of All Forms of Discrimination** against Women, 1979
- **Beijing Declaration** and Platform for Action of the **Fourth World Conference on Women.**
- The **Sustainable Development Goals (SDGs) and the preceding Millennium Development Goals (MDGs)** also encompass several goals that directly as well as indirectly recognise reproductive rights.
  - o **Target 5.6** of SDG ensure universal access to sexual and reproductive health and reproductive rights.

SDG Indicator 5.6.2
The existence of laws, regulations or policies that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information and education

MATERNITY CARE
- Maternity care
- Life-saving commodities
- Abortion
- Post–abortion care

CONTRACEPTION AND FAMILY PLANNING
- Contraception
- Consent for contraceptive service
- Emergency contraception

SEXUAL HEALTH AND WELL-BEING
- HIV testing and counselling
- HIV treatment and care
- Confidentially of health status for men and women living with HIV
- HPV vaccine

COMPREHENSIVE SEXUALITY EDUCATION
- Comprehensive sexuality education law
- Comprehensive sexuality education curriculum

Road Ahead

- International Center for Research on Women (ICRW) has identified **four overarching themes** as crucial for improving reproductive health of Youth in India:
  - o Develop **cost effective** strategies,
  - o Address **gender-based constraints** to reproductive health,
  - o Create **community-based** interventions, and
  - o Involve men and boys.
- Laws, policies and programming must take into account the **differing needs and vulnerabilities** of women, children, LGBTI communities, migrants and people in rural areas.
- Supportive laws and policies in place so that children, parents and health workers have **adequate rights-based guidance on consent, assent and confidentiality.**
- **Monitoring and Data Collection**: Monitoring is the key tool for **mapping the effect of interventions, enabling periodic reviews and planning course corrections**.
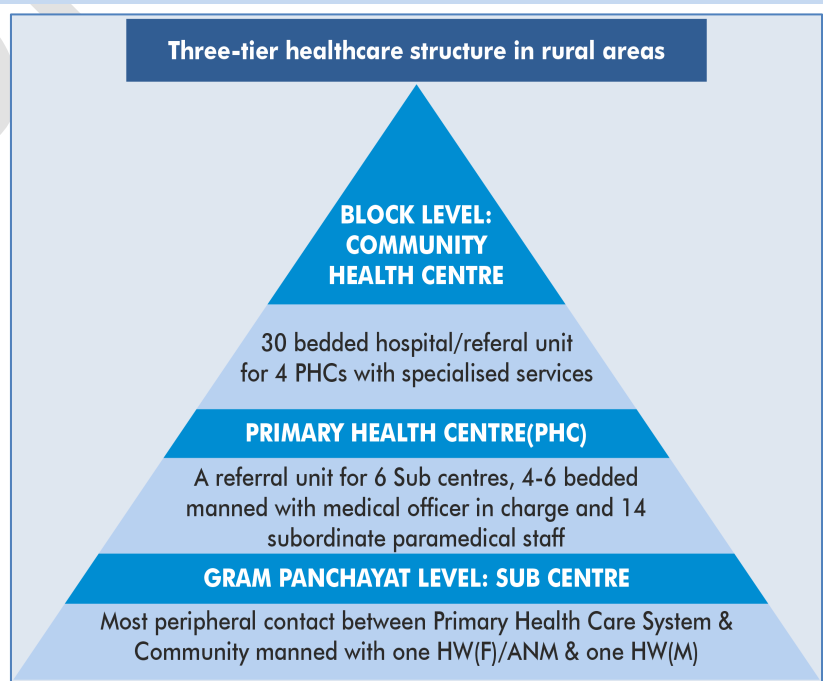
6.4. RURAL HEALTH

Why in news?

Rural Health Statistics report 2019-20 was released by Ministry of Health and Family Welfare

About the report

- Rural Health Statistics is an **annual publication based on the Health Facility level data** reported by the States/UTs.
- It is an **effort towards providing reliable and updated information on rural, urban and tribal health infrastructure**, human resources, distribution of facilities at the SCs, PHCs, CHCs, HWCs etc. so as to provide the status of public health infrastucture available in the country.

Three-tier healthcare structure in rural areas

BLOCK LEVEL: COMMUNITY HEALTH CENTRE
30 bedded hospital/referal unit for 4 PHCs with specialised services

PRIMARY HEALTH CENTRE(PHC)
A referral unit for 6 Sub centres, 4-6 bedded manned with medical officer in charge and 14 subordinate paramedical staff

GRAM PANCHAYAT LEVEL: SUB CENTRE
Most peripheral contact between Primary Health Care System & Community manned with one HW(F)/ANM & one HW(M)
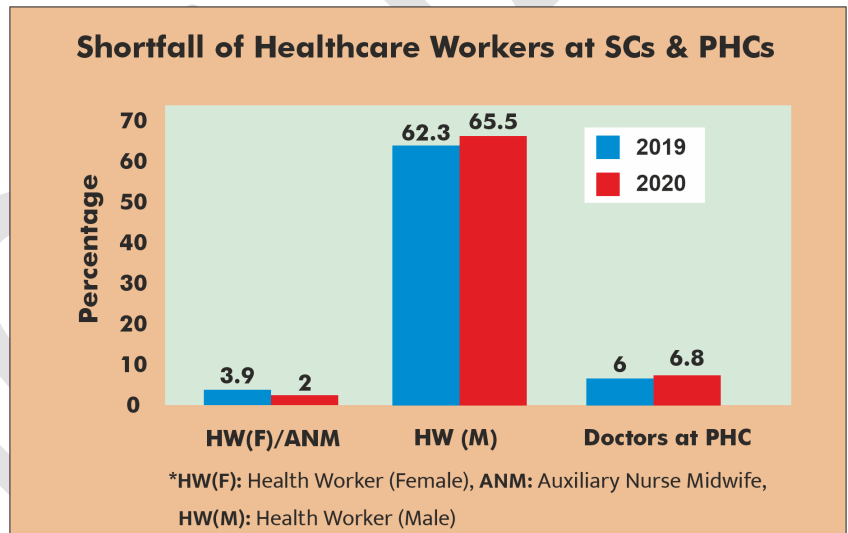
Findings of the Survey

- **Health infrastructure:**
  - Over the years, a **significant increase has been observed in the number of centres at all three tiers**.

Average rural population covered by health facility (based on the mid-year population as on 1st July 2020):		
Health Facility	**Norm**	**Average rural population covered**
Sub Centre	300 - 5000	5729
Primary Health Centre (PHC)	20000 - 30000	35730
Community Health Centre (CHC)	80000 - 120000	171779

  - As present, there are 155404 Sub Centres (SC), 24918 Primary Health Centres (PHCs) and 5183 Community Health Centres (CHCs) which are functioning in rural areas of the country.
    - ✓ An earlier report found that only 11% sub-centres, 13% Primary Health Centres (PHCs) and 16% Community Health Centres (CHCs) in rural India meet the **Indian Public Health Standards** (IPHS).
    - ✓ **The National Rural Health Mission (NRHM) introduced IPHS in 2007 to improve the quality of healthcare delivery — in terms of infrastructure and human resource.**
  - There are **38,595 functional health and wellness centres** in rural India **as against the target of 1,53,000** health and wellness centres by 2022 under Ayushman Bharat.
  - **Overburdened healthcare system:** Existing health facilities are catering to much larger population than their capacity. **(See infographic 2).**

- **Health Manpower:**
  - **Severe shortage of specialist doctors:** There is a shortfall of **76.1 per cent** in terms of specialists like surgeons, gynaecologists, physicians and paediatricians at the CHCs as compared to the requirement. The **situation is grimmer in states like Gujarat, MP and West Bengal.**
  - **Shortfall of healthcare workers:** There is overall shortfall of healthcare workers with a significant percentage of vacant posts at the level of SCs and PHCs. **(See infographic 3).**
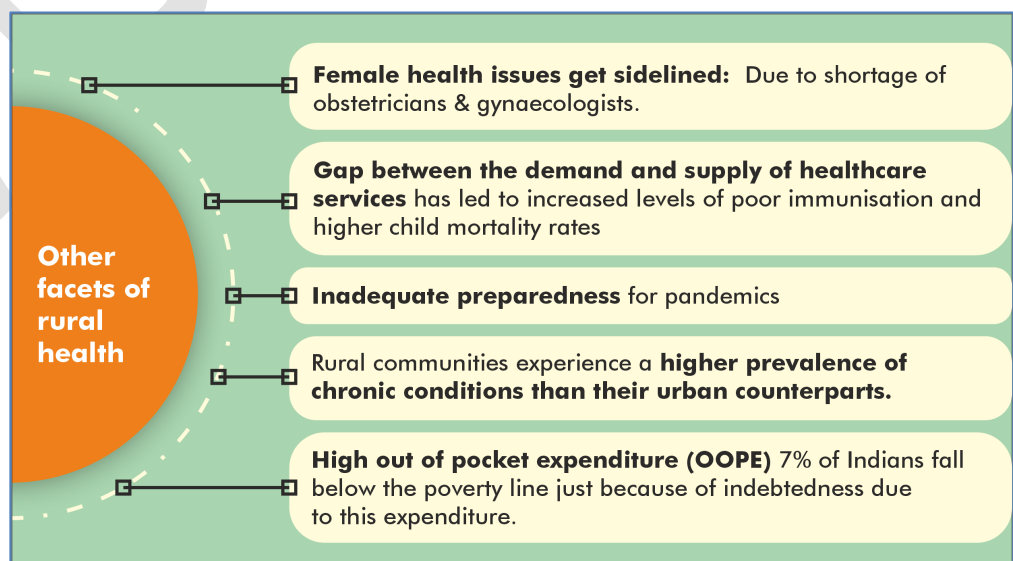

Shortfall of Healthcare Workers at SCs & PHCs

*HW(F):** Health Worker (Female), **ANM:** Auxiliary Nurse Midwife, **HW(M):** Health Worker (Male)

Barriers to Health Promotion and Disease Prevention in Rural Areas

- **Inaccessibility of PHCs and CHCs:** In some cases, for e.g. in tribal areas these centres are quite far from the villages because of which people often turn to unregistered local private healthcare practitioners that are rarely open or equipped to address even basic illnesses.

- **Lack of basic facilities**: Poor sanitation facilities, shortage of electricity and water discourages medical graduates to serve in rural centers.

Other facets of rural health

Female health issues get sidelined: Due to shortage of obstetricians & gynaecologists.

Gap between the demand and supply of healthcare services has led to increased levels of poor immunisation and higher child mortality rates

Inadequate preparedness for pandemics

Rural communities experience a **higher prevalence of chronic conditions than their urban counterparts.**

High out of pocket expenditure (OOPE) 7% of Indians fall below the poverty line just because of indebtedness due to this expenditure.

- **Cultural and social norms** surrounding health behaviors such as not taking care of menstrual hygiene, consulting local healers with limited medical knowledge for treating diseases like smallpox.
- **Lack of Awareness:** The rural population is not adequately educated on basic issues like the importance of sanitation, health, nutrition, hygiene and on healthcare policies, importance of medical services, their rights, financial support options, and the need for proper waste disposal facilities.
- **Poor connectivity:** Limited affordable, reliable, or public transportation options reduces the motivation to seek health consultation.
- **Lower population densities:** Economy of scale cannot be achieved by healthcare industry in rural and tribal areas. It discourages the investment in rural health infrastructure.
- **Nutritional deficiency:** The culture of fast food has also penetrated the rural arena, displacing the traditional healthy diet patterns.

Major steps taken for promoting rural health

- **National Rural Health Mission (NRHM):** It is a component under National Health Mission, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups.
  - The thrust of the mission is on establishing a fully functional, community owned, decentralized health delivery system with inter-sectoral convergence at all levels, to ensure simultaneous action on a wide range of determinants of health such as water, sanitation, education, nutrition, social and gender equality.
- **Achieving universal health coverage through Ayushman Bharat scheme.** Under the scheme:
  - 1,50,000 **Health and Wellness Centres (HWCs)** to deliver Comprehensive Primary Health Care (CPHC), will be established by transforming the existing Sub Centres and Primary Health Centres.
  - Pradhan Mantri Jan Arogya Yojna provides a health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization to over 10.74 crores poor and vulnerable families
- **Improving nutritional level through schemes like** Integrated Child Development Service, National Food Security Act, Poshan Abhiyan etc.
- **Improving sanitation facilities through schemes** such as Swachha Bharat Mission and Jal Jeevan Mission.
  - **Kayakalp award** is given to Community Health Centres, Primary Health Centres and Health & Wellness Centres who have achieved high level of cleanliness, hygiene and infection control.
- **Increasing accessibility through telemedicine: eSanjeevani** platform has enabled two types of telemedicine services viz. Doctor-to-Doctor (eSanjeevani) and Patient-to-Doctor (eSanjeevani OPD) Tele-consultations.
- **Increasing affordability:** Making quality medicines available at affordable prices for all, particularly the poor and disadvantaged, through exclusive outlets "**Jan Aushadhi Medical Store**" to reduce out of pocket expenses in healthcare.
- **Promoting traditional medicines under the National AYUSH Mission**.

Way forward

If basic healthcare does not reach the rural areas, no matter how much progress is achieved in the urban and semi-urban areas, the overall growth as a nation will be retarded. Primary health care in India needs to be re-evaluated and concrete steps to be taken, to bring about a balance between growth and human resource development.

- **Investments in primary healthcare:** The policy commitment to invest 2.5% of GDP on healthcare and 70% of this expenditure on primary healthcare should be tracked periodically.
  - States that provide lower allocations on healthcare should be encouraged and supported to provide higher allocations.
- **Medical colleges need to encourage students to visit rural areas** and understand the healthcare requirements of poor and downtrodden.
- **Educating people on preventing lifestyle diseases** which are slowly penetrating even the rural areas.
- **Primary care team should be adequately supported** through regular skilling, incentives, and supervision. Appropriate technological solutions should be provided to help them deliver quality healthcare.
- **Revise undergraduate medical and nursing curriculum to align with rural priorities:** The training of MBBS should be aligned toward producing rural family physicians, and of nursing graduates, to produce rural primary care nurses
  - Currently, the graduate training of nurses and doctors has a heavy urban and tertiary healthcare bias
- **Optimal utilisation of skills possessed by allied and healthcare professionals** to deal with the problem of shortage of doctors: The recently passed **National Commission for Allied and Healthcare Professionals Bill is a step in the right direction.**

Related news

National Commission for Allied and Healthcare Professionals Bill, 2021

- Government recently passed the National Commission for Allied and Healthcare Professionals Bill, 2021 that **seeks to regulate and standardise the education and practice of allied and healthcare professionals**.
  - **Allied health professional** includes associate, technician, or technologist who are trained to support the diagnosis and treatment of any illness, disease, injury, or impairment.
  - **Healthcare professional** includes a scientist, therapist, or any other professional who studies, advises, researches, supervises, or provides preventive, curative, rehabilitative, therapeutic, or promotional health services.
- With the advancement in science and technology, these healthcare professionals have now become the part and parcel of modern medical establishment whose quality and competency often play a major role in making the system sensitive and efficient.
- **Major provisions of the bill include:**
  - **Regulating professional conduct, code of ethics and etiquette** to be observed by allied and healthcare professionals.
  - **Uniform entry examination** with common counselling for admission into allied and healthcare institutions at diploma, undergraduate, postgraduate and doctoral levels and a uniform exit or licensing examination.
  - **Central Council for these professions** and corresponding State Allied and Healthcare Councils.
  - **Restricts such professionals from misrepresentation** and even misuse of titles and ensures penalties for such offences.

7. SCIENCE AND TECHNOLOGY

7.1. MEDICAL OXYGEN

Why in news?

India has been facing shortage of medical oxygen (MO) at several locations amidst a massive surge in Covid-19 infections.

About medical oxygen

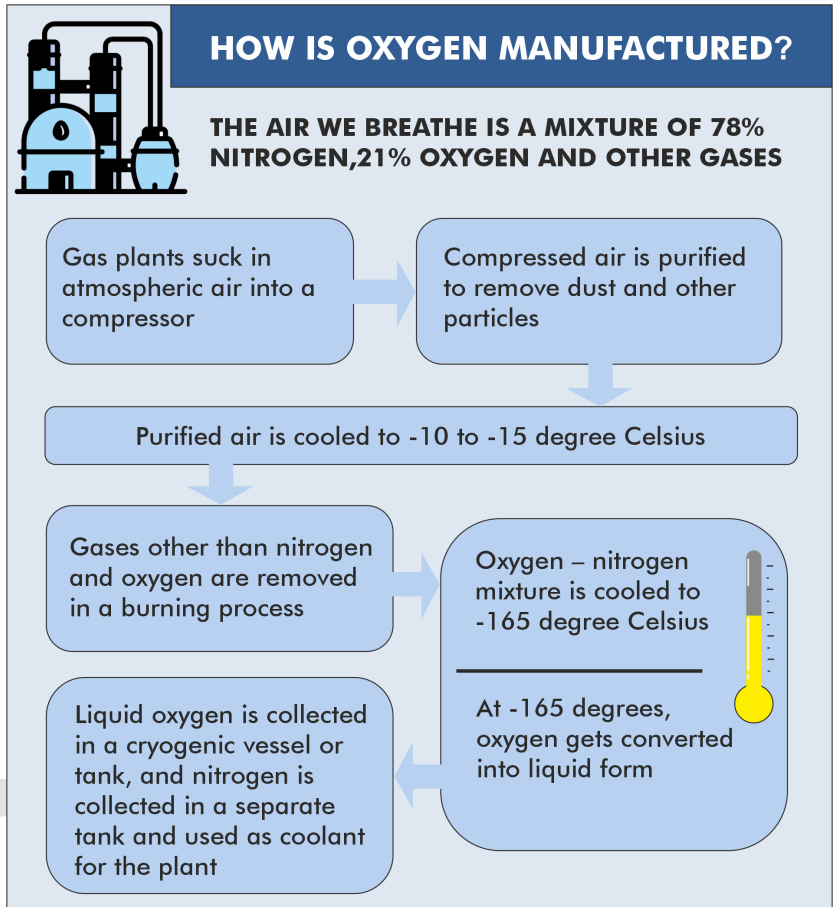- The term 'medical oxygen' means high-purity oxygen, which is used by hospitals and clinics in the treatment of various illnesses that cause oxygen saturation levels in the body to drop.
- It generally comprises of **minimum 90% oxygen** (O_2) with 5% nitrogen and 5% argon.
- Medical grade oxygen is highly concentrated and can be obtained in several ways:
  - o **Liquifying air through a process called cryogenic distillation**: In this method Liquid Medical Oxygen (LMO) with 99.5% purity, is manufactured in large plants using cryogenic distillation techniques to compress atmospheric air, feed it into distillation columns and get liquid oxygen **(see infographic).**

HOW IS OXYGEN MANUFACTURED?

THE AIR WE BREATHE IS A MIXTURE OF 78% NITROGEN, 21% OXYGEN AND OTHER GASES

Gas plants suck in atmospheric air into a compressor

Compressed air is purified to remove dust and other particles

Purified air is cooled to -10 to -15 degree Celsius

Gases other than nitrogen and oxygen are removed in a burning process

Oxygen – nitrogen mixture is cooled to -165 degree Celsius

At -165 degrees, oxygen gets converted into liquid form

Liquid oxygen is collected in a cryogenic vessel or tank, and nitrogen is collected in a separate tank and used as coolant for the plant

  - ✓ This LMO is then supplied to distributors where it undergoes a process of regasification to convert the oxygen into gaseous form and fill it in cylinders.
  - o **Oxygen concentrator**: It is an electrically powered medical device designed to concentrate oxygen from ambient air.
    - ✓ The device takes in surrounding air, filters it through a sieve (nitrogen-absorbing zeolite membranes), releases the nitrogen back into the air, and works on the remaining oxygen.
    - ✓ This oxygen, compressed and dispensed is 90-95 per cent pure.
    - ✓ Concentrators can be attached with multiple tubes to serve two patients at the same time, but experts don't recommend it due to risk of cross-infection.

> **Oxygen Cylinders**
> - Compressed oxygen and medical air cylinders are **dedicated refillable containers for holding oxygen/medical gases in a high-pressure, non-liquid state**.
> - They are fitted with a valve and a pressure regulator.
> - The cylinders can be made of steel, aluminium/alloy, carbon fibre or other composite material and are available in various standard sizes.
> - They contain a high purity of oxygen gas and no other types of gases are allowed in the cylinder to prevent contamination.

  - o **Pressure swing absorption (PSA) plants:** A PSA oxygen plant employs a technology that absorbs nitrogen from ambient air to concentrate oxygen for supply to hospitals. They help hospitals become self-sufficient in their requirement for medical oxygen while also reducing the burden on the national grid for supply of medical oxygen.
    - ✓ They operate at near-ambient temperatures and use specific adsorbent materials (that trap a substance on their surface) like zeolites, activated carbon, molecular sieves etc., to trap oxygen at high pressure.
    - ✓ The oxygen that remains 92-95 per cent pure is compressed and fed into oxygen pipelines.
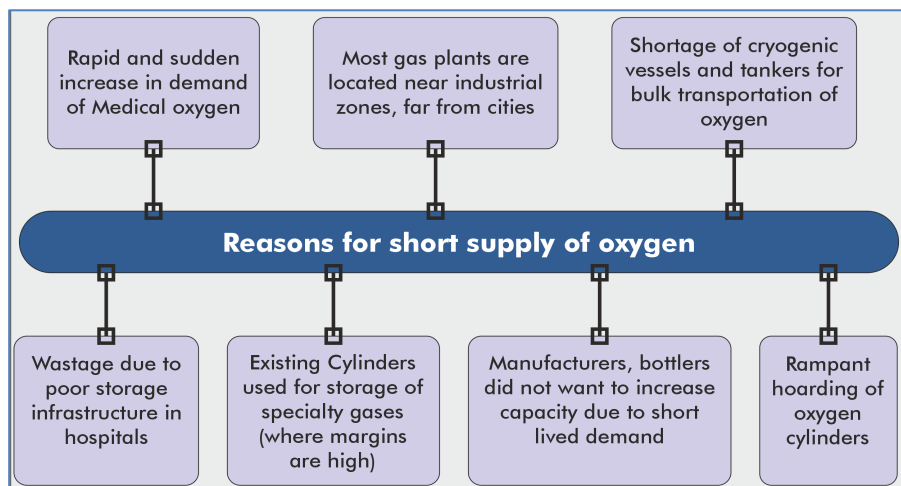
Steps taken by Government to ensure adequate oxygen supply for treatment of COVID-19 patients

- **Setting up of EG-II:** The Empowered Group-II (EG-II) headed by Secretary, Department for Promotion of Industry & Internal Trade (DPIIT) is mandated by Govt. of India to manage requisite supplies of medical equipments, drugs including medical oxygen across the country.

Reasons for short supply of oxygen
- Rapid and sudden increase in demand of Medical oxygen
- Most gas plants are located near industrial zones, far from cities
- Shortage of cryogenic vessels and tankers for bulk transportation of oxygen
- Wastage due to poor storage infrastructure in hospitals
- Existing Cylinders used for storage of specialty gases (where margins are high)
- Manufacturers, bottlers did not want to increase capacity due to short lived demand
- Rampant hoarding of oxygen cylinders

- **Temporarily restricting industrial usage of oxygen**: Union government has **restricted the use of liquid oxygen for non-medical purposes**, with certain exemptions such as Ampoules & Vials, Pharmaceutical, Petroleum refineries, steel plants, nuclear energy facilities, Oxygen cylinder manufacturers, Waste water treatment plants, etc.

- **Facilitating inter-state movement**: Centre invoked the Disaster Management Act making the district magistrates and senior superintendent of police personally liable to ensure unhindered **inter-State movement of vehicles carrying medical oxygen** and not restrict the supply to a particular State where the oxygen plant is located.
  - Also, free movement of oxygen tankers inter-state has been facilitated through MoRTH without registration in the other states.

- **Coordination between ministries**: A sub-group has been formed under Ministry of Road Transport and Highways (MoRTH) with Ministry of Railways and transport departments of States to facilitate the movement of transport tankers for LMO.

- **Conversion of Argon and nitrogen tankers for oxygen transport**: Petroleum and Safety Organisation (PESO) has ordered for conversion of argon and nitrogen tankers for use as oxygen tankers after appropriate cleaning.

- **Setting up PSA plants:** PM CARES Fund has given in-principle approval for allocation of funds for installation of 551 dedicated PSA Medical Oxygen Generation Plants inside public health facilities in the country.

Differences between Oxygen concentrators and Oxygen cylinders		
	Oxygen concentrators	**Oxygen cylinders**
Purity of O_2 supply	90-95 per cent pure	99.5 per cent pure
Operational Lifespan	Designed for continuous operation and need just a power source to draw in ambient air	Require continuous refilling
Suitability for COVID 19 patients	Good enough for mild and moderate Covid-19 patients with oxygen saturation levels of 85% or above, but not advisable for ICU patients	Can be used for treating all types of Covid-19 patients
Rate of O_2 supply	Low-Moderate (5-10 litres of oxygen per minute)	High (upto 25 litres of oxygen per minutes)
Portability	Portable and lightweight	Cylinders are bulky and heavy
Temperature requirements	Need no special temperature for storing oxygen	Need cryogenic tankers for storage and transportation of LMO
Cost effectiveness	More expensive than cylinders, but lower operational cost in the long run	Less expensive but involve refilling and transportation costs

- **'Oxygen Express' trains**: will be run by the Railways to transport liquid medical oxygen and oxygen cylinders across the country.

- **Free movement of oxygen tankers inter-state:** has been facilitated through MoRTH without registration in the other states.
  - Also, the National Highways Authority of India (NHAI) exempted tankers and containers carrying LMO from user fee at toll plazas across national highways.

- **Other steps:** State wise Mapping of cylinders, air-lifting empty oxygen tankers to Oxygen suppliers, for import of 50,000 MT of medical oxygen, placing of orders for purchase of another one lakh oxygen cylinders by MoHFW etc.

Conclusion

India has sufficient daily production capacity and stock to fulfill the demand. The need of the hour is to optimise supply chains to ensure round the clock oxygen availability to worst affected states such as Maharashtra, Gujarat, Madhya Pradesh, Uttar Pradesh, Delhi, Chhattisgarh, etc. This will require proper assessment and analysis oxygen demand and procurement system. Also, State authorities and hospitals need to make **rational use** of medical oxygen and ensure that there is no wastage of oxygen.

7.2. RARE DISEASES

Why in news?

Ministry of Health & Family Welfare approved the National Policy for Rare Diseases(NPRD) 2021.

Background

- Ministry of Health and Family Welfare formulated a **National Policy for Treatment of Rare Diseases (NPTRD) in 2017** however, implementation of the policy faced certain challenges including the issue of cost effectiveness of supporting such health interventions.
- An Expert Committee was constituted by Ministry in 2018 to review the NPTRD, 2017.
- Different stakeholders have been demanding for a comprehensive policy for prevention and management of rare diseases owing to the numerous challenges in dealing with them.

About Rare Diseases

- There is **no universal or standard definition of rare disease** but broadly defined as diseases that infrequently occur in a population, and **three indicators are used to identify**—the total number of people with the disease, its prevalence, and the availability/non-availability of treatment options.
- **WHO defines rare disease as often debilitating lifelong disease or disorder with a prevalence of less than 10 per 10,000 people** (or 1 per 1000 population). However, different countries have their own definitions to suit their specific requirements and in context of their own population, health care system and resources.
- The term "**Orphan diseases**" is often used for these and drugs to treat them are called "**Orphan drugs**".
- New diseases are discovered each year and added to the databases such as **Orphanet database** maintained by the European Union that is freely accessible to everyone.

Issues with rare diseases in India

- **No standard definition in India:** The lack of epidemiological data on incidence and prevalence of rare diseases impedes understanding of the extent of the burden of rare diseases and development of a definition.

- **Early diagnosis of rare diseases is a challenge:** owing to multiple factors that include lack of awareness among public as well as primary care physicians, lack of adequate screening and diagnostic facilities.
- **Unavailability of treatment:** The field of rare diseases is complex and heterogeneous. There is relatively little known about the pathophysiology of these diseases. Due to this, very few pharmaceutical companies are manufacturing drugs for rare diseases globally and there are no domestic manufacturers in India except for Food for Special Medical Purposes(FSMP) for small molecule inborn errors of metabolism.
    - o In general, **government provides free supportive treatment to patients with rare diseases** where one is available in India. For instance, free blood transfusions to a Thalassaemic child.
    - o **India is yet to have a legislation on the development of Orphan Drugs.**
- **Prohibitive cost of treatment:** As the patient pool is small, they do not constitute a significant market for drug manufacturers to develop drugs thus increasing their cost.
    - o It is estimated that for a child weighing 10 kg, the annual cost of treatment for some rare diseases, may vary from Rupees 10 lakh to more than 1 crore per year with treatment being lifelong and drug dose and cost, increasing with age and weight.

SOME RARE DISEASES

- Thalassemia
- Sickle cell anaemia
- Ataxia
- Lysosomal storage disorder
- Congenital in sensitivity to pain (rarest of rare)
- Acquired aplastic anaemia
- Muscular dystrophy
- Multiple sclerosis
- Sweet syndrome
- Paediatric cardiomyopathy

- **Challenges in research and development** as the patient pool is very small and diseases are chronic in nature which results in skewed or partial clinical explanation.
- **Macroeconomic allocation dilemma in resource constrained settings:** Interventions that address health problems of a much larger number of persons by allocating a relatively smaller amount are prioritized over others such as funding treatment of rare diseases where much greater resources will be required for addressing health problems of a far smaller number of persons.

Key provisions of the Policy

Public Health and hospitals being a State subject, the Central Government through the NPRD, would encourage & support the States in their endeavour towards screening and prevention of rare diseases. Major provisions of the policy include:

- **Aim of the policy:**
    - o **To lower the incidence and prevalence of rare diseases** based on an integrated and comprehensive preventive strategy
    - o **To enable access to affordable health care** to patients of rare diseases
    - o **To increase focus on indigenous research** and local production of medicines**.**
- **Categorization of rare diseases in 3 groups:**
    - o **Group 1:** Disorders amenable to **one-time curative treatment.**
    - o **Group 2:** Those **requiring long term or lifelong treatment.**
    - o **Group 3:** Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.
- **Financial Support for treatment :**
    - o The **assistance of Rs 20 lakh to be provided by the Central government** to patients suffering from rare diseases under Group1 under the umbrella scheme of **Rashtriya Arogya Nidhi(RAN).**
        - ✓ RAN Scheme provides for financial assistance to patients, living below poverty line (BPL) and who are suffering from major life threatening diseases, to receive medical treatment at any of the super specialty Government hospitals / institutes.
    - o **Beneficiaries for such financial assistance however would not be limited to BPL families**, but extended to about 40% of the population, who are eligible as per norms of Pradhan Mantri Jan Arogya Yojana, for their treatment in Government tertiary hospitals only.

DID YOU KNOW ?
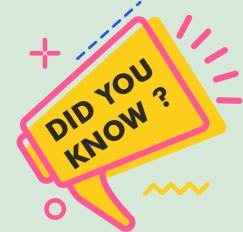
The first Rare Disease Day was celebrated in 2008 on 29 February, a **'rare'** date that happens only once every four years.
Ever since then, Rare Disease Day has taken place on the last day of February, a month known for having a **'rare'** number of days.
The theme for Rare Disease Day 2021 is **"Rare is many. Rare is strong. Rare is proud."**

- o **For diseases listed under Group 2**, State Governments can consider supporting patients of such rare diseases with special diets or hormonal supplements or other relatively low cost interventions.
- **Alternate Funding mechanism:** Provision for voluntary crowd-funding for treatment through setting up a digital platform for voluntary individual and corporate donors to contribute to the treatment cost of patients of rare diseases especially those under Group 3.
- **Centres of Excellence and Nidan Kendras:**
  - o Certain medical institutes will be certified as Centre of Excellence and will be provided one-time financial support of up to Rs. 5 crore for upgradation of screening and diagnostics facilities.
  - o Nidan Kendras set up by Department of Biotechnology (DBT) under Unique Methods of Management and treatment of Inherited Disorders (UMMID) project will be performing screening, genetic testing and counseling for rare diseases.
    - ✓ Currently Nidan Kendras are supporting aspirational districts for screening of rare diseases.
- **Creation of Database on rare diseases :** A national hospital-based registry of rare diseases will be created by ICMR to ensure adequate data and comprehensive definitions of such diseases are available for those interested in research and development.
- **Increasing affordability of drug related to rare diseases** : PSUs would be encouraged for local manufacturing of drugs for rare diseases.
- **Research & Development:** Creation of an integrated research pipeline to start the development of new drugs, repurposing the drugs and use of biosimilars (the reference medicine).
- **Increase awareness** amongst all the levels of health care personnel as well as general public about the prevalence of such diseases and prevention measures.

Best practices from other countries

USA	Singapore	Malaysia and Australia
• **Orphan Drugs Act,1983** under which companies are provided incentives like tax incentives, market exclusivity and grants to develop therapies, or orphan drugs, for rare diseases.	• **Rare Disease Charity Fund** has been created to fund five medicines to treat three rare disease conditions.	• **Subsidised access** for eligible patients is provided for expensive and lifesaving drugs.

7.3. REDUCING RISK OF ZOONOSES IN FOOD PRODUCTION

Why in news?

The guidelines to **reduce the risk of transmission of zoonotic pathogens to humans in food production** and marketing chains has been prepared by the **World Health Organisation (WHO), World organisation for Animal Health (OIE) and United Nations Environment Programme (UNEP)**.

What is zoonosis?

World Organisation for Animal Health (OIE):
- It is an **international organisation with 182 Member Countries**, which have given it a mandate to **improve animal health and welfare** throughout the world.
- It bases its activities on **four pillars** namely standard, transparency, expertise and solidarity.
- It works to **achieve the transparency** of the global animal health situation including diseases transmissible to humans, to **update and publish disease prevention** and control methods, to **ensure the sanitary safety of world** trade in animals and their products and to **strengthen national animal health systems**.

- A zoonosis is an **infectious disease** that jumps from a **non-human animal to humans.** (The transfer of pathogen from animal to human has been explained in the infographic.)
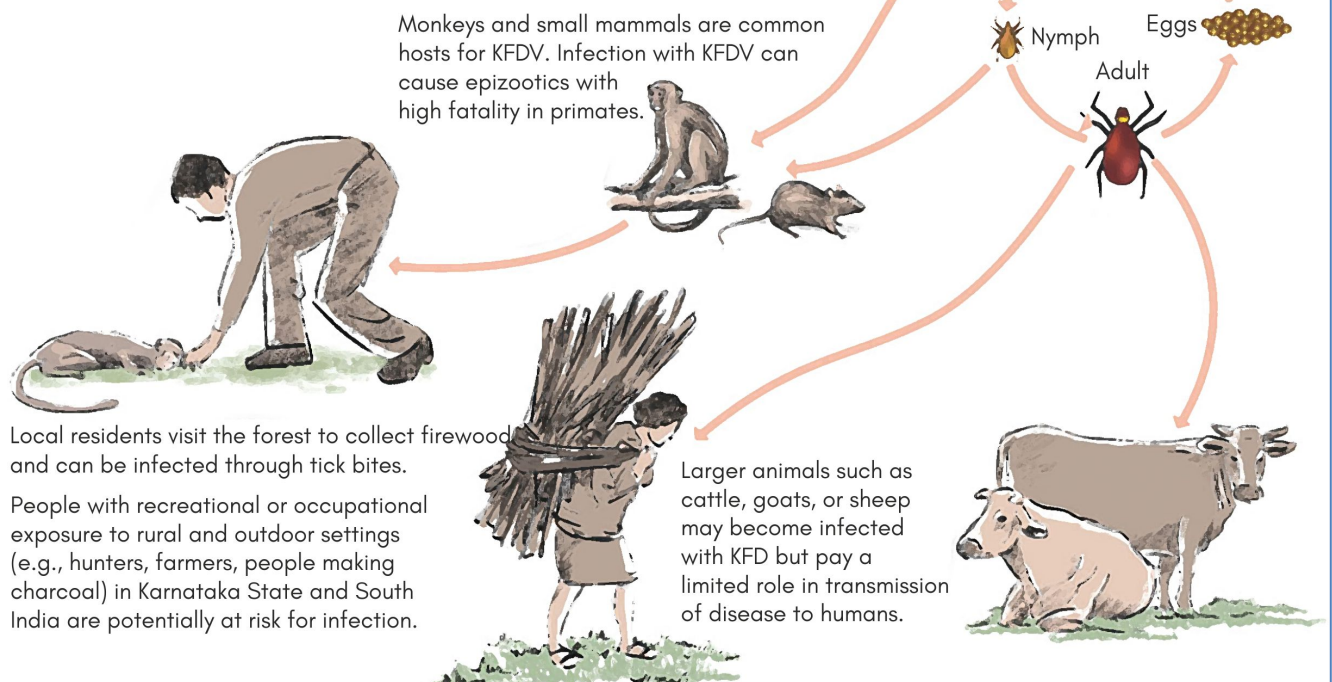
- **Zoonotic pathogens** may be **bacterial, viral, parasitic or fungal**. They can spread to humans through direct contact or through food, water and the environment.
- Zoonoses can cause **disruptions in the production and trade of animal products** for food and other uses.
- As per the **National Centre for Disease Control (NCDC),** about 75% of emerging and re-emerging infections are zoonotic.
- **Causes of zoonosis:** Climatic change, deforestation, animal adaptation and migration, vectors, lack of hygiene, human- animal interface, **pathogen mutation and factors leading to its adaptability**, urbanisation, laboratory escapes, etc. are some of the causes of zoonoses.
- **Population at risk:** Wild animals meat sellers, agricultural workers, and people living adjacent to wilderness areas etc. face higher risk of zoonotic disease.
- **Examples of zoonotic diseases:** Japanese encephalitis (JE), Kyasanur forest disease (KFD), Nipah virus infection, Ebola virus disease, Middle East respiratory syndrome (MERS) etc.

Kyasanur Forest Disease (KFD) Virus Ecology

The hard tick Haemaphysalis spinagera is the reservoir and vector of Kyasanur Forest Disease Virus (KFDV). Once infected, ticks remain so for life and are able to pass KFDV to offspring via the egg.

Transmission of KFDV to humans may occur after a tick bite or contact with an infected animal, most commonly a sick or recently dead monkey. No person–to–person transmission has been described.

Human cases occur more frequently in drier months (Nov–June) and in Southwest and South India.

Monkeys and small mammals are common hosts for KFDV. Infection with KFDV can cause epizootics with high fatality in primates.

Larva

Nymph   Eggs

Adult

Local residents visit the forest to collect firewood and can be infected through tick bites.

People with recreational or occupational exposure to rural and outdoor settings (e.g., hunters, farmers, people making charcoal) in Karnataka State and South India are potentially at risk for infection.

Larger animals such as cattle, goats, or sheep may become infected with KFD but pay a limited role in transmission of disease to humans.

WHO guidelines

- **Suspension of trade in wild animals:** It urged the governments to **suspend trade in live caught wild animals** of mammalian species and shut down of food markets that sell them.
- **Strengthening the regulatory basis:** It improves standards of **hygiene and sanitation in traditional food markets** to reduce the risk of transmission of zoonotic diseases. Additional measures for **crowd control and physical distancing**, hand washing and sanitizing stations should be introduced in market settings.
- **Conducting risk assessments**: It provides the evidence base for developing regulations to **control the risks of transmission of zoonotic microorganisms** from farmed wild animals and caught wild animals that are intended to be placed on the market for human consumption.
- **Capacity building:** It ensures that **food inspectors are adequately trained** to ensure that businesses comply with regulations to protect consumers' health and are held accountable.
- **Surveillance systems**: It strengthens animal health surveillance systems for zoonotic pathogens to include both domestic and wild animals. This will provide an **early warning for pathogen emergence** and help expedite development of control measures.

- **Awareness:** Developing and implementing **food safety information campaigns** for market traders, stall holders, consumers and the wide general public to communicate the principles of food safety and the risks of transmission of zoonotic pathogens at the human-animal interface and the risks associated with the consumption and trade of wildlife.

Measures taken to control zoonotic diseases:

- **One health approach:** The concept of '**One Health' recognised by WHO** as health of human beings is connected to health of animals and environment. It can be effectively implemented for reducing incidence of emerging zoonotic threats like COVID- 19.
  - The **Ministry of Science and Technology** has constituted a **National Expert Group on One Health** to identify priority areas for better understanding of mechanism of virulence, infections and their transmissions.

- **Integrated Disease Surveillance Programme (IDSP):** It strengthens the disease surveillance in the country by establishing a **decentralized State based surveillance system for epidemic prone diseases** to detect the early warning signals so that timely and effective public health actions can be initiated.
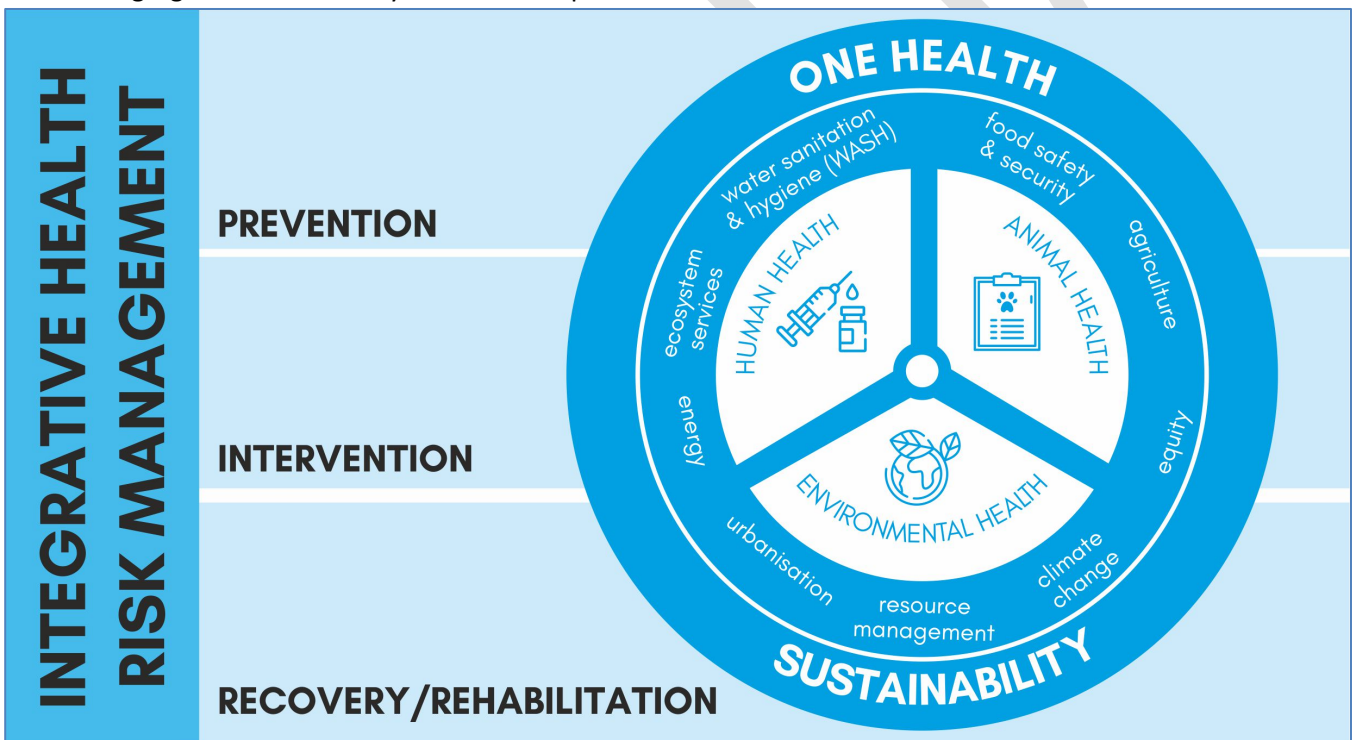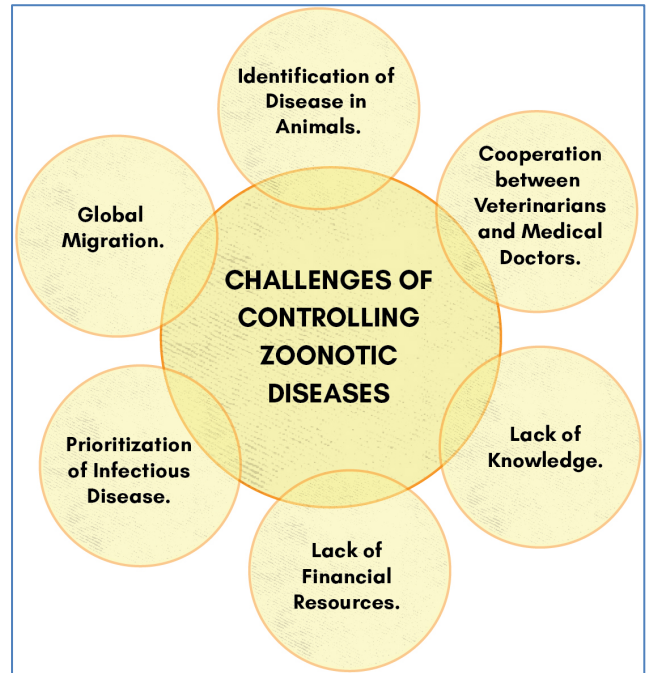
- **National Programme for Containment of Anti-Microbial Resistance:** It carries out surveillance of antimicrobial usage, strengthen infection control practices and promote rational use of antimicrobials through Antimicrobial stewardship activities.
- **Effective laboratory systems**: The establishment of effective laboratory systems is critical for a successful zoonotic disease surveillance program.
- **Inter-Sectoral coordination for Prevention and Control of Zoonotic Diseases**: It strengthens inter-sectoral co-ordination between Medical, Veterinary, wildlife sector and various relevant stakeholders for prevention and control of zoonotic diseases.
- **Genome mapping of animals**: Different initiatives like **Bat1K** are present across the world to sequence the genomes of all living bat species.

Way forward

In order to work toward controlling, eradicating, and intervening one needs to work at different levels.

- **Pathogen level**: Studies should be carried out to undertake genome mapping of pathogens for research purpose.
- **Individual level:** In remote and backward areas, research should focus on whether the nutritional status of people is adequate to respond to zoonotic diseases.
- **Environment level**: Parameters such as how close animals are living with people, their educational and cultural backgrounds need to be factored in.

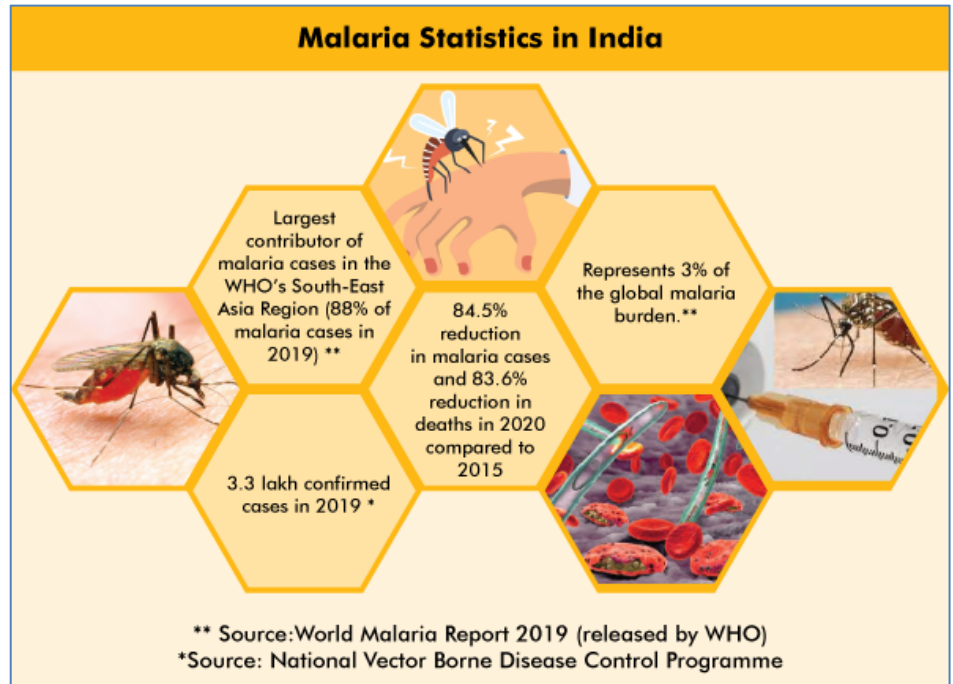# 7.4. MALARIA

Why in News?

World Health Organisation (WHO) and partners recently organised **"Reaching Zero" forum** on malaria elimination to celebrate **World Malaria Day** (25th April)**.**
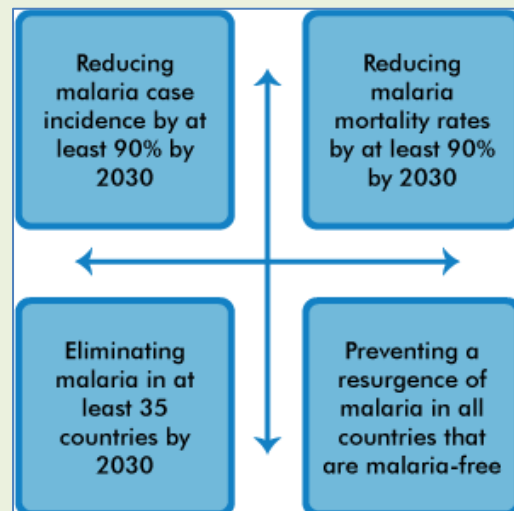
More on news

- This year's theme for the day is **"Reaching the Zero Malaria target."**
- On this occasion, WHO launched **E-2025 initiative**, under which group of 25 countries have been identified that have the potential to stamp out malaria within a 5-year timeline. These countries will **receive specialized support and technical guidance** as they work towards the target of zero malaria.
- Earlier, in 2017, WHO launched **E-2020 initiative**, to support 21 countries in their efforts to get to zero malaria cases within the 2020 timeline.
- Malaria is a **life-threatening disease** caused by parasites that are transmitted to people through the bites of infected **female Anopheles mosquitoes.** It is **preventable and curable.**

Initiatives taken by India

- **National Vector Borne Disease Control Programme** NVBDCP (launched in 2003-04): It is an umbrella programme for the **prevention and control of six vector borne diseases** namely **Malaria**, dengue, chikungunya, Japanese encephalitis, kala-azar and lymphatic filariasis.
- **National Framework for Malaria Elimination (NFME)** 2016–2030 was launched in line with the **WHO Global Technical Strategy** for Malaria 2016–2030 (GTS). The goals of **NFME** are:
  - o **Eliminate malaria** (zero indigenous cases) throughout the entire country by 2030; and

Malaria Statistics in India

- Largest contributor of malaria cases in the WHO's South-East Asia Region (88% of malaria cases in 2019) **
- 84.5% reduction in malaria cases and 83.6% reduction in deaths in 2020 compared to 2015
- Represents 3% of the global malaria burden.**
- 3.3 lakh confirmed cases in 2019 *

** Source:World Malaria Report 2019 (released by WHO)
*Source: National Vector Borne Disease Control Programme

WHO Global technical strategy (GTS) for malaria 2016-2030 has following targets:

- Reducing malaria case incidence by at least 90% by 2030
- Reducing malaria mortality rates by at least 90% by 2030
- Eliminating malaria in at least 35 countries by 2030
- Preventing a resurgence of malaria in all countries that are malaria-free

High Burden to High Impact

- It builds on the principle that **no one should die from a disease that can be prevented and diagnosed**, and that is entirely curable with available treatments.
- **Key elements** include:
  - o **Political will** to reduce the toll of malaria;
  - o **Strategic information** to drive impact;
  - o **Better guidance**, policies and strategies; and
  - o A **coordinated** national malaria response.

- o Maintain **malaria–free status** in areas where malaria transmission has been interrupted and
  - o prevent re-introduction of malaria.
- **National Strategic Plan (NSP) for Malaria Elimination** 2017-2022 was launched **based on NFME** which specifies for phased elimination of Malaria. Specific objectives of NSP are:
  - o Achieve **universal coverage of case detection and treatment services** in endemic districts.
  - o **Strengthen the surveillance** system.
  - o An appropriate **vector control** intervention.
  - o To **improve knowledge and awareness** regarding effective preventive and curative interventions for malaria elimination.
  - o Provide effective **programme management and coordination at all levels**.
- WHO's **High Burden to High Impact (HBHI) strategy** has been initiated in four high endemic states i.e., West Bengal, Jharkhand, Chhattisgarh and Madhya Pradesh in July 2019.

## 7.5. NON-FUNGIBLE TOKEN

Why in news?

Indian cryptocurrency exchange, WazirX has launched a non-fungible tokens (NFT) marketplace for Indian artists.

What are NFTs?

- An NFT, or a non-fungible token, is a **digital object** that can be a drawing, animation, piece of music, photo, or video **with a certificate of authenticity created by blockchain technology**.
  - o In simple terms, NFT is a **unique proof of ownership** over something you can't usually hold in your hand — a piece of digital art, a digital coupon, maybe a video clip.
  - o For e.g. Twitter founder Jack Dorsey can auction off an NFT for his first-ever tweet for $2.9 million.

Unique — Indivisible — Rare — Non-fungible token

- The virtual object, which is actually a computer file, can be exchanged or sold with its certificate.
- "Tokenizing" these assets allows them to be bought, sold, and traded more efficiently while reducing the probability of fraud.
- NFTs can also be used to represent people's identities, property rights, and more.

Characteristics of NFT

- All NFTs have a **unique quality** and a **distinct value** from any other similar token.
  - o The metadata of each NFT is an unalterable record that gives it the certificate of authenticity.
- They are **digitally rare**.
- They must **be sold or purchased as a whole** as they **cannot be divided** unlike fungible tokens.
  - o For example, a plane ticket cannot be purchased and used partially — someone must buy it in full because only a single person can use the seat.
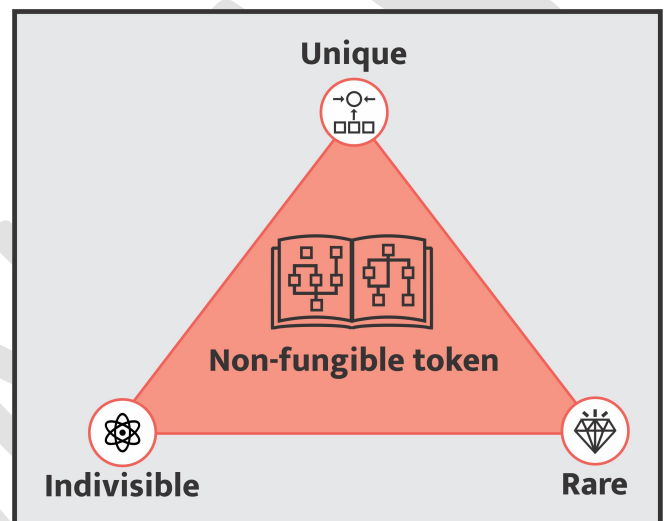
Fungibility
Fungibility refers to an asset's ability to be exchanged with a similar asset without sacrificing its value.
- For example, a Rs. 100 note is fungible, because if one person has a Rs.100 bill and another person also has a Rs. 100 note, they could interchange the bill and the value does not change. **A bitcoin is a fungible asset as well.**
- **NFTs are not fungible** as they **cannot be traded directly** with each other because they are unique.

Importance

It seeks to solve the problem of Ownership tracking, Value storage, and Decentralisation.

- **Monetisation:** Artists, musicians, influencers and sports franchises are using NFTs to monetise digital goods that have previously been cheap or free.
- **Authenticity:** One of the obstacles preventing digital objects from becoming mainstream collectables was the fear of copies. Contemporary artists can now archive their collections through the blockchain and have NFTs to authenticate their works and ensure no fakes exist in the future.
  - NFTs can still be copied, of course, but only one file has a certificate of authenticity, which cannot be replicated. Think of owning an NFT like owning an original Van Gogh painting: While there are countless prints of it in other people's homes, you have the artwork the man himself painted.
- **Protecting intellectual property rights of Artisans:** who can use NFTs to verify their original work.
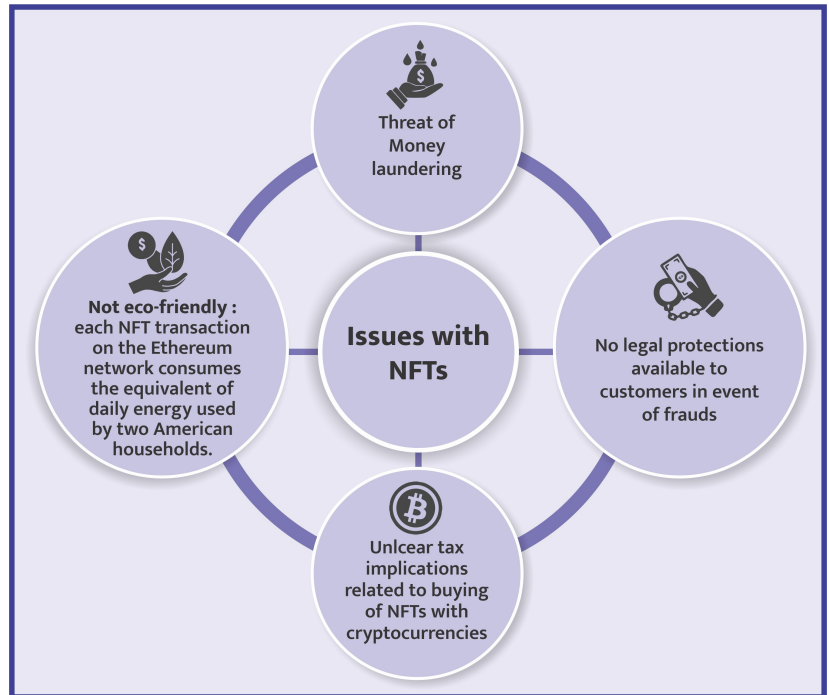
Conclusion

There is need for government to lay down framework to regulate cryptocurrency and other digital currencies to avail its advantages which in the future would be profound.
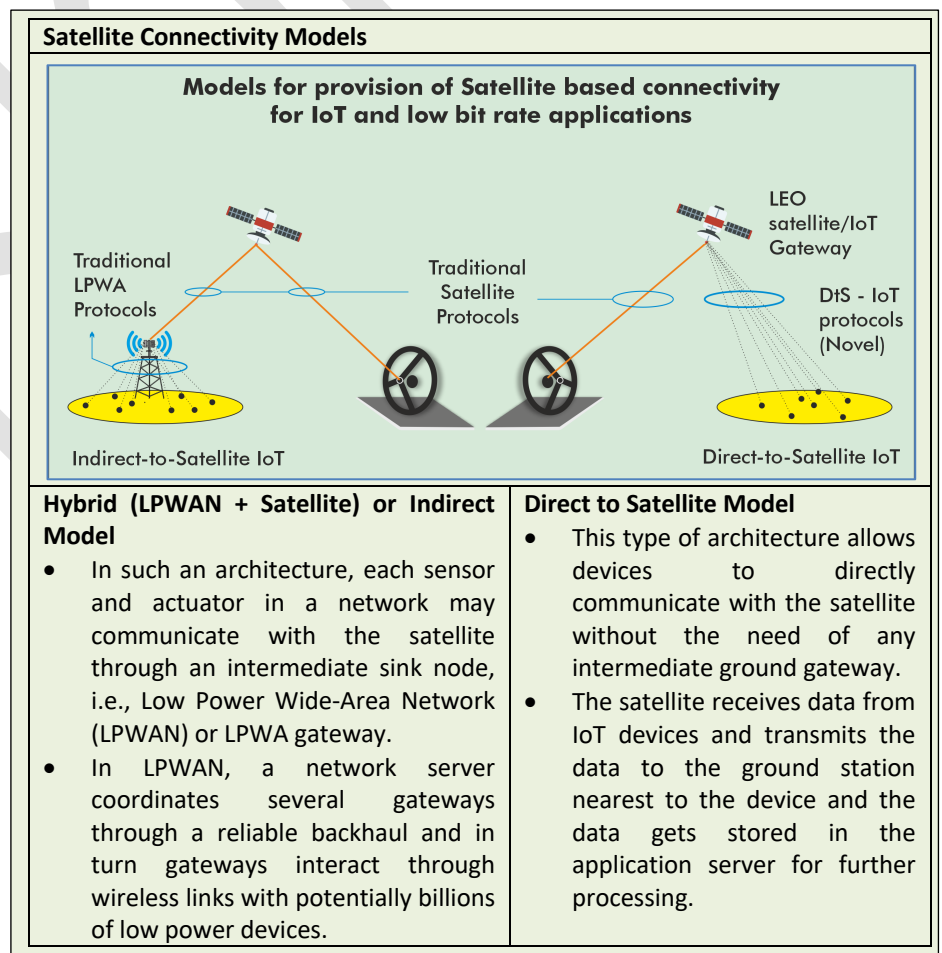

Issues with NFTs
- Threat of Money laundering
- Not eco-friendly : each NFT transaction on the Ethereum network consumes the equivalent of daily energy used by two American households.
- No legal protections available to customers in event of frauds
- Unlcear tax implications related to buying of NFTs with cryptocurrencies

7.6. SATELLITE BASED INTERNET CONNECTIVITY

Why in news?

Telecom Regulatory Authority of India released a Consultation Paper on Licensing Framework for Satellite-based connectivity for low bit rate applications.

About Satellite based connectivity

- Rather than using an underground copper/fibre network, satellite based broadband connection operates by sending and receiving broadband signal to a satellite in space.
- Satellite-based low-bit-rate connectivity is possible using Geo Stationary, Medium and Low Earth orbit Satellites.

Satellite Connectivity Models

Models for provision of Satellite based connectivity for IoT and low bit rate applications

Hybrid (LPWAN + Satellite) or Indirect Model	**Direct to Satellite Model**
- In such an architecture, each sensor and actuator in a network may communicate with the satellite through an intermediate sink node, i.e., Low Power Wide-Area Network (LPWAN) or LPWA gateway. - In LPWAN, a network server coordinates several gateways through a reliable backhaul and in turn gateways interact through wireless links with potentially billions of low power devices.	- This type of architecture allows devices to directly communicate with the satellite without the need of any intermediate ground gateway. - The satellite receives data from IoT devices and transmits the data to the ground station nearest to the device and the data gets stored in the application server for further processing.

- **Factors favouring development of Satellite based connectivity**
  - o **Innovation of technologies:** like AI, cloud and big data are gaining importance for exploring new prospects in the satellite Internet of Things (IoT) ecosystem.
  - o **Smaller and cheaper satellites**: Smaller satellites, often weighing as little as 10 kg, are replacing the larger conventional models that were in the range of 1,000 kg or more. Such solutions are eliminating the entry barriers for the space industry.
  - o **Private investment**: Investment and funding in space research is shifting from public to private organizations, allowing private companies to enter the space industry in more numbers.

Potential applications/use cases utilizing a satellite networking protocol			
Remote health services: Ambulance and medical logistics tracking in remote areas, live monitoring of patient's vitals etc.	**Internal security**: Tracking patrol vehicles, monitoring critical logistics supplies in remote areas, monitoring of vessels at sea.	**Disaster management**: Real-time delivery of alerts and geo-location services in case of natural calamities, emergency broadcast alerts and SOS messaging, monitoring and controlling remote forest fires and managing logistics of NDRF (National Disaster Response Force)/SDRF (State Disaster Response Force)vehicles, boats, fire engines, ambulances etc.	**Railways**: Real-time geo-location of assets, monitoring of safety systems in the trains, mission-critical communication etc.
Supply-chain management: Asset tracking, vehicle fleet management, and cold-chain management for food/medicines etc.	**Fisheries** Sensor-based connectivity is used for location and vessel monitoring, maritime boundary alerts; Geo-fenced fishing zones, for monitoring the cold-chain of stored fish, two-way emergency messaging system for distressed vessels, inclement weather	**Smart Agriculture:** Monitoring soil conditions for critical inputs such as water, fertilizers and pesticides, etc.; Harvest prediction, crop infestation/damage, yield, severe weather prediction, etc.; Reaching out to remote villages, farmland	**Smart Grids:** Remote transmission towers monitoring, load distribution, supply/demand management, Sensor-based applications for Remote Industries and Connected Healthcare, Supervisory Control and Data Acquisition (SCADA)

Benefits associated with Satellite connectivity

- **Easier to deploy and wide coverage:** Satellite networks can be rolled out and scaled up a lot faster and more cost effectively than terrestrial mobile/broadband networks, especially to connect a sizable chunk of the population living in remote and inhospitable regions.
  - o Satellite internet players do not have to worry about securing right-of-way clearances which typically slow down terrestrial broadband network rollouts.
- **Enabler for IoT ecosystem**: Satellites, in conjunction with terrestrial services, can provide resilient services, wider coverage and broadband, narrowband and broadcast capabilities. This can support the needs of IoT ecosystem globally.
- **Stronger bandwidth capabilities**: Satellite internet connections can handle high bandwidth usage, so internet speed/quality isn't be affected by lots of users or "peak use times."
- **Boosting mobile broadband coverage in rural areas**: Satellite broadband can provide the vital 'backhaul' or connectivity between mobile towers and a telco's core mobile network in rural areas to ensure uninterrupted mobile coverage in such regions.

Issues related to Satellite connectivity

- **High cost of services**: Right now, these services are priced at $15-$20 per GB, about 22-30 times higher than the $0.68 charged for mobile data.
  - o In India cost of satellite based broadband is driven up by presence of multiple intermediaries, reservation of satellites for government programmes which hampers commercial satcom services, small term of bandwidth leasing agreements, etc.
- **Lack of enough domestic satellite capacity**: India does not have access to high-throughput satellites offering 100-500 Gbps of bandwidth. Also, Satcom players also cannot lease bandwidth capacity directly from foreign satellite operators.

- **Worries over the accumulation of space debris in the LEO**: Under the project **Starlink**, SpaceX a has already deployed more than 1,200 satellites in the LEO and is launching new satellites every few weeks to widen coverage and capacity of its satellite based internet network.
  - This also increases possibility of collisions with existing debris and catastrophic events such as **Kessler syndrome** (collisional cascading).
- **Impact on astronomy**: Due to Satellite brightness, Astronomers are concerned that constellations of space Internet satellites can make it difficult to observe other space objects, and to detect their signals.
- **Operational issues**: Satellite based internet connectivity suffers with issues such as:
  - **Poor latency or high ping rate:** Since you have to send data to space, to your ISP and back again, satellite internet has poor latency, or a high ping rate.
    - ✓ Latency or Ping Time refers to how long it takes a single piece of information to make a round trip back and forth over a satellite connection.
  - Minor obstructions or disturbance in weather can affect signal and quality of internet.
  - Many of the existing satellites may not be suitable for direct satellite to device connections.

Way Forward

- **Encouraging commercial use of satellites for internet connectivity:** through steps such as
  - Simplifying procedure of bandwidth leasing and enhancing leasing contracts to a minimum of three years
  - Allowing satcom operators to directly lease bandwidth from foreign operators and access very high-throughput satellites.
  - Encouraging private investment in the satellite industry by allowing 100% foreign direct investment through the automatic route.
- **Reducing satellite brightness**: For instance, SpaceX has been undertaking experiments to reduce brightness of its satellites such as
  - DarkSat, which is an experimental satellite the whose certain parts were darkened to tackle on-station brightness.
  - Adding a deployable visor to the satellite to block sunlight from hitting the brightest parts of the spacecraft.

7.7. SPACE DEBRIS

Why in News?

China has launched a robot prototype in April 2021 that can **scoop up debris left behind by other spacecraft** with a big net.

More on news

- **The robot,** NEO-01 will use a net to capture debris and then **burn it with its electric propulsion system.**
- It will also **peer into deep space** to observe small celestial bodies, paving the way for future technologies capable of **mining on asteroids.**

RISK ASSOCIATED WITH SPACE DEBRIS

Poses danger to astronauts as their suits are not designed to protect them from significant debris.

Global threat to the continued use of space-based technologies like remote sensing

Debris that re-enters Earth may also cause damage- for ex recent chinese rocket debris crashed into Indian ocean.

Increased cost of operations- A number of space shuttle windows have been replaced because of damage caused by paint flecks.
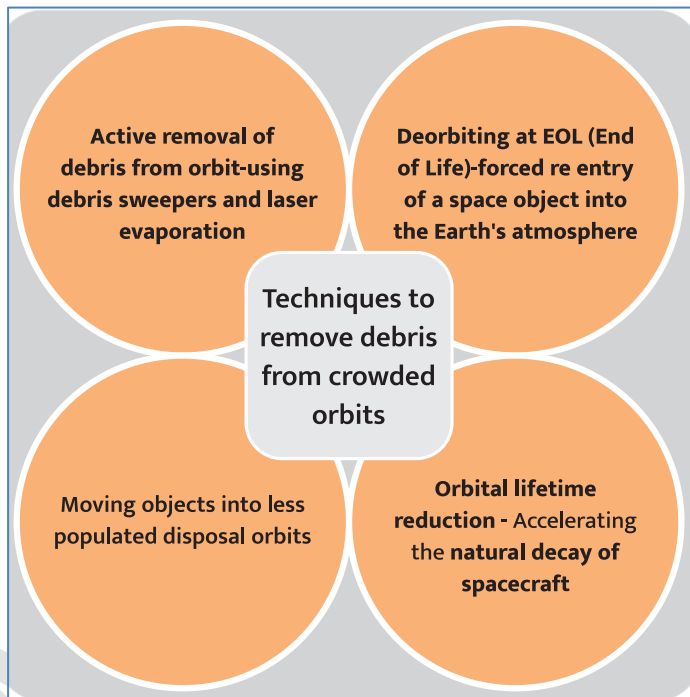
About Space Debris

- Space debris encompasses both **natural (meteoroid) and artificial (man-made)** particles. Meteoroids are in orbit about the sun, while most **artificial debris is in orbit about the Earth** which is commonly referred to as **orbital debris.**
- Orbital debris is any man-made object in orbit about the Earth which **no longer serves a useful function.** Such debris includes **non-functional spacecraft, abandoned launch vehicle stages, mission-related debris and fragmentation debris**.

The Kessler Syndrome
- Also called the **Kessler effect,** is a scenario in which the density of objects in Low Earth Orbit (LEO) is high enough that collisions between objects could cause a cascade where **each collision generates space debris that increases the likelihood of further collisions**.
- It may lead to a situation in which orbit would become **impassable in the long run**.

- Much of the debris is in **low Earth orbit** (within 2,000 km of Earth's surface), though some debris can be found in **geostationary orbit** (35,786 km above the Equator).
- There are **about 500,000 pieces of debris** the size of a marble or larger orbiting the Earth, travelling at speeds up to 17,500 mph.
- International guidelines suggest removing space crafts from low-Earth orbit **within 25 years of the end of their mission**.
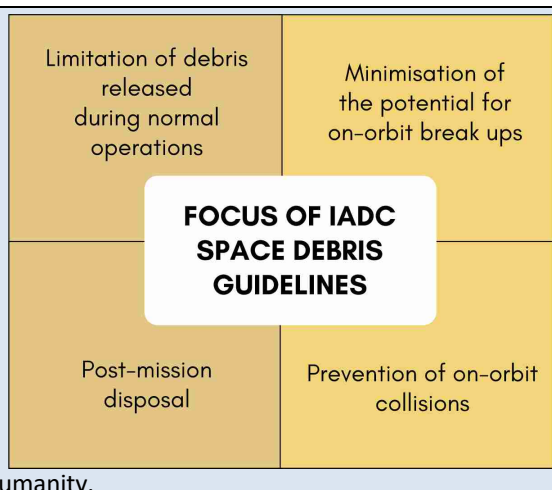 - However, **only 60 percent of missions** follows the guidelines.

Strategies to Tackle Space Debris

- **Mitigating Damage**: Space debris is **tracked by a number of countries**, including Germany, France, the UK and the USA.
  - ISRO has come up with '**Project NETRA'** - an early warning system in space to **detect debris and other hazards** to Indian satellites.
  - Indraprastha Institute of Information Technology Delhi is working on a project titled "**Orbit computation of Resident Space Objects for Space Situational Awareness"** to predict collision from space debris.
- **Avoiding future debris:** Various space organisations have been working on **reducing the amount of trash by adopting better designs** of rockets and other objects. For example, making **rockets reusable** could vastly cut down waste.

Techniques to remove debris from crowded orbits:
- Active removal of debris from orbit-using debris sweepers and laser evaporation
- Deorbiting at EOL (End of Life)-forced re entry of a space object into the Earth's atmosphere
- Moving objects into less populated disposal orbits
- Orbital lifetime reduction - Accelerating the **natural decay of spacecraft**

  - The UK's **TechDemoSat-1 (TDS-1)**, was designed in such a way that once its mission is over, a system, would drag the satellite to **re-enter the atmosphere and burn up**.
- **Removal of the debris:**
  - End-of-Life Services by Astroscale Demonstration (**Elsa-D), by Japan** was launched to **locate and retrieve used satellites** and other space junk.
  - **RemoveDebris is an EU research project** to give **in orbit demonstrations of cost-effective technologies** that can be used to observe, capture and dispose of space debris. It has performed key technology demonstrations including:
    - ✓ **Net capture:** It involves a net that will be deployed at the target CubeSat.
    - ✓ **Harpoon Capture:** Which will be launched at a target plate made of "representative satellite panel materials"
    - ✓ **Vision-based navigation**: Using cameras and LiDAR (light detection and ranging), the platform will **send data about the debris** back to the ground for processing.
    - ✓ **De-orbiting process:** As it enters Earth's atmosphere, the spacecraft will burn up, leaving no debris behind.

International efforts to tackle Space debris
- **Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation** Guidelines (2002) focuses on:
  - IADC is an **international governmental forum** for the worldwide coordination of activities related to the **issues of man-made and natural debris in space.**
  - ISRO is one among 13 member agencies of IADC.
- Committee **on the Peaceful Uses of Outer Space (COPUOS)** concluded **various international treaties** (like Outer Space Treaty, Liability Convention etc.) which **deal with issues** like **liability for damage** caused by space objects, **Prevention of harmful interference** with space activities and **registration of space activities** etc.
  - COPUOS was set up by UN General Assembly in 1959 to govern the exploration and use of space for the benefit of all humanity.

FOCUS OF IADC SPACE DEBRIS GUIDELINES
- Limitation of debris released during normal operations
- Minimisation of the potential for on-orbit break ups
- Post-mission disposal
- Prevention of on-orbit collisions

7.8. PINK MOON

Why in news?

The **first super moon of 2021** has been named **'Pink Moon'** as per **a naming convention established in USA**.

More on news

- It is **named after herb moss pink,** also called creeping phlox, moss phlox, or mountain phlox, one of the earliest spring flowers appearing in the United States.
- A book titled **'Maine Farmer's Almanac'** provides names for supermoon in each month of the year as they occur.

About Supermoon

- The term **"supermoon"** was coined by **astrologer Richard Nolle in 1979**.
- The **Moon orbits Earth in an ellipse** which brings it **closer to and farther from Earth as it goes around**.
- The **farthest point in this ellipse is called the apogee** and the closest point is the **perigee**.
- **Supermoon** refers to **either a new or full Moon that coincides with moon being at the perigee** (the point where moon is closest in its elliptical orbit around the Earth)**.**

PERIGEE AND APOGEE OF THE MOON

APOGEE

405,500 km

363,300 km

PERIGEE

*Earth-Moon distance not to scale

- o **New Moon** is when **Sun and Earth are on opposite sides of the Moon**. A new moon is not visible due to following reasons:
  - ✓ The **alignment is such that it leaves the side of the Moon that faces Earth in darkness**.
  - ✓ New Moon **rises and sets around the same time as the Sun**, bringing it **closer to the Sun's glare to be seen with the naked eye.**
  - o **Full Moon** is when the Sun and the Moon are aligned on opposite sides of Earth, and **100% of the Moon's face is illuminated by the Sun.**
- During a supermoon, that **brightness can increase up to 30 percent** as a result of the Moon being closer to Earth.
- **Other moon events:**
  - o **Micromoon** is when a Full Moon or a New Moon coincides with apogee.
  - o **Blood Moon**
    - ✓ It refers to **red colour of moon during the total lunar eclipse**.
    - ✓ During the total lunar eclipse, the **Earth comes in between the Sun and the Moon**.
    - ✓ The red colour appears because the **shorter wavelengths of sunlight are scattered by Earth's atmosphere** and what reaches us is the longer wavelength red light.
  - o Whenever **Sun, Earth and Moon are in alignment** it is called a **conjunction or Syzygy**.
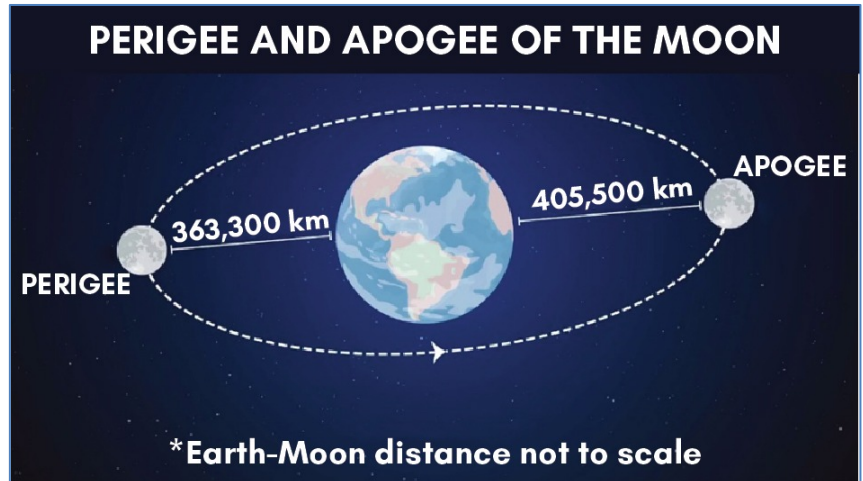
7.9. THE UNICORN–CLOSEST BLACK HOLE TO EARTH EVER DISCOVERED

Why in news?

Scientists have discovered the **smallest-known black hole** which is dubbed as **'the Unicorn'** in the Milky Way galaxy and **closest to the solar system**.

More in news

- The **black hole 'Unicorn' is roughly three times the mass of the sun**.
- 'The Unicorn' falls into what the researchers called a **'mass gap' between the largest-known neutron stars** (around 2.2 times the mass of the sun) and what previously had been considered the smallest black holes (around five times the sun's mass).
- Its **strong gravity alters the shape of its companion star** in a phenomenon known as **tidal distortion**, making it **elongated** rather than spherical and causing its light to change as it moves along its orbital path.
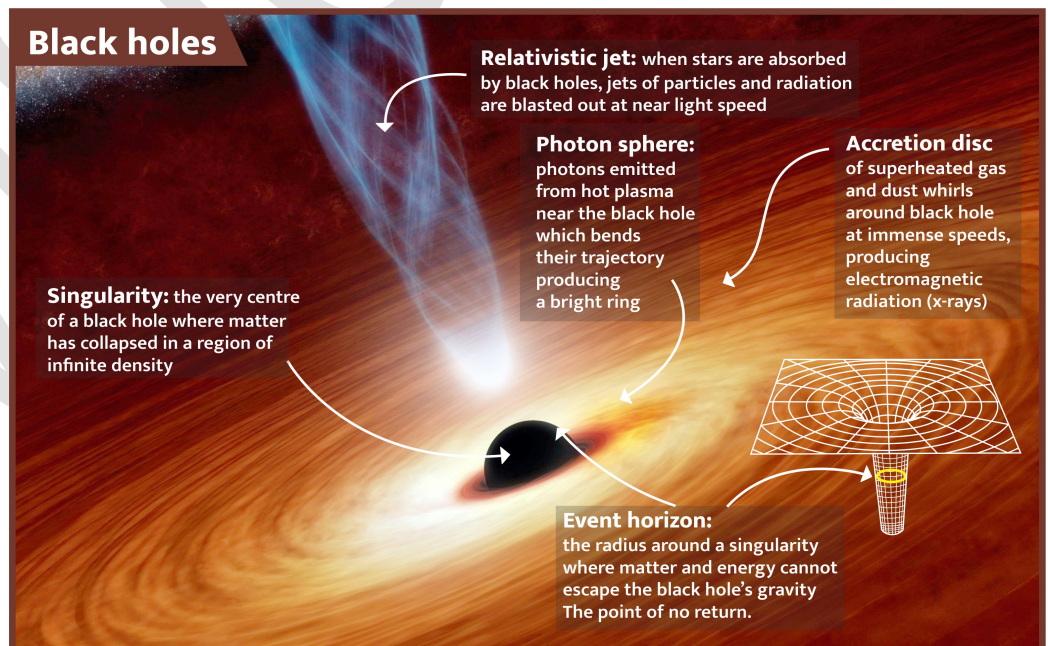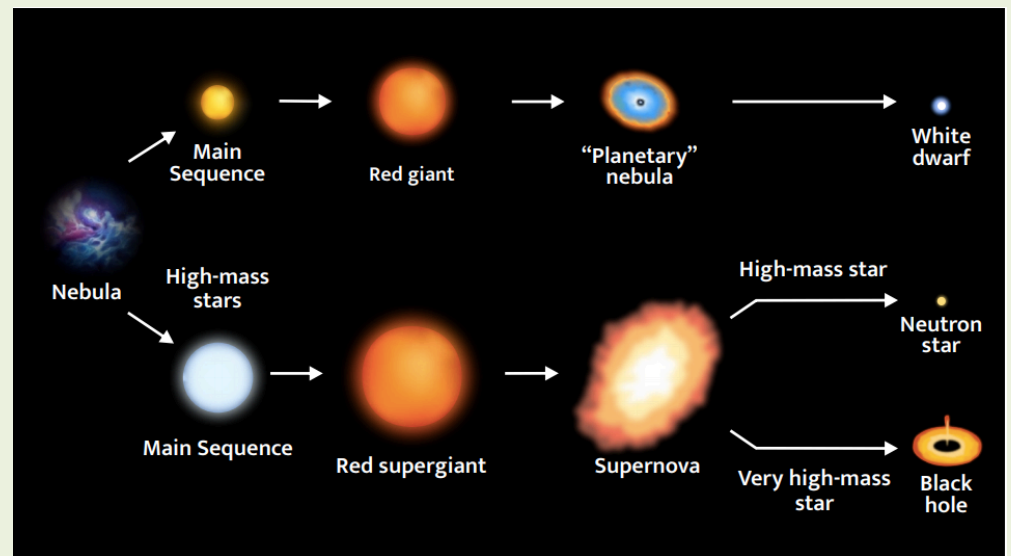
Black holes

- A black hole is a **place in space where gravity pulls so much that even light cannot get out**. The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying.
- They are **invisible** and electromagnetically dark. Space telescopes with **special tools can help find black holes**. The special tools can see how stars that are very close to black holes act differently than other stars.
- Black holes can be **big or small**.
- There are **three categories of black holes** namely, **stellar black holes (also called unicorn), supermassive black holes, and intermediate-mass black holes.**
  - There may be many stellar mass black holes in **Milky Way**.

Significance of black hole in space research

- **Evolution of galaxy**: Astrophysicists have gained new insights into the **formation and**

Evolution of a star

- **Red star:** Fusion reaction stops in the core of a star when its Hydrogen gets exhausted. Pressure of the core diminishes and core starts shrinking. Fusion takes place as some Hydrogen remains in the envelope/outer shell. It makes the star unstable. The star Expands and turns Red.
- **Dwarf star:** When mass of star < 1.44 times the mass of Sun (Chandra Shekhar limit), it ends up as a white dwarf.
  - The Red Giant Star looses its outer envelop and core shrinks into an extremely dense ball of matter due to gravitation. This leads to another set of fusion reaction where Helium fuses to form carbon. The fuel gets completely exhausted and the core shrinks under its own weight and becomes a white dwarf.
- **Supernova:** When mass of star > 1.44 times that of Sun, there remains enough Helium in the core for fusion reaction. The outer envelope explodes causing Supernova Explosion.
- **Neutron Star:** When mass of the star is between 1.44 to 3 times that of Sun, it becomes a Neutron Star.
- **Black hole:** When mass of the star is bigger than 3 times that of Sun, it becomes a Black hole.

Black holes

Relativistic jet: when stars are absorbed by black holes, jets of particles and radiation are blasted out at near light speed

Photon sphere: photons emitted from hot plasma near the black hole which bends their trajectory producing a bright ring

Accretion disc of superheated gas and dust whirls around black hole at immense speeds, producing electromagnetic radiation (x-rays)

Singularity: the very centre of a black hole where matter has collapsed in a region of infinite density

Event horizon: the radius around a singularity where matter and energy cannot escape the black hole's gravity The point of no return.

evolution of galaxies by calculating how black holes influence the **distribution of dark matter**, how heavy elements are produced and distributed throughout the cosmos, and **where magnetic fields originate**.

- **Star formation**: In particular, Supermassive black holes play an important role in star formation within galaxies.

- **Gravitational waves**: Scientists have detected that **gravitational waves are generated when two black holes collide,** and found that ringing pattern of the wave predicts the cosmic body's mass and spin.
- **General theory of relativity:** The discovery of black hole has opened the door to several new lines of **scientific investigation, enabling quantitative estimates** of black hole related parameters. It has provided another laboratory to test the predictions of the **Einstein's general theory of relativity**.
  - As per **Einstein's general theory of relativity,** a black hole exhibit three observable properties- mass, spin and electric charge.
- **Bending of light**: The **bending of light** around a black hole is very significant because of its **extremely large mass**. Because of this bending, one can see light from material that is behind the black hole, which would not be seen if light were traveling in straight lines.

8. CULTURE

8.1. FESTIVALS IN NEWS

Festivals in news

Rongali Bihu

- It is celebrated in **Assam**.
- It is also called **Bohag Bihu**.
- It marks the beginning of **Assamese New Year**.

Vaisakhi (Mesadi-Vaisakhadi)

- It is a harvest festival celebrated in **Punjab**.
- It also has historical significance for the **Sikhs** as in 1699, **Guru Gobind Singh** (10th spiritual guru of Sikhs) chose the festival as the moment to establish **Khalsa**.

Naba Barsha

- It is celebrated in **West Bengal** and is also called **Poila Baisakh**.
- It is **celebration of the new year** as per the **Bengali Calendar**.

Puthandu (Puthuvarsham/Pirappu)

- It is celebrated in **Tamil Nadu** as new year.
- It is also mentioned in **Sangam literature**.

Vishu

- It is celebrated in **Kerala** as new year.
- This festival involves worship of **Lord Vishnu** and **Lord Krishna** by the devotees.

Maha Vishuva Sankranti

- It is celebrated in **Odisha** as new year.
- Special pujas are conducted at **Sri Jagannath Temple**, Puri.

Shigmotsav

- Popularly known as **Shigmo**, It is **celebrated in Goa** on a full moon day during March.
- It is usually celebrated **2 weeks before Holi**.
- It **signifies change in season** from winter to summer and celebrates paddy harvest.
- **Traditional folk dances** like **Ghode Modni** (dance of equestrian warriors), **Gopha and Phugadi** are performed along with processions.

Joor Sheetal

- It is celebrated in **Bihar**.
- It is also called **Maithili New Year**.
- In this festival people **donate earthen pitcher containing water to priests in temples**.

8.2. NATIVE LANGUAGE

Why in news?

Recently, the Vice President elaborated on the importance of strong foundational skills in native languages in the initial years of informal learning at home.
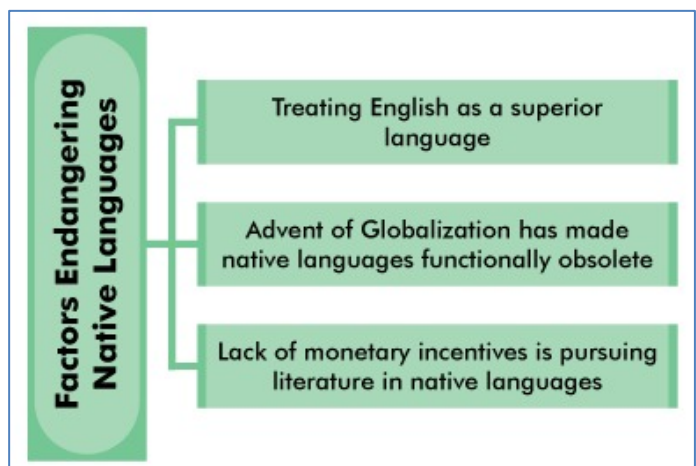
About native language

- Generally native language and mother tongue are used interchangeably. However, there is a subtle difference between both.
  - o **The native language** (or the first language) refers to the language of the area the person grows up in. It is the language which a **child acquires either through schooling or socialization, such as family.**
  - o **Mother tongue** is the in-born language, which a baby has already familiarized even in the gestation of mother before it was born.
  - o At times in multilingual families, there can be a **home language** spoken by other family members that may **sometimes be different from mother tongue or local language.**
- The United Nations (UN) has announced **2019 as the year 'Year of International Mother Tongue Conservation.'**
- Of the 196 languages listed as endangered by UNESCO **India has the highest number of endangered languages in the world** (40 Indian languages are on the verge of extinction).
- According to the UN **every two weeks a language disappears** taking with it an entire cultural and intellectual heritage.

> **Steps taken to promote the native languages**
> - **8th Schedule of the Constitution:** It lists the official languages of the country. Initially, there were 14 languages listed in the schedule, it now has 22. A majority of Indians speak the languages listed. While this Schedule **recognises that India is a multilingual country,** there are still 1,300 'mother tongues' that have been left out.
>   - o The Constitution does not mention any qualifying criterion for a language to be included in this Schedule.
>   - o When **the Commission for Linguistic Minorities** recommends the inclusion of a language into the Schedule, the Union government includes it **through an amendment to the Constitution.**
> - **Article 29:** Any citizen / section of citizens having a distinct language, script or culture have the right to conserve the same.
> - **Article 30:** All minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice.
> - **Sahitya Akademi:** It is the central institution for literary dialogue, publication and promotion in the country and the only institution that undertakes literary activities in 24 Indian languages, including English. Akademi gives 24 awards annually to literary works in the languages it has recognized and an equal number of awards to literary translations from and into the languages of India.
> - **Jnanpith Award:** It is the highest literary award in India, given annually for the best creative literary writing to writers in any of the 22 "scheduled languages."
> - **Scheme for Protection and Preservation of Endangered Languages (SPPEL):** The scheme was instituted by the Ministry of Education in 2013 to document and archive the country's languages that have become endangered or likely to be endangered in the near future. The scheme is monitored by Central Institute of Indian Languages (CIIL) located in Mysuru, Karnataka. The CIIL has collaborated with various universities and institutes across India for this mission.

Importance of native languages

- **Preservation of cultural heritage:** Our language is our heritage, historically, and is our ancestors' legacy which connects our past with the present, and gives us an understanding to envision the future. Native language is more than just a means of communication. It is a repository of a community's collective history and heritage.
- **Community identity:** Native language also provides an identity and a focus that binds a community together, which makes individual accomplishments easier.

Factors Endangering Native Languages
- Treating English as a superior language
- Advent of Globalization has made native languages functionally obsolete
- Lack of monetary incentives is pursuing literature in native languages

- **Country's diversity:** With hundreds of languages coexisting, linguistic diversity is one of the cornerstones of India's ancient civilisation.
- **Enhanced cognitive ability:** Research shows that multilingualism has great cognitive benefits to young students. Children pick up languages extremely quickly between the ages of 2 and 8.
- **Instilling confidence in children:** Educating a child in a language that is not spoken at home can be a big impediment to learning especially at the primary stage. Teaching through the mother tongue or native language in the initial stages of education can boost a child's self-esteem and enhance his or her creativity.

Way ahead

- **Individual efforts:** We need to start educating children about the importance of languages and encourage them to speak and write them too. Using one's mother tongue at home will make it easier for children to be comfortable with their own cultural identity. The preservation of language is important at an individual level as extinction takes place because of personal negligence of a language.
- **Community efforts:** Schools must organise various programmes to promote culture, art, and languages. Folk groups should launch awareness campaigns in order to encourage people to speak in their native languages without feeling ashamed about it. Communities must organise festivals in order to celebrate languages.
- **Use of technology:** Technology could be used to make a record of endangered languages in order to preserve them for the future generations.
- **National Education Policy (NEP), 2020:** It recognises the fact that young children learn and grasp nontrivial concepts more quickly in their home language/mother tongue. Children will be exposed to different languages early on (but with a particular emphasis on the mother tongue), starting from the Foundational Stage onwards.
  - All languages will be taught in an enjoyable and interactive style, with plenty of interactive conversation, and with **early reading and subsequently writing in the mother tongue in the early years,** and with skills developed for reading and writing in other languages in Grade 3 and beyond.
  - There will be a major effort from both the Central and State governments to invest in **large numbers of language teachers in all regional languages around the country,** and, in particular, for all languages mentioned in the 8th Schedule of the Constitution of India.
- Use of local languages in **administration, court proceedings and to deliver judgments in native languages.** Gradual increase in the use of indigenous languages in higher and technical education as suggested by the Vice-President.

9. ETHICS

9.1. SCIENCE OR FAITH? - A CONUNDRUM OF THE PANDEMIC ERA

Introduction

"Spread of coronavirus disease-19 among devotees during religious congregations", "Several faith leaders discouraging devotees to get vaccinated", "Pitting faith against medicine in times of the Pandemic is a crime against humanity".

These headlines provide a glimpse of how blind faith can be detrimental for both the individual and society.

What role does faith play during a pandemic?

The situation created by the pandemic is dire and unprecedented and the associated uncertainty has made people helpless. In this context, faith has provided emotional and psychological support to people in the following manner:

- **Coping with fear created by the pandemic:** The enormity of deaths and absence of a definite cure has sparked panic and fear among people. Religious or spiritual **faith provides an assurance** that howsoever difficult the situation is, a higher being is going to take care of them.
- **Faith provides the person a community to stand with:** Humans have a psychological need to be a part of a group or community which provides them **emotional security and a sense of belongingness.** Faith fulfills this role, especially in stressful situations like the pandemic, by providing the individuals **a network to tap into and a shared belief system** that builds a connect between them.
- **Spirituality for psychological well-being:** Lockdowns, isolation and the associated loneliness and anxiety have been difficult to handle for most people. In this context, the spiritual part of all prominent faiths has helped people in coping up with psychological stress.

So, faith does play an important part in the emotional well-being of an individual. But in the present times, when the scientific community has highlighted that appropriate behavior plays a central role in controlling the pandemic, **behaviors motivated by religious faiths have often been at loggerheads with what science dictates.**

> **Faith-driven misinformation acting as an impediment in controlling COVID-19**
>
> **Several religious leaders** have been spreading misinformation in relation to the Pandemic. Also, many actors have been **using names of several faith-based institutions to spread fake news**. For example, a rumor has been circulating that taking the vaccination may make you impotent.
>
> The impact of this misinformation has led to issues like **vaccine hesitancy**, **flouting the behavioral norms** of the pandemic and **propagation of unscientific substitutes to curing COVID-19** among others.

Are Science and Faith always antithetical to each other?

Science, as a system is based on rationality, logic and has its basis in evidence. Faith, on the other hand is about, trust, connection and primarily relies on individual's belief. Keeping this in mind, Science and Faith can have different kinds of relationship-

- **Conflicting relationship:** This is when faith and science hold opposing views over a subject. Such a relationship can be seen in debates around Origin of the Universe, evolution, among others.
  - For example, evolutionary idea of Hinduism revolves around the 'nine *avatars'* guiding the evolutionary system. On the other hand, scientific community believes in Charles Darwin's 'Theory of Natural Selection''.
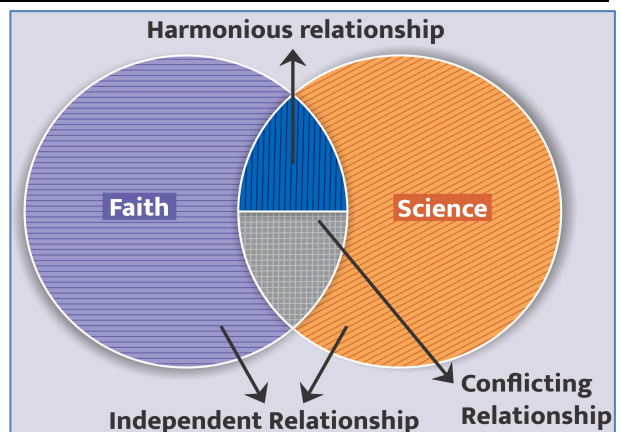
> **Stephen Hawking** has commented on the conflicting relationship- "I believe the simplest explanation is, there is no God. No one created the universe, and no one directs our fate. This leads me to a profound realization that there probably is no heaven and no afterlife either. We have this one life to appreciate the grand design of the universe and for that, I am extremely grateful."
>
> **Christopher Hitchens**, argues that "**That which can be asserted without evidence, can be dismissed without evidence.**"

- **Independent relationship:** This is when science and faith operate in their own separate domains and ask distinct questions.
  - For instance, scientific community has limited intervention in the subject of theology. At the same time, faith-based institutions do not engage with scientific community in mathematical research.

> **Pope Francis** has affirmed that "science and religion, with their distinctive approaches to understanding reality and their distinct domains of application can coexist, which will be fruitful for both."

- **Harmonious relationship:** This is when science and faith support each other institutionally and engage constructively on questions concerning them both. Although, such a context is difficult to find but there are some examples.
  - For instance, religious texts are being examined to make archeological and anthropological research more directed.

> **Carl Sagan** has acknowledged that- "Science and religion need not have a conflicting relationship. Skeptical scrutiny is the means, in both science and religion, by which deep thoughts can be winnowed from deep nonsense."

The above analysis highlights that the relationship between science and faith is not rigid but dependent upon the context and more importantly on the attitude of the actors involved.

In the context of COVID-19, how can a harmonious relationship be achieved between the two?

- **Faith is essential but need not be blind:** The supporting role played by faith in an individual's life has been highlighted above. But at the same time, the application of faith need not be rigid or blind in nature.
  - The application of faith has to be accompanied by an acknowledgement of the external situation and operate within the bounds of safety & sensibility.
- **Science may not have all the answers, but it gives us a chance to fight:** The uncertainties associated with the Coronavirus has forced the medical fraternity to regularly change course until a definite solution is found. These regular revisions and course corrections have been eroding people's trust in the medicinal system.

> **Efforts at creating harmonious relationship in the context of COVID-19**
> - **Several religious institutions** like Temples, Mosques etc. have been **made in makeshift hospitals** due to shortage of beds.
> - **Majority of the religious leaders** have **encouraged followers to take vaccines** and helped remove vaccine hesitancy.
> - **Religion based civil society networks** have played a crucial role is connecting people with essentialities such as oxygen supplies and plasma donors. E.g., **KhalsaAid in Delhi.**

  - Despite these issues, we have come very far, from isolating the structure of the virus to creation of vaccines. This shows that **scientific processes should not be abandoned** in the face of uncertainty and difficulty.
- **Intelligently selecting the best of both worlds:** An intelligent framework can be adopted where the individual has the ability to **avail the emotional support provided by faith without being compelled to abandon the scientific dictum.**
  - For example, the **Great Mathematician Srinivasa Ramanujan was a deeply religious person**. His religion and scientific pursuit never interfered with each other. In fact, he created a harmonious relationship between the two by believing that the mathematical knowledge was not his but was revealed to him by his native Goddess.

Conclusion

At the end of the day, both Faith and Science have been designed to enhance the welfare of the individual and the society. In this context, it is important that focus of **both faith-driven organizations and scientific community should be directed to welfare of the people.** This **common goal could and should serve as a motivation** to make interactions between science and faith harmonious in nature.

10. GOVERNMENT SCHEMES IN NEWS

10.1. PRADHAN MANTRI GARIB KALYAN ANN YOJANA (PMGKAY) 3.0

Why in News?

Pradhan Mantri Garib Kalyan Ann Yojana (PMGKAY) has been **reintroduced for two months (May and June)** to ameliorate the hardships faced by the poor and needy due to various disruptions caused by the resurgence of COVID-19 in the country.

Objective	Key Features

• It was launched **to supply free food grains to migrants and poor** who faced hardship on the account of economic disruption caused by COVID-19 and Lockdown.	• PMGKAY was launched **as a part of Atmanirbhar Bharat.**
	  o First phase of the PMGKAY was from April to June 2020 and second Phase was from July to November, 2020
	• Under PMGKAY, **5 kg free wheat/rice per month is provided via ration shops to 80 crore beneficiaries registered under the National Food Security Act (NFSA).**
	• Additional grains given for free under PMGKAY to NFSA beneficiaries is **over and above the existing monthly entitlement.**
	  o NFSA beneficiaries covered under **two categories of NFSA, namely Antyodaya Anna Yojana (AAY) and Priority Householders (PHH)**
	  o Foodgrains under NFSA were to be **made available at subsidized prices of Rs.3/2/1 per kg for rice, wheat and coarse grains** respectively**.**
	• The cost of free food grains distribution under the scheme is **entirely being borne by the central government.**
	• **Significance:** Help to **meet food security needs** of those who have suffered job losses on account of the lockdown forced upon the country by COVID-19 **and prevent potential food riots across the country.**
	• The scale of the scheme makes it the **biggest food security program in the world**
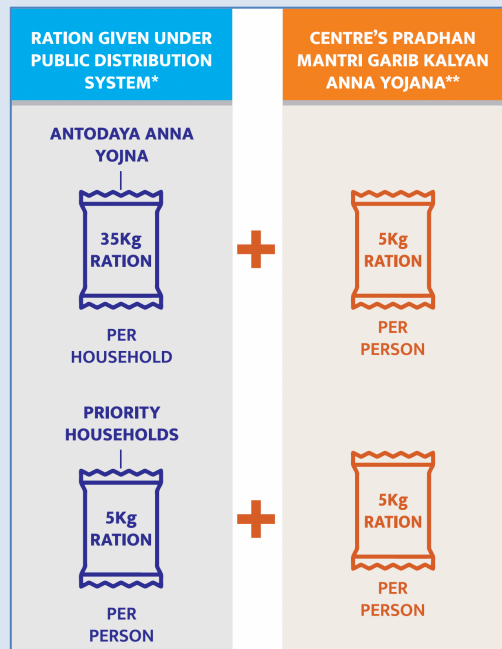
PERSONALITY
DEVELOPMENT PROGRAMME

ADMISSION OPEN

CIVIL SERVICES EXAMINATION 2020

Programme Features

* DAF Analysis Session with senior faculty members of Vision IAS
* Mock Interview Session with Ex-Bureaucrats/ Educationists
* Interaction with Previous toppers and Serving bureaucrats
* Performance Evaluation and Feedback

11. NEWS IN SHORTS

11.1. CENTRE EASES NORMS FOR RE-ISSUE OF OVERSEAS CITIZENS OF INDIA (OCI) CARDS

- Currently, OCI card is required to be **re-issued each time a new passport is issued up to 20 years** of age and **once after completing 50 years of age**, in view of biological changes in the face of the applicant.
  - o This has been dispensed with and now OCI card has to be **reissued only once** when a new passport is issued after his/her completing 20 years of age.
  - o **For others reissuance is not required.**
- **About OCI**

Who?	• A **person registered as OCI cardholder** under section 7A of Citizenship Act, 1955. • Eligibility: A **foreign national who** o was eligible to be citizen of India on 26th January, 1950 o is a child or a grandchild or a great grandchild of such a citizen o is a spouse of citizen of India or of an OCI Cardholder with certain conditions etc. • Citizens of **Pakistan, Bangladesh or other country notified by Central Government are not eligible.**
What benefits one is entitled to?	• **Multiple entry lifelong visa** for visiting India for any purpose. • **Exemption from registration for any length of stay in India.** • **Parity with NRIs in** o **financial, economic and educational fields** except in the acquisition of agricultural or plantation properties. o **inter-country adoption** of Indian children o **Pursuing professions**- Doctors, dentists, nurses, pharmacists, advocates, CAs. o **Appearing for the All-India Pre-Medical Test or such other tests** • **Parity with the Indian nationals** for airfare tariffs for domestic travel and entry fees to any national parks, wildlife sanctuaries, national monuments, historical sites and museums in the country
Restrictions on OCI card holders	• Special permission required **to undertake research work, internship or employment in any foreign diplomatic missions,** foreign government organisations in India. • **Not entitled to undertake Missionary, mountaineering, journalism and**

	• **Tabligh activities** without prior permission. • **Require protected area (PA) permit/ Restricted Area (RA) Permit** to visit any place falling in PA/RA. • **Not entitled to vote, cannot hold constitutional post**. • **Not entitled for appointment to public services** and posts in connection with affairs of Union or states.

11.2. APPOINTMENT OF AD-HOC JUDGES TO FILL PENDENCY OF CASES IN HIGH COURT

- Central Government told the Supreme Court that the **appointment of additional judges on ad-hoc basis in High Courts under Article 224A of the Constitution can be done only after the filling up of regular vacancies of judges**.
  - o SC had earlier sought the views of the Centre on **appointing ad-hoc High Court judges to tackle the problem of mounting case arrears.**
- At this, the top court clarified that **the idea behind having temporary judges in the high courts emanated from the necessity of urgently dealing with the massive pendency of cases** and that it could not be understood as a substitute for regular appointments.
- Court also said that it **intends to lay guidelines for appointment of ad hoc judges** by considering criteria like pendency figure and the vacancy situation.
  - o More than 40 **lakh cases are pending before the high courts**, according to the National Judicial Data Grid.
  - o As on April 1, the **High Courts have a total vacancy of 411 regular judges** against the sanctioned judicial strength of 1,080.
- **About Ad-hoc Judges**
  - o Article 127 and 224 and 224A provides for appointment of Ad-hoc judges to SC and HC.
  - o Under Article 127, to address lack of quorum of judges, the **Chief Justice of India, with the previous consent of the President and after consultation with the Chief Justice of the High Court** concerned can appoint a judge as an ad hoc Judge.
  - o Under Article 224 and 224A, additional or acting judges can be appointed for a period not exceeding 2 years or 62 years of age whichever is earlier to address a temporary rise in the business of the HC.

11.3. SC SETS RULES FOR TIME-BOUND COMPLETION OF CRIMINAL TRIALS

- The Supreme Court's rules have emphasised that **right to speedy trial is a fundamental right.**
- **Key highlights of rules:**
  - The trial court should **fix a schedule to hold proceedings, preferably on a day-to-day basis**.
  - **Disposal of application for bail** in non-bailable cases within three to seven days from the date of first hearing.
  - State governments shall **appoint advocates, to advise the investigating officer** during the probe.
- **Delay in justice delivery in India:**
  - There are **over 4 crore cases pending** across the Supreme Court, the High Courts, and the subordinate courts.
  - Delay in justice delivery in criminal cases **erodes the people's faith** in the criminal justice system and **dents the greater social good**
- **Reasons for delay:**
  - **Inadequate number of judges** in trial courts.
  - **No timely appointment of public prosecutors** proportionate to the cases pending.
  - **Frequent and long adjournments**
- **Way ahead:** Recommendations by Malimath Committee include
  - Increase the ratio of judges per million population
  - A separate criminal division in higher courts
  - Record of the timestamps, such as date of pronouncement of judgment
  - Reducing the period of vacation of courts by 21 days etc.

11.4. WORLD PRESS FREEDOM INDEX, 2021

- The annual index is published by international journalism not-for-profit body, **Reporters Without Borders** or Reporters Sans Frontieres **(RSF).**
- The index ranks **180 countries**, **topped by Norway** followed by Finland and Denmark.
- **India is ranked 142,** same as last year.
- The report stated that India shares the "bad" classification with Brazil, Mexico and Russia.

11.5. INDIA ELECTED TO 3 KEY BODIES OF UN'S ECONOMIC AND SOCIAL COUNCIL (ECOSOC)

- **The three bodies are:**

Body	About
Commission on Crime Prevention and Criminal Justice (CCPCJ)	Principal policy-making body of the UN in the field of crime prevention and criminal justice. The member

	states of CCPCJ are elected by ECOSOC.
Executive Board of UN Women	It is about gender issues. It consists of 41 members.
Executive Board of the World Food Programme (WFP)	It is WFP's supreme governing body. Comprising 36 states members of Food and Agriculture Organization (FAO), the board provides intergovernmental support, policy direction and supervision of the activities of WFP.

- The **three-year term** begins on January 1, 2022.
- Last year too, India was **elected to following ECOSOC bodies:**
  - UN's Commission on the Status of Women
  - Committee for Programme and Coordination
  - Commission on Population and Development
- ECOSOC is at the heart of the United Nations system to advance the **three dimensions of sustainable development** – economic, social and environmental.
- UN Charter established **ECOSOC in 1945 as one of the six main organs** of the United Nations.

Principal Organs of the United Nations
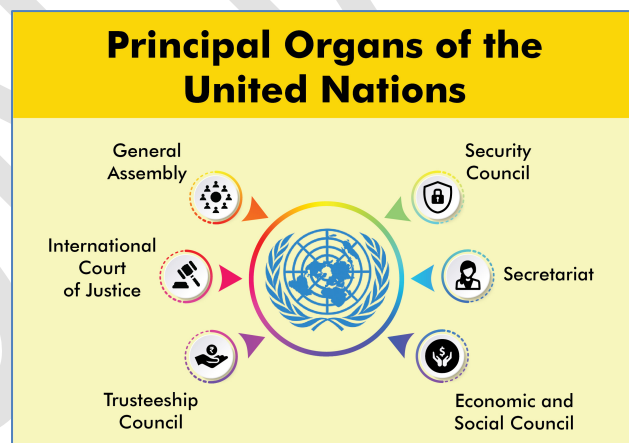
11.6. INDIA-NETHERLAND RELATIONS

Recently, the Prime Ministers of India and Netherland held a virtual summit during which a '**Strategic Partnership on Water'** was instituted to deepen the Indo-Dutch cooperation in the water sector.

India-Netherlands Relations:

- **Trade and investment:** The Netherlands is India's 3rd largest trading partner in European Union (EU), and the 3rd largest FDI investor. Also, India was the 4th largest FDI investor in the Netherlands in 2019-20.
  - Netherlands is set to become India's **gateway for trade and investments into the EU post Brexit.**
- **Smart cities and mobility**: India seek Netherlands' cooperation by utilizing its strength in integrated urban planning, pedestrianisation, cycling infrastructure and preservation of water bodies.

India also invited Netherlands to adopt smart cities in India as well as explore financial support for green projects in smart cities.

- **Science and technology:** Important on-going projects includes the **Dutch India Water Alliance for Leadership Initiative (DIWALI)** for designing solutions to water challenges, **Local Treatment of Urban Sewage Streams for Healthy Reuse (LOTUS-HR)** and **Indo-Dutch R&D projects under Namami-Gange Programme.**
- **Public health and healthcare**: There is a MoU between both countries for cooperation on Anti-Microbial Resistance (AMR) and have also partnered **for development of future generation influenza vaccines.**
- **Indo-Pacific:** India welcomed **Netherlands' guidelines on the Indo-pacific** which recognize the importance of the region for global peace, security and prosperity in the region.
- **Climate action:** Both countries have agreed to cooperate in fulfilling commitments under Paris Agreement and renewable energy.
- **People-to-people contacts and cultural cooperation:** Netherlands has the second largest population of Indian origin in Europe after the UK. They have contributed significantly in enrichment of cultural ethos in both countries.

11.7. US WARSHIP ENTERS INDIAN WATERS WITHOUT CONSENT

- US Navy under its **freedom of navigation operation (FONOP) entered India's exclusive economic zone (EEZ),** near Lakshadweep, without requesting India's prior consent.
  - o FONOP is a US Department of Defense program that **involves passages conducted by the US Navy through waters which they claimed are not the exclusive territory of coastal nations.**
- **India opposes this move as**
  - o **United Nations Convention on Law of the Sea (UNCLOS), 1982** does not authorize other states to carry out military exercises or manoeuvres in the EEZ and on the continental shelf without the consent of the coastal state
  - o It violates **Territorial Waters, Continental Shelf, EEZ and other Maritime Zones Act 1976 which** notifies the sovereignty of the Indian states over the respective territorial waters.
    - ✓ Act provides that **all foreign ships (other than warships) shall enjoy the right of innocent passage** through the territorial waters.
    - ✓ However**, it allows foreign warships** including submarines and other underwater vehicles to enter or pass-through territorial waters **after giving prior notice** to the central government.

- ✓ **Territorial seas are considered within the jurisdiction** of the coastal state which has complete control over it.
- **UNCLOS**
  - o It divides marine areas into five main zones namely- **Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone (EEZ) and the High Seas.**
  - o Initiative under UNCLOS include - **International Tribunal for the Law of the Sea (ITLOS), International Seabed Authority (ISA),** and **Commission on the Limits of the Continental Shelf (CLCS)**
  - o **India has been a party to UNCLOS since 1995,** however US is still not a signatory to it.

11.8. PROJECT DANTAK

- It is commemorating its **Diamond Jubilee in Bhutan**.
  - o It was **established on April 24, 1961** by **Border Road Organisation (BRO)**.
  - o It was tasked to **construct the pioneering motorable roads** in Bhutan.
- Some **notable projects executed by the project** include the construction of Paro Airport, Thimphu – Trashigang Highway, Telecommunication & Hydro Power Infrastructure etc.

11.9. OPERATION TEMAN

- Indian Navy dispatched its **Deep Submergence Rescue Vessel (DSRV)** t**o support the Indonesian Navy** in **search and rescue efforts** for its **submarine KRI Nanggala** that went missing with 53 personnel onboard.
  - o **Teman means "friend" in Bahasa** which is **malay language** spoken in Indonesia.
- India is amongst the **few countries in the world capable of undertaking Search and Rescue of a disabled submarine** through a DSRV.
- The system can **locate a submarine upto 1,000m depth** utilising its state-of-the-art Side Scan Sonar (SSS) and Remotely Operated Vehicle (ROV).
- The DSRV system can be **rapidly mobilised by air, road and sea** to facilitate submarine rescue operations even at distant locations.

11.10. WORLD ECONOMIC OUTLOOK REPORT RELEASED BY THE INTERNATIONAL MONETARY FUND

Key highlights

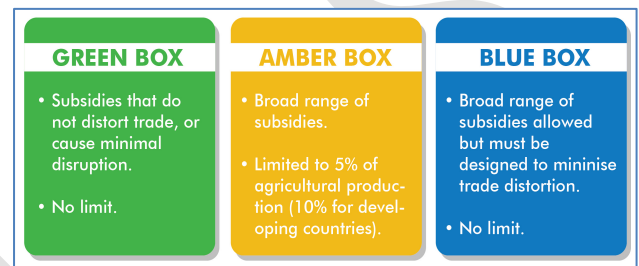| Growth Projection	- India - After an estimated contraction of 8% in the fiscal year that ended March 31, **India is projected to grow at 12.5 % during the current year,** settling down to 6.9% growth in FY22/23.

	• **Global** - After an estimated contraction of −3.3 percent in 2020, **the global economy is projected to grow at 6 percent in 2021, moderating to 4.4 percent in 2022.**
Divergent Impacts	• Output losses have been **particularly large for countries that rely on tourism and commodity exports** and for those with **limited policy space to respond.** • **Emerging market economies and low-income developing countries have been hit harder** and are expected to suffer more significant medium-term losses. • **Close to 95 million more people are estimated to have fallen** below the threshold of **extreme poverty in 2020** • However, the COVID-19 recession is likely to l**eave smaller scars than the 2008 global financial crisis.**
Policy priorities	• Countries will need to **tailor their policy responses to the stage of the pandemic, strength of the recovery, and structural characteristics of the economy.** • Policies should **first focus on escaping the crisis, prioritizing health care spending, providing well-targeted fiscal support, and maintaining accommodative monetary policy** while monitoring financial stability risks.
Strong international cooperation is vital	• On the health care front, this means e**nsuring adequate worldwide vaccine production and universal distribution at affordable prices—including through sufficient funding for the COVAX facility.** • Ensure that financially constrained economies have **adequate access to international liquidity.**

11.11. INDIA INVOKES PEACE CLAUSE AGAIN AS RICE SUBSIDIES EXCEED 10% CAP

• India informed World Trade Organization (WTO) that value of its rice production in 2019-20 was $46.07 billion while **it gave subsidies worth $6.31billion, or 13.7% as against the permitted 10%.**
   o India had earlier invoked similar peace clause for 2018-19.
• India's breach of commitment, under Agreement on Agriculture (AoA), **arises from support provided to public stockholding programmes (PSHP) for food security purposes.**
   o Some PSHP are considered to **distort trade when they involve purchases from farmers at prices fixed by governments**, known as

"supported" or "administered" prices (MSP in India).
• **Trade-distorting domestic support** (aggregate measurement of support or AMS, sometimes called Amber Box support) is subjected to de minimis limits.
   o De minimis is **minimal amounts of domestic support that are allowed even though they distort trade.** (refer infographics).
• WTO members, **at Bali ministerial meeting (2013), put in place a peace clause** that said that no country would be legally barred from food security programmes even if the subsidy breached the limits specified in AoA.

GREEN BOX	AMBER BOX	BLUE BOX
• Subsidies that do not distort trade, or cause minimal disruption. • No limit.	• Broad range of subsidies. • Limited to 5% of agricultural production (10% for developing countries).	• Broad range of subsidies allowed but must be designed to minimise trade distortion. • No limit.

11.12. MINISTRY OF COMMERCE & INDUSTRY LAUNCHES ₹945 CRORE STARTUP INDIA SEED FUND (SISF) SCHEME

• It aims to provide financial **assistance to startups for proof of concept, prototype development, product trials, market entry, and commercialization.**
   o SISF is expected to support an estimated 3,600 startups through 300 incubators and will **create a robust startup ecosystem, particularly in Tier 2 and Tier 3 towns.**
   o It was announced at recently held '**Prarambh: Startup India International summit'.**
• **₹945 crore will be divided over the next 4 years** (2021-25) for providing seed funding to eligible startups through eligible incubators.
   o Preference would be given to startups creating innovative solutions in sectors such as **social impact, waste management, financial inclusion, education, biotechnology, healthcare, etc.**
• **An Experts Advisory Committee,** constituted by Department for Promotion of Industry and Internal Trade, **will be responsible for overall execution and monitoring of the scheme.**
• **Other Initiatives for Startup Funding**
   o **A National Seed Fund** was announced in Budget 2020-21 to support ideation and development of early-stage start-ups.
   o **Fund of Funds for Startups**, with a corpus of Rs. 10,000, under Start-up India scheme.
   o Venture capital scheme, Multiplier grants scheme, MUDRA Yojana etc.

- India is currently the **third-largest startup ecosystem in the world** with close to **38 unicorns** (as of 2019) and with a collective **valuation at around $130 billion.**
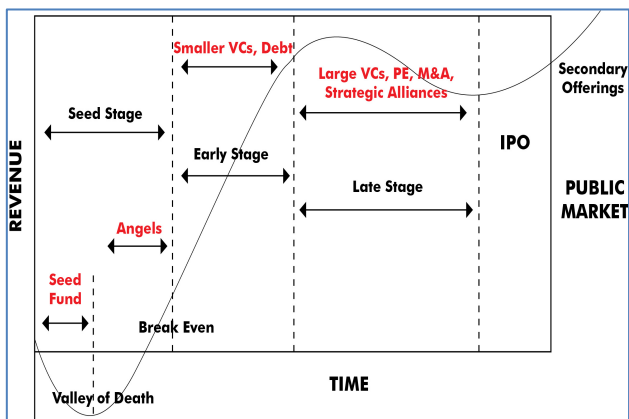
11.13. GOVERNMENT SECURITIES ACQUISITION PROGRAMME (G-SAP)

In the recent bi-monthly monetary policy announcement, the Reserve Bank of India (RBI) announced a new programme- the **Government Securities Acquisition Programme (G-SAP)-to purchase government bonds** worth Rs. 1 lakh crore in first quarter of FY2022.

About G-SAP

- It is an unconventional monetary policy tool similar to Open Market Operations (OMOs)-the purchase and sale of government securities (G-Secs) by RBI on behalf of government- to reduce volatility in the bond market.
- **Difference between OMO and G-SAP:** The RBI periodically purchases government bonds from the market through OMO while in G-SAP there is an upfront **commitment by the central bank to the markets that it will purchase bonds worth a specific amount.** G-SAP is an OMO with a 'distinct character'.

Need for G-SAP:

11.14. REGULATORY REVIEW AUTHORITY 2.0

RBI has announced the setting up of a regulatory review authority, RRA 2.0, to review its regulations internally and in consultation with other stakeholders.

About Regulatory Review Authority (RRA)

RBI acts as the **regulator and supervisor** of our financial system as well as of Payment and Settlement Systems. As part of it, RBI prescribes **broad parameters of banking operations** within which the country's banking and financial system functions. The RRA plays the role of revisiting this regulatory framework.

- In **1999**, first Regulatory Review Authority was set up for a **period of one year** to streamline its procedures for increased effectiveness and simplifying regulatory prescriptions,
- It helped in paving the way for issuance of **master circular** and reduced **reporting burden** on regulated entities.

Second Regulatory Review Authority

- With new developments in regulatory functions of the RBI in the last two decades and evolution of the regulatory perimeter, Reserve Bank's regulations and compliance procedures need to be reviewed.
- To do so, RBI Deputy Governor M. Rajeshwar Rao is appointed as the second Regulatory Review Authority for a period of one year from 01 May, 2021.
- It will focus on streamlining regulatory and supervisory instructions, reducing compliance burden of the regulated entities by simplifying procedures and reducing reporting requirements, wherever possible.
- The RRA 2.0 will engage with all regulated entities and stakeholders internally as well as externally..

11.15. EMERGENCY CREDIT LINE GUARANTEE SCHEME (ECLGS)

- The Finance Ministry has **expanded the scope of government-guaranteed credit facility to healthcare and stressed sector companies** that have loan dues for up to 60 days.
- **Objective:** Provide an incentive to Member Lending Institutions (MLIs) to increase access to, and enable availability of additional funding facility to MSME borrowers, in view of economic distress caused by the COVID-19.
- ECLGS provides **100% guarantee coverage** by **National Credit Guarantee Trustee Company** (NCGTC) to **Member Lending Institutions** (MLIs) on **Guaranteed Emergency Credit Line** (GECL) of up to Rs. 3 lakh crore to eligible MSMEs.

- Eligibility as MLIs:
  - All **Scheduled Commercial Banks (SCBs)**
  - FIs
  - NBFCs which have been in operation for at least 2 years as on 29.2.2020.

11.16. IBBI NOTIFIES REGULATIONS FOR PRE-PACKAGED INSOLVENCY RESOLUTION PROCESS FOR MSMES

- MSMEs (Micro, Small and Medium Enterprises) sector has been significantly impacted by the coronavirus pandemic that had caused economic disruptions.
- With the **object of providing an efficient alternative insolvency resolution process for MSMEs, the central government promulgated the IBC (Amendment) Ordinance, 2021**.
  - The ordinance, inter alia, **introduces an entirely new facet of insolvency jurisprudence in India — the pre-packaged insolvency resolution process (PIR)**
    - ✓ Pre-packs will **help corporate debtors to enter into consensual restructuring** with creditors and address entire liability side of the company.
- **Benefits of PIR: Time and cost-effective insolvency resolution**, maximize value, preserve employment and lessen the burden on the National Company Law Tribunal.
- **Issues with PIR:**
  - **Only corporate debtors, that is, companies and Limited Liability Partnerships are covered:**Other forms of MSMEs such as the Hindu Undivided Family, proprietorships and partnership firms are excluded.
  - **Strict timeline:** A corporate debtor is required to submit a base resolution plan **within 90 days from the pre-package insolvency commencement date.**
  - **Board of the corporate debtor does not get suspended** and shall continue to manage the affairs of the company as a going concern.
- Insolvency and Bankruptcy Board of India (IBBI) was established under the Insolvency and Bankruptcy Code, 2016 (Code).
  - It is a key pillar of the ecosystem responsible for implementation of the Code that consolidates and amends the **laws relating to reorganization and insolvency resolution of corporate persons, partnership firms and individuals in a time bound manner for maximization of the value of assets** of such persons, to promote entrepreneurship, availability of credit and balance the interests of all the stakeholders.

11.17. EATSMART CITIES CHALLENGE AND TRANSPORT 4 ALL CHALLENGE

- Both are launched by the Ministry **of Housing & Urban Affairs**.
- **EatSmart Cities Challenge** aims to **motivate Smart Cities** to develop a plan that supports a **healthy, safe and sustainable food environment**.
  - It is envisioned as a competition among cities to recognize their efforts in adopting and scaling up various initiatives under **Eat Right India.**
  - It is open to **all Smart Cities, capital cities of States /UTs**, and cities with a **population of more than 5 lakh**.
- **Transport 4 All Digital Innovation Challenge** aims to **bring together cities**, citizen groups, and start-ups to develop digital solutions that improve public transport to better serve the needs of all citizens.
  - It was launched in collaboration with the Institute for Transportation and Development Policy (ITDP).

11.18. NATIONAL STARTUP ADVISORY COUNCIL (NSAC)

- Minister for Commerce & Industry has chaired the **first meeting of NSAC.**
- **It was set up by** the Department for Promotion of Industry and Internal Trade (DPIIT) to **advise the government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country**
- **Members** (both ex-officio and non-official) are **nominated** by the central government.
- **Members include concerned Ministries/Department, and** founders of **successful startups etc.**

11.19. E-SANTA

- Union Minister of Commerce & Industry (MoCI) virtually inaugurated **e-SANTA (Electronic Solution for Augmenting NaCSA farmers' Trade in Aquaculture).**
- **e-SANTA is an** electronic marketplace **providing a platform** to connect aqua farmers and exporters.
- It will **raise income, lifestyle, self-reliance, quality levels,** and traceability **for aqua farmers.**
- **National Centre for Sustainable Aquaculture** (NaCSA) is an extension arm of Marine Products Export Development Authority (MPEDA), **under the Ministry of Commerce and Industry.**

11.20. CHENAB ARCH BRIDGE

- Chenab Bridge is 1,315m-long bridge **is being built at a height of 359m. Once completed, it will be the tallest rail bridge in the world.**

- It forms the crucial link in the **111-km stretch between Katra and Banihal** which is part of the **Udhampur- Srinagar-Baramulla section** of the Kashmir Railway project.
- It'll be **able to withstand earthquakes** with a magnitude of up to eight and high-intensity blasts.
- It'll provide the much-needed **all-weather connectivity** between Kashmir and the rest of the county.

11.21. PYTHON-5

- India's indigenous Light Combat Aircraft, Tejas, has added **the fifth generation Python-5 Air-to-Air Missile (AAM)** to its weapons capability.
  - The Python-5 is the **second AAM of Israeli origin to be integrated on the Tejas fighter.**
  - It is an infra-red guided missile with a range of at least 20km.
  - The first missile was the **Beyond Visual Range (BVR) AAM Derby** which is aradar-guided weapon with a range of over 50km.

11.22. STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE (SIPRI)

- SIPRI is an independent international institute **dedicated to research into conflict, armaments, arms control and disarmament.**
- According to its latest military expenditure database (published in April 2021):
  - **India was the third largest military spender** in the world in 2020, behind only the US and China.
  - The US accounted for 39% of the money spent on the military globally, China for 13% and **India for 3.7%.**
- **All three countries saw their military spending go up** compared to 2019.

11.23. IMD FORECASTS NORMAL MONSOON THIS YEAR

- In its first long-range forecast for Southwest Monsoon 2021, **India Meteorological Department (IMD)** predicted **normal rainfall (96-104% of the LPA)** over the country as a whole. **Seasonal rainfall is likely to be 98%** of the Long Period Average (LPA).
  - LPA refers to the average monsoon rainfall from 1961-2010 which stands at 88 cm.
- IMD also developed a **separate forecast** for the **Monsoon Core Zone (MCZ),** which represents **most of the rainfed agriculture region** in the country.
  - This will be more useful for **agricultural planning and crop yield estimation**, etc.
- IMD issues a **two-stage forecast** for the southwest monsoon season: one in April and other in May/June.

- These forecasts are prepared using the state-of-the-art **Statistical Ensemble Forecasting system (SEFS)** and dynamical global **climate forecasting system (CFS) model**.
- This year, IMD developed a **Multi-Model Ensemble (MME) forecasting system** based on coupled global climate models (CGCMs) from different global climate prediction and research centers.
  - MME is a **universally accepted technique**, which is used to **improve the skill of forecasts and reduce forecast errors** when compared to a single model-based approach.

> - **SEFS is based on 5 predictors:**
>   - Sea Surface Temperature (SST) Gradient between North Atlantic and North Pacific
>   - Equatorial South Indian Ocean SST
>   - East Asia Mean Sea Level Pressure
>   - Northwest Europe Land Surface Air Temperature
>   - Equatorial Pacific Warm Water Volume
> - Under CFS model (implemented in 2012), **land, atmosphere and ocean state at a particulate time, is mathematically simulated on supercomputers** and extrapolated into the monsoon months.
> - IMD, under **Ministry of Earth Sciences** is the **principal government agency** responsible for meteorological observations, weather forecasting and seismology.

11.24. INDIA H2 ALLIANCE

To tap the opportunities in India's **hydrogen economy and supply chain**, a number of industries have come together to commercialize hydrogen technologies under **India H2 Alliance (IH2A).**

About India H2 Alliance (IH2A)

- It is an alliance of energy and industrial firms led by **Chart Industries and Reliance Industries Ltd**.
- The alliance will aid the government efforts towards:
  - Development of **National Hydrogen Policy and Roadmap** by 2030
  - Creation of a **National Hydrogen Taskforce and Mission** in PPP format
  - Establish **large scale exhibition projects** to spearhead its development,
  - Creating a **National Hydrogen Fund**, and
  - Developing **Hydrogen-linked capacities** covering hydrogen production, storage and distribution, industrial use cases, transport use cases and standards.
- This includes work on building hydrogen economy and supply chain in India with focus on **blue and green hydrogen production*** and **storage**, such as
  - **building hydrogen-use industrial clusters** with industries like steel, refineries, fertilizer, cement, ports and logistics, and

- transport use-cases with hydrogen-powered fuel cells in heavy duty transport
  - o establishing robust standards for storage and transport of hydrogen in pressurized and liquefied form,
- The alliance will collaborate with private sector partners, the government and the public.

Overall, the efforts from the alliance will help in reducing hydrogen production cost and achieve net-zero carbon emissions by complementing national renewable energy and EV/battery-technology plans.

For detailed information on different hydrogen production refer National Hydrogen Energy Mission in February edition of Monthly Magazine.

11.25. INDIA-US CLEAN ENERGY AGENDA 2030 PARTNERSHIP

- The partnership was launched at the **Virtual Leaders' Summit on Climate** that was held in April, 2021**.**
  - o The summit is part of a **series of global meetings focusing** on climate issues, being held in the run up to the UN Climate Change Conference (COP26).
- Through the Partnership, India and the United States are **firmly committed to working together in achieving their ambitious climate and clean energy targets** and to strengthening bilateral collaboration across climate and clean energy.
  - o In its new nationally determined contribution, the **US** has set an economy-wide target of reducing its net greenhouse gas emissions **by 50-52% below 2005 levels in 2030**. As part of its climate mitigation efforts, **India** has set a target of **installing 450 GW of renewable energy by 2030.**
- **Aim of the initiative:** To mobilize finance and speed clean energy deployment; demonstrate and scale innovative clean technologies needed to decarbonize sectors including industry, transportation, power, and buildings; and build capacity to measure, manage, and adapt to the risks of climate-related impacts.
- The Partnership will have **two main tracks** which will build on and subsume a range of existing processes. These are
  - o Strategic Clean Energy Partnership
  - o Climate Action and Finance Mobilization Dialogue.

11.26. POWER EXCHANGE TRADING REFORMS PROPOSED

- Ministry of Power has **proposed an integrated day-ahead market (DAM)** in power exchanges, which would blend trading of green and conventional energy, **better the power price discovery, and improve payment to power generators.**
  - o DAM is an electricity trading market for delivery on the next day. This **would enable green electricity purchase in a short span.**
- A Power Exchange is **a platform on which buyers** (distribution companies (discoms), industrial and commercial consumers) **and sellers** (generating stations) **come together to transact.**
  - o Power trading market currently has two platforms in India — **Power Exchange India (PXIL) and Indian Energy Exchange (IEX).** Central Electricity Regulatory Commission (CERC) regulates both IEX and PXIL.
    - ✓ Last year, CERC has approved the application of **Pranurja Solutions Ltd, a company promoted by BSE, PTC Ltd and ICICI Bank, to set up a third power exchange**
- **Benefits of Power exchanges**
  - o It aids discoms as well as generators with a market-based platform to **manage their power requirements in a planned, efficient and transparent manner.**
    - ✓ **For Buyers:** Ability to manage portfolio with reduced costs.
    - ✓ **For sellers:** Guaranteeing secure & timely payment.
  - o Rationally **distributes transmission losses** among the participants.

11.27. IMPACT OF ASIAN DESERT DUST ON INDIAN SUMMER MONSOON

- Researchers said that there is a **positive feedback loop** between Asian desert dust on Indian summer monsoon.
- Dust swarms from **desert when lifted by strong winds can absorb solar radiation and become hot**. This can cause heating of the atmosphere, change the air pressure, wind circulation patterns, influence moisture transport and **increase precipitation and rainfall**.
- Also, a **strong monsoon can also transport air to West Asia** and again pick up a lot of dust.
- **Positive feedback loop** occurs in nature when the product of a reaction leads to an increase in that reaction.

11.28. SUSTAINABLE LIVELIHOODS FOR TRIBAL HOUSEHOLDS IN INDIA

- **TRIFED** has entered into a project titled **"Sustainable Livelihoods For Tribal Households in India"** with **The LINK Fund**.
- Both agencies have signed Memorandum of Understanding (MoU) to:

- Work together towards **Tribal Development and employment generation** by providing support to tribals for increasing value addition in their products.
- **Sustainable livelihoods and value addition** for increase in income and employment generation through
  - ✓ Technological intervention for efficiency in value addition for Minor Forest Produce (MFP).
  - ✓ Product and crafts diversification.
  - ✓ Skill training and enhancement of value additions in minor forest produce.
- The LINK Fund (headquartered in Geneva, Switzerland) is a practitioner-led fund that **works to end extreme poverty and mitigate the effects of climate change.**

> **Tribal Cooperative Marketing Development Federation of India (TRIFED)**
> - It is a national-level organization functioning under **Ministry of Tribal Affairs.**
> - The objective of TRIFED is **socio-economic development of tribal people by marketing of their products.**
> - It came into existence in **1987**.

11.29. CODEX ALIMENTARIUS COMMISSION (CAC)

- India is hosting the **fifth session of the Codex Committee on Spices and Culinary Herbs (CCSCH)** established under Codex Alimentarius Commission (CAC).
  - **Spices Board India** is the Secretariat for organising the sessions of the committee.
- **About CAC**
  - Set up in 1963, the CAC is an **intergovernmental body established jointly by the UN's Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO)**.
  - Codex Alimentarius, or "Food Code", is a **collection of international standards, guidelines and codes of practice to protect the health** of consumers and ensure fair practices in the food trade.

11.30. MIDDLE EAST GREEN INITIATIVE

- Under the initiative, Saudi Arabia will work with the **Gulf Cooperation Council countries and regional partners** to **plant an additional 40 billion trees** in the West Asian region.
- It represents 5% of the global target of planting one trillion trees and reducing 2.5% of global carbon levels.

11.31. HYGIENE PRODUCTS TO COMBAT COVID-19

- Union Education Minister launched **Durokea Series developed by IIT Hyderabad researchers**.
- It is a **range of hygiene products developed to fight COVID-19 virus**.
- It kills **99.99% of germs within 60 seconds** and extends protection by **leaving behind a protective nanoscale coating** that lasts **up to 35 days**.

11.32. 'SARTHAQ', THE NEP IMPLEMENTATION PLAN FOR SCHOOL EDUCATION LAUNCHED

- **Students' and Teachers' Holistic Advancement through Quality Education (SARTHAQ)',** developed by the Department of School Education and Literacy (Ministry of Education), **is an indicative and suggestive implementation plan for school education.**
- Plan is being implemented to meet the following aims of NEP 2020:
  - **pave way for curriculum reforms including new national and state curriculum frameworks** for school education as well as early childhood care and education.
  - **focus on the improvement of the enrollment ratio** of children at all levels and a reduction in dropouts and out of school children.
  - **provide access to** quality Early childhood care and education (ECCE) and Universal Acquisition of Foundational Literacy and Numeracy by Grade 3.
  - **implement** vocational education, sports, arts, knowledge of India, 21st-century skills, values of citizenship, awareness of environment conservation in the curriculum.
  - **focus on experimental learning.**
  - **improve the quality of Teacher Education Programmes.**
- SARTHAQ is aimed at **meeting the diverse national and global challenges of the present and the future and help the students to imbibe 21st-century skills** along with India's tradition, culture and value system.

11.33. GENDER SAMVAAD EVENT

- Ministry of Rural Development launched **Gender Samvaad event**, a joint attempt between **Deen Dayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM)** and Initiative for What Works to Advance Women and Girls in the Economy (IWWAGE- an NGO).
- It aims to **generate awareness on gender related interventions under DAY-NRLM** across the country.

- Gender Samvaad provides states with opportunities to:
  - **Understand best practices** that other states have been undertaking to improve women's agency (e.g., facilitating women's access to land rights), best practices around Food, Nutrition, Health and Water etc.
  - Understand **gender interventions globally**.
  - **Engage with experts** on suggestions for handling implementation barriers.
  - Contribute to creation of a **'gender repository'** with resource materials on best practices for gender interventions across the country/other countries.
  - **Build advocacy** around the need to focus on gender issues across SRLMs and the NRLM.

> **About Deen Dayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM)**
> - It is **aimed at alleviation of rural poverty** through **building sustainable community institutions of the poor**.
> - It seeks to **mobilize about 9 crore households into SHGs** and link them to sustainable livelihood opportunities by building their skills and enabling them to access:
>   - Formal **sources of finance**.
>   - **Entitlements and services** from both public and private sectors
> - It envisages **intensive and continuous capacity building of rural poor women** to ensure their **social, economic and political empowerment and development**.
> - Till now, **over 60 million women have been mobilised** to be part of DAY-NRLM.

11.34. GLOBAL YOUTH MOBILIZATION LOCAL SOLUTIONS CAMPAIGN

- United Nations agencies and youth organisations have launched a campaign to **involve global youth impacted by the COVID-19 pandemic.**
- It is mandated to fund youth in communities impacted by the pandemic to take up **innovative programmes to rebuild lives**.
- It is being supported by **6 of the world's largest youth organisations** like World Alliance of Young Men's Christian Associations, World Organization of the Scout Movement etc.
- Under this, a **fund of $2 million** will **directly support young people engaged at the grassroots level** to tackle pressing health and societal challenges resulting from the pandemic.
- Earlier, **International Labour Organization** termed the current young population as the **'lockdown generation'** citing **impacts on mental health, education disruption, job loss and domestic violence**.

11.35. MANAS APP

- The **Principal Scientific Adviser** to the Government of India launched the "MANAS" App to **promote mental wellbeing of citizens across age groups.**
- MANAS stands for **Mental Health and Normalcy Augmentation System**.
- MANAS is a **comprehensive, scalable, and national digital wellbeing** platform and an app.
- It **integrates the health and wellness efforts** of various government ministries, scientifically validated indigenous tools developed/researched by various national entities.

11.36. IMMUNISATION AGENDA 2030

Recently, global agencies like the World Health Organization (WHO), UNICEF, GAVI and others have launched the **Immunisation Agenda 2030** (IA2030) during World Immunisation Week.

About IA2030

- The Immunization Agenda 2030 (IA2030) sets a **global vision and strategy for vaccines and immunization for the decade 2021–2030**.
- **IA2030 envisions** "A world where everyone, everywhere, at every age, fully benefits from vaccines for good health and well-being."
- It is **based on learnings from Global Vaccine Action Plan (GVAP)** and aims to address the unmet targets of the GVAP.
  - The Global Vaccine Action Plan **2011–2020 (GVAP)** was developed to realize the ambitions of the Decade of Vaccines – that all individuals and communities enjoy lives free from vaccine-preventable diseases through more equitable access to vaccines.

11.37. TRACHOMA

- Gambia has become second African state to eliminate Trachoma, after Ghana.
- **Trachoma is a neglected tropical disease** and the **leading infectious cause of blindness worldwide.**
- It is caused by **repeated infection of the eye** with the bacterium **Chlamydia trachomatis**.
- It is **contagious,** spreading through contact with the eyes, eyelids, and nose or throat secretions of infected people.

- WHO has set a target for **global elimination** of trachoma **by 2030**. **India eliminated trachoma in 2017.**

11.38. NEW INITIATIVES BY NATIONAL INTERNET EXCHANGE OF INDIA

The Secretary, Ministry of Electronics and Information Technology (MeitY) and Chairman NIXI launched **three initiatives** from NIXI for awareness and adoption of IPv6 in India.
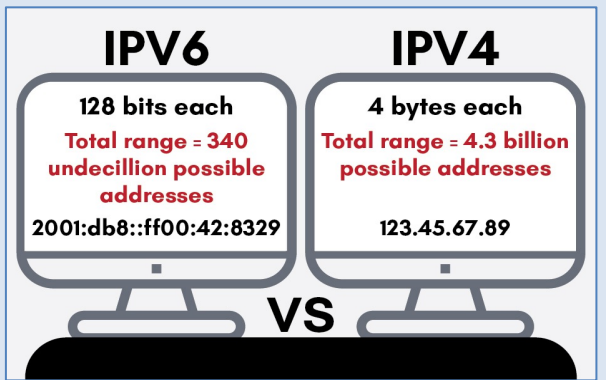
- National Internet Exchange of India (NIXI) is a **not-for-profit organization** (section 8 of the Companies Act 2013), **established in 2003**.
- It acts as a neutral meeting point of the Internet service providers (ISPs) with the primary objective of **facilitating the exchange of domestic internet traffic** between peering ISP members.

About the Initiatives

IPv6 Expert Panel (IP Guru)	• It's a **joint effort** of Dept. of Telecommunication, MeitY & community to promote adoption of IPv6. • The expert panel group has members from government and private organizations,
NIXI Academy	• To **educate technical/non-technical people** in India to learn and relearn technologies like IPv6.
NIXI-IP-INDEX	• It is a **portal for the Internet community to showcase the IPv6 adoption rate in India** and across the world.

About Internet Protocol version 6 (IPv6)
- Internet Protocol version 6 (IPv6) is the **most recent version** of the Internet Protocol (IP).
- It is a **communications protocol** that provides an **identification and location system** for computers on networks and routes traffic across the Internet known as **IP address**.
- Also, IPv6 is **more secure and fast** as compared to IPv4.

IPV6
128 bits each
Total range = 340 undecillion possible addresses
2001:db8::ff00:42:8329

IPV4
4 bytes each
Total range = 4.3 billion possible addresses
123.45.67.89

VS

11.39. MUONS

- Recent Muon g-2 experiment (conducted by US Department of Energy) showed that behaviour of fundamental particles called muons is **different from what is predicated in the Standard Model** of particle physics.
- The Standard Model is a rigorous theory that lays out the **rules for six types of quarks, six leptons, the Higgs boson, three fundamental forces**, and how the subatomic particles behave under the influence of electromagnetic forces.
- Muon is sub atomic particle and is classified as **one of the leptons (elementary particles)**.
- It is about **200 times more massive than electron** and much more unstable, surviving for a fraction of a second.
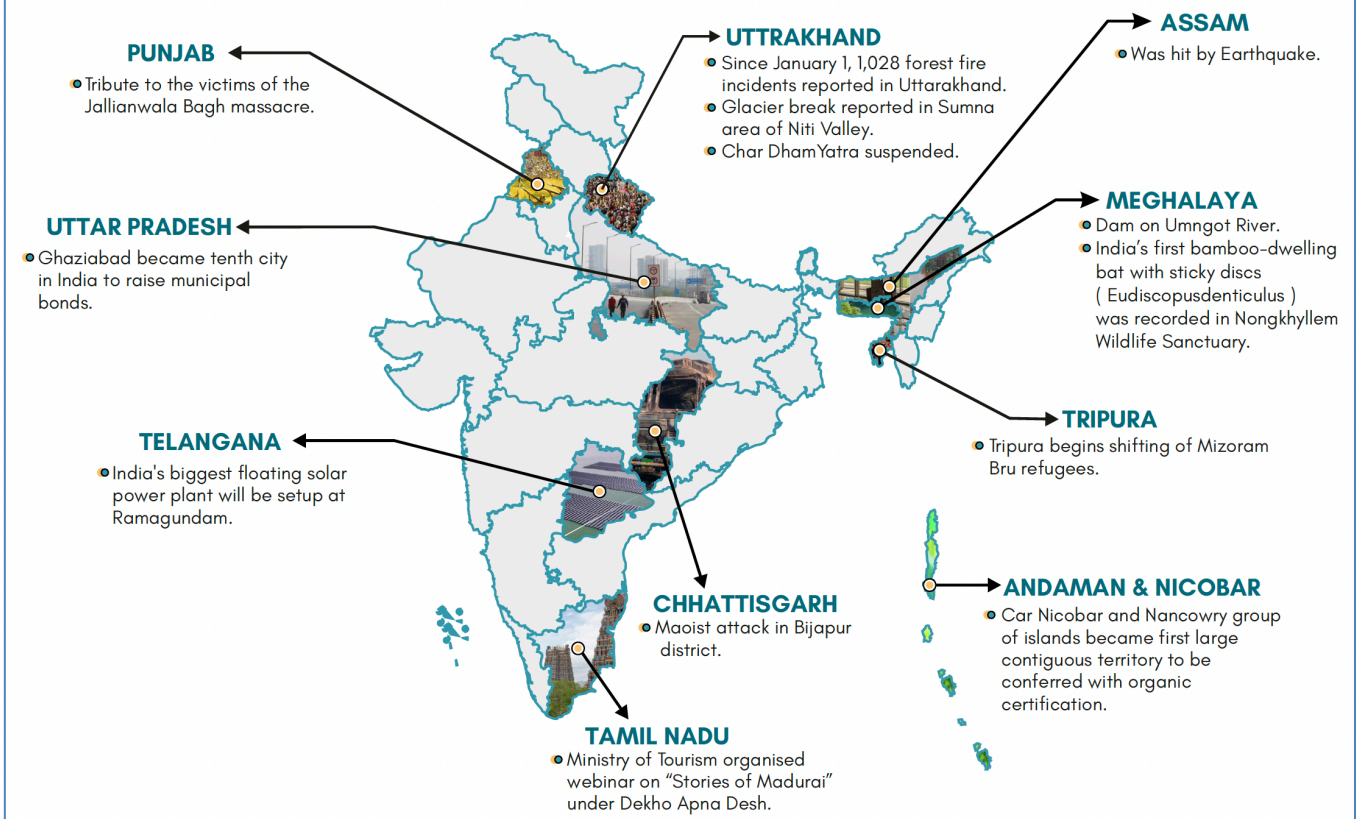
11.40. NASA'S INGENUITY MARS HELICOPTER SUCCEEDS IN HISTORIC FIRST FLIGHT

- Solar-powered helicopter became the **first aircraft to make a powered, controlled flight on another planet.**
  o Flight was difficult because of **Mars' significantly lower gravity** (one-third that of Earth's) and an **extremely thin atmosphere.**
- Ingenuity was **carried by NASA's Perseverance rover** and **will help collect samples from locations where the rover cannot reach.**
  o Perseverance will **study signs of ancient life, collect samples that might be sent back to Earth** during future missions and **test new technology that might benefit future robotic and human missions** to Mars.
- **Other missions on Mars**: Mangalyaan (India); Hope (UAE); Tianwen-1 (China); Mars Express and ExoMars Trace Gas Orbiter (European Space Agency); Mars Reconnaissance Orbiter, Mars Odyssey, MAVEN, Curiosity rover (NASA).
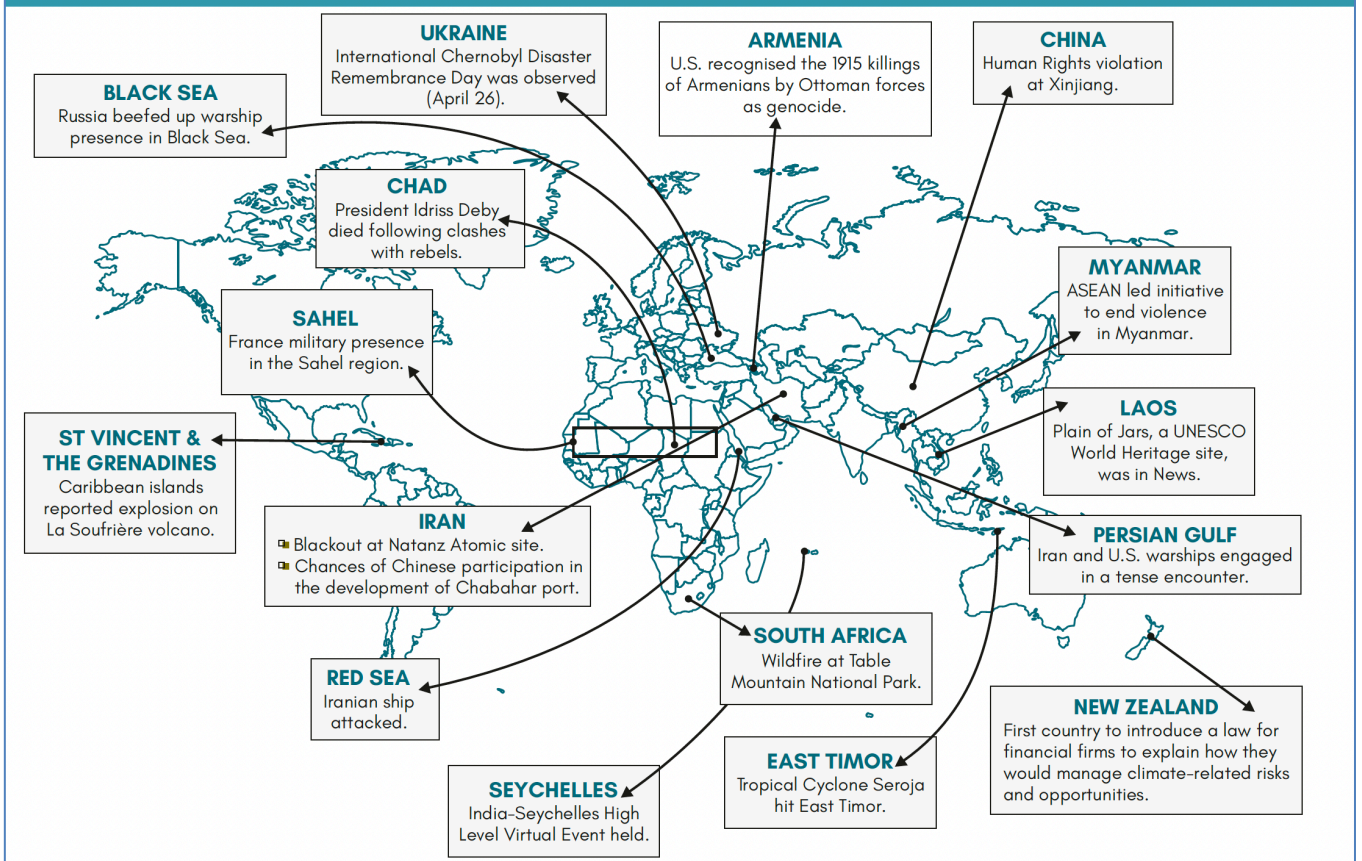
11.41. ZHURONG

- **Zhurong** is the name of **China's first Mars rover,** named after traditional fire god.
- The **rover is aboard the Tianwen-1 probe** that **arrived in Mars orbit** and is due to land in May 2021 to look for evidence of life.
- Tianwen-1's goals include **analysing and mapping the Martian surface and geology**, looking for water and ice and studying the climate and surface environment.
- The top candidate for the **landing site is Utopia Planitia**, a rock-strewn plain where the U.S. lander Viking 2 touched down in 1976.
- China would become the **third country after the former Soviet Union and the United States to put a robot rover on Mars.**
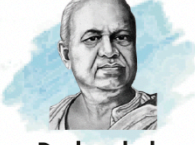
Places in News: India

PUNJAB
- Tribute to the victims of the Jallianwala Bagh massacre.

UTTRAKHAND
- Since January 1, 1,028 forest fire incidents reported in Uttarakhand.
- Glacier break reported in Sumna area of Niti Valley.
- Char DhamYatra suspended.

ASSAM
- Was hit by Earthquake.

UTTAR PRADESH
- Ghaziabad became tenth city in India to raise municipal bonds.

MEGHALAYA
- Dam on Umngot River.
- India's first bamboo-dwelling bat with sticky discs (Eudiscopusdenticulus) was recorded in Nongkhyllem Wildlife Sanctuary.

TRIPURA
- Tripura begins shifting of Mizoram Bru refugees.

TELANGANA
- India's biggest floating solar power plant will be setup at Ramagundam.

ANDAMAN & NICOBAR
- Car Nicobar and Nancowry group of islands became first large contiguous territory to be conferred with organic certification.

CHHATTISGARH
- Maoist attack in Bijapur district.

TAMIL NADU
- Ministry of Tourism organised webinar on "Stories of Madurai" under Dekho Apna Desh.

Places in News: World

UKRAINE
International Chernobyl Disaster Remembrance Day was observed (April 26).

ARMENIA
U.S. recognised the 1915 killings of Armenians by Ottoman forces as genocide.

CHINA
Human Rights violation at Xinjiang.

BLACK SEA
Russia beefed up warship presence in Black Sea.

CHAD
President Idriss Deby died following clashes with rebels.

MYANMAR
ASEAN led initiative to end violence in Myanmar.

SAHEL
France military presence in the Sahel region.

LAOS
Plain of Jars, a UNESCO World Heritage site, was in News.

ST VINCENT & THE GRENADINES
Caribbean islands reported explosion on La Soufrière volcano.

PERSIAN GULF
Iran and U.S. warships engaged in a tense encounter.

IRAN
- Blackout at Natanz Atomic site.
- Chances of Chinese participation in the development of Chabahar port.

NEW ZEALAND
First country to introduce a law for financial firms to explain how they would manage climate-related risks and opportunities.

SOUTH AFRICA
Wildfire at Table Mountain National Park.

RED SEA
Iranian ship attacked.

EAST TIMOR
Tropical Cyclone Seroja hit East Timor.

SEYCHELLES
India-Seychelles High Level Virtual Event held.

Personalities in News

Personality	About	Ethical Values Exhibited by the personality
Mahavir Jayanti	• It is the **birth anniversary of 24th** & **last Jain Tirthankar** (teaching god who preaches dharma). • **Lord Mahavir** is considered the **founder of Jainism** and also known as **Vardhamana**. • His teachings are the main pillars of Jainism, also known as **'Jain Agamas'**. • **Five vows (Maha vratas) of Jainism** include, **Non-violence** (Ahimsa), **Truthfulness** (Satya), **Non-stealing** (Asteya), **Chastity** (Bramacharya), and **Non-attachment** (Aparigraha). • His philosophy of 'live and let live' encourages the sense of equality and human dignity.	• **Self-discipline and Non-violence** ▷ He left the royal life and practiced intense meditation & severe austerity for 12 years, before he attained enlightenment. ▷ He taught that every living being has sanctity and dignity which should be respected as one expects one's own sanctity & dignity to be respected.
Shri Ramanuj-acharya Ji	• Vice President paid tribute to him on his Jayanti on 18th April, 2021 (date decided on the basis of Tamil Solar Calendar). • He was **born in 1017 CE at Sriperumbudur, Tamil Nadu.** He was a great theologian **philosopher and thinker of devotional Hinduism.** • He was **deeply influenced by the Alvars** (saints devoted to Vishnu in 7th to 9th century). • According to him the best means of attaining salvation was through **intense devotion to Vishnu.** • He propounded the doctrine of **Vishishtadvaita or qualified oneness** in which the **soul even when united with the Supreme God remained distinct.**	• **Spiritualism and devotion** ▷ He had authored many books on philosophy of Vedanta which became defining texts for devotee's spiritual understanding. ▷ He had mastered the religious text and the moral lessons contained in it at the very young age and relinquished comforts of domestic life to learn theology.

JyotiraoGovindrao Phule (11 Apr 1827 – 28 Nov 1890)	• He was **social activist, thinker, social reformer and writer from Maharashtra.**
	• He and his wife, **Savitribai Phule**, were pioneers of women education in India.
	• **Major contributions:**
	  □ Formed **Satyashodhak Samaj (Society of Truthseekers)** in 1873, to attain equal rights for people from lower castes.
	  □ He and Savitribai Phule started the **first indigenously-run school for girls in Pune.**
	  □ **Famous work: Gulamgiri**
	• He advocated **widow-remarriage, opposed idolatry and denounced the caste system.**
		• **Rationalism and social justice**
		▷ Phule through his writing (e.g. Gulamgiri) reinterpreted the Indian past and provided scientific understanding of Indian history particularly the origin of its caste based social order.
		▷ He pioneered women education in India and started several schools for girls and for children from depressed classes.

Dadasaheb Phalke	• Rajinikanth has been conferred **Dadasaheb Phalke award, 2020.** • **Father of Indian Cinema,** Dhundiraj Govind Phalke Popularly known as Dadasaheb Phalke, was **an Indian producer, director and screenwriter.** □ Dadasaheb Phalke Award, for lifetime contribution to cinema, was **instituted in his honour by the Government of India in 1969.** • He made the **first Indian Feature film Raja Harishchandra** (1913). • His most noted works include: Mohini Bhasmasur (1913), Satyavan Savitri (1914), Lanka Dahan (1917), Shri Krishna Janma (1918) and Kaliya Mardan (1919).	• **Creativity and pioneering spirit** ▷ He not only used to direct the films but utilized his creative instincts to act as an actor, scriptwriter, dress designer, editor and distributor. ▷ He directed and produced the first feature film in India at the time when rarely people know about cinema in India. He is considered as **'Father of Indian Cinema'.**
Dr. B.R. Ambedkar	• BR Ambedkar was the social reformer, economist, thinker, politician and the first Law Minister of Independent India. • He was the **chairman of constitution drafting committee of Constituent Assembly.** • He stood firmly for t**he rights of Dalits, untouchables and women.** • He **converted to Buddhism in 1956 along with his wife.** • In 1990, he was **posthumously conferred the Bharat Ratna.** • **Literary work:** Annihilation of Caste, The Problem of the Rupee: its origin and its solution, Buddha or Karl Marx, Thoughts on Pakistan etc.	• **Social Justice and Critical Thinking** ▷ Ambedkar through his writing provided the critical analysis of Indian society and its ailments. They became inspiring ideas for various social movements in post-independence India and abroad. ▷ All through his life, he advocated for the rights of depressed sections of the society and questioned caste as inequity based social institution.
M Narasimham-Father of banking reforms	• Former Reserve Bank of India (RBI) Governor Maidavolu Narasimham passed away.He was the first and **only governor to be appointed from the Reserve Bank cadre.** • He served as **India's Executive Director at International Monetary Fund and later at the World Bank.** • He headed **two committees in 1991 and 1998 that had critical influence on the country's banking reforms** and set the agenda for the sector. □ His recommendations include, **three-tier banking structure** in India, opening of Banking Sector for **Private Sector, separation of ownership and management of banks etc.**	• **Professional Integrity and commitment** ▷ M Narasimham has shown exemplary record of honest and hardworking employee of Reserve Bank of India all through his life. ▷ He presided over many highly responsible positions like Governor of RBI, heading very important committees on banking reforms and under him suggested landmark recommendations for banking reforms.
N V Ramana as 48th Chief Justice of India	• President of India in exercise of the powers conferred by clause (2) of Article 124 appointed Shri Justice NV Ramana. □ Article 124(2) states that **every judge of the Supreme Court shall be appointed by the President of India by warrant under his hand and seal after consultation with such of the judges of the Supreme Court** and of the High Courts in the states.	• **Judicial conscience and professionalism** ▷ He has given some landmark judgements underscoring the constitutional values and principles of social justice like right to trade over internet, right to legitimate speech and expression, responsibility of media in democracy and right of homemakers (housewives) for adequate compensation.

WEEKLY FOCUS

Holistic coverage of an issue every week

ISSUE	DESCRIPTION	LEARN MORE
Censorship in Media: A Necessary Evil?	Indian media in the present times is straddling between saving freedoms at one end, and censoring harmful content at the other end. Examining the need and issues related to content censorship in the country, the document discusses the best way forward to balance media censorship with our fundamental right of speech and expression.	
Non-Performing Assets (NPAs): From a Crisis to a Catalyst	*The failure of a loan usually represents miscalculations on both sides of the transaction or distortions in the lending process itself. (*Sachs et al. (1998)) Despite a spate of recent efforts, the NPAs in the Indian banking system do not seem to be bottoming out. This document is a systematic and comprehensive assessment of the NPA conundrum and the possible solutions to India's NPA woes.	
Space Exploration: Changing Dynamics and Pathway to the Future	The space domain has undergone significant changes in the last two decades ranging from increased democratisation and commercialisation to becoming an area of geopolitical competition and potential conflict. With these developments and the inefficiencies of the existing space laws, the challenges have become even more complicated. This document takes through the evolution of space exploration journey and discusses how to manage the emerging challenges in the new space age so as to prevent outer space from being a global common to turning into a tragedy of commons.	

7 IN TOP 10 SELECTIONS IN CSE 2019

FROM VARIOUS PROGRAMS OF VISION IAS

2 AIR — JATIN KISHORE

3 AIR — PRATIBHA VERMA

6 AIR — VISHAKHA YADAV

7 AIR — GANESH KUMAR BASKAR

8 AIR — ABHISHEK SARAF

9 AIR — RAVI JAIN

10 AIR — SANJITA MOHAPATRA

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