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# FOUNDATION COURSE GENERAL STUDIES PRELIMS CUM MAINS 2023

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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.



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# 1. POLITY AND GOVERNANCE

## 1.1. DIGITAL RIGHTS

### Why in News?

European Commission, in a global first, proposed a set of digital rights and principles recently.

### More on News

- It is an **extension of the Berlin declaration on Digital Society and Value-Based Digital Government** of EU council.
  - Declaration aims to contribute to a value-based digital transformation **by addressing and ultimately strengthening digital participation and digital inclusion** in our societies.
- Aim is to**
  - Protect people's rights, support democracy** and ensure a fair and safe online environment.
  - Provide a guide for policymakers and companies** when dealing with new technologies.
  - Promote these principles as a **standard for the world countries.**
- Principles outlined are** (refer image)

### About Digital Rights

- Digital rights, closely linked to freedom of expression and privacy, are those that **allow people to access, use, create and publish digital media**, as well as access and use computers, other electronic devices and communications networks.
- Digital rights are **merely an extension of the rights set out in the Universal Declaration of Human Rights** by the United Nations as applied to the online world.
- It is a broad term **implying right to privacy and data protection**; it can be related to **trolling, online threats and hate speech**; it can address broader issues of equitable Internet access regardless of economic backgrounds and disabilities.

### Need for Digital Rights

- Protection of privacy and control of personal data** as governments, companies and cyber criminals can easily collect our personal data and track our movements and communications.
- Digital transformation of businesses** by supporting MSMEs and entrepreneurs in harvesting the benefits of the digital transformation including fair and secure access to data.
- Enhancing trust of individuals** whether as students, learners, workers, jobseekers, consumers etc. in digital ecosystem to stimulate their involvement in a fair, sustainable, inclusive, democratic and competitive digital transformation.
- Supporting workers in adjusting to changes** brought on by digitalisation to the labour market, including their working conditions, wellbeing, while being able to reap its opportunities, notably through education, training and re-skilling.
- Tackling Pandemics** as COVID-19 crisis has highlighted the fact that connectivity, access to data and digital technologies are a vital resource for governmental, educational, research, economic activity and innovation and will be central for the recovery efforts, including social and societal well-being.

### Digital Citizenship: Rights and Principles for Europeans

On 26 January 2022, the Commission proposed an inter-institutional solemn declaration on digital rights and principles for the digital decade.





- **Aligning R&D initiatives with the infrastructure and digitalization plans**, thus promoting fundamental and applied research, enhancing the links between civil society, academia, the public and the private sector.
- **Supporting isolated, remote, low density, low-income and outermost regions** and communities in the digital transformation process in order to improve territorial cohesion, digital inclusion and local economic development.
- **Promoting digital democracy** by Promoting children's participation, Promoting women's and girls' participation and leadership, Ensuring the rule of law online through equal access to justice etc.
- **Promoting responsible and secure data management** by the public and private sector and promoting cybersecurity awareness to equip all citizens with knowledge of how to use Internet and digital technologies.

#### Concerns/Challenges faced to avail Digital Rights

- **Digital Divide:** Lack of connectivity or inadequate digital skills can lead to the creation of a new divide between the connected and digitized people, business and regions and those who remain disconnected and not-digitized.
- **Vulnerable to misuse:** Digitalization also bears the risk of deepening existing inequalities or being misused to undermine democracies, spread dangerous misinformation and fuel discrimination, xenophobia and racism.
- **Rising inequalities:** Digital technology can also worsen economic and other inequalities. In 2019, close to 87 per cent of individuals in developed countries used the Internet, compared with only 19 per cent in the least developed countries.
- **Privacy issue:** Data-intensive technologies contribute to creating a digital environment to track, analyze, predict and even manipulate people's behavior to an unprecedented degree thereby posing significant risks for human dignity, autonomy and privacy.
- **Digitally facilitated repression:** Authoritarian governments now have enhanced capacities to censor expression, block or filter access to information, monitor online activity, and control populations than they did in the pre-digital world.
- **Violation of human rights:** Use of digital technologies to surveil or crack down on protesters can lead to human rights violations, including infringement of the right to peaceful assembly.
- **Lack of focus on Child rights:** Policy approach to children's digital rights is frequently cautious and reactionary, as many governments are limiting children's rights in the name of protection.
  - Surveillance systems that monitor and direct which websites children can access also give parents overreaching control of their children's devices.

#### Way forward

- **Human-centered technology:** Digital infrastructures, digital products and services, networks must be in line with international law and should be human-centered, human-controlled, promote human well-being and human dignity.
- **Limit the collection and use of personal data:** Data collection and use should be limited to what is reasonably necessary to provide a good or service requested by an individual. Purpose specification should be strictly enforced.
- **Upholding human rights, ethical values and democratic participation** in the context of the digital era by fighting discrimination, disinformation and other malicious online activities.
- **Promoting multi-stakeholder and wider international cooperation** in the digital context, in fields such as standards, infrastructure, data flows, R&D and secure and trustworthy online services.
- **Recognising the importance of green and digital technologies**, as a key element to a new paradigm of economic growth, balancing innovation and competitiveness with social and environmental sustainable development.
- **Establish a data protection agency:** dedicated to privacy and data protection, oversight, and enforcement, with the authority and resources to address emerging privacy challenges.

#### Initiatives taken for digital rights

- **By Governments**
  - Internet Bill of Rights (Brazil)
  - **Christchurch Call** to eliminate terrorist and violent extremist content online (New Zealand).
  - Paris Call for safe and secure cyberspace.
  - India's **Personal Data Protection Bill**
  - National Policy on Universal Electronic Accessibility (India).
  - General Data Protection Regulation (EU)
- **By Civil Society**
  - Manila Principles for intermediaries' liability.
  - Report of the Secretary-General on Road map for digital cooperation.
  - Delhi Declaration for just and equitable internet.
  - Charter of Human Rights and principles for internet.
  - Universal guidelines for Artificial Intelligence.
- **Others**
  - Asilomar AI Principles

## 1.2. ONLINE CAMPAIGNING

### Why in News?

Due to the **ongoing pandemic and associated health risks**, recently EC **put temporal restrictions on physical rallies** for upcoming state elections while **allowing virtual campaigns** through social media platforms.

### About online election campaigning

- Election campaigns are the **means by which candidates and political parties prepare and present their ideas** and positions on issues to the voters.
- Online campaign **not only includes promoting political and electoral campaign material on social media platforms** such as Twitter, Facebook and Instagram, it **also includes reaching out to voters with audio message, phone calls, videos and LED screen-mounted vans** from small town to remote villages.
- The preferred modes of election messaging **include audio-video animation with text, and digital banner** and posters for targeted assembly constituencies.

### Concerns raised against online campaigning

- **Regulation of online campaigning:** Monitoring of e-Campaign and other applicable rules (election silence on days before election, Opinion polls, exit polls etc) will be a challenge due to limited EC resources and diverse social media platform.
- **Transparency concern:** Social media platforms might favour a specific party and accord prominence to its content over others through its algorithms. Bots are being used for targeted disinformation campaigns.
- **Campaigning on wedge issues:** In online campaigning, candidates/parties are more likely to campaign on wedge issue such as matters on immigration and welfare as messages are being played out largely in secret.
- **Tracking the source of financing:** Expenditure on campaigns run from outside the country can pose serious challenges for regulating expenditure as well as for message dissemination.
- **Role of intermediaries:** Methods used to curate and display information on these sites are opaque which means it is impossible to independently authenticate their claims.
- **Disadvantage to smaller parties:** Disparities in knowledge of and access to online technologies will put the smaller and regional parties in a fix as they do not wield the same influence on social platforms like bigger parties.
  - Large national parties with more money and resources may be able to create bigger and deeper campaigns.

## BENEFITS OF ONLINE CAMPAIGNING

### Large Audience

- With billions of users on platforms like Facebook, Youtube etc., Social media has emerged as an important medium of election campaigns

### Analytics

- Social media uses analytics software to give politicians an idea of the different demographics who they are engaging. This allows campaigns to spend money more efficiently to target voters.

### Feedback/Engagement

- It has given people unprecedented access to information about elections and enabled them to express their opinions and promoting open discourse through direct communication between leaders and constituents.
- The internet is also a useful platform for political parties to present their agenda to the electorate and to mobilise a larger support base for their causes

### Connect Beyond campaigning

- i.e. share information on everything from policy to personal life. The voters also get the option of direct interaction

### COVID-19 related requirements

- Need for social distancing has required candidates to develop new and innovative campaigning methods now that conventional campaigning, involving rallies, public meetings are restricted

### Benefit Political Newcomers

- By providing a level playing field and a wider reach.

### Social media regulations by EC in India

- **Candidates** need to **submit authentic social media account details** at the time of nomination.
- **Rules of pre-certification** of political advertisements are **applicable** on social media platforms.
- **Provisions of Model Code of Conduct** are applicable on **content posted**.
- **Inclusion of Social media expenditure in final expenditure** statement on advertisement.
- **Social Media Cell** set up by ECI for monitoring.



- **Digital divide:** There still exists a massive digital divide in India and a digital election means that the poor and the lower castes will be at a disadvantageous position compared to the urban, middle and richer classes, and the upper castes.
- **Privacy:** An online sphere where every conversation, comment or post is recorded and can be analysed for its commercial and political use could have negative repercussions on privacy and free expression and exchange of views.
- **Other Concerns:** Monitoring proxies used by political parties; control hateful campaigns, fake news etc.

#### Way forward

- **Personal data:** Use of personal data in the context of electoral campaigns should be scrutinised by relevant agencies in collaboration with EC to ensure that it complies with national laws.
- **Responsibility of social media platforms:** to store the relevant recordings from the campaigns to enable EC to review any complaints regarding violation of the Model Code of Conduct.
- **Update regulation methods:** This should include selection of media for monitoring (content monitoring); revision of spending monitoring, and transparency and data requirements for platforms and intermediaries.
- **Maintain a level playing field** in political campaigns. There is a need for new and innovative measures to ensure that new, less well resourced, and minority political campaigns can be heard should be sought.
- **Self-regulatory bodies in journalism should be encouraged** to collaborate with internet intermediaries for fact checking independently from the state, and also to prevent deliberate misinformation likely to impact electoral processes.

#### Related news

Election Commission has **enhanced the existing election expenditure limit** for candidates in Parliamentary and Assembly constituencies.

- **Reasons cited:** substantial increase in the number of electors, Cost Inflation Index for the hike etc.
- **Expenditure limit for Lok Sabha constituencies** has been raised **from 70 lakh to 95 lakh rupees in bigger states** and 54 lakh to 75 lakhs in smaller states.
- **For Assembly constituencies**, expenditure limits have been enhanced **from 28 lakh rupees to 40 lakh rupees in bigger states** and from 20 lakhs to 28 lakhs in smaller states.

#### Election Commission of India (ECI) postponed Punjab Assembly polls

- The move comes following the request to ECI to **postpone the election in view of Guru Ravidas Jayanti celebrations**.
- Under **Section 153 of the Representation of the People Act 1951**, the ECI can “**extend the time**” for completing an election.
  - However, **such extension should not go beyond the date of the normal dissolution/term of the House** (Lok Sabha or State Assembly).
- **Term of the House can only be extended in an emergency** declared by Parliament.
  - **Constitution restricts this emergency to only two situations** — war and breakdown of law and order.

## 1.3. ELECTRONIC VOTING MACHINES (EVMS)

#### Why in News?

**Citizens’ Commission on Elections’ Report** on EVMS and VVPAT was released recently.

#### About Electronic voting machine (EVM)

- EVM is a **microcontroller-based portable instrument** designed to modernise the election procedure of conducting elections.
- **EVM consists of two Units** – a Control Unit and a Balloting Unit. These units are joined together by a cable.
- EVMs do not require electricity. EVMs run on an ordinary battery assembled by Election Commission (EC) in **collaboration with two Public Sector undertakings**:

#### About Voter Verifiable Paper Audit Trail (VVPAT)

- VVPAT is another **independent machine** attached to the EVM **which helps the voter verify the vote**.
- After casting the vote, **a slip is printed which contains the serial number, name, and symbol of the candidate** and is visible through a window for seven seconds.
- Post this, the **printed slip automatically falls in the sealed drop box** of the VVPAT.

#### Concerns raised against VVPAT

- Reports suggest that VVPATs are **vulnerable to malfunction** when subjected to extreme weather conditions.
- Also as VVPAT is a simple processor, a memory and a printer unit, it is **prone to hacking**.
- **Response time for electors** to verify his/her vote is less.

- Bharat Electronics Ltd (BEL), Bangalore (Ministry of Defence),
- Electronic Corporation of India Ltd (ECIL), Hyderabad (Department of Atomic Energy).

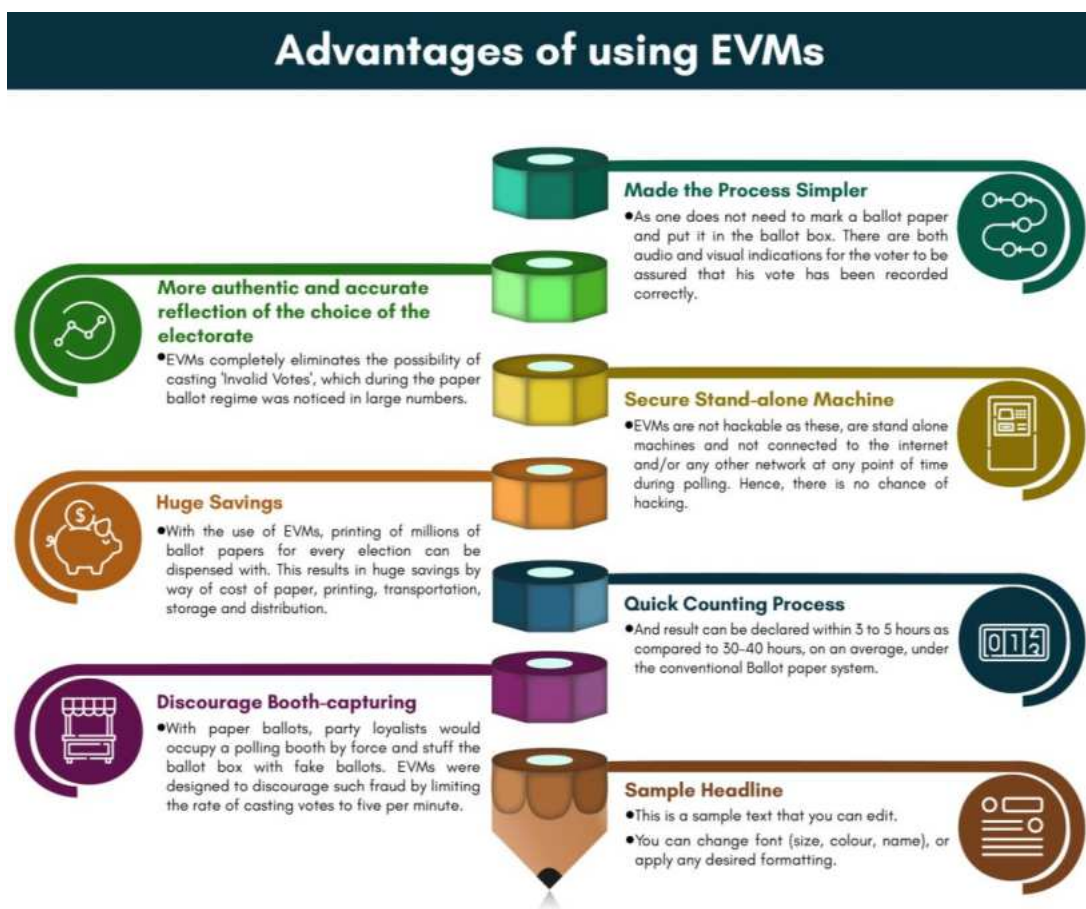
• EVMs were first used in Parur Assembly Constituency of Kerala in the year 1982.

• Use of EVMs in an election is legal. In 1988, a new Section 61A was inserted in the Representation of the People Act, 1951 empowering ECI to use electronic voting machines.

• An EVM being used by ECI can record a maximum of 2,000 votes.

• EVMs can cater to a maximum of 64 candidates (including NOTA). There is provision for 16 candidates in one Balloting Unit.

• The arrangement of names of candidates in the ballot paper is in alphabetical order, first candidates from national political parties' figure and then from other state registered parties.



### Concerns raised against EVMs

- **Susceptibility to fraud:** many software programmers have claimed that EVMs are vulnerable to malicious programming and if it gets affected then any hacker can hack the machine and can tamper the vote counts easily.
- **Global precedence:** German constitutional court ruling (2009) forced the country to scrap EVMs and return to paper ballot. Other technologically advanced nations such as the Netherlands and Ireland have also abandoned EVMs.
- **Lack of secrecy:** With the paper ballot, ballots from all the booths were mixed up before counting so that the candidates could not get any idea about which booths voted for or against them. In the case of EVMs, the candidates know how they fared in each booth, and this knowledge can be misused by a candidate.
- **Storage and Counting concerns:** EVMs are stored in a decentralized manner in different locations. Security experts say that voting machines must remain in a secure environment throughout their life cycle.

### Conclusion

Time and again political parties have cast doubts on EVMs, alleging they can be hacked or tampered with and thereby questioning the credibility of EVMs.

In electoral democracies, free and fair elections convert voters' preferences into a political mandate that forms the basis for policymaking. More precise and efficient voting procedures boost the strength of democratic institutions.

EC should address the concerns raised by various stakeholders and should bring in more transparency regarding credibility of EVMs in conducting free and fair elections.



#### ECI initiatives to improve EVMs credibility

- Use of VVPAT machines along with the EVMs in all polling stations to bring utmost transparency and credibility.
- ECI has also taken into account suggestions made by various political parties regarding counting of VVPAT slips and will count VVPAT slips up to a definite percentage.
- ECI held a challenge and offered opportunity to political parties to demonstrate that EVMs can be tampered.
- EC ensures continuous participation of all parties in all crucial steps during elections such as First Level Checking (FLC), randomisation of EVMs/VVPATs, mock poll, EVM sealing and storage etc.

#### ECI Voting Equipments. Electronic Voting Machine (EVM)



#### Why EC says Indian EVMs cannot be hacked or manipulated

Political parties across the spectrum have expressed doubts about electronic voting machines (EVMs) being manipulated. Around the world, paper ballots are more popular with just 25 countries experimenting with EVMs.

- |   |  |
|---|--|
| ▶ 275 safety protocols make EVMs tamper-Proof.  | ▶ No candidate knows switch allotted to him/her till day of withdrawal of nomination.            |
| ▶ No internet port so no means to receive WiFi/ Bluetooth/wireless signal.                      | ▶ Serial number of switch allotted to party may vary from constituency to constituency.          |
| ▶ Produced and processed under sanitized conditions.  | ▶ Before start of election, EVM switch fidelity tested with VVPAT before political party agents. |
| ▶ EVM chip writable only once; once written into and encrypted, chip can't be read/overwritten. | ▶ EVM can't be 'stuffed' as each votetakes 7 seconds to register.                                |
| ▶ Rigorous physical safeguards in place during transport/storage.                               | ▶ Malfunction easily detected.   |

## 1.4. LOCAL RESERVATION IN PRIVATE SECTOR

### Why in news?

The Haryana government has challenged in Supreme Court, the order by the Punjab & Haryana High Court, to halt 75% quota in private jobs for locals.

### More on news

- The Haryana State Employment of Local Candidates Act, 2020, came into force on January 15, 2022.
- It provides for **75% reservation to local youngsters in private sector jobs** that offered a **monthly salary of less than ₹30,000**. It covers **private companies, societies, trusts and partnership firms**.
- Haryana is not the first state in India to push for such a move. Others like **Maharashtra, Andhra Pradesh, Karnataka and Madhya Pradesh** have already tried to reserve private jobs for locals. But, all of them have run into hurdles.

### Arguments in support of local reservation in private sector

- **Step to provide right to employment:** The Haryana government had argued that the law merely makes “geographical classification”, which is permitted under the Constitution. It is to protect the right to life/livelihood of people domiciled in the state and to protect their health, living condition and their right to employment.
- **Dealing with shrinking employment opportunities:** According to the **Centre for Monitoring Indian Economy (CMIE)**, Haryana's unemployment rate has been in excess of the national average since the past four years. In April 2020, around 40% of job seekers from the state returned empty-handed.
  - Industrialisation and urbanisation in the state of Haryana has led to huge land acquisition which resultantly has reduced growth and employment opportunities in the agriculture sector.
- **Curbing the selectively discriminating corporations:** Many business entities reluctant to employ local workers. Employers believe the local workers lack work discipline, are unwilling to learn new trades, are inclined towards political and trade unions — seen as pressure tactics by businesses.
- **Skewed Resource Allocation:** With successive Finance Commissions according a higher weightage to poverty and population vis-a-vis development, States like Bihar and UP end up receiving a generous share of the resources pie.

This would seem to deprive the income-generating States of the resources needed to manage a growing migrant population, while not incentivising the poorer States to get their act together.

- For example, the gap between the per capita incomes of, say, Bihar and Tamil Nadu has not narrowed over the last decade. In 2015-16, Bihar's per capita net State domestic product at constant prices was ₹24,572, against Tamil Nadu's ₹1.11 lakh.

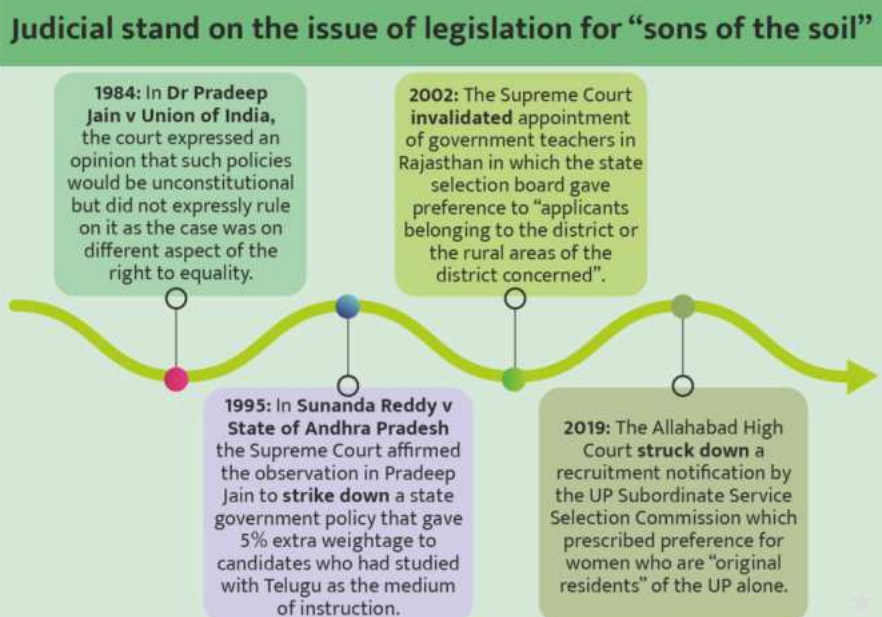
### Arguments against local reservation in private sector

- **In contravention of the Constitution:** The clause providing for preference in jobs to the local candidates domiciled in Haryana was in **contravention of Article 14 and Article 16 of the Constitution pertaining to Right to Equality and Article 19 (1)(g)** which provides for protection of certain rights to practice any profession, or to carry on any occupation, trade or business.
- **Fuels sons-of-the-soil syndrome:** Employment is one of the principal factors behind migration and shutting the doors on employment to non-domiciles would be a gross violation of not just the Fundamental Rights of citizens but would also open a Pandora box where other states follow the same.
- **Stifle the labour market:** Such reservation may push businesses to migrate, as their skilled workforce is not sufficiently 'local'. Additionally, the smaller entities may find it difficult to carry on, once the new law comes into force as their compliance costs may rise.
- **Revival of license raj:** Many experts believe that allowing reservations in the private sector would be akin to nationalization of the private sector and it would result in the revival of license-raj.
- **No solution to core issues:**
  - **Skewed geographical development:** Investors prefer to stick to States where a governance ecosystem (which includes a level of social infrastructure such as education and health) is already in place. This institutional deficit needs to be addressed.
  - **Low quality of education and skills.**

#### Related information on the issue of legislation for "sons of the soil"

The Madhya Pradesh government in 2020 reserved all government jobs for "children of the state". This raised questions relating to the fundamental right to equality.

- **Constitutional provisions on the issue of legislation for "sons of the soil"**
  - **Article 16:** Guarantees equal treatment under law in matters of public employment & prohibits the state from discriminating on grounds of place of birth or residence.
  - **Article 16(2):** "No citizen shall, on grounds only of religion, race, caste, sex, descent, place of birth, residence or any of them, be ineligible for, or discriminated against in respect or, any employment or office under the State".
    - The provision is supplemented by the other clauses in the Constitution that guarantee equality.
  - **Article 16 (3):** It provides an exception by saying that Parliament may make a law "prescribing" a requirement of residence for jobs in a particular state. This power vests solely in the Parliament, not state legislatures.
  - **Why does the Constitution prohibit reservation based on domicile?**
    - As India has common citizenship, which gives citizens the liberty to move around freely in any part of the country, the requirement of a place of birth or residence cannot be qualifications for granting public employment in any state.
- **Judicial stand on the issue of legislation for "sons of the soil"**





## Way ahead

- **Bridging the regional inequalities:** the rise in regional inequalities (east vis-a-vis west and south) since the 1990s has deepened social divisions, with migration largely headed towards the western and southern States where infrastructure is better developed. The setting up of educational and skills institutions in backward areas can bridge the gap. These regions can turn into hubs of economic activity. This, in turn, will check the advance of parochial economics.
- **Promote labour intensive industries:** More job creation and industrialization would make use of the labour surplus in the country.
- **Focus on education and skilling:** There is need to invest more in education, health and skill development. The medium-term spin-offs from that could be an enhancement in the quality of public goods which in turn would attract investors, create jobs and boost incomes.
- **Incentive's route:** Governments should provide **incentives to industries** for more investments and create an enabling environment for employing local people.

## 1.5. NEWS IN SHORTS

### 1.5.1. HYDERABAD DECLARATION' ON E-GOVERNANCE ADOPTED

- **24th National e-Governance conference** unanimously adopted the **Hyderabad declaration**.
  - Conference was jointly held by **Ministry of Electronics & Information Technology (MeitY)**, Department of Administrative Reforms & Public Grievances, in collaboration with **Telangana Government**.
- e-Governance is use of **Information and Communication Technology (ICT)** at all level of Government to **transform relations with citizens, businesses, and other arms** of government.
  - It has helped Government to **enhance coverage, increase transparency, improve response to citizens** and lower costs and has **facilitated citizens to have better access, equity & social empowerment**.
- **Key highlights of Hyderabad Declaration**
  - **Transform citizen services** by using Aadhaar, UPI, DigiLocker, UMANG, e Sign etc.
  - **Fast track implementation of national level public digital platforms** in key social sectors viz. Health, Education, Agriculture, etc.
  - **Foster responsible use of emerging technology** such as AI, Machine Learning, Blockchain, 5G etc.
  - **Robust technological solutions to withstand pandemic** like disruptions.
  - Make **digital the primary aspect of government service design and delivery**.
  - **National e-Governance Service Delivery Assessment (NeSDA)** to be adopted in collaboration with MeitY.

### Some e-governance initiatives

- **Bhoomi Project for (Karnataka):** Online Delivery of Land Records.
- **eSeva (Andhra Pradesh)**
- **Gyandoot (MP):** Service delivery initiative.
- **Lokvani (UP):** For handling of grievances, land record maintenance and providing a mixture of essential services.
- **FRIENDS (Fast, Reliable, Instant, Efficient Network for the Disbursement of Services)** in Kerala.

### 1.5.2. DISTRICT GOOD GOVERNANCE INDEX (DGGI) RELEASED

- **Department of Administrative Reforms and Public Grievances (DARPG)** in partnership with J&K administration **launched DGGI for 20 districts of Jammu and Kashmir (J&K)**.
  - **Jammu district topped the list** followed by Doda, Samba, Pulwama and Srinagar.
- DGGI has helped **identify the impact of various governance interventions** at district level and provide a futuristic **roadmap for improving district level governance** with targeted interventions.
- It provides a **roadmap for similar benchmarking of Governance at District level** for all States and UTs.

### 1.5.3. CORRUPTION PERCEPTION INDEX

- It was released by **Transparency International**.
- India ranked at **85<sup>th</sup> among 180 countries with a score of 40**. (Ranked 86<sup>th</sup> last year).
- Report said while **India's score has remained stagnant** over past decade, some mechanisms that could help reign in corruption are weakening.
- **Denmark, New Zealand and Finland** have topped index jointly.

- **Index** ranks countries by their **perceived levels of public sector corruption** according to experts and business people.
  - It uses a **scale of 0** (highly corrupt) to **100** (very clean.)

#### 1.5.4. OPEN DATA WEEK (ODW)

- **Ministry of Housing and Urban Affairs (MoHUA)** launches the ODW to **encourage adoption of open data and promote innovation across India's urban ecosystem**.
  - Open data is data that can be freely used, re-used and redistributed by anyone.
- **All 100 Smart Cities will participate in ODW** where high quality datasets and data blogs will be published on the Smart Cities Open Data Portal.
- The **event aims to show the benefits of open data** such as increased efficiency, transparency, spur in innovation and economic growth.

#### 1.5.5. REVISED RURAL AREA DEVELOPMENT PLAN FORMULATION AND IMPLEMENTATION (RADPFI) GUIDELINES RELEASED

- **Released by:** Ministry of Panchayati Raj.
- **RADPFI guidelines** aim is to have **planned spatial development** for overall integrated development of villages.
- **Need of Spatial Planning**
  - **Unplanned spatial development in Gram Panchayats**
  - Extended Urbanisation Area,
  - Emergence of Census Towns,
  - Improve the Quality of Life & Sustainability of Gram Panchayats,
  - Integration of Reforms/programs (SVAMITVA, RURBAN, New changes in State Acts & Amendments, re-emphasis on Disaster, Climate Change, Resilience Codes, etc.)
  - Need to be linked to Agro-Climatic Regions/zones linked to SDGs
- **New Guideline (2021) is Focused on**
  - To prepare the spatial development plan, focus on **Typology of villages** i.e population, agro-climatic zones, Hill areas, disaster occurrence etc;
  - **Village Town Planning Scheme (VPS)** – Through community based on Collaborative Planning.
  - **Linking 15th Finance Commission with State Finance commission** with respect to village level planning.

- Integrating/Consolidation of GP Development with RURBAN CLUSTERS/Block/District Plan, as per the 73rd and 74th Constitutional Development Act (CAA) and Gram Panchayat Development Plan (GPDP).
- Improving the **E-Governance through Spatial Data Infrastructure**.
- **Use of SVAMITVA** (and other digital tools) for the Abadi area (linking to land records).
- **Planning for environmental benefit** and disaster preparedness.

#### 1.5.6. STATES OPPOSE RULE CHANGE ON CENTRAL POSTING OF IAS OFFICERS

- Centre has proposed **amendments to the IAS (Cadre) Rules 1954** in order to exercise greater control in central deputation of IAS officials.
  - **At present, a cadre officer may, with the concurrence of the State Governments** concerned and the Central Government, be deputed for service under Central Government or another State Government etc.
- **What amendments propose?**
  - Each **State Government shall make available for deputation**, such number of eligible officers of various levels, **adjusted proportionately by the number of officers available with State Government** vis-à-vis total authorized strength of State cadre at a given point of time.
  - In case State does not give effect to Central government's decision **within specified time**, "officer shall stand relieved from cadre from date as may be specified by Central government."
  - In specific situation where services of cadre officers are required by Central **government in "public interest"** State shall give effect to its decisions within a **specified time**.
- **Why do states oppose?**
  - States are arguing that the amendment is **against spirit of cooperative federalism** and **state's power to veto an IAS or IPS officer's central deputation**, or issue an objection or no objection notice, stands 'defunct'.
- Rules have been brought as Centre has been facing a **huge crunch of IAS and IPS officers** as the states do not want to release their cadre officers easily.
  - According to DoPT, number of **central deputation reserve of IAS officers has gone down from 309 in 2011 to 223 presently**.



### 1.5.7. CABINET APPROVES EXTENSION OF TENURE OF THE NATIONAL COMMISSION FOR SFAIKARAMCHARIS (NCSK) FOR THREE YEARS BEYOND 2022

- NCSK was established in the year 1993 as per the provisions of the **NCSK Act 1993** initially for the period upto 31.3.1997.
  - Later validity of the Act was extended upto 2004.
  - However, after 2004, the **tenure of NCSK has been extended as a non-statutory body** from time to time through resolutions. The tenure of present Commission is upto 31.3.2022.
- Role of NCSK**
  - Giving **recommendations to Government** regarding **specific programmes for welfare** of SafaiKaramcharis.

- Monitor **implementation of Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.**
- Enquire into complaints regarding contravention of the Act.
- Significance of extension**
  - Though the government has taken many steps for the upliftment of the SafaiKaramcharis, **the deprivation suffered by them in socio-economic and educational terms is still far from being eliminated.**
  - Also, **hazardous manual cleaning of sewer/septic tanks continues to be an area of work.**
  - Thus, the body will continue to work towards achieving the goal of complete mechanization of sewer/septic tanks cleaning in the country and rehabilitation of manual scavengers.



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# फाउंडेशन कोर्स

# सामान्य अध्ययन

## प्रारंभिक एवं मुख्य परीक्षा 2023

### इनोवेटिव क्लासरूम प्रोग्राम

लाइव/ऑनलाइन कक्षाएं भी उपलब्ध

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- एनीमेशन, पॉवर प्वाइंट, वीडियो जैसी तकनीकी सुविधाओं का प्रयोग
- अंतर - विषयक समझ विकसित करने का प्रयास
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- सीसेट कक्षाएं
- PT 365 कक्षाएं
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- सीसेट टेस्ट सीरीज
- निबंध लेखन - शैली की कक्षाएं
- करेंट अफेयर्स मैगजीन

**DELHI: 5 APR | 1 FEB**

**LUCKNOW: 12 APR | 9 AM**

**JAIPUR: 15 FEB**

## 2. INTERNATIONAL RELATIONS

### 2.1. INDIA-CHINA BORDER DISPUTE

#### Why in News?

China's new law on land borders has come into effect from 1<sup>st</sup> January, 2022.

#### More on News

- This has happened **at a time when the border standoff in eastern Ladakh remains unresolved** and also when **China has renamed several places in Arunachal Pradesh** as part of its claim on the Indian state.
  - New "standardised" names are used for 15 places** (including residential areas, mountains, rivers etc) along with their exact coordinates and a map.

#### About the Land Borders Law

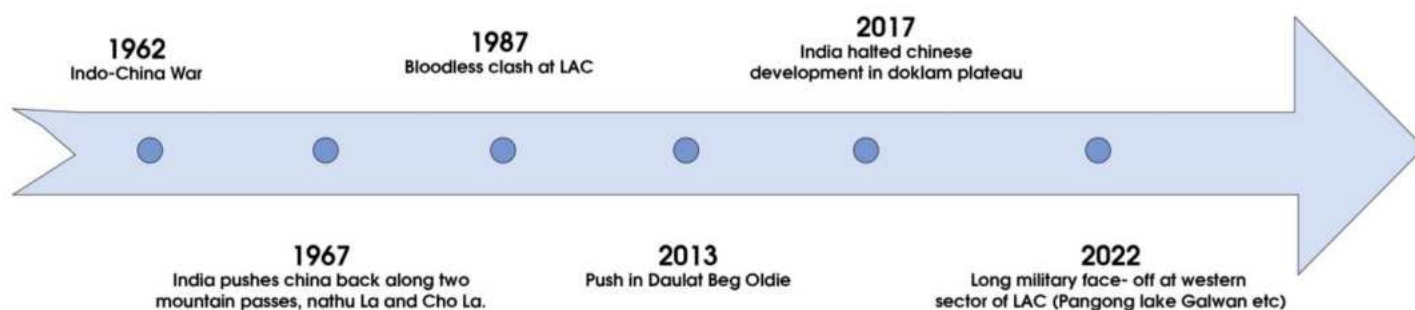
- It lays down provisions for border protection and integration of border areas.
  - It **designates the responsibilities of various agencies** in China, from the military to local authorities, in guarding the frontiers.
  - It empowers state to engage in activities such as **improvement in public services and infrastructure along borders** for overall border defence, economic and social development.
- China shares **its land boundary with 14 countries including India**, third longest after Mongolia and Russia.
  - With India and Bhutan **China is yet to finalise the border agreements**.

#### India's Concerns against the new law

- India described new law as **matter of concern** as it can affect existing bilateral pacts on the management of the border and the overall boundary question.
- Law **could formalize some of China's recent action in disputed regions** with India and Bhutan.
- There is also the **possibility of China limiting the water flow in the Brahmaputra** or Yarlung Zangbo river as the law calls for measures to protect the stability of cross-border rivers and lakes.
- China might endeavour to **prevent India's infrastructure development** using military and diplomatic coercion under the umbrella of the new law.



### Major disputes



#### Disputed border with China

- Border is not clearly demarcated throughout** and there is **no mutually agreed Line of Actual Control (LAC)**.
  - LAC is the demarcation that separates Indian-controlled territory from Chinese-controlled territory. India considers the LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km.



- **LAC is divided into three sectors:**

- **Western sector (Ladakh):** Boundary dispute in this sector pertains to the **Johnson Line** proposed by the British in the 1860s that extended up to the Kunlun Mountains and put Aksai Chin in the then princely state of Jammu and Kashmir.

- India used the Johnson Line and claimed Aksai Chin as its own. China, however, doesn't recognise it and instead accepts **McDonald Line** which puts Aksai Chin under its control.

- **Middle Sector (Himachal Pradesh and Uttarakhand):** In this sector dispute is a minor one. Here LAC is the least controversial except for the precise alignment to be followed in the Barahoti plains.

- India and China have exchanged maps on which they broadly agree.

- **Eastern Sector (Arunachal Pradesh and Sikkim):** disputed boundary in this sector is over the McMahon Line (in Arunachal Pradesh) decided in 1914 in a meeting of Representatives of China, India, and Tibet in Shimla.

- Though the Chinese representatives at the meeting initiated the agreement, they subsequently refused to accept it. The Tawang tract claimed by China was taken over by India in 1951.

- India's consistent and principled position is that **Arunachal Pradesh and the entire UTs of J&K and Ladakh have been, are and shall be an integral part of India.**

#### Reasons for unresolved border dispute

- **Resourceful/strategic sections:** Ladakh is valuable to India as it helps supply freshwater and as it connects the Chinese Xinjiang province with western Tibet, Ladakh is also of great significance to China.
  - Moreover, the area is rich in geothermal resources, and links important political and economic zones from the Middle East to Central and Southern Asia.



#### Possible impact of unresolved border dispute on India

- **Economic fallout:** India is concerned about economic overdependence on and exposure to China and inroads that Chinese companies have made into certain sensitive Indian economic sectors.
- **Strengthening China's alliance with Pakistan:** It is leading to a reality of a two-front conflict with hostile neighbors- and all three are nuclear armed.
- **Strengthening alliances:** India will work towards strengthening its partnership with all major powers, including the US, Europe, Japan and Russia, and enhancing its own standing in the great power constellation.
- **Impact on Perceptions:** Indian public sentiment on China, already turning sour due to the pandemic, is further deteriorating. Among other things, this has resulted in calls to boycott Chinese products, partners and sponsors.

#### Border Dispute Settlement Mechanism A series of five agreements signed between India and China to address disputes arising over the LAC:



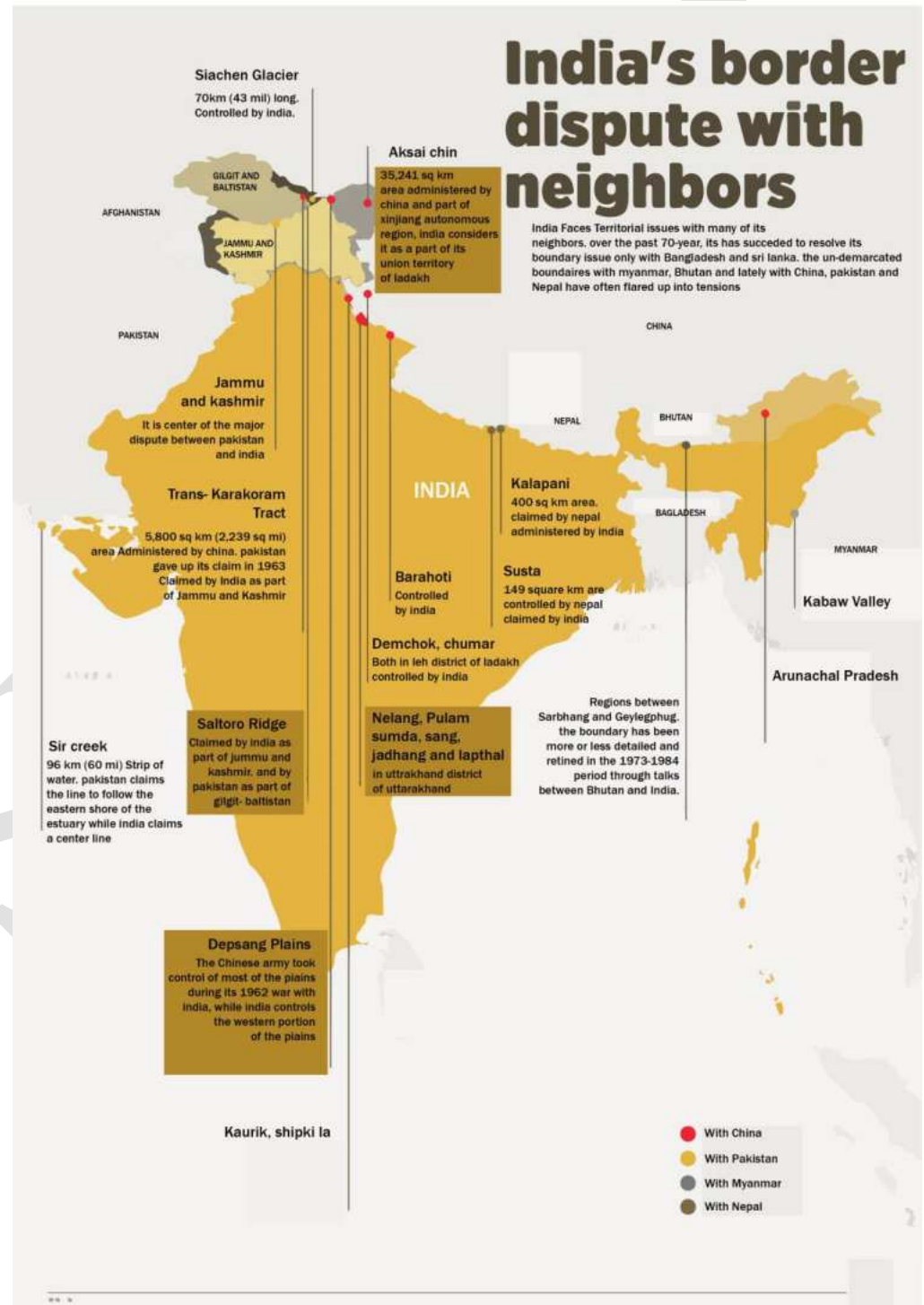
- **Growing power imbalance with China:** Chinese military is better funded and equipped. Also, China, with an economy five times the size of India's, is also investing heavily in the region, countering Indian influence.
- **Perceived threat from India's geopolitical interests:** India's **Neighborhood First** policy and closer ties with the United States and its allies were perceived negatively in China. Also, India's growing influence in the Indian Ocean region stemmed from its position as a burgeoning international power was not accepted by China.
- **Inability to comprehend each other's regional ambitions:** India sees itself as the regional hegemon in South Asia, and China is definitely challenging India's position, especially with CPEC, and also with its investments and growing relationship with India's neighbors.

#### Way forward

- **Better understanding of each other's regional initiatives** through open dialogue is important to build trust.
  - The Indo-Pacific vision is as much a developmental necessity for India as the BRI may be to China.
- **Mutually demilitarising the armed forces deployed** by both countries will help to pave the way to build more trust through increased diplomatic relations and reduced threat perceptions.

#### How is the LAC different from the Line of Control (LoC) with Pakistan?

- **LoC emerged from the 1948 ceasefire line negotiated by the UN** after the Kashmir War.
  - It was **designated as the LoC in 1972**, following the Shimla Agreement between the two countries.
  - It is **delineated on a map** signed by DGMOs of both armies and has the international sanctity of a legal agreement.
- **LAC, in contrast, is only a concept** – it is not agreed upon by the two countries, neither delineated on a map nor demarcated on the ground.





- A **balanced trade and economic relationship** might lay a solid foundation for future relations, given the size of both economies.
- **Acknowledgment of India's multilateral aspirations** by China can allow both to collaborate on a range of issues from global health and climate change to standard setting in new technologies.
- **Accommodate the legitimate interests on key partnerships:** China's with Pakistan and India's with the United States.

## 2.2. GEOPOLITICS OF INDIA-SRI LANKA-CHINA TRIANGLE

### Why in news?

China's growing presence in Sri Lanka is generating concerns about the Indo-Sri Lanka bilateral relationship.

### How China's influence is rising in Sri Lanka?

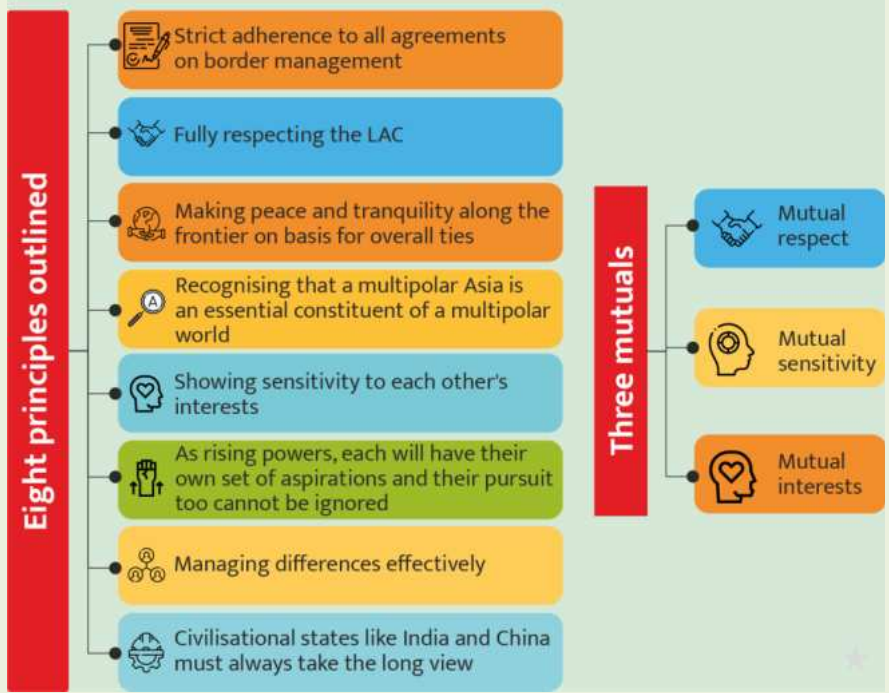
Over the last few years, Chinese footprint has increased dramatically in the island nation with China providing economic, cultural, military and technical assistance to Sri Lanka.

### How the growing clout of China affects India-Sri Lanka bilateral relationship?

- **Threat to maritime security:** A permanent People's Liberation Army (PLA) presence in the eastern Indian Ocean will certainly inhibit the Indian Navy's deployment options and will neutralise the geographical advantage it enjoys in these waters.
  - For instance, recently, Sri Lanka has approved a Chinese firm – Sinotar Etechwinee Joint Venture – to instal hybrid renewable energy systems in islands located in Palk Bay, barely 50 km from Tamil Nadu coast. These Chinese assets can become hotbeds of Chinese intelligence and be used to eavesdrop and interfere with Indian communication, track ship movements and enhance electronic warfare capacity.
- **Favouring China over India:** China is viewed as a more reliable partner in enabling domestic economic development timely completion of projects, cost-effectiveness and quality of infrastructure etc. This as per experts is leading to undermining India's influence in the island nation.

External Affairs Minister outlined eight broad principles and three mutuals to mend strained ties between India and China

### Eight broad principles and three mutuals for India and China



Economic	Military and Naval Presence	Technical Assistance
<ul style="list-style-type: none"> <li>» China is <b>Largest foreign investor</b> and fourth-largest foreign lender in development projects like Hambantota port, Mattala Airport, Colombo Port City Project etc.</li> <li>» Largest importer and exporter to Sri Lanka.</li> </ul>	<ul style="list-style-type: none"> <li>» China sells a range of <b>modern armaments</b> to the Sri Lanka.</li> <li>» <b>Chinese deployment of research vessels (spy ships)</b> in the Indian Ocean.</li> <li>» Proposal to establish a <b>new forum for Indian Ocean island nations</b> inspite of similar existing forums such as Indian Ocean Rim Association (IORA) and Indian Ocean Navies Symposium (IONS).</li> </ul>	<ul style="list-style-type: none"> <li>» China extended yuan 800 million for partnerships in the health and housing sector.</li> </ul>

### Is all well with Sri Lanka-China relationship?

- Sri Lanka has been **forced into a debt trap**, and has had to sell its strategic assets though debt-equity swaps leading to creation of zones where its own sovereignty has been negated.
- It **owes China more than \$5 billion in debt** and last year took an additional \$1 billion loan from Beijing to wean off its acute financial crisis, which is being paid in instalments.

- For instance, Last year, Indian government took five months to approve a loan moratorium sought by Colombo while Beijing approved an additional US \$500 million loan from its development bank in no time.
- **Impact on trade:** The recent import restrictions policy imposed by the Sri Lankan government to control foreign currency outflows does not seem to have affected China as much as it impacted India. Chinese imports were reduced by 8 percent in 2020, while in contrast, imports from India went down by approximately 19 percent.
  - For instance, the availability of textile raw materials, such as yarn and fabric, at a low price from Chinese suppliers is the major reason for Sri Lanka to import these goods from China instead of from India or Pakistan, which previously used to be major importers of textile materials to Sri Lanka.

### India-Sri Lanka Relations

#### Areas of Cooperation

- **Political:** The 2020 virtual summit issued a joint statement “Mitratva Magga” covering all areas of bilateral relations.
- **Economic:** Sri Lanka remains among the largest trade partners of India in SAARC.
- **Cultural:** Buddhism, spread by Ashoka is one of the strong pillars connecting both Nations. Indian Technical and Economic Cooperation Scheme, Study in India tourism etc also played their part in strengthening cultural connect between the two nations.
- **Development Projects:** Sri Lanka is India’s one of the major development partners. For e.g. India housing Project in Sri Lanka.
- **Military Exercises:** MITRA, SHAKTI, IN-SLN etc.

#### Recent developments

- India inks **deal with Sri Lanka to jointly develop Trincomalee oil tank farm.**
- **Renewable energy projects and investments in information technology** in Sri Lanka by India.
- **Credit lines for fuel and food.**
- **India and Sri Lanka extended the existing S&T cooperation for 3 more years,** with focus on new areas like waste-water technologies, biotech, sustainable agriculture, big data etc.
- India provided a **\$ 400 m credit swap facility** to Sri Lanka and deferred Asian Clearing House settlement of \$515.2 million.
- Sri Lankan government prepared a **roadmap to repair its ties with India.**

### MAJOR CHALLENGES

Trust Deficit

Fishermen issues

Inability to upgrade FTA

Stalled Infrastructure Projects such as Jaffna and Sampoor power plant.



### Way ahead to reinvigorate India-Sri Lanka Ties

As close friends and maritime neighbours, both India and Sri Lanka stand to gain from closer economic interlinkages.

- **Exploring new domains:** In education, healthcare, and tourism, India is a far stronger partner than China.
- **Leveraging India's Soft Power:** In the technology sector, India could create job opportunities by expanding the presence of its information technology companies in Sri Lanka thereby boosting the island nation's service economy.
- **Sharing experience:** As Sri Lanka embarks on the arduous project of drafting a constitution, India can lend its own experience in managing minority rights and diverse populations.
- **Strengthening cultural relations:** The two countries can look to create a Buddhism knowledge and tourism corridor.
  - India recently announced US \$15 million grant for promotion of Buddhist ties with Sri Lanka.
- **Cooperation in maritime security:** As maritime countries in the Indian Ocean, India and Sri Lanka have a shared interest in ensuring maritime security and safety.

## 2.3. INDIA-ISRAEL

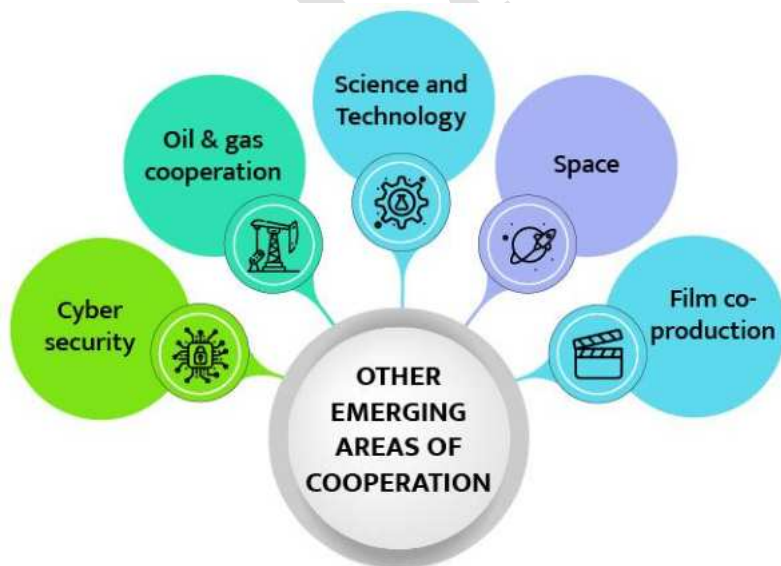
### Why in news?

India is in dialogue with Israel for concluding a Free Trade Agreement (FTA) on the **occasion of 30th anniversary of the establishment of diplomatic ties** between the two countries.



## India-Israel Bilateral Relations: Areas of Cooperation

- Political Relations:** Full diplomatic relations were established in 1992, which were upgraded to a strategic level in 2017. Increased high-level exchanges and ministerial visits on both sides have expanded cooperation in different functional areas.
  - Recently India and Israel along with US and UAE formed the 'New Quad' or the 'Middle-Eastern Quad' to work on furthering the economic and political ties between the four countries.
- Economic and Commercial Relations**
  - Bilateral merchandise trade: US\$ 5.6 billion** (excluding defence) in 2018-19 (grew by 30 times since 1992), with the **balance of trade being in India's favour**.
  - India is Israel's third largest trade partner in Asia** and seventh largest globally.
  - Trade in diamonds constitutes close to 40% of bilateral trade.** In recent years, the bilateral trade has diversified into several sectors such as pharmaceuticals, agriculture, IT and telecom, and homeland security.
  - India has benefited from Israeli expertise and technologies** in horticulture mechanization, protected cultivation, orchard and canopy management, nursery management, micro-irrigation and post-harvest management particularly in Haryana and Maharashtra.
- Defence & Security**
  - India imports critical defence technologies from Israel** along with joint production and development of key defence items such as Barak missile.
  - Joint Working Group on Counter-Terrorism.**
  - Agreements on Mutual Legal Assistance in Criminal Matters, Cooperation in Homeland Security, and Protection of Classified Material.**
- Culture and Education**
  - India is known in Israel as an ancient nation with strong cultural traditions** and is an attractive, alternative tourist destination.
  - New funding programme of joint academic research** has been launched with the University Grants Commission and the Israel Science Foundation as nodal organizations.
  - Two countries **share values of democracy and pluralism**. We also share some of our guiding civilizational philosophies: Vasudhaiva Kutumbakam in India, or the world is one family, and Tikun Olam in Israel, or heal the world.
- Indian Community**
  - There are approximately **85,000 Jews of Indian-origin in Israel** (majority is from Maharashtra).
  - On the other hand, the **Jewish diaspora in India coexisted peacefully in India** for hundreds of years and contributed in the nation building process and enriching India's literature and arts.



## Areas of Concern

- **Radicalism and terrorism:** India has been facing major threats emanating from across the border from Pakistan and Israel is also surrounded by hostile neighbours such as Palestine and Lebanon.
- **Trade and investment potential is not harnessed fully:** Trade is mainly confined to diamonds and defence. Free Trade Agreement talks are stagnated for more than a decade. The Bilateral Investment Treaty (BIT) signed in 1996 was also terminated later due to differences between the two countries dampening the investment climate.
- **Emerging fissures in the West Asian region:** With Israel and Saudi Arabia coming close with an aim to stop the rise of Iran, it will be tough for India to balance its relations with the three main poles of the West Asian region.
- **Human Rights violation by Israel against Palestine:** India has been vocal about human rights violations, however India faces strategic dilemma in dealing with the issue. For instance, recently, India abstained on the resolution that calls on the UN Human Rights Council (UNHRC) to set up a permanent commission to probe human rights violations in Gaza, West Bank and Palestine.
- **Connectivity** between two countries is still poor which has led to limited people to people ties.
- **Israel's close ties with China:** China is the second largest trading partner of Israel. Also, Israel is the second largest weapon supplier to China and recently agreed to take part in China's One Belt-One Road Initiative.

## Way ahead for strengthening the relationship

- **Enhancing people to people connect:** There is a strong need to use soft power diplomacy to build people-to-people bridges and to add to economic benefits through robust inter-country tourism.
- **Education:** India's world-class institutes of higher education could benefit from the strong culture of research and innovation that thrives in Israel. Israel hosts R&D centres of more than 300 multinational companies and has the highest number of patents per capita.
- **Learning from Israel's Water Management Technologies:** Technologies focus on reduction of water consumption and on recycling of wastewater. India can benefit from the same to deal with climate change and its disruptive impact, strategic issues related to the waters of the Brahmaputra and Indus and the rapid urbanisation in India.
- **Semiconductor Manufacturing:** Israel is one of the few countries that can help India in achieving self-reliance in the production of semiconductors.
- **Mutual learnings on community practices:** For example, India needs to learn a lot from the inspirational role Kibbutz and Moshav as agriculture cooperatives play in nation-building in Israel. Similarly, Israel can benefit from the transformational journeys of many self-help women's collectives in India.

### India's De-Hyphenated Policy: Israel and Palestine

- In international politics, de-hyphenation means **dealing with two countries, having adversarial relationship between them, in an independent manner.**
- Traditionally, India's foreign policy towards Israel and Palestine has been a hyphenated foreign policy. However, hyphenating the ties with Israel – linking them to ties with the Palestinian Authority – essentially prevented India from pursuing a pragmatic policy of what was in India's best interests.
- India in the recent year has been following a de-hyphenation policy between Israel and Palestine. It means **India's relationship with Israel would stand on its own merits, independent and separate from India's relationship with the Palestinians.** The de-hyphenation is a balancing act, with India shifting from one side to

### Related News

#### India-Israel Industrial R&D and Technological Innovation Fund (I4F)

- Experts from India Israel approved 3 joint R&D projects worth 5.5 million \$ under I4F.
  - I4F is a cooperation between India, and Israel to **promote, facilitate and support joint industrial R&D projects between companies from India and Israel** to address the challenges in the agreed 'Focus Sectors'.
  - It is aimed to promote, facilitate and support joint industrial R&D between India & Israel, which would lead to the co-development and commercialization of innovative technologies benefiting both countries.

## 2.4. WORLD HEALTH ORGANISATION (WHO)

### Why in news?

The USA, is resisting the proposed sustainable financing model by WHO.



## Current financing model of WHO

- WHO budget largely consists of two funding types, namely **assessed contributions and voluntary contributions**.
- WHO's work was **previously funded entirely by assessed contributions** from Member States.
- By 1990, **voluntary contributions** had increased to 54% of total funds, and they **now make up over 80% of WHO's total income**.
- While WHO's budget has increased substantially – from US\$ 1.4 billion for 1990–1991 to US\$ 5.8 billion for 2020–2021 – **assessed contributions have remained more or less static** at about US\$ 1 billion.

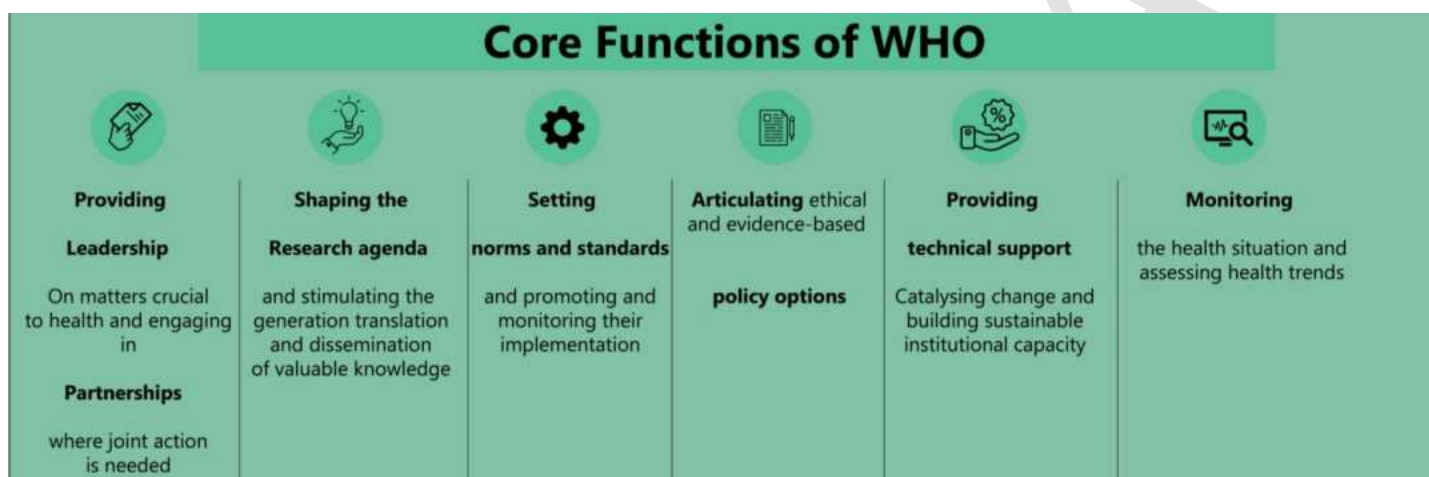
### About the proposed Sustainable Financing Model

A proposal by the WHO's working group on sustainable financing calls for members' mandatory contributions to rise gradually to account for 50 per cent of agency's core budget by 2028, from less than 20 per cent now.

#### What is the take of countries on the proposal?

- **USA:** U.S. government is opposing the reform because it has concerns about the WHO's ability to confront future threats, including from China.
  - It is **pushing instead for the creation of a separate fund**, directly controlled by donors, that would finance prevention and control of health emergencies.
- **Brazil:** WHO needed to investigate other ways to raise funds, such as charging for its services, cutting costs or relocating operations to cheaper countries.

## Need for Sustainable Financing Model



Having only 17% of WHO's budget funded from sustainable sources poses numerous challenges. WHO Director General highlighted the need for a paradigm shift in the way the global health body is funded for the following reasons:

- **Limited funding:** WHO's annual operating budget is smaller than that of many university hospitals, and diversified among an array of public health and research projects.
- **Over reliance on voluntary contribution** from member states and charities, **forces the agency to focus on priorities set by funders**, and makes it less able to criticise members when things go wrong. These restrictions **create a bureaucratic mess**, slowing down the WHO.
- **Persisting pockets of poverty:** The voluntary contributions are often for programs that are in line with national interests, with restrictive conditions, and are often short-term in nature. this leads to a situation of under and overfunding across Programme budget segments.

### Other persisting challenges with WHO

- **Lack of defined functions**-There is no single document which comprehensively describes its responsibilities, obligations and powers with respect to infectious diseases.
  - A collection of documents, such as treaties, regulations like International Health Regulations (IHR), WHA resolutions and operational practices manifest WHO's powers.
- **Recommendatory powers**- The WHO's authority is recommendatory in nature and include proposing conventions, agreements, public health practices and international nomenclatures.
  - Unlike bodies like World Trade Organisation (WTO), it has no ability to bind or sanction its members.
- **Capacity to work in an outbreak**- The organisation's responsibilities during a pandemic include surveillance, monitoring and evaluation, developing guidance for member states.
  - Its coordinating authority and capacity are weak and it merely works as a technical organisation.
  - It relies on bureaucracy and regional offices for control.
  - It lacks the ability to direct an international response to a life-threatening epidemic.

- For instance, there is a chronic underfunding of areas including noncommunicable diseases, emergency preparedness, and data and science functions.

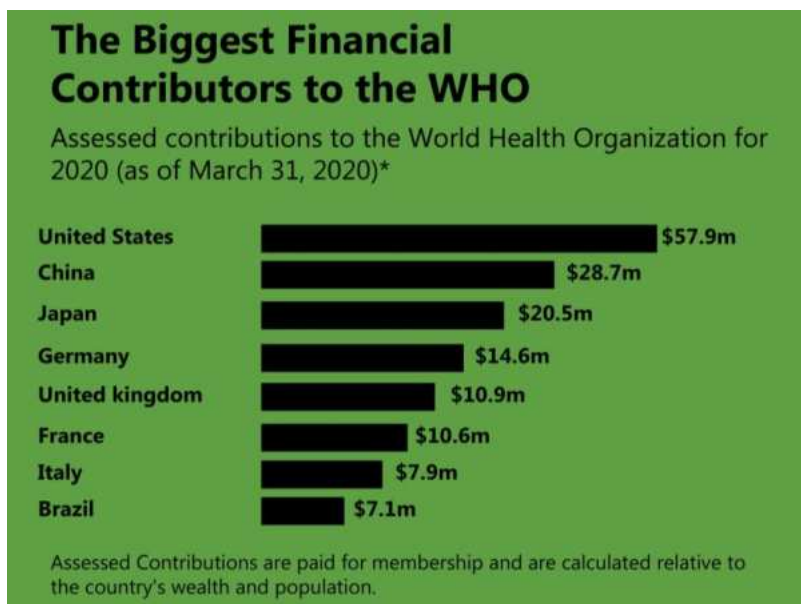
- **Timely response to the changing public health environment:** Sustainable funding is critical to respond to and address areas such as emergency preparedness, noncommunicable diseases and universal health coverage that traditionally do not appeal to a broad spectrum of voluntary contributors.

- **Human Resource:** Owing to the fact that the bulk of WHO's current financing is strictly earmarked and not predictable, it impedes the Organization's ability to attract and retain the best professionals in global health.

- **Donor reliance:** Top five donors of voluntary contributions represent between 30% and 60% of the financing for WHO Programme budget. Withdrawal of any of these major donors leaves an immediate, substantial funding gap that cannot be bridged easily due to the very limited amounts of sustainable, flexible and predictable financing.

- For instance, U.S. funding had declined by 25 percent during the COVID pandemic.

- **To make long-term planning possible and to strengthen WHO's ability** to deliver on work to lead and coordinate global health.



## Conclusion

COVID-19 crisis has demonstrated the fundamental importance of the global detection, response and coordination roles that only WHO can play across all Member States. But delivery on this mission relies on WHO itself being in sound financial health. Committing to the more sustainable financing of WHO is to invest in a healthier and safer world for all of us.

## 2.5. UKRAINE CRISIS

### Why in News?

Recently, The United States has warned Russia not to invade Ukraine and urged both countries to return to a set of agreements designed to end a separatist war by Russian-speakers in eastern Ukraine.

### More in News

- Over the past several months, Russia has amassed more than 100,000 troops at Ukraine's eastern border and, according to U.S. officials, mounted an aggressive influence campaign.
  - Its actions have prompted concerns among Western and Ukrainian officials that an invasion could occur.
- However, **Russia denies that it is planning to invade Ukraine** and says its deployment of troops and equipment close to the borders is an exercise.

### Background

- In 2013, Ukraine's then-President, Viktor Yanukovich, **decided against signing an association agreement (AA) with the European Union (EU)**, sparking major pro-European protests in Ukraine.
- In February 2014, the Ukrainian parliament voted to impeach Yanukovich, who fled Kyiv.
- Subsequently, in March 2014, **Russia annexed Crimea**, an autonomous peninsula in southern Ukraine with strong Russian loyalties, on the pretext that it was defending its interests and those of Russian-speaking citizens.





- Shortly afterwards, **pro-Russian separatists in Ukraine's Donetsk and Luhansk regions declared their independence from Kiev**, prompting months of heavy fighting.
  - The EU, the United States and other countries imposed sanctions on Russia. The EU-Ukraine AA entered into force in September 2017.
- In 2014, a peace plan for eastern Ukraine (the Minsk Protocol I) was signed. However, the agreement quickly broke down, with violations by both sides.
  - Its provisions included **prisoner exchanges, deliveries of humanitarian aid and the withdrawal of heavy weapons**
- As fighting continued, in 2015, Representatives of Russia, Ukraine, the **Organisation for Security and Cooperation in Europe (OSCE)** and the leaders of two pro-Russian separatist regions signed a 13-point agreement in February 2015 in Minsk.
  - The leaders from France, Germany, Ukraine and Russia (the 'Normandy Four') agreed to a new ceasefire and a **package of measures for the implementation of the Minsk agreements (the 'Minsk II' agreement)**.
  - The agreement includes provisions for a cease-fire, withdrawal of heavy weaponry, and full Ukrainian government control throughout the conflict zone.
  - However, efforts to reach a diplomatic settlement and satisfactory resolution have been unsuccessful.
    - A major blockage has been Russia's insistence that it is not a party to the conflict and therefore is not bound by its terms.
- According to UN figures, there have been more than 3,000 conflict-related civilian deaths in eastern Ukraine since March 2014.

#### Organisation for Security and Cooperation in Europe (OSCE)

- The OSCE is security organization with **57 member states in North America, Europe and Asia**.
- It deals with a wide range of **security-related concerns, including arms control, nonproliferation, counterterrorism, democratization, and human rights**.
- The OSCE provides support in capacity-building, policy advice, awareness raising and advocacy, as well as dialogue support. Key policy areas in addressing migration include:
  - **Regulating migration:** border management, travel document security, countering transnational threats, including human trafficking along migration routes;
  - **Facilitating legal migration:** labour migration governance and research, data collection and harmonization;
  - **Supporting people and communities:** freedom of movement, tolerance and non-discrimination, integration, refugee referral.



#### Concerns with escalation of Ukrainian conflict

- **Deteriorating relations with USA:** The conflict in Ukraine risks further deterioration of U.S.-Russia relations and greater escalation if Russia expands its presence in Ukraine or into NATO countries.

- **Shift NATO focus to Europe again:** An escalating crisis in Ukraine threatens to upend recent efforts by the United States and NATO to shift the alliance's attention to the security challenge posed by China, and would push it back toward its traditional role of protecting Europe and, by extension, North America.
- **Imposed sanctions:** The West imposed sanctions on Russia after the seizure of Crimea and could add painful new measures, such as **preventing it from pumping Russian gas through the newly built Nord Stream 2 pipeline to Germany.**
  - Nord Stream 2 is one of two pipelines that Russia has laid underwater in the Baltic Sea in addition to its traditional land-based pipeline network that runs through eastern Europe, including Ukraine.
- **Energy crisis:** In any conflict- Europe worries Russia will turn down gas and oil supplies- driving energy prices up.
- **Global peace:** The conflict has heightened tensions in Russia's relations with both the United States and Europe, **complicating the prospects for cooperation elsewhere including on issues of terrorism, arms control, and a political solution in Syria.**

#### Reasons for Russia's interest in Ukraine

- **NATO's support to Ukraine:** Russia is not happy with efforts by the US and European Union to induct Ukraine into the US-led military alliance of NATO and keep it out of Russian control. Ukraine acts a crucial buffer between Russia.
  - Russia views the growing support for Ukraine from NATO - in terms of weaponry, training and personnel - **as a threat to its own security.**
  - In October 2018, Ukraine joined the United States and seven other North Atlantic Treaty Organization (NATO) countries in a series of large-scale air exercises in western Ukraine.
  - It has also accused Ukraine of boosting its own troop numbers in preparation for an **attempt to retake the Donbas region, an allegation Ukraine has denied.**
- **Historical ties:** Russia has deep cultural, economic, and political bonds with Ukraine, and in many ways Ukraine is central to Russia's identity and vision for itself in the world.
- **Russian Diaspora:** Among Russia's top concerns is the welfare of the approximately eight million ethnic Russians living in Ukraine, according to a 2001 census, mostly in the south and east. Moscow claimed a duty to protect these people as a pretext for its actions in Ukraine.
- **Superpower image.** After the Soviet collapse, many Russian politicians viewed the divorce with Ukraine as a mistake of history and a threat to Russia's standing as a great power. Losing a permanent hold on Ukraine, and letting it fall into the Western orbit, was seen by many as a major blow to Russia's international prestige.

#### Concerns for India due to Ukraine crisis

- **To maintain balance between Russia and US:** India has good relations with both Russia and the US and **siding with one of these countries could cost India its relationship with the other.**
  - However, India has **maintained its neutrality from distant conflict in Eastern Europe.** Indian government has **abstained from the procedure vote on Ukraine at the UN Security Council.**
    - India's position on the ongoing Ukraine crisis undergirded by the **desire to keep clear of the crosshairs of big power rivalry is reminiscent of its quintessential 'strategic autonomy'.**
- **S-400 delivery and US waiver:** The crisis comes precisely as India's purchase of the Russian S-400 missile system is under way- and India hopes for a waiver of U.S. sanctions on this. Conflict will complicate both the delivery of the system, and the possibility of a presidential waiver.
- **Brings Russia China closer:** The Crisis will make Moscow more dependent on friends like China and build a regional bloc of sorts that India is not a part of.
  - Russia is already averse to the Indo-Pacific concept and the Quad as a revival of Cold War bloc politics and views them as being against its Asia-Pacific interests. Any Ukraine conflict and a resulting breakdown of Russia-West ties will strengthen Russian opposition to these concepts and forums which are binding us to the US.
- **India's Investment in Russia:** India's plans in Russia's energy sector and in the development of its Far East, in general, would become problematic, especially by the reluctance of the private sector to fall afoul of the complex US sanctions. The new sanctions could exclude Russia from the Swift payments system.

#### Conclusion

For many analysts, the conflict marked a clear shift in the global security environment from a unipolar period of U.S. dominance to one defined by renewed competition between great powers. However, a solution to the conflict is at hand, in the form of the Minsk II agreement of 2015 calling for autonomy for a demilitarized Donbas within Ukraine, under international guarantees.



## 2.6. NEWS IN SHORTS

### 2.6.1. PAKISTAN LAUNCHES FIRST EVER NATIONAL SECURITY POLICY (NSP) 2022-2026

- It seeks to co-locate Pakistan in emerging global trends and articulate Pakistan's national security vision and interests.
  - It places **economic security as the core element of national security**.
    - A stronger economy would create additional resources which would then be distributed to further bolster military and human security.

Issue	Pakistan NSP	India's stand
On J&K	India's decision to scrap the special status of Jammu and Kashmir in August 2019 was illegal and unilateral and alleged that Indian security forces were behind human rights abuses and oppression in Kashmir.	Kashmir is an "integral part" of the country and the welfare of people in the valley lies in their integration with India. India also said Statehood to Jammu and Kashmir would be granted at an appropriate time
On border issues	special attention is required to manage persistent border disputes which continue to pose security threats, particularly along the Line of Control and Working Boundary where ceasefire violations by India threaten civilian lives and property while endangering regional stability.	India agreed to abide by all agreements on ceasefire along the Line of Control (LoC) and the sectors of the International Border "in the interest of achieving mutually beneficial and sustainable peace along the borders".
Trade	It is aimed at normalising trade ties with India (which is on back-step since 2008 Mumbai Terror attack) and other neighbours.	India desires normal relations, including on trade with all countries, including Pakistan.

### 2.6.2. INDIA PAKISTAN EXCHANGE LIST OF NUCLEAR INSTALLATIONS, PRISONERS

- Lists of nuclear installation were **exchanged as per the Agreement on Prohibition of Attacks against Nuclear Installations and Facilities**, signed in 1988 and **ratified in 1991**.
  - As per agreement, both countries have to **inform each other of the nuclear facilities**.
- Lists of prisoners include **civilians, defence personnel and fishermen**.



- These are exchanged **under the Agreement on Consular Access** signed in 2008 which require two countries to exchange comprehensive lists on prisoners on **January 1 and July 1 every year**.

### 2.6.3. INDIA-CENTRAL ASIA

- India hosted the **first India-Central Asia Summit** in virtual format.

#### Key highlights of the summit

- It was **attended by Presidents of all five central Asian republics**; Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
- The Leaders agreed to **institutionalise the Summit** mechanism by deciding to hold it every 2 years.
- India – Central Asia Centre** would be set up in New Delhi which could act as the Secretariat for the India – Central Asia Summit.
- Countries agreed to further cooperation** in areas of trade and connectivity, development cooperation, defence and security through:
  - Showcasing of Buddhist Exhibitions**
  - Joint counter-terrorism exercises**
- To setup **joint working groups on Afghanistan and use of Chabahar port**.

*For more details with regard to India-Central Asia overall relations, refer to Vision IAS Monthly Current Affairs, October 2021 edition.*

### 2.6.4. AT WORLD TRADE ORGANIZATION (WTO), CHINA A 'DEVELOPING' COUNTRY

- China's status as a 'developing country' at the WTO has become a **contentious issue** since **China is deriving benefits reserved for developing countries** under WTO norms.
  - China is an **upper middle-income country**.
  - Further, China allegedly uses **unfair trade practices** such as **preferential treatment** for state enterprises and **data restrictions**
- Therefore, many nations have called on China to **either refrain from seeking benefits** available to developing

countries or **forego its classification** as a developing country.

- **Developing countries at WTO:**
  - There are **no WTO definitions** of “developed” and “developing” countries.
  - **Members announce for themselves** whether they are “developed” or “developing” countries.
  - However, **other members can challenge the decision** of a member to make use of provisions available to developing countries.
- **Benefits of claiming Developing countries:**
  - Developing countries enjoy **special rights through ‘special and differential treatment’ (S&DT) provisions.**
  - WTO pacts set **more lenient target for developing nations** and grant them **more time to achieve** certain targets.
  - It allows **other countries to offer preferential treatment like** Generalized System of Preferences (GSP).
    - ✓ GSP is a non-reciprocal preferential tariff system which provides for exemption from the Most Favored Nation principle of WTO.

#### **Least Developed Country (LDC) at WTO**

- WTO recognises LDCs relying on a **classification by the UN** based on a criteria that is **reviewed every three years.**
- The identification of LDCs is currently based on three criteria: **per capita gross national income (GNI), human assets and economic vulnerability to external shocks.**
- Recently concerns have also been raised over **LDC status assigned to Bangladesh** although it has surpassed India in terms of GDP per capita.

### **2.6.5. 5 UNITED NATIONS SECURITY COUNCIL (UNSC) STATES PLEDGE TO AVOID NUCLEAR WAR**

- In a joint statement, UNSC’s Permanent members (Britain, China, France, Russia and U.S.) **pledged to prevent further spread of nuclear weapons and to avoid a nuclear war.**
  - They also emphasized importance of **preserving and complying with bilateral and multilateral non-proliferation, disarmament, and arms control agreements** and commitments.
- Development came ahead of a five-yearly review conference (now postponed) for **Treaty on the Non-Proliferation of Nuclear Weapons (NPT).**
  - NPT came to force in 1970 to:
    - ✓ **prevent spread of nuclear weapons & weapons technology**
    - ✓ foster peaceful uses of nuclear energy,
    - ✓ further goal of disarmament.
  - **India, Pakistan, Israel and North Korea are not part of NPT.**

- **Other multilateral treaties for preventing nuclear proliferation and for promoting progress in nuclear disarmament:**
  - Treaty Banning Nuclear Weapon Tests in Atmosphere, In Outer Space and Under Water, also known as **Partial Test Ban Treaty (PTBT).** India has **ratified it.**
  - **Comprehensive Nuclear-Test-Ban Treaty (CTBT)** that bans all nuclear weapons test explosions. It was signed globally in 1996 but has yet to enter into force. (India has not signed it)
  - **Treaty on the Prohibition of Nuclear Weapons (TPNW)** includes a comprehensive set of prohibitions on participating in any nuclear weapon activities. **India is not part of TPNW.**

### **2.6.6. COUNTER-TERRORISM COMMITTEE EXECUTIVE DIRECTORATE (CTED)**

- India, which **will chair the UNSC Counter-Terrorism Committee (CTC) in 2022**, voted in favour of a resolution to renew CTED’s **mandate until December 31, 2025.**
  - As CTC chair, India will make determined efforts to **further enhance the role of CTC in strengthening multilateral response to counter terrorism.**
  - India will also ensure that global response to **threat of terrorism remains unambiguous, undivided and effective.**
- **CTED was established** by UNSC Resolution 1535 in 2004 as an expert body to support CTC.
  - CTED conducts **country visits on CTC’s behalf** to assess Member States’ counter-terrorism efforts, including progress made, remaining shortfalls, priority areas for technical assistance needs etc.
- CTC was established by UNSC resolution 1373 (2001), to **implement measures intended to enhance their legal and institutional ability to counter terrorist activities** at home, in their regions and around the world.
  - It was **established after the 9/11 terror attack** to bolster the ability of UN member states to prevent terrorist acts both within their borders and across regions.

### **2.6.7. COLLECTIVE SECURITY TREATY ORGANIZATION (CSTO)**

- Thousands of troops from CSTO arrived in Kazakhstan to **restore order amid spiraling unrest in Kazakhstan.**
- CSTO is a **Russia-led military alliance** that promotes the collective defence of any member that comes under external aggression.

- CSTO **originates from Collective Security Treaty** signed in 1992 by Russia and few Central Asian states.
- CSTO is **based on the principle of collective defense** just like NATO.
- **Current members:** Armenia, Belarus, Kazakhstan, Kyrgyz Republic, the Russian and the Tajikistan.

### 2.6.8. TALIBAN, AFGHAN CIVIL SOCIETY MEMBERS BEGIN OSLO TALKS

- Discussions, which are being facilitated **by Norway**, are to **focus on human rights and the humanitarian crisis in Afghanistan**.
- **Humanitarian situation has deteriorated drastically since August 2021**, when Taliban stormed back to power 20 years after being toppled.

### 2.6.9. SHERPA

- First BRICS Sherpas meeting of 2022 was held virtually.
- **About Sherpas:**

- A Sherpa is a **personal representative** of the leader of a member country at an international Summit such as the G8, G20 etc.
  - ✓ The term is derived from the Nepalese Sherpa people, who serve as guides for mountaineers in the Himalayas.
- They **coordinate the agenda, seek consensus, and participate in a series of pre-Summit consultations** to help negotiate their leaders' positions.
- There is only one Sherpa per Summit for each member country.

### 2.6.10. HENLEY PASSPORT INDEX

- Index lists the world's passports according to the **number of destinations their holders can access without a prior visa**.
  - It is **released by Henley & Partners**, a global leader in residence and citizenship planning.
- **India's passport power has improved** this quarter compared to 2021. It now **ranks 83rd** (90th rank last year).
  - **Japan and Singapore top** the index.



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# 3. ECONOMY

## 3.1. GROSS DOMESTIC PRODUCT (GDP) ESTIMATES

### Why in News?

Recently, the **National Statistical Office (NSO)** released the **first advance estimates** of GDP for **2021-22** with GDP growth rate pegged at **9.2%**.

### More on News

- **First Advance Estimates of GDP were introduced in 2016-17** to serve as essential inputs to the **Budget exercise**.
- It uses the **Benchmark-indicator method** i.e., extrapolating previous year estimates by using relevant indicators on performance of different sectors of economy.
- **Key Estimates** (Base year for Constant Prices- 2011-12):
  - **Real GDP** is estimated to grow at 9.2% and **Nominal GDP** at 17.6%,
  - **Real GVA** is estimated to grow at 8.6% and **Nominal GVA** at 17.4%.

### Why is measurement of GDP important?

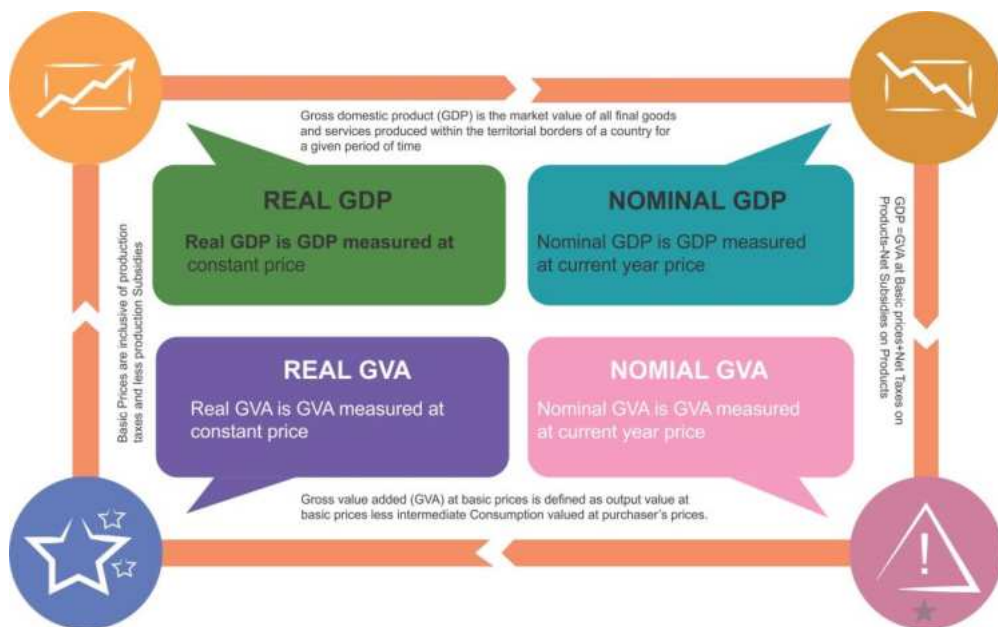
Calculated through different approaches (**Production, Expenditure and Income**), GDP data became the **primary yardstick** for sizing up a country's economy during **World War II**.

- **Amalgamation of traditional economic indicators:** Based on empirical analysis, the classical economists link **higher GDP growth** with **higher individual satisfaction** as it represents increasing satisfaction (utility), higher jobs etc.
  - E.g., **Okun's Law** suggests a **linear relation** between **unemployment** and **GDP** with every **3-point rise in GDP** leading to **1 percentage point fall in unemployment**.
- **Acts as a marker of growth:** GDP enables policymakers and central banks to judge whether the economy is contracting or expanding and promptly take necessary action.
  - It is believed that **high GDP growth** will **trickle down** to people at the **bottom of the ladder**, i.e., the poorest people will gradually benefit as a result of increasing wealth of the richest.
- **Used to analyze the impact of variable:** It also allows policymakers, economists, and businesses to analyze the impact of variables such as monetary and fiscal policy, economic shocks, and tax and spending plans.

### Limitations of GDP Statistics

**GDP statistics** have evolved with time to resolve various issues. Still, GDP is not an appropriate measure of the overall **standard of living** or **well-being** of a country's development. It suffers from **statistical limitations** and **other concerns** which limit GDP data utility to **measure development** such as:

<b>Statistical Limitations</b>	<ul style="list-style-type: none"> <li>• <b>Nature of Statistics:</b> Statistics lag behind the actual happening in the economy, increasing time to capture and understand the <b>major structural change</b>. E.g.               <ul style="list-style-type: none"> <li>○ In India, the most accurate GDP data, i.e., <b>revised estimates</b> comes after a <b>lag of almost 3 years</b>.</li> <li>○ Much of the Digital Economy isn't part of it due to investment in intangibles (e.g. software, brand equity, innovation or R&amp;D etc.)</li> </ul> </li> <li>• <b>Capturing Unpaid Work:</b> GDP statistics <b>fail to capture</b> the <b>unpaid labour</b> (e.g., childcare), <b>limiting</b> GDP and its use to <b>compare between countries</b>.</li> </ul>
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	<ul style="list-style-type: none"> <li>It also fails to measure the <b>free online services</b>, unorganized sector, capital depreciation etc.</li> <li><b>Economic Behavior:</b> Unlike classical economist's assumption of people making rational choices in a market situation, people make irrational choices as well due to emotional and social elements.</li> </ul>	<p><b>Issues in GDP use to Compare the Standard of Living and Solutions</b></p>
<b>Other Concerns</b>	<ul style="list-style-type: none"> <li><b>Rising Inequalities:</b> The trickle down of benefits failed in most nation's with rise in inequalities in almost all major economies. These inequalities are further pushed by the recent pandemic. <ul style="list-style-type: none"> <li>E.g., According to <b>Oxfam Inequality report 2021</b>, 'Inequality Kills', <b>84% Indian households</b> had a decline in income while wealth of 100 richest people more than doubled. The share of the <b>bottom 50% was merely 6% of national wealth and over 4.6 crore Indians fell into extreme poverty in 2020.</b></li> </ul> </li> <li><b>Environment Impact:</b> Focus on economic growth leads to serious undermining of environment and resource exploitation, leading to environmental degradation.</li> <li><b>Weak relationship between money and well-being:</b> People's sense of well-being is governed not just by money but other factors as well. <ul style="list-style-type: none"> <li>It includes factors like personal and family relationships, physical and mental health, security, and satisfaction at work etc.</li> </ul> </li> </ul>	

### What can be the additional indicators to measure well-being more effectively?

With growth still a key policy target, GDP helps to measure economic performance and guide policy making for efficient use of available resources. At the same time, its limitations on well-being and problems caused by using growth alone as indicator has motivated indicators such as:

- Gross National Happiness (GNH):** Coined by the 4<sup>th</sup> king of Bhutan, Jigme Singye Wangchuck in the 1970's, GNH focuses on **four pillars- good governance, sustainable socio-economic development, cultural preservation and environmental conservation.**
- Human Development Index (HDI):** Launched in 1990 by the United Nations (developed by Mahbub ul Haq) to measure factors such as **education, income, and health.**
- Bare Necessities Index (BNI):** Introduced by the Finance Ministry in 2020-21, it assesses the **fulfillment of bare necessities** of life such as housing, water sanitation, electricity etc.
- Green GDP:** Also known as environmentally adjusted domestic product, it allows the cost of natural resource depletion and environmental degradation to be subtracted from GDP.
  - Gross Environment Product:** A component of Green GDP, it measures the ecosystem services or the benefits derived from natural resources and processes such as food, clean water etc.
- Genuine Progress Indicator (GPI):** Used to measure the economic growth of a nation, GPI takes into account the GDP as well as its negative social and environmental costs such as crimes, resource depletion, etc.



## Conclusion

Though each of them had their own criticism over methodology or other reasons, they can **complement GDP dataset for a wider set of objectives**. In essence, the most appropriate measure of well-being would be a combination of **reduced inequality, well-being of people, systemic resilience and environmental sustainability alongside economic growth**.

## 3.2. RETAIL DIRECT SCHEME

### Why in news?

RBI notified the **market making scheme** to promote **retail participation in government securities** by providing **prices/quotes to retail direct gilt (RDG) account holders** enabling them to buy and sell securities under the **Retail Direct Scheme**.

### More about news

- Under the market making arrangement, the primary dealers shall be present on the **NDS-OM platform** (odd-lot and Request for Quotes segments) **throughout market hours** and respond to **buy/sell requests from Retail Direct Gilt Account Holders (RDGAHs)**.
- Primary dealers will rely on the **Know Your Customer (KYC) verification of the RDG account holders** done under the **retail direct scheme**.

### Retail participation in G-sec: Background

- In the **Union Budget for FY 2021-22**, the government proposed to **consolidate various statutory Acts** like the Securities Exchange Board of India (SEBI) Act, 1992, and the **Government Securities Act 2007**, etc. into a **rationalised single securities markets code**.
- Consequently, the Reserve Bank of India (RBI) allowed **retail investors to participate in the government securities (G-Sec) market** (both primary and secondary) through 'Retail Direct', an **online portal** for trading.
  - India became **the third country, after the US and Brazil**, in enacting such a provision.
- Though, the RBI has been **allowing small investors to participate** in G-Sec market since 2001, it has not gained significant traction and is mostly **confined to institutional investors** as it is a **high-volume game and specialised** in nature.
- In November 2021, RBI came up with **Retail Direct scheme**.

### About Retail Direct scheme

- It is a **one-stop solution** to facilitate investment in Government Securities by **Individual Investors**.
- Under the scheme, retail investors can buy G-Sec directly and free of cost. Earlier investors could buy government securities **through gilt mutual funds**.
- The scheme provides the **following facilities** to retail investors in government securities market through an online portal:
  - Open and maintain a '**Retail Direct Gilt Account**' (RDG Account);
  - Access to **primary issuance** of Government securities;
  - Access to **NDS-OM**.
- **Non-Resident retail investors** eligible to invest in Government Securities under Foreign Exchange Management Act, 1999 are **also eligible** under the scheme.
- **Primary market participation**: Participation and allotment of securities will be as per the non-competitive scheme for participation in primary auction of government securities.
- **Secondary market transaction**: Registered investors can access the secondary market transaction link on the online portal to buy or sell government securities through NDS-OM (odd lot segment/RFQ).

### Definition of important terms

- **Retail investors**: Term retail investor refers to **individual investors** or retail traders. These are **non-professional investors** who purchase assets such as stocks, bonds, securities, mutual funds, and exchange traded funds (ETFs).
- **Primary dealers**: A primary dealer is a **bank or other financial institution** that has been approved to **trade securities** with a **national government**.
- **Gilt Account**: A "Gilt Account" means an account opened and maintained for **holding Government securities**, by an entity or a person.
- **"NDS-OM" or Negotiated Dealing Segment – Order Matching**: It means RBI's **screen based, anonymous electronic order matching system** for trading in Government Securities in the **secondary market**.
- **G-sec**: These are **debt instruments** issued by the government to borrow money. Two key categories are:
  - **Treasury bills**: **Short-term** instruments which mature in **91 days, 182 days, or 364 days**, and
  - **Dated securities**: **Long-term** instruments, which mature anywhere between **5 years and 40 years**.



- Providing **online access** to retail investors to invest in both primary and secondary government securities (G-Sec) markets will further **encourage and deepen retail investor participation** in this segment.

#### Benefits of the scheme

- **For investors:** Retail investors will get a new window, in addition to the existing small savings schemes, to **directly invest in fixed income instruments with sovereign guarantee**. Currently, G-sec market is dominated by **institutional investors** such as banks, mutual funds, etc. which trade in lot sizes of Rs 5 crore or more.
  - So, there is **no liquidity in the secondary market** for small investors who would want to **trade in smaller lot sizes**.
- **For RBI:** The move will help the central bank to keep down the costs of funds in light of government's mammoth **borrowing programme of ₹12 lakh crore in 2021-22**.
- **For Government:** Increase in the **investor base** will enable the government to **raise resources** for financing its **increased budgetary spending and** bridge its burgeoning **fiscal deficit**. It will also enable **better price discovery** in the G-Sec market.

#### Strengthening the pillars of retail G-sec market to make it more successful

- **Return on investment:** Investors generally evaluate different investment options based on **safety, liquidity, and 'yield to maturity'**. Yields on G-Secs are a function of **inflation, government borrowings, liquidity and volatility in the international markets, crude oil prices, and overall risk sentiment**.
  - While G-Secs usually **fare better in terms of safety, and offer higher yields than fixed deposits (FDs)** in banks, they provide **lower after-tax returns compared to other small savings instruments** such as deposits in post office, public provident fund (PPF), SSY etc.
  - Therefore, the government needs to **suitably compensate** the retail investors, including senior citizens, by **issuing tax-free bonds/price discounts** and the like.
- **Robust infrastructure:** Recent outage in **online digital services of HDFC Bank** highlighted the need for robust **trading infrastructure, cyber security and customer protection** to build **confidence** among the retail investors and enhance usage of **Retail-Direct**.
- **Financial and Digital literacy:** As public awareness about G-Secs is relatively lower, Retail-Direct will be successful when **financial and digital literacy** are imparted in **simple, clear and Indian languages**. **76 per cent of adults** in India do not even understand the **basic financial concepts** like interest rate, inflation, yield to maturity, etc. (**Standard & Poor's, 2015**).

### 3.3. UNEMPLOYMENT IN INDIA

#### Why in news?

India's unemployment rate went up to **7.91 per cent in December 2021** from **6.3 per cent in 2018-2019** and **4.7 per cent in 2017-18**.

#### More about news

- Unemployment is **more in the urban areas** as compared to the rural areas.
- Unemployment among **women is higher** than men, both in urban as well as rural areas.
- Further, of the women willing to seek work in **urban areas, 92.1 per cent don't** get any work. This count for rural women stands at **54.8 per cent**.

#### About unemployment

- The term unemployment refers to a situation when a person who is **actively searching** for employment is **unable to find work**. Unemployment is considered to be a **key measure of the health** of the economy.
- The **unemployment rate** refers to the unemployed who are willing to work and are actively looking for a job expressed as a **per cent of the labour force**.
- **Labour force** consists of persons who are of **15 years of age or more** and are either of the following two categories:
  - are **employed**;
  - are **unemployed** and are willing to work and are actively looking for a job.

## Causes of unemployment in India

- **Workers are moving off Indian farms:** There has been a **dramatic reduction** in prime working-age (age group of 20 to 59 years) Indians **engaged in agriculture**, with their share falling to **23.3% in 2018-19 from 40% in 2004-05**.

- But this decline is **not mirrored in a corresponding increase** in the proportion of prime-age adults **taking up non-farm jobs**. Rather, it is reflected in an increase in the share of prime adults **leaving the labour market**.

- **Low participation of women in the workforce:** This is because of reasons like:

- **Mechanisation of agriculture** has had a huge **adverse impact on female labour force** participation in the agriculture.
- India's manufacturing sector is **not labour-intensive** which has made it **difficult to compensate women** who got displaced from agricultural jobs.
- Women's role as **primary caregivers, cultural norms and deep roots of patriarchy**.
- If family **incomes increase**, women may drop out of work, which is a **cultural phenomenon** in India.
- **NITI Aayog's 2017-20 agenda** says that women tend to be **paid less**, work in **less productive jobs** and are overrepresented in **unpaid care work** and engaging in **vulnerable forms of employment**.

- **Decline in manufacturing jobs:** **Automation and multi-skilling** has reduced the need for human resources.

- **Poor quality of jobs:** According to a ILO report (2018), while there has been a **strong job creation in some ICT- intensive services**, a significant portion of these jobs have been in traditional **low value-added services**, where **informality and vulnerable forms of employment** are often dominant.

- **Shrinking public sector:** Government jobs, which were **19.5 million** in 1996-97, were about **17 million** in 2016. There has been a **decline of 89 per cent in the direct recruitment** in central government ministries and departments **in 2015 as compared to 2013**.

- Union and state governments are either **reducing posts** or going for **contract workers**.

- **Inadequate attention to small and medium enterprises (SMEs):** SMEs are **more labor intensive** than that of large firms. However, **big companies remain the main beneficiaries** of the fiscal policy of the government.

## Periodic Labour Force Survey (PLFS)

- Considering the importance of **availability of labour force data** at more frequent time intervals, **National Statistical Office (NSO)** launched **Periodic Labour Force Survey (PLFS)** on April 2017.
- On the basis of PLFS, **Quarterly Bulletins** are brought out, corresponding to **different quarters of the survey period**, giving estimates of labour force indicators, viz., **Labour Force Participation Rate (LFPR)**, **Worker Population Ratio (WPR)**, **Unemployment Rate (UR)**, **distribution of workers** by broad status in employment and industry of work in the **Current Weekly Status (CWS)** for the urban areas.

## Key Terms

- **Labour Force Participation Rate (LFPR)** is defined as the percentage of persons in labour force (i.e. working or seeking or available for work) in the population.
- **Worker Population Ratio (WPR):** WPR is defined as the percentage of **employed persons** in the population.
- **Unemployment Rate (UR):** UR is defined as the **percentage of persons unemployed** among the persons in the labour force.
- **Activity Status- Usual Status:** The activity status of a person is determined on the basis of the **activities pursued** by the person **during the specified reference period**. When the activity status is determined on the basis of the **reference period of last 365 days** preceding the date of survey, it is known as the **usual activity status** of the person.
- **Activity Status- Current Weekly Status (CWS):** The activity status determined on the basis of a reference **period of last 7 days preceding the date of survey** is known as the current weekly status (CWS) of the person.
  - As per CWS status, a person is considered as unemployed in a week if he **did not work even for at least one hour on any day during the reference week** but sought or was available for work.



- **Rise in voluntary unemployment:** Voluntary unemployment refers to a situation where **people choose not to work below a certain income** level after 'investing' in education. CMIE data based on a household survey has shown dramatic rise in **voluntary unemployment**.
- **Lack of employability:** According to India Skills Report (ISR), **less than half** of the Indian graduates are employable. In 2021, as many as **45.9 per cent** of graduates are employable, a decline **from 46.21 per cent in 2020 and 47.38 per cent in 2010**.

#### Impact of COVID-19 on employment

Key trends observed	Details
Unemployment rate remains notably higher than the pre-COVID period	<ul style="list-style-type: none"> <li>During the <b>October-December quarter</b> of 2020 (latest data available), unemployment rate had reduced to <b>10.3% from 20.9%</b> during the <b>April-June quarter</b>. However, it was notably higher than the unemployment rate in the same quarter last year (<b>7.9%</b>).</li> </ul>
Recovery post-national lockdown uneven in case of females	<ul style="list-style-type: none"> <li>Since the onset of the COVID-19 pandemic, the prevalent male-female gap seems to have widened. During the October-December quarter of 2020, the <b>unemployment rate for females was 13.1%</b>, as compared to 9.5% for males.</li> </ul>
Marginal changes in Labour Force Participation Rate (LFPR)	<ul style="list-style-type: none"> <li>The LFPR saw <b>only marginal changes</b> throughout 2019 and 2020.</li> <li>During the April-June quarter (where COVID-19 restrictions were the most stringent), the LFPR was 35.9%, which was <b>lower than same in the corresponding quarter in 2019</b> (36.2%).</li> </ul>

#### Great Resignation

- Great Resignation is an idea that predicts a **large number of people leaving their jobs** after the COVID pandemic ends and life returns to normal. Thus companies have to navigate the **ripple effects of the pandemic** and re-evaluate **how to retain talent**.
- Estimates indicate that in 2021, **75.5 million people** in America **resigned in 2021** leading some analysts to describe this phenomenon.
- **Reasons:** Low salary, burnouts, limited opportunities, poor employee benefits, toxic corporate culture, instability etc.
- **What can be done?:** Healthy work culture, creating a **better workplace** by hosting more cooperate social events, providing employees with benefits like **happy hours** and organising more **excursions outside the office**.

#### Few Recent initiatives taken by the central government to support workers

- **Pradhan Mantri Garib Kalyan Yojana (PMGKY):** Under scheme, central government contributed **both 12% employer's share and 12% employee's share** under Employees Provident Fund (EPF).
- **Aatmanirbhar Bharat Rozgar Yojna (ABRY) Scheme:** Launched in October 2020 to **incentivise employers** for the creation of new employment along with social security benefits and **restoration of loss of employment** during the COVID-19 pandemic.
- **Increase in unemployment benefits:** The unemployment benefit under the **Atal Beemit Vyakti Kalyan Yojana** (launched in July 2018) was enhanced from 25% to 50% of the average earning for insured workers who have lost employment due to COVID-19.
- **Prime Minister's Street Vendor's Aatma Nirbhar Nidhi (PM SVANidhi) scheme:** As part of scheme, the central government provided an **initial working capital of up to Rs 10,000** to street vendors. As of June 2021, Rs 2,130 crore disbursed to **21.57 lakh beneficiaries**.
- **Interlinking of databases:** In **Union budget 2022**, it has been announced that portals such as **Udyam, e-Shram, National Career Service (NCS) and Atmanirbhar Skilled Employee-Employer Mapping (ASEEM)** will be interlinked to act as **live, organic databases**, providing G2C, B2C and B2B services.
  - These services will relate to **credit facilitation, skilling, and recruitment** with an aim to further **formalise the economy** and enhance **entrepreneurial opportunities** for all.

#### What more can be done to overcome the challenges?

- **Need of a comprehensive national employment policy:** National employment policies seek to **explicitly link growth and economic strategies to employment creation** and diagnose the challenges and opportunities for **productive job creation**.
- **Transformation of rural economy:** Economic returns from **States initiatives in transforming the rural economy** from traditional agriculture to **more value-added activities** like horticulture has been demonstrated well in states such as Maharashtra and Himachal Pradesh.



- Another area requiring attention is **tackling the bottlenecks** in the availability of **business services institutions** like training, banking, insurance, storage facilities etc.
- A **massive improvement in infrastructure** is required to promote growth of **rural industries on a sustainable basis**.
- **Recommendations of Standing Committee on Labour (2021 report):**
  - The Committee recommended central and state governments to:
    - ✓ Encourage **entrepreneurial** opportunities,
    - ✓ **Attract investment** in traditional manufacturing sectors and developing industrial clusters,
    - ✓ Strengthen **social security** measures,
    - ✓ Maintain a **database** of workers in the informal sector, and
    - ✓ Promote **vocational training**.
  - To increase women participation, it recommended:
    - ✓ Increasing government procurement from **women-led enterprises**,
    - ✓ **Training women** in new technologies,
    - ✓ Providing women with **access to capital**, and
    - ✓ Investing in **childcare and linked infrastructure**.

#### Related news

##### World Employment and Social Outlook: Trends 2022 Report

- **Published by International Labour organization**, report details effects of COVID-19 crisis on the world of work.
- **Key highlights**
  - **Global unemployment is projected to stand at 207 million in 2022**, surpassing 2019 level by some 21 million.
  - In 2020, an additional **30 million adults fell into extreme poverty** (living on less than US\$1.90 per day).
  - **Pandemic is deepening various forms of inequality** (gender inequity, digital divide etc).
  - Report recommends a **Human-centred recovery based on four pillars**: inclusive economic growth and development; protection of all workers; universal social protection; and social dialogue.

## 3.4. AGRICULTURAL EXPORTS

### Why in news?

According to the commerce ministry, country's **agricultural exports** are anticipated to **exceed US\$ 50 billion** for the "first time" this fiscal year.

### More about news

- **Rice exports** are expected to reach **21-22 million tonnes** this year. Non-basmati rice, wheat, sugar, and other grain exports have also seen healthy growth.
- **Marine product exports** are expected to **exceed US\$ 8 billion** for the "first time" this fiscal year.
- **Coffee exports** have registered a healthy growth of **around 35%**.
- **Government had taken number of steps** to increase exports like:
  - **Extending the validity** of various certifications/accreditations beyond their expiration dates;
  - Establishing **control rooms** to handle issues;
  - Issuing **online certificates** for exports; and
  - Enabling the opening of **more testing facilities**.

### About India's Agricultural Exports

- **Share in world trade:** India has been a **net exporter** of agri products **since the economic reforms began in 1991**. As per WTO's Trade Statistics, **share of India's agricultural exports** and imports in the **world agriculture trade** in 2017 was **2.27%** and **1.90%**, respectively.
- **Share in overall domestic exports:** India's total exports have an **11 per cent contribution** from **agricultural and processed food products**.
- **Key Exported commodities:** Among key agriculture commodities exported from India were **marine products, basmati rice, buffalo meat, spices, non-basmati rice, cotton raw, oil meals, sugar, castor oil and tea**.

- **Key Destinations:** Indian agricultural/horticultural and processed foods are exported to more than **100 countries/regions**.
  - For the agriculture and allied products exports, **USA was the largest export destination** during 2020-21 and China was the second largest. Other major destinations were **Bangladesh, UAE, Vietnam and Saudi Arabia**.
- **Export as percentage of GDP:** The agricultural exports as a percentage of India's agricultural GDP has increased from 9.4 % in 2017-18 to **9.9 %** in 2018-19.

#### Constraints in Agricultural exports

- **Poor backward integration:** The backward integration in India especially for perishables is **inefficient and unorganized**, resulting in **quality and longevity issues**.
- **High cost due to poor logistics:** Poor logistics are **estimated to add 6-8% to the Free On Board (FOB) cost** when compared to developed countries like Germany, Singapore, and Hong Kong.
  - FOB costs include **transportation of the goods** to the port of shipment, **loading the goods** onto the shipping vessel, **freight transport, insurance, and unloading** and transporting the goods from the arrival port to the final destination.
- **Lack of synergy:** There is a lack of synergy between the **state and central government** as **agriculture is a state subject**, while **"trade and commerce"** are in the **Union list**.
- **Lack of Training & Skill development:**
  - **At farm level:** **Unregulated input** (chemicals) usage at the farm level and **Inadequate harvest and post-harvest management** affects **quality and shelf life** of the produce.
  - **At exporters' level** regarding documentation and procedures to be followed for exports and lack of awareness on **existing schemes and policies** related to exports.
- **Low Value addition:** India has remained at the **lower end of the global agri export value chain** given that majority of its exports are **low value, raw or semi-processed** and marketed **in bulk**. The share of India's **high value and value added agri produce** in its agri export basket is **less than 15%** compared to 25% in US and 49% in China.
- **Non-tariff barriers (NTBs):** Indian agriculture exports face NTBs in attractive markets such as Europe (e.g., **more stringent inspections** than for other top exporting countries). NTBs and **lack of strong trade agreement with target markets** are key inhibitors to dramatically increasing Indian agriculture exports.
- **Quality issues:** Indian agriculture commodities meet the **sanitary and phytosanitary (SPS) standards of the domestic market** but encounter **issues in US and EU**. SPS issues lead to **at-port rejections**, especially for **shrimps and spices** and limit India's ability to significantly penetrate the European market.
  - For instance, India has the **highest number of US notifications and refusals between 2014 and 2018**, underscoring the quality challenges India will need to grapple with to grow exports.
- **Other constraints:**
  - **Uncertain government policies** (e.g., export bans, policies that **artificially impact the prices** of commodities, **inward-looking policies** that focus more on **food security** etc)
  - **Competitiveness challenges** vis-à-vis countries such as Vietnam;
  - **Low yields, rain fed farms and high wastage** leading to higher production costs and limited buffer for exports;
  - **Unable to export its vast horticultural produce** due to **lack of uniformity in quality, standardization** and its inability to curtail losses across the value chain.

## Significance of Agricultural Exports



- **Reduces post-harvest losses** which are high (range from 8-18%);
- **Improved income** through value addition at source;
- **Helps in earning revenue;**
- **Employment generation** along value chain.



- **Reduces Food insecurity** across the globe;
- **Greater choice for consumers;**
- **Availability of cost effective products;**
- **Opportunities for specialisation** by country with comparative advantages

## Road Ahead

- **Policy alignment:** Domestic policies and schemes would need to **align with the disruptive modifications** that Artificial Intelligence, IoT, and Blockchain will bring to the field in the coming days. The policies relating to **Minimum Support Price (MSP)** will also have to be made **WTO compliant**.
  - Tweaking of products to meet **specific consumer tastes**, scouting potential markets, and **understanding the requirements** will also need to be taken up **scientifically**.
- **Addressing SPS issue:** A **unified body** that can handle all Sanitary-Phyto Sanitary (SPS) issues **from a single window** can be considered.
  - The **USDA and USFDA in the US** and the **FSVPS in Russia** are examples of how international authorities **deal with market access requests** for imports and exports, keeping them in a dominating position to **make an adequate quid pro quo**.
- **Recommendations made by HLEG set up by 15th FC:** These include, inter alia:
  - Centre should be an **enabler**;
  - Create **State led export plan** with participation from stakeholders.
  - Need for **higher investments in R&D, technology** with regulatory clarity around IP issues.
  - Create a **sharper, more coordinated investment strategy** specifically for promotion of agricultural exports, with a focus on **value addition**.
- **Strengthening agri-food supply chain:** To emerge as a top global exporter, various elements of the agri-food supply chain like **Agri-production practices**, Supply chain and **logistics**, delivering transparency and traceability using technology etc needs attention.
  - The **quality regimen** system needs to be strengthened **end to end**, from the choice of seeds to production practices, to **better planning and storage**, to ensure **reliable and unbroken supply to global clients**.

### Agriculture Export Policy

A **comprehensive Agriculture Export Policy** has been brought in 2018, with a focus on agriculture **export oriented production**, export promotion and **synchronization** within policies and programmes of Government of India.

#### Objectives:

- To **diversify** our **export basket, destinations** and boost high value and value added agricultural exports, including focus on **perishables**.
- To promote **novel, indigenous, organic, ethnic, traditional and non-traditional** Agri products exports.
- To provide an **institutional mechanism** for pursuing market access, tackling barriers and dealing with sanitary and phytosanitary issues.
- To strive to **double India's share in world agri exports** by integrating with **global value chains**.
- Enable **farmers to get benefit of export opportunities** in overseas market.

## 3.5. RAILWAY SAFETY

### Why in News?

After a recent train accident in West Bengal killing at least 9 people, the Railway Board Chairman asked for a thorough probe to identify all aspects related to the accident.

### Indian Railways and the importance of safety

Indian Railways is one of the largest railway systems in the world, carrying nearly **23 million passengers** per day (Pre COVID-19) and around **1.1 billion tonnes of freight**; passing through nearly 8700 railway stations.

With fast, safe, and secure mobility being a key concern over such a long network, a number of committees and subsequent initiatives are taken by Indian Railways. This includes dedicated **Committees on Safety** as well as other committees making recommendations to ensure safe and secure travel such as:

- **Railway Safety Review Committee** (Khanna Committee) in 1998,
- **High Level Safety Review Committee** (Kakodkar Committee) in 2012
- **Expert Group for Modernization of Indian Railways** (Pitroda Committee) in 2012,
- **Committee for Mobilization of Resources for Major Railway Projects and Restructuring of Railway Ministry and Railway Board** (Debroy Committee) in 2015.





## Initiatives to create a Fast, Safe and Secure-Indian Railways Network

Creation of **Railway Safety Fund (RSF)** in **2001** to finance works related to conversion of all unmanned level crossings and for construction of Road Over Bridges (ROBs) and Road Under Bridges (RUBS)\*.

Replacing conventional **Integral Coach Factory (ICF)** coaches with technologically superior **Linke Hofmann Busch (LHB)** Coaches. Now, added **Vistadome coaches** on LHB with panoramic view.

**Improved Signaling and Communication**, equipping trains with protection warning systems, installation of **Closed Circuit Television (CCTV) Cameras** in more than 2,900 coaches etc.

Creation of **Rashtriya Rail Sanraksha Kosh (RRSK)** in 2017-18 as a dedicated fund for safety with a corpus of **Rs.1 Lakh crore** over a period of **5 years** for **clearing the backlog** of critical safety related works.

Launch of **Vision 2024** for accelerated implementation of certain **critical projects by 2024** such as 100% electrification, live multi-tracking of congested routes, upgradation of speed etc.

Set up of **State Level Security Committee for Railways (SLSCR)** for passenger safety and security under the Chairmanship of DGP of respective States/UTs for regular monitoring and review of platform security arrangements.

All unmanned level crossings were eliminated by 2019 with ongoing work on replacing manned level crossings with ROBs/RUBs to improve safety and mobility

Presently, review/approval of safety aspects in railways is done by the **Commission of Railway Safety**, an independent institution under the Ministry of Civil Aviation.

### Commission of Railway Safety

- It is a **statutory body** (HQ: **Lucknow**) established under the **Railways Act, 1989**.
- It deals with matters pertaining to safety of rail travel and train operation including investigation on serious rail accidents.

### What has been the outcome of these initiatives?

- Train Collisions and Derailments:** Between **2014-15** and **2019-20**, the number of such accidents and number of deaths reduced from **135 to 55** and from **292 to 5** respectively.
- Passenger Safety:** As per NCRB, as compared to **27,987 accidents** in **2019**, **13,018 accidents** happened in **2020** leading to death of nearly **12,000** railway passengers.
  - Around **8,400** people or 70% lost their lives either due to falling off from the train or while crossing the railway track.
- Road Users Safety:** Around **1,014 accidents** reported at various railway crossings with **1,185 deaths**.
- Rescue from Human Trafficking:** Over **2,000 women** and children during 2017-21.
  - Indian Railways launched '**Operation AAHT**', a nationwide operation to curb **human trafficking** (with traffickers often using Indian Railways network).

### Gaps in creating a Safe and Secure Railway Network

Statistically, the Indian Railways performance on fast, safe and secure mobility count has been steadily improving. But a large number of safety concerns still remain. As the density of traffic is increasing with trains becoming heavier and faster, Indian Railway Network faces number of gaps in safe and secure mobility such as:

- Structural gaps:** Huge backlog of renewal and replacement of over aged assets for safe running of railways. According to the **Standing Committee on Railways** (in 2019), Indian Railways network has 1,47,523 number of bridges with serious issues over care as:
  - 92% of them are classified as minor bridges and **37,689 bridges are 100 years or older**.
- Operational gaps:** Lack of **Fire Detection System**; issues of maintenance of tracks with some of the railway network

being in extreme weather conditions.

- **Financial Gaps:** The severely underwhelmed railway finance due to poor internal resource generation for capital expenditure (around 3-3.5% of total capex) limits the financial capabilities of Indian Railways.
  - For instance, from **1950 to 2016**, only **23%** increase in rail network while passenger and freight traffic increased by **1344%** and **1642%** respectively.
- **Railway Staff Lapses:** Out of 13,018 accidents in 2020, 12,440 accidents happened due to **locomotive pilot fault**. Rest was due to errors on part of the signalman, mechanical errors, poor track repair infrastructure, bridge/tunnel collapse etc.
- **Other Gaps/Issues:** All States/Union Territories are yet to form **State Level Security Committee for Railways**; Gaps in providing Safe Drinking Water and other amenities to passengers; issues of water Logging in Railway Under Bridges (RUBs); yet to accept important recommendations of various committees such as creation of railway safety authority.

### Way Forward

Safety is **not an attribute but an ethos** that should be instilled and nurtured. Like the **National Rail Plan** with an objective to create capacity ahead of demand, Indian Railways should have a safety plan for qualitative and quantitative improvement in its network safety. This includes steps like:

- **Renewal or Replacement of railway network** to ensure structural safety of old tracks/bridges to meet dynamics of heavier and faster trains of present and future.
  - E.g. Re-evaluating existing classification of bridges or classifying old bridges as special/separate segments to ensure separate inspection and maintenance.
- **Augmentation of internal resources** to replace obsolete technology and materials while creating new infrastructure.
  - Also, ensure full utilization of various funds to meet the objectives of the creation.
- **Encouraging Indigenous R&D in railway safety** to make optimum use of indigenous technology for safety as well as to reduce passenger casualties, road users casualties etc.
- **Set up of Rail Safety Authority** to co-ordinate with various railways departments, helping the concerned departments to discharge their safety functions effectively.
  - It can also help to address upcoming challenges like **cyber-attacks/data theft** to the Passenger Reservation System.
- **Set up of State Level Security Committee for Railways** by all states/UTs at the earliest for increased co-ordination and addressing misuse of railway network by criminal elements.
- **Creating a code of conduct for safety** to infuse the safety ethos among employees, helping to **address human errors as well through behavioral changes**.

## 3.6. DESIGN LINKED INCENTIVE (DLI) SCHEME

### Why in News?

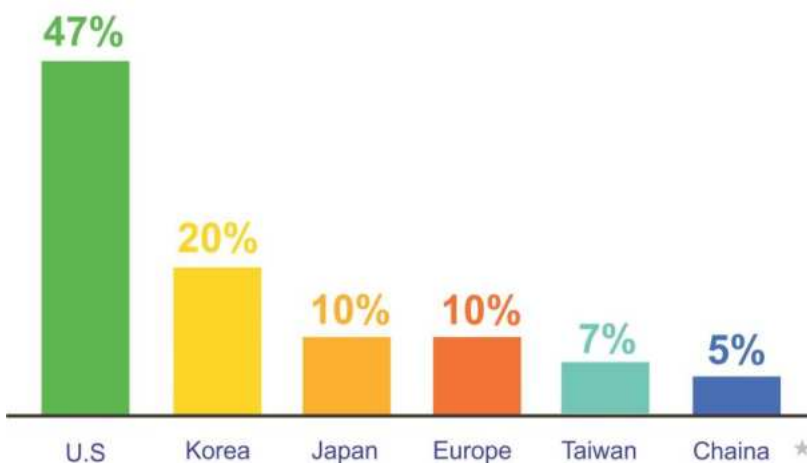
Recently, the central government invited applications from domestic companies, start-ups and MSMEs under its **Design Linked Incentive (DLI) Scheme**.

### About Semiconductors Industry

**Semiconductors**, which are the **elemental parts** of integrated circuits, microchips or just chips are the brains of **modern electronics**.

- **Applications:** They are the **driving force** behind the **next phase of digital transformation** under **Industry 4.0** with Medical devices, communication systems, computing, defense, transportation, clean

### 2020 GLOBAL MARKET SHARE



energy etc. or the future technologies such as artificial intelligence, quantum computing, and advanced wireless networks, all requiring semiconductors.

- **Market Distribution:** It is a **very complex and technology-intensive sector** with dominance of few companies and nations (see image).
- **Highly significant:** Due to their vital role, demand and supply imbalance, talent shortage etc., the move to **localize the semiconductor industry has gained momentum** to solve supply chain issues.

#### About DLI Scheme and its Components

- **DLI Scheme is part of Indian semiconductor localization move**

announced last year as part of **₹76,000 crore** (\$10 billion) **Programme for Development of Semiconductors and Display Manufacturing Ecosystem in India.**

- **DLI aims to nurture at least 20 domestic companies** involved in semiconductor design and facilitating them to achieve turnover of more than **₹1500 Crore** in the next **5 years**.
- **Nodal Agency: C-DAC** (Centre for Development of Advanced Computing).
- The scheme has **three Components**:



S. No.	Component	Support Mechanism
1.	<b>Chip Design Infrastructure Support</b>	<b>C-DAC</b> to set up <b>India Chip Centre</b> to host the state-of-the-art design infrastructure and facilitate its access to supported companies.
2.	<b>Product Design-linked Incentive</b>	A reimbursement of <b>up to 50%</b> of the eligible expenditure, subject to a ceiling of ₹15 crore per application will be provided to the approved semiconductor designing applicants.
3.	<b>Deployment Linked Incentive</b>	An incentive of <b>6% to 4%</b> of <b>net sales turnover</b> over <b>5 years</b> , subject to a ceiling of ₹30 Crore per application will be provided to approved applicants whose semiconductor design for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores and semiconductor linked design are deployed in electronic products.

The scheme will encourage companies to **retain their domestic status** (for 3 years) after claiming scheme incentives and take a **graded and pre-emptive approach** to identify the products of national priorities and implement strategies towards their Indigenisation & deployment.



- Provide funds for R&D under rising development costs and need of design requiring 12-20% of company sales back into R&D
- Create Vibrant semiconductor ecosystem, helping in development of modern complex chips requiring years of work by engineers, often leveraging external IP and design support services.
- Help Domestic Companies to become part of Global Value chain, providing access to large and growing markets worldwide.
- Promote Innovation, helping in technological development, greater productivity and efficiency.

## BENEFITS FOR THE INDUSTRY



## BENEFITS



## BENEFITS FOR THE COUNTRY

- National Security, by ensuring Digital Sovereignty and security of Critical Information Infrastructure.
- Technological leadership, by helping in area of strategic importance and self-reliance.
- Economic Strength: Contribute towards creation of US\$1 trillion Digital Economy with multiplier effect to achieve US\$5 trillion economy by 2025.
- Other Benefits: Lower consumer price and transform all other sectors involving use of semiconductors such as transportation, energy, agriculture etc.

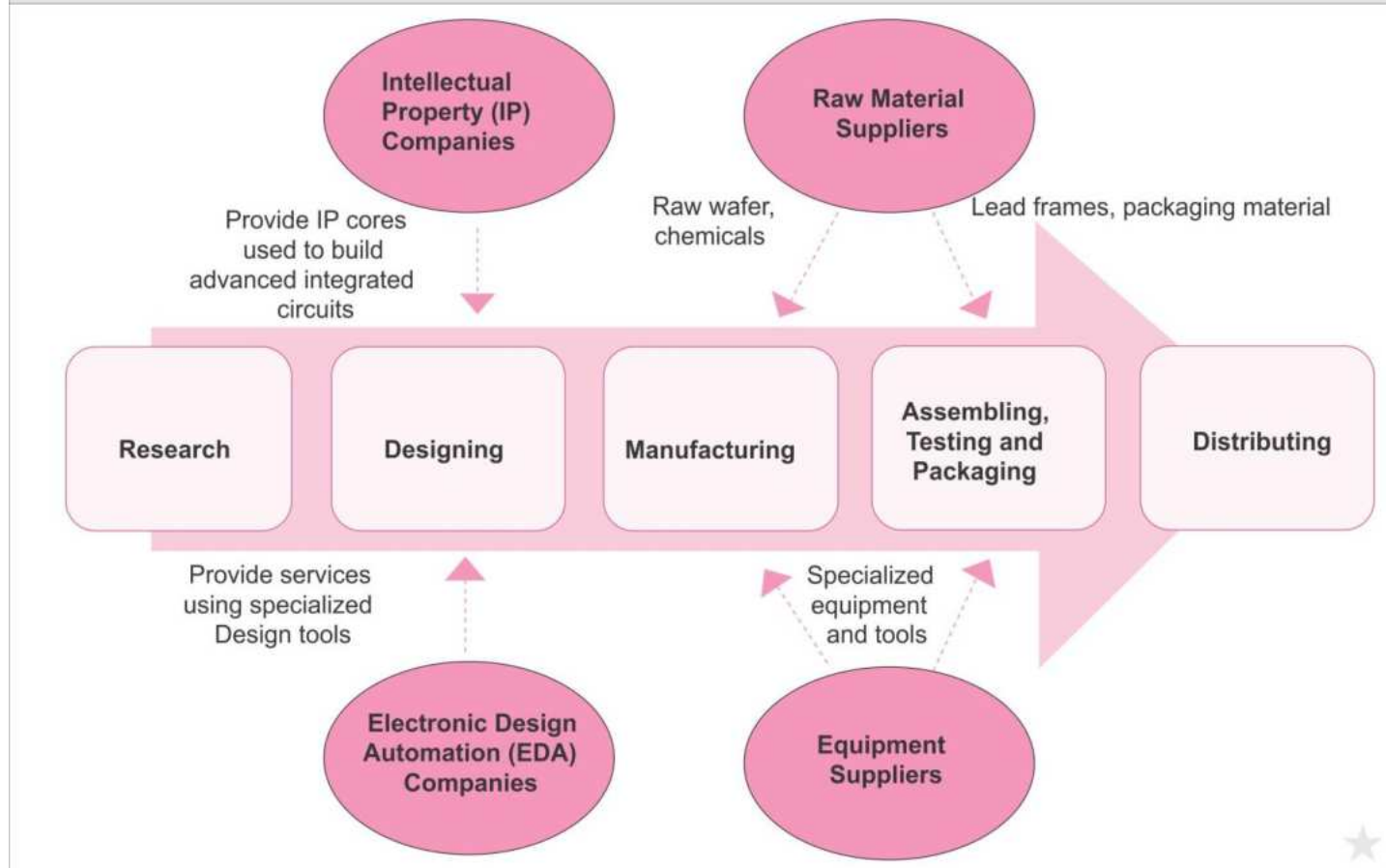
## Challenges to the Scheme

- **Rapid changes in technology:** In line with Moore's law, the chips are becoming more complex with shrinking structures on chips; compel companies to create new products.
- **Industry Dynamics:** High Risk sector with few winner-take-all dynamic, making leading-edge capabilities vital within several segments. E.g., if a product or service is marginally better than competitor's, it captures an outside portion of industry revenue.
- **Need deep specialization and expertise:** Increasing product complexity with growing nanometer scale integrated circuits; requiring highly advanced electronic design automation (EDA) software and reusable architectural building blocks ("IP cores").
- **Threats to Supply Chain:** Due to **Covid-19 crisis** and **geopolitical tensions**, the semiconductor supply chain faces many obstacles including tariffs enacted on the industry.
  - According to Accenture and Global Semiconductor Alliance study, each segment of the semiconductor value chain has, on average, **25 countries involved in the direct supply chain** and **23 countries involved in supporting market functions**.
- **Other Challenges:** Large capital investment requirement, availability of raw material, long gestation and payback periods, and needs of global innovation for success of technology.

### Moore's Law

- It refers to **Gordon Moore's** prediction on **exponential growth** of number of transistors on a chip, doubling every two years with decrease in relative costs.
- Although the pace has slowed recently, but faster, smaller, and affordable chips are rapidly changing the modern-day electronic industry.

# Semiconductor Ecosystem



## Way Forward

With **20%** of world's semiconductor design engineers and support under **National Policy on Electronics 2019**, India can achieve self-reliance and technology leadership in **semiconductor ecosystem** (refer infographic) through:

- **Promotion of leading-edge research** through collaboration between industry and academia.
- **Work on supply-chain resilience** to ensure availability of components and equipment from suppliers around the world.
- **Improve patent environment to protect Intellectual Property** as the payback has a long gestation period.
- **Create a positive business environment** through long-term policy, provision of tax benefits, establishment of industrial clusters etc. to prompt firms to move operations to India.
- **Increase government investment in skill development** to provide necessary talent in all parts of ecosystem.
- **Create trade-facilitating conditions** to make domestic companies, start-ups and MSMEs part of global value chains.
- **Improve logistics facility with reduction in costs** (port costs, freight and insurance costs etc.) as semiconductor industry involves geographic dispersion of operations.

## 3.7. TELECOM SECTOR

### Why in News?

Recently, several telecom companies opted for government offer to convert interest on deferred spectrum auction payments and adjusted gross revenues (AGR) into equity.

### Indian Telecom Sector

- It is the **2<sup>nd</sup> largest telecom sector** of the world with- **tele-density** of **86.89%** or **118.9 crore** telephone connections (September 2021) including **116.59 crore** mobile connections.

- **Tele-density** represents the number of telephone connections for every 100 individuals.
- In terms of **Urban-Rural** India, around **66 crore** connections are in **Urban India** and **53 crore** in **Rural India** (Rural tele-density of **59%**).
- Total internet connections were **83.37 crore** (June 2021) with total FDI in telecom sector rising from **₹62,386 crore** (in 2002-14) to **₹1,55,353 crore** during 2014-21.

#### Background of the issue

- **Increased Adjusted Gross Revenue (AGR):** In 2019, Supreme Court upheld the Department of Telecommunications (DoT) definition of adding Non-telecom revenue also in AGR; adding nearly **₹1.4 lakh crore** as dues on Telecom Service Providers (TSPs) due to the AGR definition.
  - AGR is the revenue amount used to calculate the license fee and spectrum charges required to be paid by TSPs on their revenue.
- **Poor revenue streams: Lower Average Revenue Per Subscriber (ARPU) per GB wireless data (reduced from ₹268.97 in Dec. 2014 to ₹9.8 in June 2021, i.e. 96% reduction.**
  - Also, Over the top (OTT) services **to send messages, make call etc. has reduced revenue from core services of call and message**

These financial issues alongside other issues like poor infrastructural availability etc. led to a **Huge debt of over ₹3.6 lakh crore** over TSPs with some suffering much more than others.

As a way out of this, government offer to convert interest on deferred spectrum auction payments and adjusted gross revenues (AGR) into equity, which has been accepted by some TSPs.

#### Potential Benefits of Reform

Under this, the companies will issue shares to the government on a **preferential basis** through the **Specified Undertaking of the Unit Trust of India (SUUTI)**.

This can lead to benefits such as:

- **Promotion of healthy competition**, by keeping at least three private players in the market,
- **Protecting Consumers interest** by avoiding Duopoly or monopoly which reduces competition and decreases the risk of higher prices & poor services.
- **Space for cash-strapped firms**, helping them to retain the ability to continue and improve its business to clear dues over a longer period;
- **Employment protection** of existing people and generate future employment opportunities, encourage investment and reduce regulatory burden on Telecom Service Providers (TSPs);
- **Infuse liquidity** in the sector to continue with investment in far-flung areas by raising funds and pave the way for the entry of new players.
  - It can boost 4G growth and create an enabling environment for investment in 5G networks.

#### About SUUTI

- It was formed by restructuring the erstwhile **Unit Trust of India (UTI)** into UTI Trustee Company Private Limited and the SUUTI.
- It came into effect on **1 February, 2003** on the passing of the **Unit Trust of India (Transfer of Undertaking and Repeal) Act, 2002**.

#### Way Forward

The move has helped the TSPs ward off a financial crisis for the time being, but it **cannot be a substitute for the structural reforms in the sector** such as adoption of the National Digital Communications Policy (NDCP)-2018.

**To know more about the Telecom Sector, refer to our September 2021 Monthly Current Affairs article 3.7. Telecom Sector.**

## 3.8. GENERAL NETWORK ACCESS (GNA)

#### Why in news?

Central Electricity Regulatory Commission issued draft Connectivity and **General Network Access** to the inter-State Transmission System Regulations, 2021.



## What is General Network Access (GNA)?

- GNA means **open and non-discriminatory access** to the inter-State transmission system. This is in keeping with the concept of “**one nation, one grid**”.
- The system does away with **unnecessary contracts** between power **producers and the bulk consumers** for delivery of power. Any producer will have right to access to any consumer as far as the quantum contracted is met.
- Central Electricity Authority initiated the **idea of GNA** for:
  - **Proper planning** of transmission system and
  - Assured recovery of **transmission charges** from the applicant.

## About the Regulations

- **Regulations** provide for a **regulatory framework** to facilitate **non-discriminatory open access** to licensees or generating companies or consumers for use of **inter-State transmission system (ISTS)** through General Network Access and **consolidate the related regulations**.
  - These regulations shall come into force **on such date as the Central Commission** may notify.
- **Entities eligible for connecting to ISTS:** Eligible entities include types of **Generating stations, Captive generating plants, Standalone Energy Storage Systems (ESS) and Renewable Power Park Developer**.
- **Dedicated transmission lines:** If the connectivity is granted to a **generating station or a captive generating project, or a standalone ESS**, the dedicated transmission lines should be **established, operated, and maintained** by such entities.
  - In the case of a renewable power park developer, the dedicated transmission lines will be **developed, owned, and operated by the developer**.
- **Eligibility for GNA:** The following entities shall be eligible for grant of GNA:
  - **State Transmission Utility** on behalf of distribution licensees connected to intra-State transmission system and other intra-State entities;
  - A buying entity **connected to intra-State transmission system**;
  - A **distribution licensee or a Bulk consumer**, seeking to connect to ISTS;
  - **Trading licensees** engaged in cross border trade of electricity;
  - **Transmission licensee** connected to ISTS for withdrawal of auxiliary power;
  - Entities **connected to the inter-State Transmission** or for whom Connectivity granted under Connectivity regulations has become effective, **shall be eligible** for applying for grant of GNA.
- **Grant of GNA to entities other than STU:** Entities granted **connectivity to ISTS will be deemed to have been granted GNA**, equal to the quantum of connectivity from the start date of connectivity.
- **Temporary GNA (T-GNA):** Certain entities like Distribution licensee or Bulk consumer directly connected to ISTS, Captive generating plant etc are eligible to apply for T-GNA to ISTS.

## Benefits of GNA

- **For power generators and consumers:** It will ensure that a generator focusses **only on producing power**. Currently, a power generator has to work out **how the supply will be done** due to the **point-to-point access concept** which is **restrictive**. GNA will allow them to **supply from any point**.
  - **For Consumers** will not have to be worried about **where the supply will come from and what energy source** it will come from. The quantum contracted for will be transmitted to the consumer.
- **Will support country's Renewable Energy programme:** At present, power evacuation from renewable energy projects is **hampered by transmission constraints** in renewable-rich states.
  - For instance, the **intra-state grid in Tamil Nadu** is not capable of **accommodating the peak wind generation** during the monsoon season due to **low demand** in the state, while the excess power **cannot be transmitted to other states** due to the few interconnections with the ISTS.
- **Encourage investments:** GNA is expected to **increase investments in the transmission segment** by providing **hassle-free access to the ISTS network** to renewable energy generators. An ICRA note stated that an **Investment of Rs 1.8 trillion** is expected from FY2021 to FY2025 in the **transmission segment** at the all-India level, driven by the need for **evacuation infrastructure** for renewable energy projects.

- **Other benefits:**
  - Ensure **reliable transmission access** to power utilities;
  - Empower state power distribution and transmission companies to **determine their transmission requirements and build them**;
  - States will be able to **optimise their power purchase costs**;
  - Enable the country to **develop deeper power markets**.

#### Challenges in utilizing the GNA

- **Difficult to forecast demand:** It may not be possible for states to **accurately estimate GNA requirements** because of **uncertainty in the assessment of demand**, which has become **quite variable**.
  - Also, demand forecasting is becoming **increasingly complex** due to the growth of **decentralised generation, net metering**, and greater focus on **energy efficiency**.
- **Emerging areas of demand:** A growing trend towards the **electrification of transport, agriculture and cooking** is further likely to **increase demand uncertainty** in the coming years.
- **Variability in consumer's choice:** State discoms also find it challenging to **assess the number of open access customers** that may source power from outside the state, thereby impacting **accurate assessment** of GNA requirements.
- **Supply Variability:** Demand variability, coupled with **supply variability due to the growth of renewables** will present a double whammy for system planners and may lead to **overplanning of the ISTS**.

#### Way Forward

The idea to enable One Nation, One Grid through ideas like General Network Access (GNA) have to be incorporated in the system. But the system is financially fragile and therefore, it is essential that the **cost implications** of transmission planning are **studied thoroughly** for various load generation scenarios.

Also, in the **case of default** by generating companies, care must be taken that the **additional expenditure** on the transmission system is **not passed on to the beneficiaries**. Ensuring financial robustness in the system will ensure wider adoption as well as long-term resilience.

#### Related news

##### Cabinet approves ₹12,000-cr for second phase of Green Energy Corridor (GEC) for Intra-State Transmission System (InSTS)

- GEC project **aims at synchronizing electricity produced from renewable sources**, such as solar and wind, **with conventional power stations** in the grid.
  - Purpose is **to evacuate large-scale renewable power**, by installing transmission lines and substations and improvement of grid in implementing states.
- **GEC- Phase II will help supply 20 gigawatts (GW)** of renewable energy (RE) to national grid from Gujarat, Himachal Pradesh, Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh.
  - **GEC- Phase I**, under implementation in 8 states (above mentioned 7 and Madhya Pradesh), **will help supply around 24GW of RE by 2022**.
- **Significance**
  - Will help in **achieving 450 GW installed RE capacity by 2030**.
  - Help in **long term energy security** and promote **ecologically sustainable growth** by **reducing carbon footprint**.
  - Generating opportunities for both **skilled and unskilled personnel** in power and other related sectors.
  - **Huge injection of electricity into the national grid** from intermittent RE sources doesn't threaten the grid.

Recently, India **achieved its 2030 milestone** (Committed at COP-21 in Paris) of **40% installed capacity of RE (157.32 GW out of 392.01 GW)**.

### 3.9. CITY GAS DISTRIBUTION (CGD) NETWORK

#### Why in news?

Recently, the Petroleum and Natural Gas Regulatory Board (PNGRB), invited electronic bids under '11A CGD Bidding Round'.

## More on news

- The oil regulator PNGRB invited bids for CGD network in **five geographical areas (GAs)** covering 27 districts across Uttar Pradesh, Bihar, Jharkhand, Chhattisgarh and West Bengal.
- Upon finalisation of bids under these rounds, **88% of the country's area would be authorised for development of CGD Network** to provide access to natural gas to **approximately 98% of the country's population**

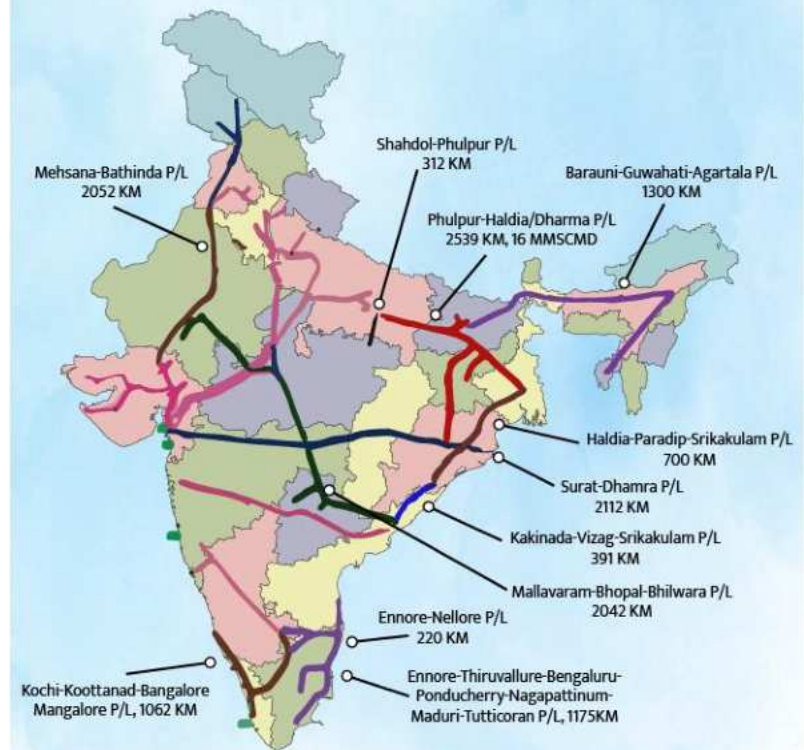
## About CGD Network

- CGD refers to **transportation or distribution of natural gas** to enable the supply of cleaner cooking fuel (like **Piped Natural Gas or PNG**) to households, industrial and commercial units as well as transportation fuel (like **Compressed Natural Gas or CNG**) to vehicles through a network of pipelines
- Under the **PNGRB Act 2006**, PNGRB grants the **authorization to the entities for developing a CGD network** (including PNG network) in a specified GA of the country.
- CGD sector has 4 distinct segments: **CNG** predominantly used as auto-fuel, and **PNG** used in **domestic, commercial and Industrial segments**.
  - Benefits of CNG:** Very low levels of emissions, unlikely to ignite due to high ignition temperature, lowest injury and death rate per vehicle mile etc.
  - Benefits of PNG:** Safe and assured supply, convenient to use, no wastage, no hassle for replacement of cylinder or cylinder booking etc.
- CGD network is being seen as a **major push for India's evolving gas based economy** (refer to the box)

## Challenges in establishing CGD network

- Issues in creating demand**
  - Low Penetration of Gas-Based Equipment and Appliances:** The market penetration of gas-based equipment such as gas generators, water heaters, and gas-based pumps is quite low in the Indian market which has downsized the end market of the CGD value chain.
  - Consumer Preference** Although CGD end product is an economical and safer fuel, some consumers do not opt for PNG connections for many attributable reasons. For example, most of the time, the person staying in a house

## CITY GAS DISTRIBUTION NETWORK



## INDIA'S EVOLVING GAS-BASED ECONOMY

- Gas Pipeline Infrastructure- 17,016 kms (June 30, 2020)
- Current Share in energy mix- 6.3%
- Target Share by 2030- 15%

- Growth in Natural Gas Demand- CAGR of 6.8%
- Growth in Natural Gas Supply- CAGR of 7.2%

### Initiatives taken to promote CGD network

- The Reserve Bank of India has accorded the **status of infrastructure to CGD projects** which enables financing from commercial banks and other financial institutions.
- Changes in methodology for awarding licence:** The tariff to be charged for transportation of the priority fuel, i.e. CNG and PNG – which was previously the sole basis for awarding a licence – **now has a mere 10% weightage**, with primacy given to infrastructure creation in three major segments of steel pipeline length, CNG stations and domestic connections in **order to achieve maximum network penetration in the market**.
- Incentives to bid winner**
  - Market exclusivity for a period of eight years**, extendable up to ten years for performers, as compared to the previous rounds, which granted exclusivity of merely for a period of five years.
  - Right to first use**, provides a greater incentive for the bidders to enjoy monopoly, and to make good off their investments.



are staying in a rented accommodation, and they prefer to use bottled gas, as their jobs are transferable in nature.

- **Different types of clearances:** The preference of allotment of GA depends on the monopoly of PNGRB which makes land use by entity difficult as clearance needs to be taken from the Gram Panchayat, district authorities, state level permissions and permission of other entities who have laid pipelines for water usage, telephones and cable network.
- **Subsidy and Under Recovery on LPG:** Domestic PNG competes directly with the subsidised LPG, whereas CNG competes with diesel. Under these circumstances, CGD based on Regasified Liquefied Natural Gas (RLNG) will be difficult to compete with artificially low price of LPG.
- **Gas Pricing methodology:** India's natural gas pricing policy factors are dependent upon other countries' consumption and prices, such as the total annual volume of natural gas consumed in the USA, Mexico, Canada, European Union; and annual average of daily prices at Henry Hub (HH), National Balancing Point (NBP), Alberta Hub and Russia.
- **Safety concerns in CGD network:** Another challenge is hazards in gas supply leak or rupture of pipeline resulting in uncontrolled gas release. The gas leaks can prove hazardous if mishandled or not properly disposed-off.

#### Ways for ensuring successful implementation of CGD network

- **Coordination amongst all stakeholders:** All stakeholders – government, PNGRB, transporters and gas suppliers, CGD entities and vendors – must work cohesively. Overcoming operational challenges and maintaining revenue efficiencies for the suppliers would ensure uninterrupted service to the general public.
- **Operation and maintenance.** The safety of the system and the surrounding areas is of paramount importance in city area. This could be ensured by frequent safety audit and inspection, behaviour based safety and training, implementation of control & monitoring activities, risk analysis, etc.
- **Leveraging technology:** The scalable, data-driven solution can enable the operators to recognize the peak hour consumption patterns based on which differential pricing during peak hours can be introduced. It could also support the customer to reduce operational cost, increase operational safety, and provide uninterrupted, safer and affordable PNG supply to thousands of consumers.
- **Financing Research & Development (R&D):** The recognition of **innovative cost-effective technological solutions**, which will **mitigate the costs of pipeline replacement and excavation**, thus reducing overall cost and service disruptions, are pivotal for the development of infrastructure of the industry.

### 3.10. SUGAR MILLS

#### Why in news?

Recently, the Department of Food and Public Distribution issued guidelines for restructuring under Sugar Development Fund (SDF) Rules 1983.

#### More on news

- The restructuring of SDF rules is aimed to **facilitate rehabilitation of financially weak but economically viable sugar mills** which have availed loans under the Sugar Development Fund (SDF) Act, 1982.
  - The SDF is being utilized presently **to grant loans to the sugar mills** for **facilitating the rehabilitation and modernization/** Bagasse based co-generation power projects/ production of anhydrous alcohol or ethanol from alcohol/ conversion of existing ethanol plant into Zero Liquid Discharge (ZLD) plant and development of Sugar cane.
  - The loans are provided at a **concessional rate of 2% below the prevailing bank rate.**
- The **outstanding amount of default of SDF loans is Rs. 3068.31 crores** (as on 30.11.2021).
- **Key highlights of the new guidelines**
  - These guidelines are **uniformly applicable for SDF loans availed by all types of concerns**, including Co-operative Societies, Private Limited Companies and Public Limited Companies.
  - **Eligibility:**
    - ✓ A sugar factory that has been incurring cash losses continuously for the last 3 financial years or
    - ✓ Sugar factory's net worth is negative, and the sugar factory is not closed/has not ceased to crush cane for more than 2 sugar seasons, excluding the current sugar season is eligible to apply for re-structuring.

- **Benefits**
  - ✓ **Two years moratorium** and then five years of repayment which is expected to provide big relief to financially weak sugar mills which have availed SDF loans.
  - ✓ **Waiver of additional interest** in full will be given to the eligible sugar factories.
  - ✓ **The rate of interest will be changed** to the interest rate as per the prevailing bank rate on the date of approval of the rehabilitation package as per SDF Rule 26 (9) (a).

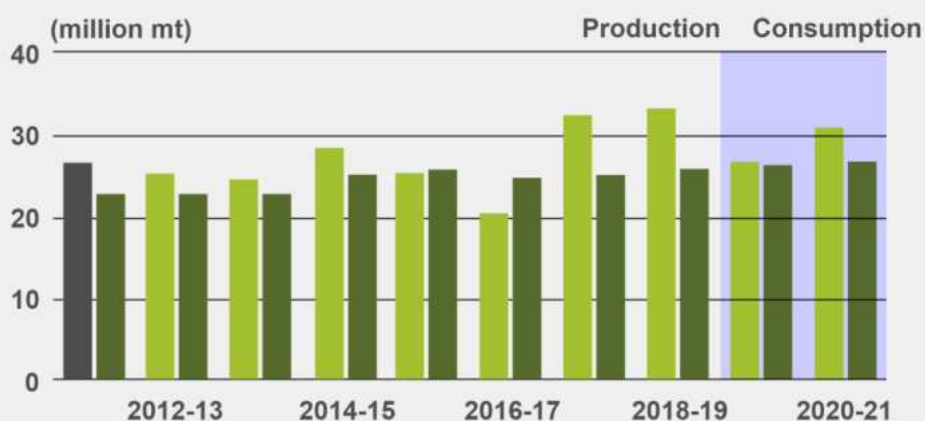
#### General policy

- **Sugarcane pricing policy**
  - **Fair and Remunerative Price (FRP):** With the amendment of the Sugarcane (Control) Order, 1966 in 2009, the concept of Statutory Minimum Price (SMP) of sugarcane was replaced with the FRP.
    - The FRP is the **minimum price that sugar mills have to pay sugarcane farmers** to insulate them from increasing input costs.
    - The FRP is linked to a **basic recovery rate of sugar**, with a premium payable to farmers for higher recoveries of sugar from sugarcane.
    - It is determined on the basis of **recommendations given by the Commission for Agricultural Costs and Prices (CACP)**, an expert body under the Ministry of Agriculture & Farmers' Welfare, and in consultation with state governments.
  - **State-Advised Prices (SAPs):** Some States including Uttar Pradesh declare SAP for sugarcane considering the cost of production and productivity levels. The SAP is generally higher than the FRP.
- **Sugar pricing policy**
  - **Minimum Selling Price (MSP):** In exercise of the powers conferred by the Essential Commodities Act, 1955, Centre notified **Sugar Price (Control) Order, 2018** under which the Centre fixes the MSP after taking into account the FRP of sugarcane and minimum conversion cost of the most efficient mills.
    - The MSP was introduced to ensure **industry may get at least the minimum cost of production** of sugar, so as to enable them to clear cane price dues of farmers.
- **Public Distribution System:** At present, sugar is distributed at a subsidised rate of Rs 13.5 per kg to 2.5 crore families under the Antyodaya Anna Yojana (AAY).
- **Export policy:** India's export subsidy includes Production Assistance Scheme, Buffer Stock Scheme and Marketing and Transportation Scheme.

#### Why sugar mills face liquidity crunch so frequently?

- **High sugarcane production due to combination of factors like**
  - **Fixed prices for sugarcane:** The government has fixed sugarcane prices to support farmers' revenues. The current price is well above that of alternative crops.
  - **Controlled domestic prices for sugar:** Such prices are well above well above international levels of sugar prices. It means the sugar acreage will remain high and immune to any international price. This again act as an incentive for cane growers to keep growing sugarcane.
  - **High yield sugarcane varieties:** The introduction of higher yielding sugarcane varieties (CO 238 developed for use in UP) in some key producing states has taken production in those regions to fresh heights. Those gains will most probably be maintained as farmers also have a strong incentive to yields, given their payment is dependent on the sucrose levels.

#### INDIA: SUGAR PRODUCTION AND CONSUMPTION



- **Cane reservation area and bonding:** Every designated mill is obligated to purchase from cane farmers within the cane reservation area, and conversely, farmers are bound to sell to the mill. This ensures a minimum supply of cane to a mill, while committing the mill to procure at a minimum price.
  - However, this arrangement **reduces the bargaining power of the farmer** who is forced to sell to a mill even if there are cane arrears (occurs when sugar mill owners delay payment to farmers for the sugarcane supplied).
  - **Mills**, on their part, **lose flexibility** in augmenting cane supplies, especially when there is a shortfall in sugarcane production in the cane reservation area. Mills are also restricted to the quality of cane that is supplied by farmers in the area.
- **Minimum distance criterion:** Under the Sugarcane Control Order, the central government has prescribed a minimum radial distance of 15 km between any two sugar mills. This regulation is expected to ensure a minimum availability of cane for all mills.
  - However, this criterion often **causes distortion in the market**. The virtual monopoly over a large area can give the mills power over farmers, especially where landholdings are smaller. In addition to restricting competition, the regulation inhibits entry and further investment by entrepreneurs.
- **Trade policy for sugar:** The government has set controls on both exports and imports. As a result, India's trade in the world trade of sugar is small. Also, it has resulted in considerable instability for the sugar cane industry and its production.

#### What steps have been taken for resolving the liquidity crunch of sugar mills and how effective they are?

- **National Policy on Biofuels – 2018:** The policy proposed a **20% target blending rate for ethanol by 2030**. Previously, India had a 10% ethanol blending target for 2022. To raise its ethanol blending rate, the Indian government allowed sugar mills and distilleries to expand its feedstock from C-heavy molasses to include sugarcane juice, B-heavy molasses, and damaged food grains, and it has increased the ethanol procurement price.
  - **A tripartite agreement:** To ensure that enough ethanol is available to achieve this, the government has helped the sugar industry with an innovative scheme — a tripartite agreement between sugar companies, banks and Oil Marketing Companies (OMCs). The banks fund ethanol capacity addition and the money from ethanol sales will be used to repay the debt through a separate escrow account. However, the effectiveness of EBP scheme is being questioned by the experts due to following reasons
    - ✓ **Sugarcane has to compete with other feedstock:** Currently feedstock competition for other alcohols is very strong as potable liquors are very important sources of tax revenues in certain cane-producing states. These state governments are not keen to see higher percentages of molasses being diverted to fuel ethanol production and some control the use of molasses very strictly.
    - ✓ So, even though the sugarcane industry is generally supportive of ethanol and believes it could help resolve the sugar surplus, **the impact of ethanol may remain fairly limited**.
- **Export subsidy for sugar:** Without subsidies Indian exports are unviable as cost of producing sugar (due to high cane price) is way above the international sugar price. This was promptly contested by other countries in the WTO. India has been allowed to continue with the subsidies till December 2023.

#### What could be done to resolve the liquidity crunch being faced by sugar mills?

- **Recommendations by C. Rangarajan committee** ('Report on the Regulation of Sugar Sector in India: The Way Forward' [submitted in 2012]).
  - **Phase out cane reservation area and bonding:** over a period of time, states should encourage development of market-based long-term contractual arrangements, and phase out cane reservation area and bonding. Such individual contracts with farmers would give them the flexibility to decide which mill they want to sell their produce to.
  - **Distance norm be reviewed:** Removing the regulation will ensure better prices for farmers and force existing mills to pay them the cane price on time.
  - **Trade policy:** All existing quantitative restrictions on trade in sugar should be removed and converted into tariffs. Appropriate tariff in the form of a moderate duty on imports and exports, not exceeding 5-10%, should be applied. Such a trade policy will be neutral to consumers and producers. The tariff can be changed when world prices are very high or low.



- **Other recommendations:** To find long-term solutions for the sugar industry and sugarcane farmers, a Task Force was constituted by NITI Aayog under the chairmanship of Prof. Ramesh Chand, Member, NITI Aayog. **Some of the major recommendations of the Task Force include**
  - Adoption of **revenue sharing formula**,
  - **Diversification** towards less water intensive crops,
  - **Enhanced ethanol blending**,
  - **Revision in Minimum Selling Price** of sugar,
  - **Redesigning of export incentives** to make them WTO compliant,
  - **Discontinuation of buffer stocks**, promotion of jaggery, etc.
    - In order to examine the recommendations of the Task Force and CACP, and to evolve mechanism to implement these recommendations, a **Working Committee has been constituted in Department of Food and Public Distribution (DFPD)**.

### 3.11. NEWS IN SHORTS

#### 3.11.1. OIL RISES PAST 7-YEAR HIGH ON SUPPLY FEARS

- Oil prices rose **more than \$1** to a more than seven-year high on worries about **possible supply disruptions** due to **escalating hostilities** between the Iran-aligned group (Houthis in Yemen) and a Saudi Arabian-led coalition.
- Like most commodities, the fundamental driver of oil's price is supply and demand in the market.

Other Supply side factors for oil price rise	Demand side factors for oil price rise
<ul style="list-style-type: none"> <li>• <b>Less drilling by shale gas producers in the US</b> and a <b>disruption in crude supplies</b> due to <b>hurricanes in the Gulf of Mexico</b>.</li> <li>• <b>Cartelization by Organization of the Petroleum Exporting Countries (OPEC)</b> to fix prices in a manner favourable to them.</li> <li>• <b>Lower than expected natural gas supplies from Russia</b>, after OPEC has been working with Russia, as OPEC+ to fix the global prices and supply.</li> <li>• <b>Geopolitical tensions in the middle east</b>, that comprises most of the oil producing nations.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Supply chain issues regarding coal in China</b> has <b>increased the demand</b> for oil, aggravating the situation.</li> <li>• <b>Winter tends to put pressure</b> on prices in normal times too.</li> <li>• <b>Galloping demand for fuel</b> as global economies open up after the devastating Covid-19 pandemic</li> </ul>

- **Impact of rise in crude oil prices:**
  - Increase the **country's import bill (nearly 20% of India's import)**, and further disturb its current account deficit.
  - **Increase inflationary pressures** in the overall economy.

- Government is **forced to cut taxes on petroleum and diesel** which may cause loss of revenue and impact fiscal balance.
- Rise in crude oil prices impact **input raw material cost of refining**, lubricants, aviation and tyres etc, thus their **profitability comes under pressure**.

#### 3.11.2. SMART CITIES AND ACADEMIA TOWARDS ACTION & RESEARCH (SAAR) PROGRAM

- SAAR program has been launched **under the Smart Cities mission**.
  - Under the program, 15 premier architecture & planning institutes of the country will be working with Smart Cities to **document landmark projects undertaken by the Smart Cities Mission**.
  - The Institutes will document the outcomes of these projects, **on how they are impacting the lives of urban citizens**.
- It is a **joint initiative of Ministry of Housing and Urban Affairs (MoHUA), National Institute of Urban Affairs (NIUA)** and leading Indian academic institutions of the country.

#### 3.11.3. CHIPS TO STARTUP (C2S) PROGRAMME

- Ministry of Electronics and Information Technology (MeitY) invited **applications from 100 academia, R&D organisations, start-ups and MSMEs** under its C2S Programme.
- C2S Programme **aims to train 85 thousand high-quality and qualified engineers** in the area of Very large-scale integration and Embedded System Design.
- Under C2S, project would be initiated **in certain key areas including Energy & Environment, Healthcare, Agriculture, Disaster management** etc.

- It would be **implemented at about 100 academic institutions** (Start-ups and MSMEs can also participate) across the Country, including IITs, NITs, and IIITs.
  - C-DAC will be the nodal agency.
- Also, recently PM announced that **16 January will be celebrated as National Startup Day**.

#### 3.11.4. NASSCOM REPORT ON STARTUPS

- According to the report, **more than 2,250 startups in India were added in the year 2021**, over 600 more than what was added in the previous year.
  - Startups raised **USD 24.1 billion in 2021**, a two-fold increase over pre-COVID levels.
  - Startups provided **6.6 lakh direct jobs and more than 34.1 lakh indirect jobs**.
  - Indian startups in 2021 had the **highest growth rate in terms of deals, and number of startups** in comparison to UK, US, Israel, and China.

#### 3.11.5. RBI RELEASES FRAMEWORK FOR OFFLINE DIGITAL PAYMENTS

- Framework has been released **under Payment and Settlement Systems Act, 2007**.
- **Offline Payment** refers to a transaction which does not require internet or telecom connectivity to take effect.
  - It includes **any channel or instrument like cards, wallets or mobile devices**, with certain Conditions for Authorised Payment System Operators (PSOs) and Payment System Participants (PSPs).
- Framework is **aimed at pushing digital transactions in rural and semi-urban areas**.
  - It will allow **offline payments of up to Rs 200 per transaction**, subject to the **total limit of Rs 2,000**.
  - It will enable small value digital payments in offline mode using cards, wallets and mobile device and allowed **face-to-face mode only**.
  - Offline payment transactions may be offered **without an additional factor of authentication (AFA)**.
  - RBI's **integrated ombudsman scheme**, will be applicable for grievance redressal.
- **Benefits of Offline Mode Payments**
  - Enable **retail digital payments** in remote areas with **low speed or no internet connectivity**.
  - Boost the **adoption of digital payments** and encourage **technological innovations** in payment system.

#### 3.11.6. EMERGENCY CREDIT LINE GUARANTEE SCHEME (ECLGS)

- According to a SBI report, **ECLGS has helped save almost 13.5 lakh units and 1.5 crore jobs** in MSME sector.

- ECLGS was announced as part of the Aatma Nirbhar Bharat Package **to provide fully guaranteed and collateral free additional credit** to MSMEs, business enterprises, individual loans for business purposes and MUDRA borrowers.
  - Since then **government has extended ECLGS to cover various industries** (till now four extended versions have come out).
- **ECLGS provides 100% guarantee coverage to Member Lending Institutions** (banks, financial institutions and Non-Banking Financial Companies) **on Guaranteed Emergency Credit Line**.

#### 3.11.7. DOMESTIC SYSTEMICALLY IMPORTANT BANKS (D-SIBS)

- **SBI, ICICI Bank, HDFC Bank** continue to remain **D-SIB**.
- D-SIB means that the bank is **too big to fail**. According to the RBI, some banks become systemically important due to their size, cross-jurisdictional activities, complexity and lack of substitute and interconnection.
  - Banks whose **assets exceed 2% of GDP** are **considered part of this group**.
- As per the framework, from 2015, the **central bank has to disclose names of banks designated as D-SIB**.

#### 3.11.8. AIRTEL PAYMENTS BANK AS A SCHEDULED BANK

- **Airtel Payments Bank** has been categorised as a **scheduled bank** by the Reserve Bank of India (RBI).
- All banks which are included in the **Second Schedule to the RBI Act, 1934** are **Scheduled Banks**.
  - These banks comprise **Scheduled Commercial Banks and Scheduled Co-operative Banks**.
- **Benefits of being a scheduled bank:**
  - Becomes **eligible for debts/loans at the bank rate** from the RBI
  - Automatically acquires the **membership of clearing house**
  - **Rediscount of first class exchange bills** from the RBI

#### 3.11.9. INDIA TO USE SUPREME COURT (SC) ORDER TO COUNTER DEVAS' ARBITRATION CASES ABROAD

- SC in its recent ruling had **upheld National Company Law Appellate Tribunal (NCLAT) order of winding up Devas Multimedia Private Limited**.
  - Previously, under a 2005 agreement, **Antrix, the commercial arm of ISRO** had agreed to build, launch and operate two satellites and lease out 90% of satellite transponder capacity to Devas.

However, government cancelled the deal in 2011 owing to security concerns.

- Devas challenged the decision at multiple international arbitration forums including **International Chambers of Commerce (ICC), India Germany Bilateral Investment Treaty (BIT) and India Mauritius BIT.**
- ✓ **India lost all three disputes** and has to pay a total of USD 1.2 billion in damages.
- **About International Arbitration**
  - It is a means of **settling international commercial and business disputes** to support trade and investment through arbitrators.
  - In choosing arbitration, the parties opt for a **private dispute resolution procedure** instead of going to court.
  - Its **principal characteristics** are: Arbitration is consensual, parties choose the arbitrators, Arbitration is neutral, Arbitration is a confidential procedure, the **decision of the arbitral tribunal is final** and easy to enforce.
  - Arbitration awards are **more widely and readily enforceable** due to the **Convention on the Recognition and Enforcement of Foreign Arbitral Awards 1958 (New York Convention)** and through BIT.

#### Arbitration in India

- Regulated by the **Arbitration and Conciliation Act, 1996.**
- Based on the **1985 UNCITRAL (The United Nations Commission on International Trade Law) Model Law** on International Commercial Arbitration.
- **Arbitration Council of India** established under **Arbitration and Conciliation (Amendment) Act, 2019** as an independent body for promotion of arbitration.

### 3.11.10. INDIA ON TRACK TO SURPASS CHINA AS THIRD LARGEST ETHANOL CONSUMER BY 2026: INTERNATIONAL ENERGY AGENCY (IEA)

- The IEA report also noted that **ethanol demand in India tripled between 2017 and 2021** with consumption expected at 3 crore liters in the last calendar year.
  - Ethanol is a **renewable fuel made from various plant materials** collectively known as "biomass."
  - It is a **clear, colourless liquid that has a higher-octane number (ON)** than gasoline, providing premium blending properties.
    - ON is a **measurement of the quality or performance of gasoline.** The higher the number, the better the fuel burns.
- India in its pursuits of becoming carbon neutral by 2070, **brought forward its 20% ethanol blending target**

**with gasoline from 2030 to 2025** and is aiming to start selling 20% blends in 2023.

- India is **on track to achieve 10% blending** this calendar year.
- **Significance of ethanol blending:**
  - **Helps reduce oil imports**
  - **Cut down air pollution**
  - **Offers economic and employment opportunities** for farmers.
- **Challenges:**
  - **Vehicle compatibility:** Existing vehicle fleet may have compatibility issues with fuel blends above E10.
  - Greenhouse gas (GHG) and sustainability criteria
  - **Feedstock availability**
  - **Maintaining incentives** at the right level
- **Steps taken to promote ethanol economy**
  - A **guaranteed prices** per litre of ethanol according to feedstock;
  - Established **financial support** for new ethanol capacity;
  - **Planning to mandate flex-fuel vehicles** that can operate on higher ethanol blends.

### 3.11.11. MINISTRY OF TEXTILES RELEASE OPERATIONAL GUIDELINES FOR PM MEGA INTEGRATED TEXTILE REGION AND APPAREL (PM MITRA) PARKS SCHEME

- As per the guidelines,
  - **Sites for the parks will be selected on basis of 5 metrics-**
    - ✓ **Connectivity** to site (25% weightage)
    - ✓ **Existing ecosystem** for textiles (25% weightage)
    - ✓ Availability of **utilities services** at site (20% weightage)
    - ✓ State industrial /textile policy
    - ✓ Environmental and social impact.
  - **State govt will transfer land** to the Special Purpose Vehicle (51% equity of state and 49% of centre).
  - **Competitive Incentive Support (CIS) provision of Rs 300 crore per park** for incentivising manufacturing units
- **PM MITRA aims to develop integrated large scale and modern industrial infrastructure facilities** for the entire value-chain of the textile industry
  - It is envisaged to help India in achieving the **SDG 9 ("Build resilient infrastructure, promote sustainable industrialization and foster innovation")**.
  - It **reduces logistics cost** by housing entire value chain at one location.



- **Other Government initiatives for promotion of textiles Industry**
  - Allowed **100% FDI** in the sector under the **automatic route**.
  - Amended Technology Up-gradation Fund Scheme' (A-TUFS).
  - National Technical Textiles Mission.
  - Production Linked Incentive (PLI) Scheme for Textiles.

#### Indian Textile: Key facts:

- **Employment to 4.5 crore** workers including 35.22 lakh handloom workers;
- The industry contributed **7% to the industry output** (by value) in 2018-19;
- The Indian textiles and apparel industry contributed **2% to the GDP, 12% to export earnings and held 5% of the global trade** in textiles and apparel in 2018-19.

### 3.11.12. KABIL UNDER MINISTRY OF MINES ENGAGING WITH COUNTRIES FOR EXPLORING POSSIBILITIES OF MINERAL ASSET ACQUISITION ABROAD

- **KhanijBidesh India Ltd. (KABIL)** is a joint venture company set up with the participation of 3 Central Public Sector Enterprises namely, National Aluminium Company Ltd.(NALCO), Hindustan Copper Ltd.(HCL) and Mineral Exploration Company Ltd. (MECL).
- KABIL is mandated to **identify and acquire overseas mineral assets of critical and strategic nature** such as lithium, cobalt, nickel, Copper, Neodymium, other rare earths etc.
  - KABIL is **already engaging with countries like Australia, Argentina, Bolivia and Chile** which are endowed with cited critical and strategic minerals.
- **Significance of the initiative**
  - Ensure mineral security and **attain self-reliance (AtmaNirbhar Bharat)** in the area of critical & strategic minerals.
  - Cater to **requirements of crucial sectors such as e-mobility, renewable energy, medicine, aerospace, aviation etc.**
- **Critical and strategic minerals**

- A mineral is **labelled as critical** when the **risk of supply shortage and associated impact on the economy is (relatively) higher** than the other raw materials.
- These minerals are termed **strategic due to the limited availability of substitutes and their demand in high-technology products** such as hybrid cars, wind turbine magnets, and defence equipment.
- **Issues with availability of such minerals:** Complex global supply chains (High degree of monopoly), supply risks (due to domestic factors and interruptions in international trade) etc.

Critical Minerals	Strategic Minerals
1. Beryllium	1. Antimony
2. Germanium	2. Molybdenum
3. Rare earths (heavy and light)	3. Borates
4. Rhenium	4. Nickel
5. Tantalum	5. Chromium
6. Graphite	6. Cobalt
7. Zirconium	7. Silver
8. Chromium	8. Copper
9. Limestone	9. Titanium
10. Niobium	10. Diamond
11. Silicon	11. Tungsten
12. Strontium	12. Germanium
	13. Vanadium
	14. Lithium
	15. Zinc
	16. Rare earths

### 3.11.13. AMERICA COMPETES ACT

- United States unveiled **America Creating Opportunities for Manufacturing, Pre-Eminence in Technology, and Economic Strength Act**, or the **America COMPETES Act of 2022**.
- It proposes **procedures for foreign nationals** with an **ownership interest in a start-up entity** to self-petition for **classification as a W-1 non-immigrant**.
- It is expected to **open more opportunities in the US for Indian talent**, and for skilled workers.



**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. DEFENCE EXPORTS

#### Why in News?

Recently, Philippines signed a \$375 million deal for BrahMos supersonic cruise missiles.

#### About BrahMos

- **BrahMos is a universal long range supersonic cruise missile** system that can be launched from land, sea and air against surface and sea-based targets.
  - BrahMos is a **joint collaboration between India (Defence Research and Development Organisation (DRDO)) and Russia (NPO Mashinostroyeniya).**
  - Name **represents Brahmaputra and Moskva rivers.**
- **It is a two stage missile** with a solid propellant booster engine as first stage and liquid ramjet as second stage.
  - It operates at **fire and forget principle.**
- The range of the missile **was originally capped at 290 km** as per obligations of the Missile Technology Control Regime (MTCR).
  - **Following India's entry in MTCR in 2016,** it was decided to extend the range to 450 km and to 600 km at a later stage.

#### Key goals and Objectives of DPEPP

- **To achieve a turnover of Rs 1,75,000 Crores (US\$ 25Bn)** including export of Rs 35,000 Crore (US\$ 5 Bn) in Aerospace and Defence goods and services by 2025.
- **To reduce dependence on imports** and take forward "Make in India" initiatives through domestic design and development.
- **To promote export of defence products** and become part of the global defence value chains.
- **To create an environment that encourages R&D,** rewards innovation, creates Indian IP ownership and promotes a robust and self-reliant defence industry.

#### Other similar missile systems

- **Chinese HD-1 supersonic missile** is a comprehensive weapon system consisting of missile, launch, command and control, target indication and comprehensive support systems.
  - Missile platform can be adapted to aircraft and ships as well as the basic ground-based vehicle version.
  - HD-1's needs less fuel than its competitors, rendering the lighter missile able to fly faster and farther.
- **Tomahawk (used by U.S and its allies)** is a long-range, all-weather, subsonic cruise missile that launches from ships and submarines and can strike targets precisely from 1,000 miles away.
- **Israel's Sea Breaker**, the 5th generation long range, autonomous, precision-guided missile system, is meant to hit high-value maritime and land targets
- **P-800 Oniks/Yakhont** is a Russian supersonic anti-ship cruise missiles that has an effective guidance system and is a fire-and-forget missile.

### Rising Defence Exports from India

India exported military hardware and systems worth Rs 38,500 crore in the last seven years.

1

2

Increased from ₹1,521 crore in 2016-17 to ₹8,434.84 crore in 2020-21.

#### Major Arsenal Exported

Armoured protection vehicles, light-weight torpedo, weapons locating radar, fire control systems, Offshore patrol vehicles and tear gas launchers.

3

4

Presently, India is exporting defence equipment to more than 75 countries around the globe.

Three Indian companies figure among the top 100 defence companies in the 2020 rankings – Hindustan Aeronautics Limited (HAL), Ordnance Factory Board and Bharat Electronics Ltd (BEL)

5

6

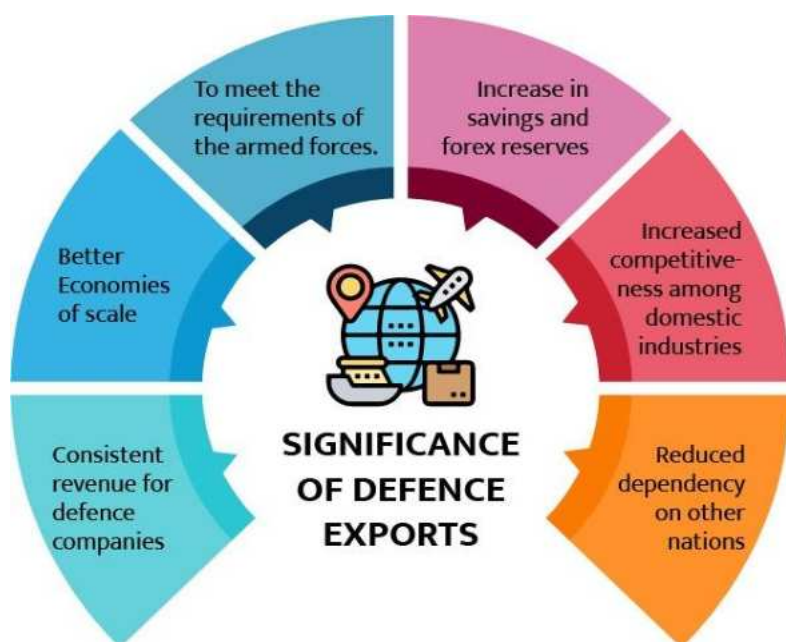
In 2020, **Draft Defence Procurement and Export promotion Policy (DPEPP)** was promulgated with a vision to make India amongst the leading countries of the world in Defence sector, including Aerospace and Naval Shipbuilding sectors

## Reforms/steps taken up to boost Defence exports in recent times

<b>Indigenisation Support to MSMEs</b>	<ul style="list-style-type: none"> <li>Government had <b>issued two “positive indigenisation lists”</b> consisting of 209 items that cannot be imported and can only be procured from domestic industry.</li> <li>In addition, a <b>percentage of the capital outlay of the defence budget has been reserved for procurement</b> from domestic industry.</li> </ul>
<b>Simplified defence industrial licensing</b>	<ul style="list-style-type: none"> <li>Director General of Foreign Trade (DGFT) has <b>delegated its authority and notified Department of Defence Production (DDP) as the Licensing Authority</b> for export of various items.</li> <li><b>MHA has delegated its powers to DDP</b> making it single point of contact for exporter for export of parts and components of Small Arms &amp; Ammunitions.</li> <li><b>Open General Export License</b> permits the industry to export specified items to specified destinations.</li> </ul>
<b>Investment Promotion and Ease of Doing Business (EoDB)</b>	<ul style="list-style-type: none"> <li>A completely end-to-end <b>online portal for receiving and processing export authorisation permission</b> has been developed.</li> <li>In Intra-Company business, the earlier requirement of getting <b>End User Certificate (EUC) from the Government of importing country has been done away.</b></li> <li>Powers have been delegated to DRDO and CMDs of DPSUs for exploring export opportunities and participation in global tenders.</li> </ul>
<b>Scheme for Promotion of Defence Exports</b>	<ul style="list-style-type: none"> <li>To provide an <b>opportunity to the prospective exporters</b> an option to get their product certified by the Government.</li> <li>Provides <b>access to the testing infrastructure of Ministry of Defence</b> for initial validation of the product and its subsequent field trials.</li> </ul>
<b>Specific role of Ministry of External Affairs (MEA)</b>	<ul style="list-style-type: none"> <li>MEA has <b>facilitated Lines of Credit</b> for countries to import defence product.</li> <li>In addition, <b>defence attaches in Indian missions abroad</b> have been empowered to promote defence exports.</li> <li>For the repeat order of same product to different entity, the consultation earlier done with all stakeholders is now limited only with MEA.</li> </ul>
<b>Offset Policy reforms</b>	<ul style="list-style-type: none"> <li><b>Offset is an important mechanism available</b> to the domestic industry <b>to enhance export capability.</b> <ul style="list-style-type: none"> <li>Offset is an <b>obligation by an international player to boost India’s domestic defence industry</b> if India is buying defence equipment from it.</li> </ul> </li> <li>This helps in acquisition of critical technologies required for high end weapons/platforms so that the same can be leveraged for export.</li> <li><b>Reforms in Offset policy have been included</b> in DAP 2020.</li> </ul>
<b>Others</b>	<ul style="list-style-type: none"> <li><b>Specific incentives were introduced under the foreign trade policy (2015)</b> to give a boost to exports of defense and hi-tech items.</li> <li>Government has <b>proposed two defence industrial corridors</b> to promote domestic production and boost investment in the defence sector.</li> </ul>

## Challenges

- Red tapism:** Even when fielding competitive world-class products, PSUs are hamstrung by red tape and a poor global impression of their ability to deliver on time and on cost, to say nothing of through-life support.
- Intellectual Property Rights (IPR) Issues:** Indian defence industry has been manufacturing some weapon platforms (Tank T-90, Su-30 fighter aircraft etc) that are licensed productions with IPR held by foreign Original Equipment Manufacturer (OEMs). IPR issues need to be resolved with foreign countries/OEMs to enable export to friendly nations.
- Pricing and Technology issue:** Due to lack of well-established processes and infrastructure,





the domestic defence industry suffers from disadvantages in terms of less competitive price and lack of high technology.

- **Low productivity:** It is issue for most public enterprises, leading to higher per unit cost making the end product costlier and thus, less attractive to the prospective foreign buyer.
- **Identification of target countries:** Indian export is mainly focused on assemblies/sub-assemblies/components of military equipments thus making it difficult to establish a pattern about target countries which inhibits aggressive export marketing efforts.
- **The economic challenges due to the Covid-19 pandemic** faced by potential customers of Indian defence equipment are also expected to pose a challenge.
- **Other issues:** Absence of designing and development capabilities (especially in critical technologies), Limited participation of the private sector, Lack of industry-academia-defence linkage etc.

#### Way forward

- **Focusing on new markets**, especially developing nations, as they do not intend to focus on the development of defence equipment and technology and most of their defence demand is met through imports.
  - Enhancing role of Defence Attaches, a defence specialist cadre in MEA can be focused.
- **Exemption from duties and taxes** should be provided to Defence products that are exported to make them price competitive.
- **India can regularly conduct military exercises** with several nations as such exercises may act as opportunities to understand the requirements of those nations and filling those gaps with our defence exports.
- **Defence Export promotion/facilitation agency** should be set up with a mandate to monitor actual progress of exports vis-à-vis planned targets.
- **A 'full package export'** is needed as potential buyer will look not only an individual weapon but a 'full package' consisting of a life cycle support for spares, repairs, upgrades, overhauls, simulator back up etc.
- **Other steps** include establishing export oriented "Model Manufacturing plants", adopting consortium approach for research/design/development/manufacturing, Defence exhibition in foreign countries etc.

## 4.2. REGIONAL CYBER SECURITY

### Why in News?

First Colombo Security Conclave Virtual Workshop on Developing Regional Cyber Security Capabilities on Defensive operations, Deep/Dark web handling and Digital Forensics was held recently.

### About Colombo Security Conclave (CSC)

- CSC is the renamed version of **National Security Advisor (NSA) Level Trilateral on Maritime Security** (of 2011) with **India, Sri Lanka, Maldives as members** and **Bangladesh, Mauritius and Seychelles as observer states** and Secretariat at Colombo.
- It helps member nations to **build capacity on common security threats effectively through its four pillars of cooperation:**
  - Maritime Safety and Security, Terrorism and Radicalization, Trafficking and Organized Crime and Cyber Security and Protection of Critical Infrastructure.

### Some Initiatives taken at regional level

- **Pacific Cyber Security Operational Network (PaCSON)** for sharing cybersecurity threat information and tools between the member states.
- **Association of Southeast Asian Nations (ASEAN) members** agreed to subscribe in principle to the 11 voluntary, non-binding norms recommended by the 2015 **Report of the U.N. Group of Governmental Experts (UNGGE)**.
  - In 2004, the UN General Assembly established GGE to **examine the impact of developments in ICT on national security and military affairs**.
  - It comprises **experts from 25 States (including India)** working in their personal capacity.
- **Singapore-ASEAN Cybersecurity Centre of Excellence (ASCCE)** helps to foster a common understanding of cybersecurity through technical capacity-building.
- **YAKSHA, an EU-ASEAN partnership** that develops cybersecurity solutions tailored to specific national needs leveraging EU Know-How and local knowledge.
- The 2016 **Singapore-initiated ASEAN Cyber Capacity Program** and the newly launched **ASEAN-Japan Cybersecurity Capacity Building Center** in Bangkok are both meant to address obstacle to ASEAN cohesion on cyber-related issues.

## Major cybersecurity issues faced by South Asia

- **Digital economy:** Region's digital economy is projected to rise at a massive pace. This makes South Asian nations more prone to cyberattacks resulting in a data breach or system failure.
  - As per reports, organizations in Asia are 80 percent more likely to be targeted by hackers.
- **Knowledge gap:** i.e., lack of instrumental, practical guidance on existing good practices, policies, security baselines, and frameworks relating to cybersecurity
- **Lacking capabilities and infrastructure:** Many South Asian countries lack a strategic mind-set, policy preparedness, and institutional oversight over cybersecurity. Region has a shortage of trained cybersecurity professionals, while staff retention remains an issue.
- **Lack of regional coordination:** South Asian nations have limited sharing of threat intelligence, often because of mistrust and a lack of transparency. Absence of a unifying framework often results in significant underinvestment.
- **Rapid technological advancement:** It makes threat monitoring and response more difficult, especially with more powerful encryption, cloud computing, and the widespread growth of the Internet of Things (IoT).
- **Weaponisation of social media:** continually evolving cyber-attacks coupled with the use of disinformation, concealment, and deception instigate strategic uncertainty on the magnitude and scope of potential cyberwars.
- **Potential use by states:** A number of States are developing ICT capabilities for military purposes. The use of ICTs in future conflicts between States is becoming more likely.
- **Threat from non-state actors:** diversity of malicious non-State actors, including criminal groups and terrorists, their differing motives may threaten regional peace and security.

### Why need for regional grouping?

- **Lack of global consensus:** The lack of a breakthrough in the implementation of global cyber norms highlights the need to focus efforts at the regional level.
- **Incubators for new ideas:** Regional organizations provide the ideal platform for consolidating efforts in capacity-building and confidence-building.
- **Better threat perception:** Regional organizations also have better knowledge of the regional and national cybersecurity landscapes of member states.
- **Improved Coordination:** countries in the Asia-Pacific are plagued with uneven levels of cyber maturity and a transparency deficit, which in turn undermine trust in information-sharing as well as the ability to cooperate effectively.

### Way forward

- **Cyber norm implementation should be prioritized** in regional organizations **through a multi-stakeholder approach** that also involves non-state actors, such as civil society organizations.
- Regional endeavors should **enhance cooperation with relevant capacity-building organizations**, such as the Global Forum on Cyber Expertise (GFCE), to focus protection of critical infrastructure, information sharing and reduction of conflict risks.
- **Launching awareness-raising campaigns** and/or developing guidelines and/or supporting educational programs for educating mainstream users about basic cybersecurity hygiene.
- **Increased responsibility of relevant actors** in adopting and/or implementing dynamic management of cybersecurity (vulnerability management, vulnerability handling processes, bug bounty programs etc.).
- **Ensuring harmonization** across emerging national regulatory and industry approaches; creating incentives for security-focused behavior for both the public and private sector.

## 4.3. NEWS IN SHORTS

### 4.3.1. MAN PORTABLE ANTI-TANK GUIDED MISSILE (MPATGM)

- **DRDO successfully flight tested** the final deliverable configuration of MPATGM.

- The indigenously developed anti-tank missile is a **low weight, fire & forget missile and is launched from a man portable launcher**, integrated with thermal sight.
- The missile has **miniaturised infrared imaging seeker and advanced avionics** for on-board control and guidance.

#### 4.3.2. INDIGENOUS AIRCRAFT CARRIER (IAC) VIKRANT

- IAC Vikrant is **heading out for the next set of sea trials.**
  - India currently **operates a solitary aircraft carrier, INS Vikramaditya.**
- Vikrant, a **STOBAR (short take-off but arrested landing) aircraft carrier**, has an **indigenous content of 76%.**
  - Designed by the Indian Navy's Directorate of Naval Design, Vikrant has been **built at the state-owned Cochin Shipyard Limited.**
- Apart from **India, only US, UK, Russia, France and China** have the **capability to build aircraft carriers.**

#### 4.3.3. OPERATION SARD HAWA

- Border Security Force (BSF) launched operation 'Sard Hawa' at the international border of Rajasthan, under which vigil will be beefed-up to **check the instances of infiltration due to the dense fog in the area.**
- The operation will be carried out from January 23 to 28.
- BSF conducts **"Operation Garam Hawa" in summer and "Operation Sard Hawa" in winter every year.**
- BSF is a **central armed police force (CAPF) that functions under the Union government.** It was raised in 1965.
- BSF is deployed **along the Pakistan and Bangladesh borders.** It is also deployed in areas affected by Left Wing Extremism etc.

**PERSONALITY DEVELOPMENT PROGRAMME**

**CIVIL SERVICES EXAMINATION 2021**

Starting 15<sup>th</sup> FEB

**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

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# 5. ENVIRONMENT

## 5.1. INDIA STATE OF FOREST REPORT (ISFR) 2021

### Why in News?

The **Ministry of Environment, Forests and Climate Change (MoEFCC)** recently released the **India State of Forest Report (ISFR) 2021**.

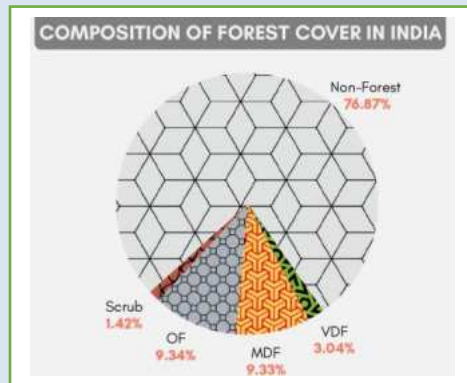
### About India State of Forest Report (ISFR)

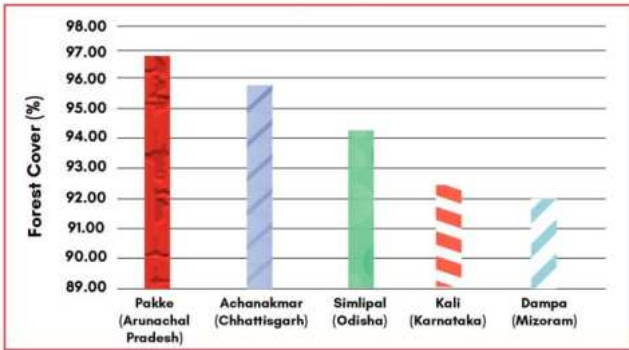
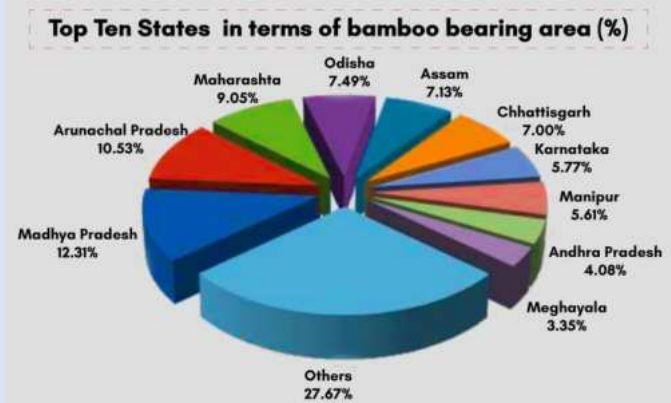
- It is an **assessment of India's forest and tree cover**, published **every two years by the Forest Survey of India** under the Ministry of Environment, Forests and Climate Change.
- The first survey was published in 1987, and ISFR 2021 is the **17<sup>th</sup> report**.
- With data computed through wall-to-wall mapping of India's forest cover through remote sensing techniques, the **ISFR is used in planning and formulation of policies in forest management as well as forestry and agroforestry sectors**.
- New Chapters introduced in ISFR, 2021:**
  - Forest Cover assessment in Tiger reserves and Tiger corridor** areas of the country.
  - Above Ground Biomass Estimation using Synthetic Aperture Radar data**, based on a study carried out by FSI in collaboration with Space Application Centre (SAC), ISRO, Ahmedabad.
  - Mapping of Climate Change Hotspots in Indian Forests** based on a study carried out by FSI in collaboration with BITS Pilani, Goa campus.

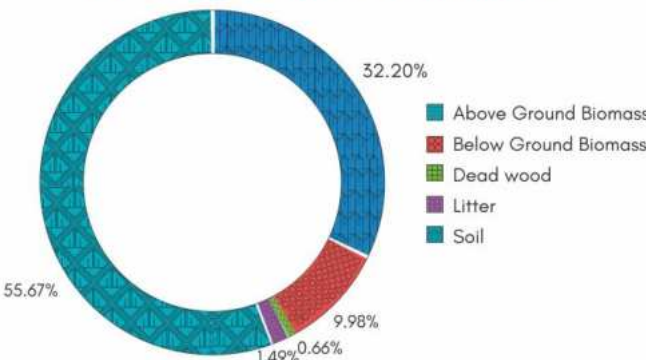
### Key Findings

\*Trends below are in comparison to the previous assessment i.e. ISFR 2019, unless otherwise mentioned.

<b>Forest cover</b>	<ul style="list-style-type: none"> <li><b>Total forest cover:</b> 7,13,789 sq km (<b>21.71% of the geographical area of India</b>)</li> <li><b>Trends:</b> <table border="1"> <tr> <td><b>Total forest cover</b></td><td>↑ Increase of 1,540 sq km (0.22%)</td></tr> <tr> <td><b>Very Dense Forest (VDF)</b></td><td>↑ Increase of 501 sq km</td></tr> <tr> <td><b>Moderately Dense Forest (MDF)</b></td><td>↓ Decrease of 1,582 sq km</td></tr> <tr> <td><b>Open Forest (OF)</b></td><td>↑ Increase of 2,621 sq km</td></tr> <tr> <td><b>Scrub</b></td><td>↑ Increase of 242 sq km</td></tr> </table> </li> <li><b>Top 5 states in Total Forest cover:</b> Madhya Pradesh, Arunachal Pradesh, Chhattisgarh, Odisha, Maharashtra.</li> <li><b>Top 5 states by percent of State's Geographic Area under Forest Cover:</b> Mizoram (<b>84.53%</b>), Arunachal Pradesh (79.33%), Meghalaya, Manipur, Nagaland.</li> </ul>	<b>Total forest cover</b>	↑ Increase of 1,540 sq km (0.22%)	<b>Very Dense Forest (VDF)</b>	↑ Increase of 501 sq km	<b>Moderately Dense Forest (MDF)</b>	↓ Decrease of 1,582 sq km	<b>Open Forest (OF)</b>	↑ Increase of 2,621 sq km	<b>Scrub</b>	↑ Increase of 242 sq km
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<b>Tree cover</b>	<ul style="list-style-type: none"> <li><b>Total tree cover:</b> 95,748 sq km (<b>2.91% of the geographical area</b>)</li> <li><b>State with Maximum Tree cover:</b> Maharashtra.</li> <li><b>Trend:</b> ↑ Increase of 721 sq km (0.76%)</li> </ul>										
<b>Trees Outside Forests (TOF)</b>	<ul style="list-style-type: none"> <li><b>TOF:</b> 29.29 million hectares (36.18% of the total forest and tree cover of India).</li> <li><b>States having largest extent of TOF:</b> Maharashtra followed by Odisha and Karnataka.</li> <li><b>States/UTs having maximum percentage of TOF:</b> Lakshadweep, followed by Kerala and Goa.</li> </ul>										
<b>Forest Cover w.r.t. Recorded Forest Area (RFA)</b>	<ul style="list-style-type: none"> <li><b>Trends:</b> <ul style="list-style-type: none"> <li><b>Forest cover inside the RFA/GW:</b> ↑ increase of 31 sq km</li> <li><b>Forest cover outside the RFA/GW:</b> ↑ increase of 1,509 sq km</li> </ul> </li> </ul>										





or Green Wash (GW)																							
Area Specific Forest Cover	<p><b>Forest cover in the hill districts</b></p> <ul style="list-style-type: none"> <li><b>Total Forest Cover:</b> 40.17% of the total geographical area of these districts.</li> <li><b>Trend in forest cover:</b> ↓ decrease of 902 sq km (0.32%) in 140 hill districts.</li> </ul> <p><b>Tribal districts</b></p> <ul style="list-style-type: none"> <li><b>Total forest cover:</b> 37.53% of the geographical area of these districts.</li> <li><b>Trend in forest cover:</b> <ul style="list-style-type: none"> <li>↓ decrease of 655 sq km inside the RFA/GW in the tribal districts</li> <li>↑ increase of 600 sq km outside the RFA/GW in the tribal districts.</li> </ul> </li> </ul> <p><b>North Eastern region</b></p> <ul style="list-style-type: none"> <li><b>Total forest cover:</b> 64.66% of its geographical area.</li> <li><b>Trend in forest cover:</b> ↓ decrease of 1,020 sq km (0.60%).</li> </ul>																						
Forest Cover in Tiger reserves (TR) and Tiger corridor (TC)	<ul style="list-style-type: none"> <li><b>Forest cover in the TR:</b> 55,666.27 sq km (7.80% of the country's total forest cover and 74.51% of the total area of TRs) <ul style="list-style-type: none"> <li><b>TR with Largest Forest Cover:</b> Nagarjunasagar-Srisailem Tiger Reserve, Andhra Pradesh</li> </ul> </li> <li><b>Forest cover in the Tiger corridors:</b> 11,575.12 sq km (1.62 % of the country's total forest cover)</li> </ul> <p><b>Decadal Changes between 2011 and 2021 assessments:</b></p> <ul style="list-style-type: none"> <li><b>Forest cover in TR:</b> ↓ Decreased by 22.6 sq km (0.04%).</li> <li><b>Forest cover in TC:</b> ↑ Increased by 37.15 sq km (0.32%).</li> <li><b>TR with Highest Gain in Forest cover:</b> Buxa, West Bengal.</li> <li><b>TR with Highest Losses in Forest cover:</b> Kawal, Telangana.</li> </ul> <p><b>Top Five Tiger Reserves in terms of forest cover as % of the area of the Tiger Reserve.</b></p>  <table border="1"> <caption>Top Five Tiger Reserves in terms of forest cover as % of the area of the Tiger Reserve.</caption> <thead> <tr> <th>Tiger Reserve</th> <th>Forest Cover (%)</th> </tr> </thead> <tbody> <tr> <td>Pakke (Arunachal Pradesh)</td> <td>~97.0</td> </tr> <tr> <td>Achanakmar (Chhattisgarh)</td> <td>~95.5</td> </tr> <tr> <td>Simlipal (Odisha)</td> <td>~94.0</td> </tr> <tr> <td>Kali (Karnataka)</td> <td>~92.0</td> </tr> <tr> <td>Dampa (Mizoram)</td> <td>~91.5</td> </tr> </tbody> </table>	Tiger Reserve	Forest Cover (%)	Pakke (Arunachal Pradesh)	~97.0	Achanakmar (Chhattisgarh)	~95.5	Simlipal (Odisha)	~94.0	Kali (Karnataka)	~92.0	Dampa (Mizoram)	~91.5										
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Growing stock of wood	<ul style="list-style-type: none"> <li><b>Total growing stock of wood:</b> 6,167.50 million cum comprising 4388.15 million cum inside forest areas and 1779.35 million cum outside recorded forest areas (TOF).</li> <li><b>Average growing stock per hectare in forest:</b> 56.60 cum.</li> </ul>																						
Mangrove cover	<ul style="list-style-type: none"> <li><b>Total Area:</b> 4992 sq km (0.15% of country's geographical area)</li> <li><b>Top states &amp; UTs with Mangrove Cover:</b> West Bengal, Gujarat, A&amp;N Islands, Andhra Pradesh, Maharashtra, Odisha.</li> <li><b>Trends:</b> <ul style="list-style-type: none"> <li><b>Total Area:</b> ↑ Increased by 17 sq km (0.34%)</li> <li><b>States showing increase in mangrove cover:</b> Odisha and Maharashtra</li> </ul> </li> </ul>																						
Bamboo resources	<ul style="list-style-type: none"> <li><b>Total bamboo bearing area:</b> 15 sq km.</li> </ul> <p><b>Top Ten States in terms of bamboo bearing area (%)</b></p>  <table border="1"> <caption>Top Ten States in terms of bamboo bearing area (%)</caption> <thead> <tr> <th>State</th> <th>Bamboo bearing area (%)</th> </tr> </thead> <tbody> <tr> <td>Maharashtra</td> <td>9.05%</td> </tr> <tr> <td>Odisha</td> <td>7.49%</td> </tr> <tr> <td>Assam</td> <td>7.13%</td> </tr> <tr> <td>Chhattisgarh</td> <td>7.00%</td> </tr> <tr> <td>Karnataka</td> <td>5.77%</td> </tr> <tr> <td>Manipur</td> <td>5.61%</td> </tr> <tr> <td>Andhra Pradesh</td> <td>4.08%</td> </tr> <tr> <td>Meghalaya</td> <td>3.35%</td> </tr> <tr> <td>Others</td> <td>27.67%</td> </tr> <tr> <td>Arunachal Pradesh</td> <td>10.53%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li><b>Trends:</b> <ul style="list-style-type: none"> <li><b>Total area:</b> ↓ Decrease of 10,594 sq km.</li> <li><b>State with highest increase in bamboo bearing area:</b> Mizoram</li> </ul> </li> </ul>	State	Bamboo bearing area (%)	Maharashtra	9.05%	Odisha	7.49%	Assam	7.13%	Chhattisgarh	7.00%	Karnataka	5.77%	Manipur	5.61%	Andhra Pradesh	4.08%	Meghalaya	3.35%	Others	27.67%	Arunachal Pradesh	10.53%
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	<ul style="list-style-type: none"> <li>○ <b>State with highest ↓ decrease in bamboo bearing area:</b> Madhya Pradesh.</li> <li>● <b>Top state in terms of Bamboo Bearing Area (%):</b> Madhya Pradesh.</li> </ul>												
<b>Forest carbon stock</b>	<ul style="list-style-type: none"> <li>● <b>Total carbon stock in forest:</b> 7,204.0 million tonnes. <ul style="list-style-type: none"> <li>○ <b>Soil Organic Carbon (SOC)</b> represents the largest pool of carbon stock in forests.</li> </ul> </li> <li>● <b>Trend:</b> ↑ Increase of 79.4 million tonnes in the carbon stock of the country.</li> </ul> <div> <p><b>Forest Carbon Stock in Different pools %</b></p>  <table border="1"> <caption>Forest Carbon Stock in Different pools %</caption> <thead> <tr> <th>Pool</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Above Ground Biomass</td> <td>32.20%</td> </tr> <tr> <td>Below Ground Biomass</td> <td>55.67%</td> </tr> <tr> <td>Dead wood</td> <td>9.98%</td> </tr> <tr> <td>Litter</td> <td>1.49%</td> </tr> <tr> <td>Soil</td> <td>0.66%</td> </tr> </tbody> </table> </div>	Pool	Percentage	Above Ground Biomass	32.20%	Below Ground Biomass	55.67%	Dead wood	9.98%	Litter	1.49%	Soil	0.66%
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<b>Fire prone forest areas</b>	<ul style="list-style-type: none"> <li>● <b>22.27% of the forest cover of the country is highly to extremely fire prone.</b></li> <li>● <b>Top 3 States according to number of forest fire detected by FSI:</b> Odisha, Madhya Pradesh and Chhattisgarh.</li> </ul>												
<b>Climate Hotspots</b>	<ul style="list-style-type: none"> <li>● As per the <b>Climate Hotspot projections for the studied periods i.e. 2030, 2050 and 2085- States/UTs projected to witness highest temperature increase:</b> Ladakh, Jammu &amp; Kashmir, Himachal Pradesh and Uttarakhand .</li> <li>● <b>States/UTs projected to witness the least temperature rise:</b> Andaman &amp; Nicobar Islands, West Bengal, Goa, Tamil Nadu and Andhra Pradesh.</li> <li>● <b>Regions projected to experience the highest increase in rainfall:</b> The North-Eastern States and Upper Malabar Coast of India.</li> <li>● <b>Regions projected to experience least increase and sometimes even decline in rainfall:</b> part of North-Eastern States like Arunachal Pradesh, Sikkim; North-Western parts of the country namely Ladakh, Jammu &amp; Kashmir and Himachal Pradesh.</li> </ul>												

#### Concerns based on the findings of the report

- **Decline in forest cover in Northeast India:** The total forest cover in India's biodiversity-rich north-eastern states has dropped owing to natural calamities, particularly landslides and heavy rains, in the region as well as to anthropogenic activities such as shifting agriculture, pressure of developmental activities and felling of trees.
- **Survey results could be misleading:** The definition of 'forest cover' includes plantations and monocultures plantations – such as coffee, coconuts or mango and other orchards.
  - These plantations are distinctly different from natural forests where one hectare would be home to hundreds of species of trees, plants and fauna, whereas such plantations house only one species of tree.
- **Slow increase in dense forests:** The net increase in forest cover is mostly aided by gains in Open forests rather than Dense Forests.

To know more about **Forest Conservation**, refer to our following Weekly Focus Document.

 <p><b>Conserving the Forests: Save Today, Survive Tomorrow</b></p>	<p>The intense global debate on sustainable development and sustainable management of natural resources puts the importance of forests for humanity at the centre of discussion. The emerging threats faced by forests calls for forming intense strategies for their conservation and sustainable management. This document discusses various strategies in practice in India and potential opportunities for future to achieve desired level of forest cover.</p>	
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## 5.2. INDIAN ENVIRONMENT SERVICE

### Why in news?

The Supreme Court asked the Centre whether it was planning a dedicated Indian Environment Service in the national bureaucratic set-up, as recommended by a committee headed by former Cabinet secretary TSR Subramanian in 2014.

### More on news

- The Court was hearing a PIL that alleged **destruction of environment and forests and also executive apathy** that had resulted in measures for environment protection emerging mostly from judicial intervention.
- The court recounted the recommendations of the **TSR Subramanian Committee**, which had been **rejected by a parliamentary standing committee** on the ground that a dedicated all-India service may lead to **multiplicity of institutions and won't serve the desired purpose**.

### Background

- The high-level committee was constituted in 2014 under the chairmanship of Subramanian by the Ministry of Environment, Forests and Climate Change (MoEF&CC) to **review environmental laws in the country, and to bring them in line with the current requirements**.
- The report recorded the fact that **India had a strong environmental policy and legislative framework but weak implementation** has resulted in environmental governance being criticised by conservation experts and the judiciary.
- **As a step for the future**, the committee said, **"An Indian Environment Service** may be created, as an all-India Service, based on qualifications and other details prescribed by MoEF&CC/ DoPT/ UPSC."
- The committee also proposed that **necessary institutional framework be created for this purpose**.
- Officers dealing with environment clearances and policies **currently come from the all India civil services conducted by the UPSC**.

### Need for the All India Environment Services

- **Need of specialisation in environment governance:** The public sector, including the Central and State Governments, and various other quasi-official bodies, such as corporations, municipal boards, enforcement agencies, as well as the industrial sectors will require reliable expertise of a high order in the management of environmental issues. **Current approval systems and monitoring mechanism function in a quasi-amateurish manner**, leading to sub-optimal management of environmental issues.
- **Paucity of time with bureaucrats in existing institutions:** Looking at the current administrative set-up, it can be inferred that the government servants might not be able to spare special time for environmental causes.
- **Need of proactiveness in resolving environmental issue:** The country's response to environmental issues has mostly been reactive, with action being taken only when a problem arises. Environmental issues need an active approach which includes harnessing of resources, ensuring sustainability, creating awareness and an early warning system to minimise risks.
- **Inadequacy of the current system:** The country has a dedicated Indian Forest Service along with a number of agencies, like the National Green Tribunal (NGT) and the Commission for Air Quality Management, that have come up to deal with environmental issues. Yet time and again degradation of environment has been reported across the country. All these points to the inadequacy of the existing system.

### Way ahead

- **Keeping states on board:** The All India Services would contribute in vital spheres to the modernisation of administration for rapid socio-economic development of the country and strengthen national integration. The Union Government should persuade State Governments to agree to the constitution of the Indian Environment Service.
- **Planned policy:** Effective steps need to be taken to strengthen the upcoming Indian Environment Service. This can be achieved through well-planned improvements in selection, training, deployment, development and promotion policies and methods. Training and career development policies should be geared to this objective.
- **Coordinated efforts:** There should be greater coordination and periodical dialogue between the authorities in the Union and the State Governments who are responsible for the management of All India Services. Also, All the agencies should have **the necessary powers and resources at their disposal** to enforce the rules.

- **Bridge the socio-economic inequality:** To get the best talent for the Environment Services, there is a need for creating conditions in which the larger masses of the people particularly those in the rural areas, can have an equal opportunity to compete in the Civil Services examination with candidates belonging to the urban elite.

### 5.3. CHEETAH REINTRODUCTION PLAN

#### Why in News?

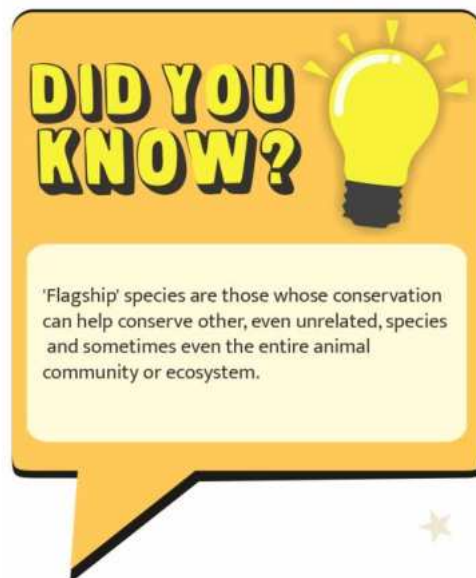
Recently, The Government of India has decided to reintroduce Cheetahs in National Parks over five years, under 'Action Plan for Introduction of Cheetah in India'.

#### More in News

- 'Action Plan for Introduction of Cheetah in India' was launched at the **19th meeting of the National Tiger Conservation Authority (NTCA)**.
- **Action Plan** aims to establish **viable cheetah metapopulation in India that allows the cheetah to perform its functional role as a top predator and provides space for the expansion of the cheetah** within its historical range thereby contributing to its global conservation efforts.
  - Cheetah is the **only large carnivore that got completely wiped out from India in 1952**, mainly due to **over-hunting and habitat loss**.
- As per the action plan, a cohort of around **10-12 young African Cheetahs- a different subspecies (Acinonyx jubatus)** that are ideal for **reintroduction will be sent from Namibia or South Africa** to the grassland habitats that the Asiatic cheetahs occupied in the past as a founder stock during the first year.
  - The **locally extinct cheetah-subspecies of India is found in Iran** and is categorized as **critically endangered**. Since it is **not possible to source the critically endangered Asiatic cheetah from Iran without affecting this sub-species**, India will source cheetahs from Southern Africa, which can provide India with substantial numbers of suitable cheetah for several years.
- Amongst the 10 surveyed sites of the central Indian states, **Kuno Palpur National Park (KNP) in Madhya Pradesh has been rated the highest**. This is because of its suitable habitat and adequate prey base.
  - KNP is 748 sq. km. in area, **devoid of human settlements, forms part of Sheopur-Shivpuri deciduous open forest landscape** and is estimated to have a capacity to sustain 21 cheetahs.
  - Kuno also offers the prospect of housing four big cats of India - tiger, lion, leopard and cheetah - and allowing them to coexist as in the past.
- The other sites recommended for holding and conservation breeding of cheetah in India, in controlled wild conditions are:
  - **Nauradehi Wildlife Sanctuary** (1,197 sq. km, habitat 5,500 sq.km), Madhya Pradesh
  - **Gandhi Sagar Wildlife Sanctuary - Bhainsrorgarh Wildlife Sanctuary complex** (~2500 sq.km), Madhya Pradesh
  - **Shahgarh bulge in Jaisalmer**, Rajasthan (4,220 sq.km)
  - **Mukundara Tiger Reserve** as fenced enclosure (~80 sq.km), Rajasthan.

#### Significance of Reintroduction of cheetah

- **Restoration of wildlife habitat:** Carnivore reintroduction/conservation translocation is an appropriate conservation strategy to restore the integrity of ecosystems.
  - Locally cheetah as a flagship would evoke a greater focus on the predicament of the much abused dry-open forest/savanna ecosystems and the need to restore and manage them.
- **Genetic diversity:** A top-down effect of a large predator that **enhances and maintains the diversity in lower trophic levels of the ecosystems**.
- **Additional habitat for other species:** Reintroducing cheetahs in India will help relieve pressure on the species by creating additional habitat, which the cheetah desperately needs to survive.



- **Economic benefits:** Having cheetahs in India will boost ecotourism and enhance livelihood options and living conditions among the local communities where the cheetah is introduced.
  - Among large carnivores, **conflict with human interests is lowest for cheetahs**, as they are not a threat to humans and usually do not attack large livestock,
- **Support global effort to conserve cheetah:** Cheetah as a species are constrained by space across their range, protected landscapes of India offer to extend the range of the cheetah and contribute to global efforts in conserving them.
  - India would like to assist the Government of Iran and the world conservation community with conservation efforts of the Iranian cheetah.
- **Support climate change mitigation goals:** It will help to enhance India's capacity to sequester carbon through ecosystem restoration activities in cheetah conservation areas and thereby contribute towards the global climate change mitigation goals.



### Concerns

- **Coexistence of large predators:** There is no science available currently to suggest that cheetahs, lions, tigers and leopards can coexist comfortably in the same habitat. It has never occurred anywhere else before, so there is no real-life experience to draw upon.
- **Size of Indian parks:** some experts have noted that the cheetah is a wide-ranging species, known to travel across areas up to 1,000 sq km in a single year. Indian parks tend to be much smaller than those in Africa, offering less chance for such free movement.
- **Protection of grassland:** Several environmentalists observe that a single species imported from a foreign country cannot serve as the ambassador for the conservation of all grasslands occurring in India.
  - India has different types of grasslands across the country: the Himalaya, Western Ghats, Eastern Ghats, grasslands in the Northeast, and those in Central and Western India. They are extremely diverse and home to unique native fauna.
- **May harm the current species:** Some wildlife experts are on the view that the introduction of African cheetah may act as an alien species to the native ecosystem, which might generate negative effects on indigenous wildlife species.
- **Impact other wildlife protection efforts:** Attention to the new cheetahs may take away resources from wildlife protection efforts that are already struggling to protect endangered animals.
- **Human-Wildlife Conflict:** Farmers often try to protect their resources, often trapping or shooting them as **cheetahs hunt more during the daytime**, they are seen more often than the nocturnal predators which contribute to a higher rate of persecution on the cheetah.
- **Rehabilitation of people:** Many villages will have to be shifted to make sufficient space for Cheetah's habitat.

### Way forward

- **Community Participation:** No landscape level conservation program can be sustained without the help of local communities. **Confidence of local villagers would be won through various outreach & awareness programs.**
  - To spread awareness among local people and sensitize the youth, eco-clubs, nature education camps, teacher training camps, street plays etc. would be organized regularly.
- **Capacity Building:** Regular in-house training of the forest officials, veterinary team, frontline staff and cheetah tracking teams need to be organized periodically to manage the released cheetahs and other carnivores.
- **Inter-sectorial collaborations:** Collaboration with police and revenue department is essential to design conservation friendly land policy and strengthening protection in and around Kuno.
- **Wildlife Tourism and revenue generation:** Sustainable and conservative tourism subservient to the conservation needs of the NP and of the project need to be encouraged so that jobs and business opportunities for the local people can be created
- **Annual Review and Monitoring:** After the cheetahs are released, the progress of the project need to be reviewed regularly by both the cheetah research team and the Forest Department team for informed management.



	African Cheetah	Asiatic Cheetah
<b>Pictorial Representation</b>		
<b>IUCN Status</b>	Vulnerable	Critically Endangered
<b>CITES Status</b>	Appendix I	Appendix I
<b>Distribution</b>	Africa (Northwest Africa, East Africa, and Southern Africa)	Only few left in Iran
<b>Physical Characteristics</b>	Bigger in size as compared to Asiatic Cheetah, slightly bigger build and sturdy legs and neck.	Slightly smaller and slender than the African Cheetah. Their neck is much smaller and slender. Also, their legs are slender.
<b>Food Intake</b>	Diverse diet due to bigger habitat	Limited source especially medium sized prey like Chinkara, Gazelle etc.

## 5.4. RED SANDERS

### Why in news?

Recently, Red Sanders (Red Sandalwood) has fallen back into the '**Endangered**' category in the International Union for Conservation of Nature's (IUCN) Red List.

### More about news

- It was earlier classified as '**Near Threatened**' in 2018 and has again been classified as **Endangered**.
- The **IUCN** has assessed that over the last three generations, the species has experienced a population decline of **50-80 per cent**.
- In 2019, the Directorate General of Foreign Trade, an agency of the Ministry of Commerce and Industry, revised its export policy to permit the export of red sander timber, if it is obtained from cultivated land.

### About Red Sanders (*Pterocarpus santalinus*)

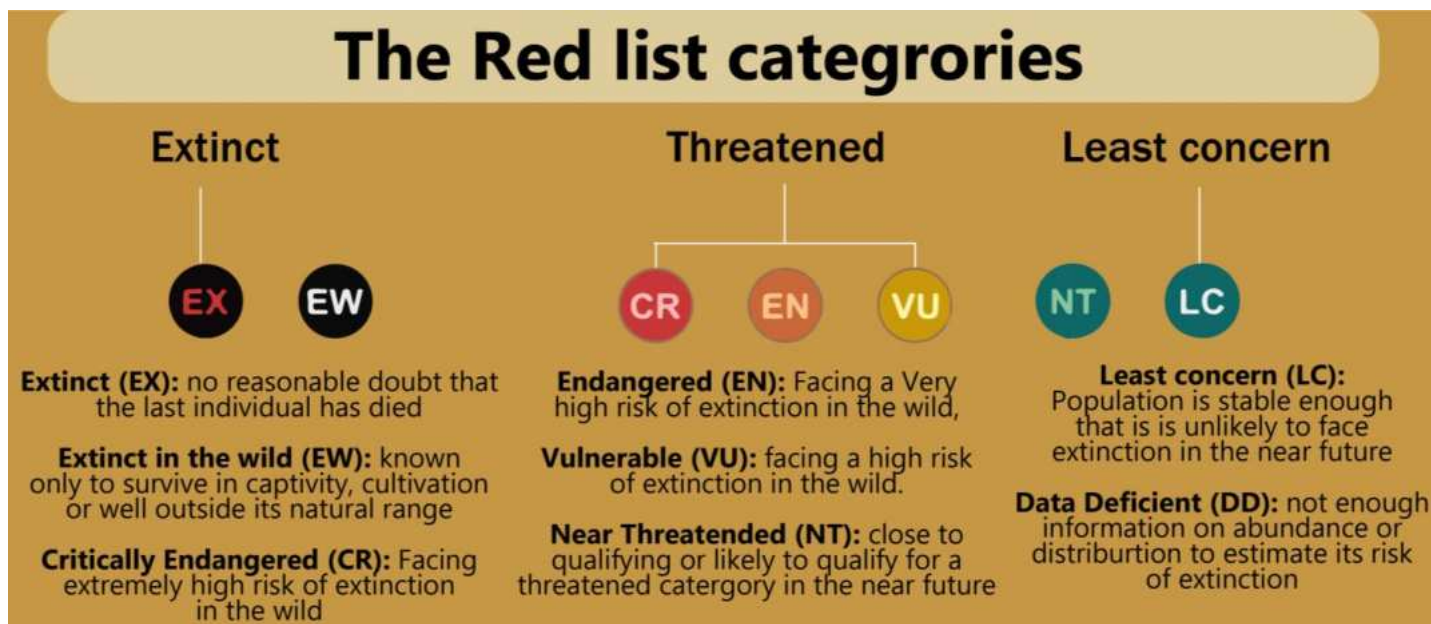
- It is an **Indian endemic tree species**, with a restricted geographical range in the **Eastern Ghats of India**.
  - It is **endemic** to a distinct tract of forests in **Andhra Pradesh**.
- It has been **assessed as 'Endangered'** as per the **IUCN criteria** and scheduled in **appendix II of CITES and Wildlife Protection Act**.



## DID YOU KNOW?

- IUCN is a membership Union composed of both government and civil society organisations, headquartered in Gland, Switzerland.
- It maintains a list called the **Red List of flora and fauna species** and categorises them based on their conservation status.

- It is also known as: **Almug, Saunderwood, Red Sanders, Red Sanderswood, Red Saunders, Rakta chandana (Indian), Lal Chandan, Ragat Chandan, Rukhto Chandan, Undum.**



## Features of Red Sanders

Morphological characteristics	Floral characteristics	Varieties	Distribution	Climate and Soil
<ul style="list-style-type: none"> <li>It is a deciduous tree with clear trunk and dense rounded crown.</li> <li>It is a small tree that grows to 5-8 meters in height and has a dark grayish bark.</li> <li>The inner bark, when injured or cut, oozes red coloured 'santolin' dye.</li> <li>The wood is extremely hard and dark red in colour.</li> </ul>	<ul style="list-style-type: none"> <li>The flowers of the species are yellow, densely arranged. Flowering occurs from February to April.</li> <li>Pods are formed rapidly but get ripened in next February–March.</li> <li>There is only one seed per pod, and red- dish brown in colour.</li> </ul>	<ul style="list-style-type: none"> <li>In nature, two types of trees are observed— ~ Wavy grained ~ Straight</li> <li>The wavy grained wood is more in demand in trade and is preferred for commercial plantation.</li> </ul>	<ul style="list-style-type: none"> <li>It is distributed in peninsular India and Sri Lanka.</li> <li>It occurs in patches in tropical dry deciduous forests, towards South-Eastern Ghats.</li> </ul>	<ul style="list-style-type: none"> <li>Well-drained red soils with gravelled loam are suitable for the cultivation of Lal Chandan species.</li> <li>It regenerates well in dry hot climate and requires rainfall ranging from 800 mm to 1000 mm annually for good growth.</li> </ul>

### Significance of Red Sanders

- Timber industry:** The timber of Red Sanders is **highly demanded domestically and internationally**, and especially in East Asian countries like China and Japan. Red Sandalwood timber is used for making furniture, woodcraft and musical instruments.
  - The **rare wavy grain variant** is highly valued in Japan for its acoustic properties.
- Medicinal value:** The **wood at the center of the trunk (heartwood)** is used as **medicine**. It is used for **treating digestive tract problems, fluid retention, cough and for blood purification**.
  - It can be **used for removal of tan, blemishes, dullness and acne**. In **Ayurveda**, it is used to **treat eye disorders**. It can be used as an **antipyretic, anti-inflammatory, anthelmintic agent**. It is also **used in cosmetics**.
- Food Industry:** It is **used as a flavoring in alcoholic beverages**. In addition, **the timber is also exploited for the extraction of santalin** (a red pigment used as dye and colorant in food).



## Concerns

- **Over-harvesting:** The over-harvest of the species has left the population structure skewed, with **less than 5 per cent of the trees remaining in the wild.**
  - The **slow growth of the species** and continued harvesting leaves no time for the species to recover naturally.
- **Illegal Trade:** The harvest of the tree is restricted but the **illegal trade like smuggling etc continues to meet the global demand.**
  - This is evidenced **by the large volume of timber and Red Sanders products seized by authorities at all stages of the illegal supply Red List's summary** on Red Sanders.
- **Habitat fragmentation:** Anthropogenic habitat loss caused by **Cattle grazing and use of the forest for local timber and fuelwood.** These trees may also be outcompeted **by invasive species and diseases.**

## Conclusion

Red Sanders smuggling continues despite the physical deterrents and patrols in place in Andhra Pradesh, as well as international, national and state-level laws preventing the cutting and transport of species. **Conservation efforts need to be strengthened** and developed to protect the species. The **cultivation of the species in plantation should be promoted** and **needs monitoring** to be able to better support the legal trade to relieve pressure on the wild Red Sanders.

## 5.5. CARBON INEQUALITY AND CLIMATE POLICY

### Why in News?

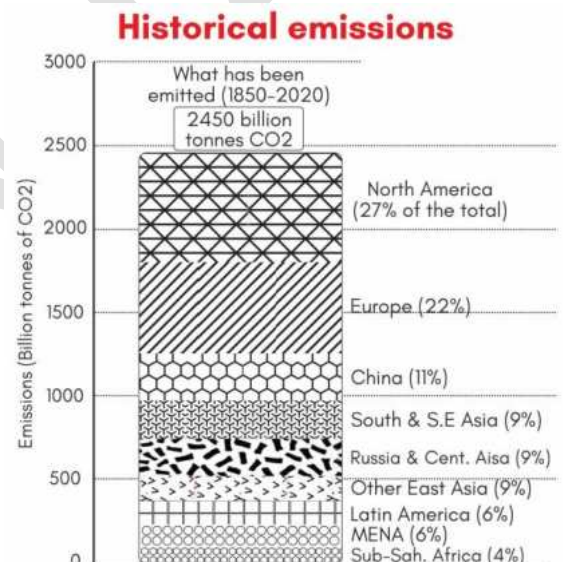
A study has found that **Wealthy people have disproportionately large carbon footprints** and the percentage of the world's emissions they are responsible for is growing.

### More about News

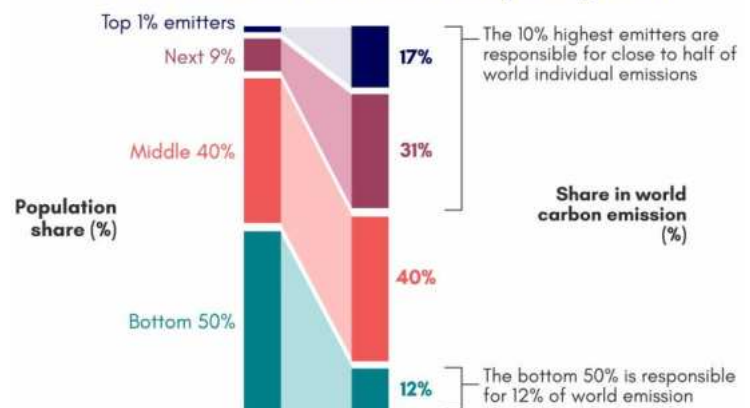
- As per the study, in 2010, the **most affluent 10% of households emitted 34% of global CO<sub>2</sub>**, while the 50% of the global population in lower-income brackets accounted for just 15%.
  - **By 2015, the richest 10% were responsible for 49% of emissions** against 7% produced by the poorest half of the world's population.
- The resulting policy neglect of high consumers was a "missed opportunity" **to address carbon inequality and opportunities for carbon reduction.**

### What is Carbon inequality?

- It refers to the phenomena of the **highly unequal distribution of carbon emissions throughout the world.**
- Carbon equality today exists between countries as well as within countries, reflected in the **findings of the World Inequality Report (WIR), 2022:**
  - **Carbon Inequality Between Nations:** A small number of developed countries are responsible for substantially higher share of the CO<sub>2</sub> emitted globally.
    - ✓ For instance, of the total 2,450 billion tonnes of carbon released since 1850, **North American and European region are responsible for about 50% of these emissions.** (see infographic)
  - **Carbon Inequality within Nations:** Within countries, carbon emissions of higher income groups are significantly higher compared to other citizens. (see infographic)



### Global carbon emissions inequality, 2019

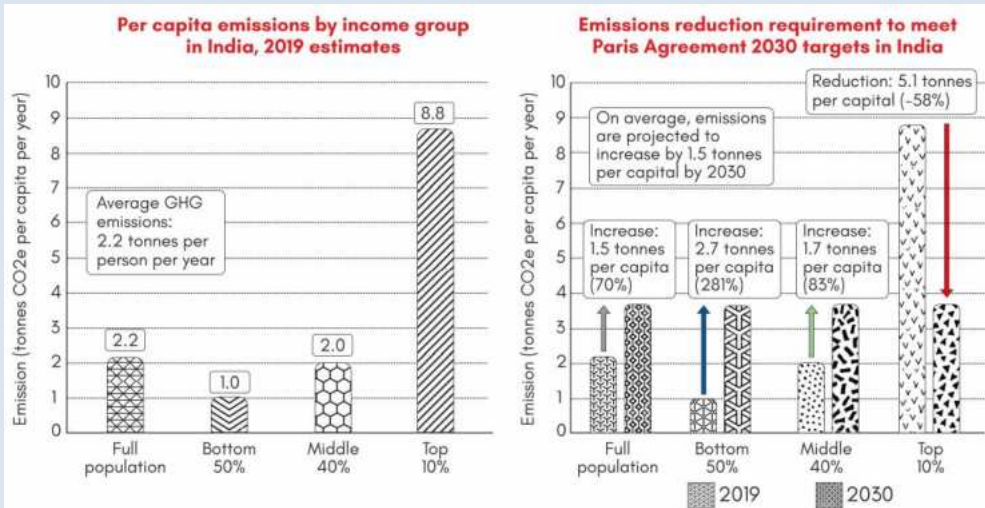




- According to WIR 2022, in 1990, **63% of the global carbon inequality was due to 'between country' inequality** but in 2019, 63% of global carbon inequality was due to 'within country' inequality.
- **Impacts:**
  - **Makes existing climate policies ineffective** and undermines ability to meet the targets set out in the Paris Agreement.
  - **Leads to social and economic inequity**, since Global carbon budget is being rapidly depleted, not for the purpose of lifting all of humanity to a decent standard of living, but to a large extent to expand the consumption of a minority of the world's richest people.

#### Status of Carbon inequality in India

- **Inequality within India:** The bottom 50%, middle 40% and top 10% respectively consume 1, 2, and 9 tCO<sub>2</sub>e/capita.
- **Comparison with other nations:**
  - **India is a low carbon emitter** with the average per capita consumption of greenhouse gas is equal to just over 2 tCO<sub>2</sub>e lower than the Global average of 6.6 tCO<sub>2</sub>e.
  - Moreover, a **person in the bottom 50% of the population in India is responsible for, on average, 5 times fewer emissions than the average person in the bottom 50% in the European Union and 10 times fewer than the average person in the bottom 50% in the US.**



#### Significance of addressing Climate Inequality

- **Strengthen India's case on multilateral platforms for addressing between country carbon inequality:** India has been advocating for the **just transition for the developing countries** with adequate time frame and **financial assistance** for climate adaptation and mitigation **based on historical responsibilities**.
- **Standard climate measures are unjust in unequal societies:** Climate policies have been disproportionately borne by low-income consumers over the past decades, in particular via carbon and energy taxes.
  - For instance, uniform carbon taxation across individuals leads to giving more polluting rights to wealthy individuals, who are less affected by an increase in carbon prices. This leads to high emissions whose effects are mostly borne by poorer sections.
- **Designing effective climate policies:** The scale of transformation required to cut greenhouse gas emissions drastically cannot be attained if environmental and social inequalities are not integrated into the design of climate policies.
  - For instance, to effectively meet the targets of the Paris Agreement, emissions of the top 10% must fall by 58% per person which highlights the need of targeted policies directed towards wealthier sections.
- **Productive use of public investment:** Instead of large financial and other incentives to the private sector, public investment should focus on transition to affordable green energy.
  - This will help reduce emissions of carbon consumers from low- and middle-income groups, who are locked-in carbon intensive infrastructures systems due to constrained energy choices.

#### Case Study: Examples of climate policies that effectively address inequality exist across the world.

- **Canada:** A tax was implemented along with a significant package of transfers to low- and middle-income households, which ensured the social viability of the reform.
- **Indonesia:** Energy subsidies reforms were coupled with substantial investments in the public health system, largely financed by increased revenues from energy taxes.
- **Sweden:** Decades of large-scale public investments in low-carbon infrastructure made it possible for low-income groups to access affordable, clean energy sources. When a carbon tax was eventually introduced, low-income groups had the choice between greener and fossil options.

## Ways to address carbon inequality

- **Proper tracking of individual emissions within countries** with a systematic assessment of the beneficiaries and losers of climate policies should be carried out by public authorities.
- **Policy instruments targeting investments in polluting and fossil activities:** Progressive wealth taxes on the ownership of polluting activities could accelerate divestments, reduce pollution levels of the wealthiest and generate much-needed resources to scale-up investments in low-carbon infrastructures.
- **Scaling up public investments in low-carbon energy** production infrastructures, transport and energy efficiency in order to ensure a fair transition and enable lower income groups to take greener decisions.
- **Global carbon incentive (GCI):** It was suggested by Raghuram Rajan, former Governor of the Reserve Bank of India to address global carbon inequality.
  - Under GCI, **every country that emits more than the global average of around 5 tCO<sub>2</sub> per person would pay annually an amount calculated by multiplying the excess emissions per person by the population and the GCI into a global GCI fund.** Countries below the global per person average would receive a commensurate pay-out.

## Conclusion

Tackling extreme inequality and targeting the excessive emissions linked to the consumption and investments of the world's richest people is vital to keeping the 1.5°C Paris goal alive.

### Related news

#### Oxfam released "Inequality Kills" report

- **Key global findings**
  - **World's ten richest men more than doubled their fortunes** during first two years of pandemic.
  - Pandemic has set **gender parity back from 99 years to now 135 years.**
  - **Richest 1% emit more than twice as much CO<sub>2</sub>** as the bottom 50% of the world.
- **Findings related to India**
  - **Income of 84% of households declined in 2021** but number of Indian billionaires grew from 102 to 142.
  - In 2021, share of the **bottom 50% of the population in national wealth was a mere 6%.**
  - **More than 4.6 crore Indians** are estimated to have **fallen into extreme poverty in 2020.**

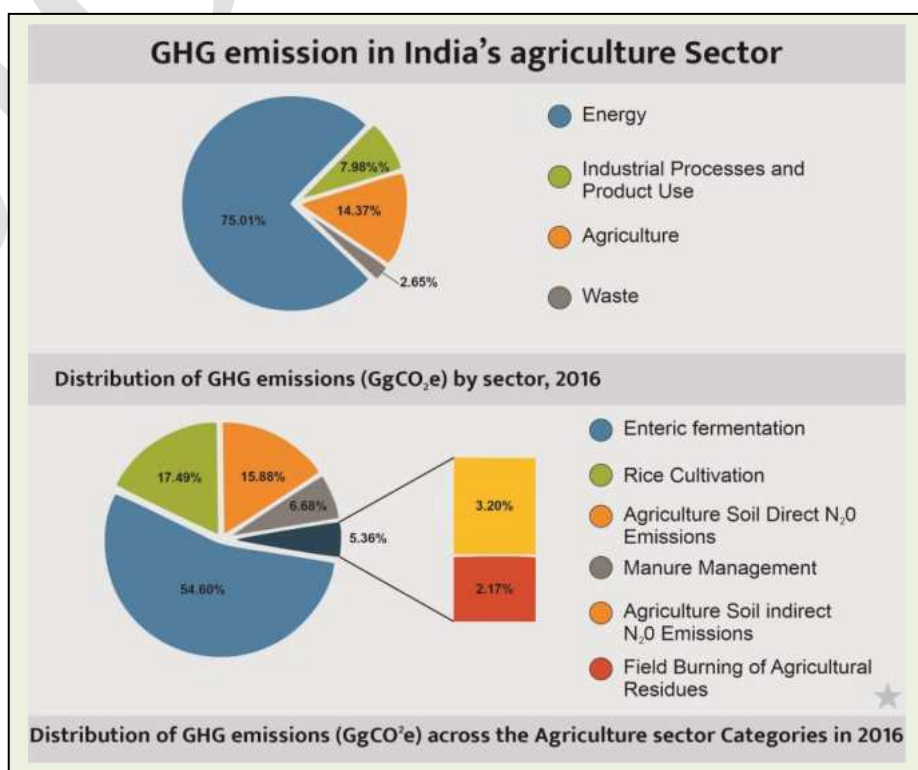
## 5.6. INDIAN AGRICULTURE POST-COP26: GREEN REVOLUTION 2.0

### Why in News?

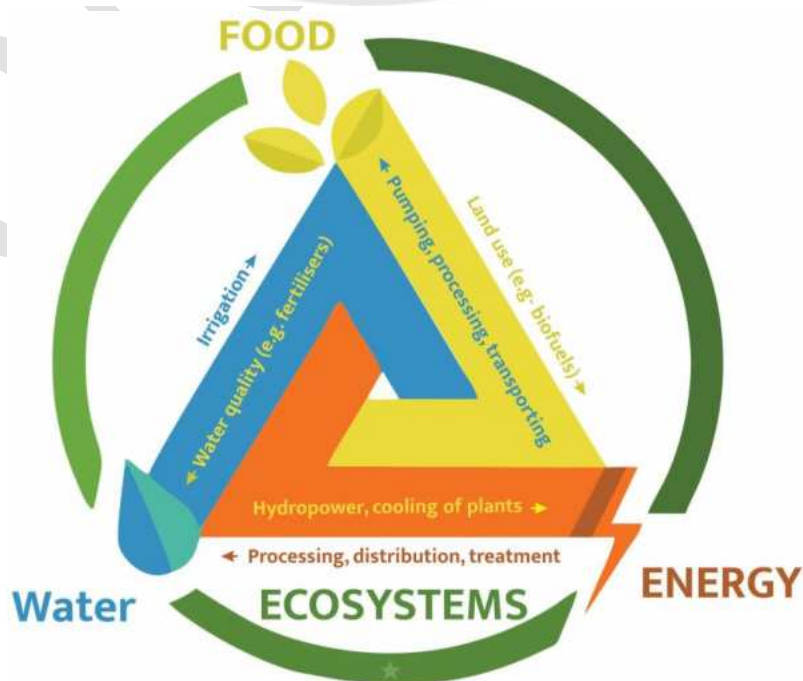
Significant discussions took place at COP26 in the direction of aligning agriculture policies with climate action agenda, warranting a second green revolution along with next-generation reform.

### Green Revolution 2.0: The need for reforms in Agriculture sector of India

- **Reducing emissions:** Agriculture sector amounts to around **14% of Greenhouse gas (GHG) emissions of India.** Thus, reductions of emission from the sector can play a crucial role in fulfilling commitments by India made in COP26 under pledge of Panchamrit (five-fold strategy) to fight climate change, during the COP26.



- **Build climate resiliency:** Climate change induces increase in temperatures, rainfall variation and the frequency and intensity of extreme weather events are predicted to severely impact the agriculture sector.
  - The rise of carbon dioxide levels and temperature in the atmosphere **have direct correlation on crop productivity**, grain quality, pest and disease incidence, as well as on the cropping system.
- **Making food systems more sustainable:** While Green Revolution in India made the country self-reliant in food grain production and contributed to tremendous growth in the sector, it had certain fallouts that threaten overall sustainability of India's food systems.
- **Developing comprehensive policy to deal with persistent issues:** like low crop productivity, post-harvest loss, poor water use efficiency, food inflation and volatility in prices, fragmented landholdings, lower farm mechanisation, scarce public and private investment in agriculture etc.
- **Addressing 'food–energy–water' (FEW) nexus:** It is important to incorporate FEW in future agriculture policies for effective trade-offs and synergies between energy, water and food, considering cross-sectoral policies, environmental and social impacts.
  - The FEW nexus **depicts the significant interconnection between the three essential resources**. For instance, Agricultural accounts for majority of India's groundwater withdrawals through use of electric motors. Thus, water use efficiency in agriculture will not only help groundwater resources to rejuvenate but also reduce energy demand from the sector.



#### Progressive steps taken in India

- **Climate resiliency**
  - **National Mission for Sustainable Agriculture (NMSA)**, one of the 8 missions under National Action Plan on Climate Change, aims at making agriculture more productive, sustainable, remunerative and climate resilient.
  - **National Innovations in Climate Resilient Agriculture (NICRA) programme** is in place to enhance the resilience of Indian agriculture, covering crops, livestock and fisheries to climatic variability and climate change.
  - **National Adaptation Fund for Climate Change (NAFCC)** supports adaptation action, in, inter alia, agriculture, water, forestry, livestock and ecosystems.



- **Resource use efficiency:**
  - **Pradhan Mantri Krishi Sinchayi Yojana (PMKSY)** aims to Introduce sustainable water conservation practices, among others.
  - **Soil Health Cards scheme:** to improve Soil Health by providing nutrients information to the farmers.
  - **Micro Irrigation Fund corpus of Rs. 5000 crore** created with National Bank of Agricultural and Rural Development (NABARD).
- **Greener approaches:**
  - **Paramparagat Krishi Vikas Yojana** aims at promotion of commercial organic production through certified organic farming.
  - **Active promotion of Zero Budget Natural Farming**, a method of chemical-free agriculture drawing from traditional Indian practices.
  - **Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue** in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi.
  - **Bharatiya Prakritik Krishi Paddhati Programme (BPKP)** promotes on-farm biomass recycling with major stress on biomass mulching, use of on-farm cow dung-urine formulations, periodic soil aeration and exclusion of all synthetic chemical inputs.
- **Other Steps-**
  - **Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)** scheme of the government aims to improve irrigation access and raise farmers' income through solar-powered irrigation.
  - Promotion of millet production through hike in Minimum support price (MSP).
  - Department of Agricultural Research & Education (DARE) developed **35 special trait varieties** including **biofortified and stress tolerant** varieties of field and horticulture crops during 2021-22.

### Strategies/pathways to make Indian agriculture resilient and sustainable post COP26

<b>Diversification to more nutritious and environment-friendly crops like millet, pulses, vegetables and fruits etc.</b>	<ul style="list-style-type: none"> <li>• Promote <b>Agroforestry</b>.</li> <li>• <b>Encourage production of diversified crops</b> like sorghum and millet through price incentives, marketing etc.</li> <li>• Raise <b>awareness about diversified diets</b> among Indian consumers.</li> </ul>
<b>Agro-ecological approaches promoting Nature-positive and regenerative agriculture practices</b>	<ul style="list-style-type: none"> <li>• Encouraging practices like- <ul style="list-style-type: none"> <li>○ <b>Organic farming, No-till farming, crop rotation, mulching</b>, zero-till planters etc.</li> <li>○ <b>In situ residue crop harvest management</b>, viz., briquetting and conversion of wastes into fuel forms, various industrial usages and recent intervention of microbial decomposing solution etc.</li> </ul> </li> </ul>
<b>Water-use efficiency by moving away from a supply-based to demand-based system</b>	<ul style="list-style-type: none"> <li>• <b>Reduce water intake in cultivation of paddy</b> through techniques like system of rice intensification (SRI), alternate wetting and drying (AWD), direct seeded rice (DSR) and furrow irrigation.</li> <li>• <b>Incentive mechanism</b> to enhance usage of micro-irrigation practices (sprinkler and drip).</li> </ul>
<b>Expansion of Renewable energy usage to address water-energy-food nexus</b>	<ul style="list-style-type: none"> <li>• <b>Setting up of solar power plants</b> on farmlands, wherever possible.</li> <li>• <b>Reduce agriculture's power subsidy bills</b> and divert the money towards sustainable farm sector investments like solar power.</li> </ul>
<b>Digital technology and extension services</b>	<ul style="list-style-type: none"> <li>• <b>Promoting new agri-tech start-ups and farm enterprises</b> for developing ICT based tools in fields like- <ul style="list-style-type: none"> <li>○ delivery of farm-based information and services</li> <li>○ market integration and intelligence</li> <li>○ weather advisories etc.</li> </ul> </li> </ul>
<b>Research and innovation investments</b>	<ul style="list-style-type: none"> <li>• <b>Increased resource allocation</b> to agricultural research and innovation, especially in the field of developing climate resilient varieties.</li> <li>• <b>Life cycle assessment (LCA) studies</b> need to be done for products or services in the livestock sector for robust measurement systems as tools for national GHG inventory and monitoring emission reduction targets.</li> </ul>

### Conclusion

There is an urgent need for a transition towards sustainable and climate-resilient food systems, taking into consideration food security, as well as to achieve climate objectives such as emission reductions.

## 5.7. ZERO-BUDGET NATURAL FARMING (ZBNF)

### Why in news?

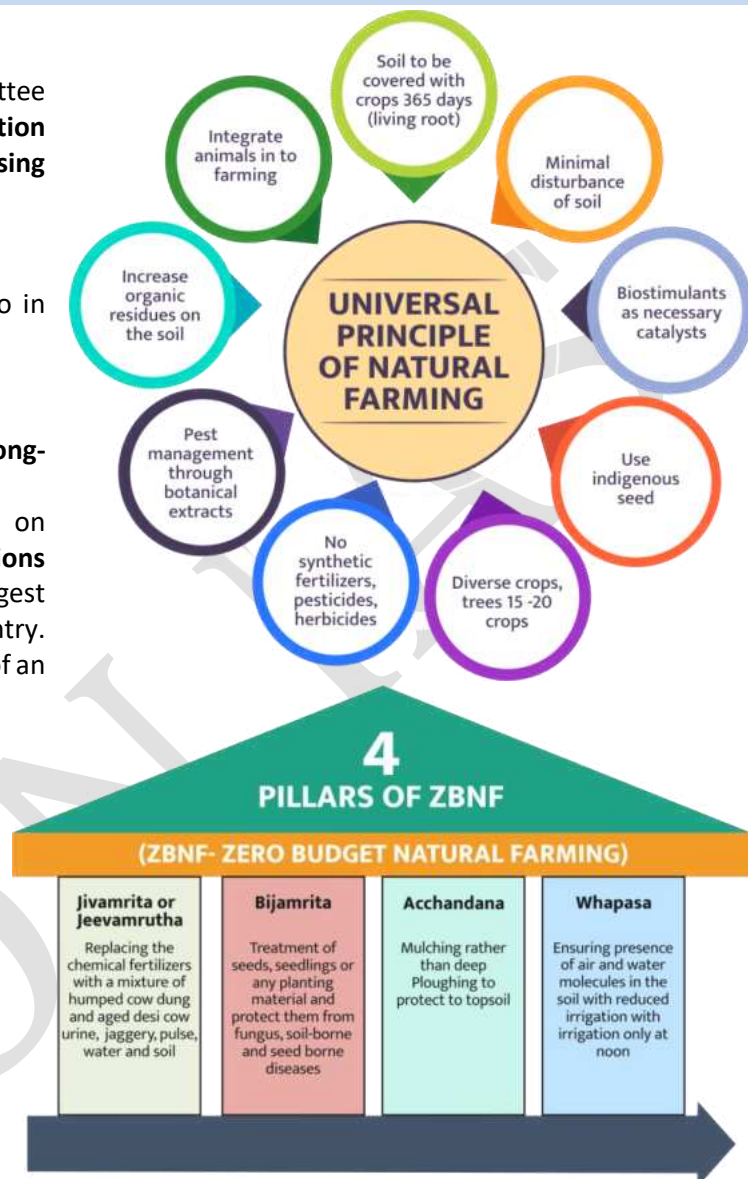
Indian Council of Agricultural Research (ICAR) committee highlighted that **ZBNF would result in tremendous reduction in production of agricultural crops thus compromising India's food security.**

### More on news

- ICAR had set up a committee, under V Praveen Rao in 2019 to **empirically validate the results of ZBNF.**
- The committee is **likely to submit its report soon.**
- **Reportedly,**
  - the committee has stressed for **need to conduct long-term field trials on ZBNF.**
  - **the committee** suggested that future research on ZBNF should be carried out **only in rainfed regions** instead of irrigated zones which produce the biggest chunk of agricultural crops production in the country.
  - the committee has also recommended adoption of an **integrated production system** through usage of farm practices such as
  - **promoting conservation agriculture** through usage of farmyard manure, inter-cropping, crop diversification and integrated nutrient management for improving soil health.

### About ZBNF

- It is a method of **chemical-free agriculture** drawing from **traditional Indian practices.**
  - The word 'budget' refers to credit and expenses, thus the phrase 'Zero Budget' means **without using any credit**, and without spending any money on purchased inputs. 'Natural farming' means **farming with Nature and without chemicals.**
- It was **originally promoted by** Maharashtrian agriculturist and Padma Shri recipient **Subhash Palekar**, who developed it in the **mid-1990s as an alternative to the Green Revolution.**
  - Because of the **Green Revolution initiated in early 1970s** through introduction of **high yielding seeds, application of chemical fertiliser and assured irrigation**, India has emerged as one of the **biggest producers of several agricultural crops** such as rice, wheat, pulses and oilseeds.
  - However, in the last four decades or so there has been **gradual degradation of soil health** because of excessive use of chemical fertiliser and pesticides.
- It is a **natural farming technique in which farming is done without use of chemicals and without using any credits or spending any money on purchased inputs.**
- ZBNF was **mentioned in two budget speeches** of the Central government in 2019-20 and 2020-21.



### Initiatives to promote ZBNF

- **Bhartiya Prakritik Krishi Padhati (BPKP)**: It is a sub scheme of Paramparagat Krishi Vikas Yojana (PKVY) of the Ministry of agriculture and farmers welfare since 2020-21. It focuses on promoting traditional indigenous practices including ZBNF. Under BPKP, an area of **4.09 lakh hectares has been covered.**
- **Inclusion of ZBNF in Agriculture university curriculum**: ICAR has decided to develop a curriculum in consultation with agriculture universities and subject experts for inclusion of ZBNF in the syllabus at both undergraduate and postgraduate levels.

## Significance of ZBNF

- **Eco-friendly:** ZBNF processes require 50%–60% less water and less electricity (than non-ZBNF) for all the selected crops. ZBNF reduces methane emissions significantly through multiple aeration. It also has the potential to avoid residue burning by practising mulching.
- **Improving soil health:** The ZBNF method also promotes soil aeration, minimal watering, intercropping, bunds and topsoil mulching and discourages intensive irrigation and deep ploughing. All these factors results in improving soil health.
- **Doubling farmers' income:** According to National Sample Survey Office (NSSO) data, almost 70% of agricultural households spend more than they earn and more than half of all farmers are in debt.
  - In order to achieve the Central government's promise to double farmers income by 2022, one aspect being considered is natural farming methods such as the ZBNF which **reduce farmers' dependence on loans to purchase inputs they cannot afford.** Meanwhile, **inter-cropping** allows for **increased returns.**

## PRINCIPLES OF CONSERVATION FARMING

### MINIMUM TILLAGE AND SOIL DISTURBANCE



Direct planting involves growing crops with minimum soil disturbance since the harvest of the previous crop.

Conservation agriculture can be done manually (i.e. likoti) or mechanically (i.e. animal or tractors drawn conservation agriculture planters).

### PERMANENT SOIL COVER WITH CROP RESIDUES AND LIVE MULCHES



Mulch is any organic material (such as decaying leaves, bark, or compost) spread over the soil and around a crop to enrich and insulate the soil.

Live mulches are crops intercropped for purposes of providing soil cover.

Crop residue or live cover protect the soil from direct impact of erosive raindrops; conserves the soil by reducing evaporation and suppresses weed growth.

### CROP ROTATION AND INTERCROPPING



Crop rotation means that different crops are alternated in the same field, preferably cereals (maize and wheat) followed by legumes (beans).

## 5.8. BIODIVERCITIES BY 2030

### Why in News?

The **World Economic Forum (WEF)** recently published a report titled '**BiodiverCities by 2030: Transforming cities' relationship with nature'** developed as an output of the BiodiverCities by 2030 initiative.

### About BiodiverCities by 2030 initiative

- It is a joint initiative of the **World Economic Forum and the Government of Colombia.**
- It aims to **support city governments, businesses and citizens**, to enable cities to live in harmony with nature by 2030.
- The initiative **brings together multidisciplinary expertise, combines existing initiatives and surfaces innovative solutions** to promote sustainable, inclusive and nature-positive urban development at a global scale.

### Key observations of the report

The report examines **the relationship between cities and nature and provides a clear path** for city leaders to embrace the BiodiverCities by 2030 vision and increase urban competitiveness and liveability through nature:-

## ABOUT WORLD ECONOMIC FORUM

► It is an International Organization for Public-Private Cooperation.

► The Forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.

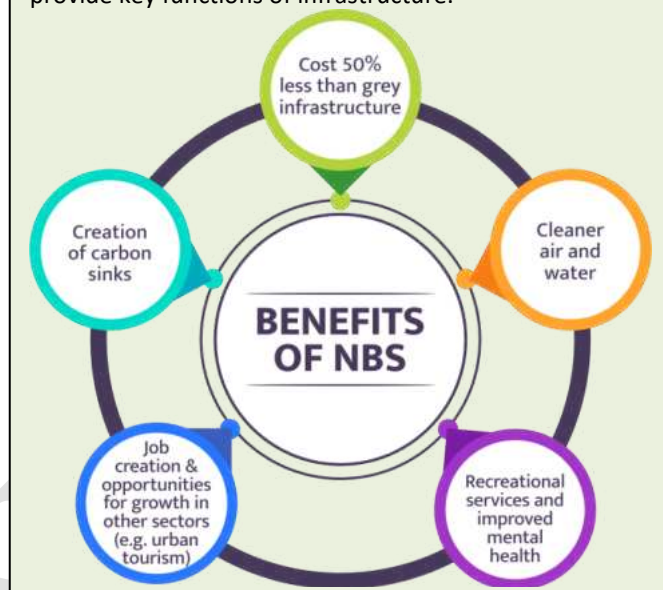
► It was established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland.



- **Impact of cities on nature:** Cities are responsible for the destruction of natural habitat and global biodiversity loss, directly through the rapid expansion of the built environment and indirectly through rising in Urban footprint to sustain resource demand of urban population and Climate change.
  - For instance, urban areas are responsible for over 75% of global carbon emissions and climate change is one of accounts for 11-16% of global biodiversity loss.
- **Socioeconomic risks posed by degraded nature to the cities:** 44% of global GDP in cities is estimated to be at risk of disruption from nature loss, through impacts like-
  - Compromised water supplies causing water scarcity, droughts etc.
  - Heat island effect, often related to a lack of green areas or smart surface, impacting citizens' health and leads to high energy expenditure on cooling.
  - Loss of coastal habitats, such as carbon-rich and biodiverse mangrove forests, significantly increases the risk from floods and hurricanes for cities within coastal zones.
  - Poor air quality and lack of urban green space impacting human health and cities' productivity.
- **Steps to transform cities to be in harmony with nature:** BiodiverCities can restore balance between cities and nature by-
  - Increasing nature in their infrastructure and built environment through nature-based solutions (NbS) for infrastructure.
  - Improving urban governance models to support by mainstreaming biodiversity data in decision-making and adopting a systems approach to urban governance.
    - ✓ A systems approach cultivates a conditional view of development, in which complex interactions between systems (e.g. healthcare, education and environment,) are mapped, and the outcomes of each action are measured and reported in totality (as opposed to ad-hoc).
  - Forging positive links between urban and rural settings and helping to safeguard global biodiversity.
  - Prioritizing bio-circular economy and bio-inspired innovations for economic competitiveness.
  - Nurturing nature-positive values in citizens for health and wellbeing.
  - Utilizing novel investment models like Debt-for-nature swaps.

#### About Nature-based solutions (NbS) for infrastructure

NbS seek to restore or utilize the existing natural extent, connectivity and diversity of cities' natural ecosystems to provide key functions of infrastructure.



## 5.9. NEWS IN SHORTS

### 5.9.1. EARTH IS WITNESSING ITS SIXTH MASS EXTINCTION, HUMANS TO BE BLAMED: STUDY

- A recent study states that earth is going through its sixth mass extinction.
  - Mass extinction event is usually defined as about **75% of the world's species being lost in a 'short' amount of geological time** - less than 2.8 million years.
- There have been **five mass extinctions so far** (see infographic).
  - However, **all of those were caused by natural phenomena**. This time, it is being **caused entirely**

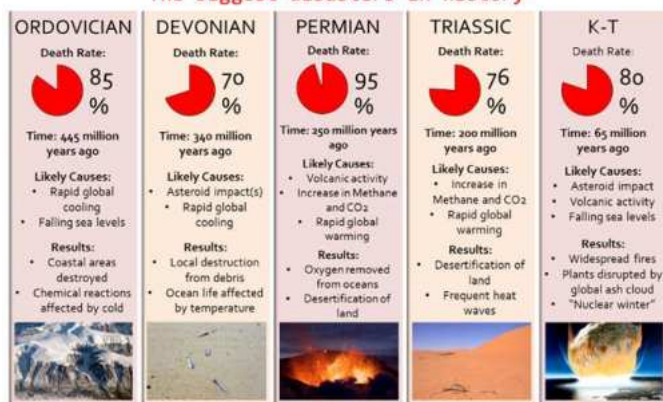
**by humans** and hence referred to as **Anthropocene extinction**.

- **Evidence of 6<sup>th</sup> mass extinction**
  - **More than 400 vertebrate species went extinct** in the last century.
  - **29,400 species of terrestrial vertebrates are on the brink of extinction** because they have fewer than 1,000 individuals.
  - More than 30% of animals with a backbone fish, birds, mammals are **declining in both range and population**.
- **Causes of mass extinction:**
  - **Rising climate change activities** i.e., extreme temperature changes, rising or falling sea levels, depletion of oceanic oxygen etc.

- **Geologic catastrophes** (volcanic eruptions, asteroid hitting Earth).
- **Invasive species.**
- **Overconsumption** of resources.
- **Agriculture, leading to diminishing wild spaces** and driving out species from their natural habitats.

## MASS EXTINCTIONS:

The biggest disasters in history



## 5.9.2. INDIA METEOROLOGICAL DEPARTMENT (IMD) LAUNCHES 1ST CLIMATE HAZARDS AND VULNERABILITY ATLAS OF INDIA

- Atlas is based on several extreme weather events (extreme rainfall, drought, coldwave, heatwave, thunderstorm, cyclones, lightning etc) and the risks they pose to the local population, livelihoods and economy of each district.
  - The atlas provides a range of vulnerability with risks ranging from nil, low, moderate, high and very high categories for every Indian district.
- **Significance**
  - **Impact-based warnings** can be issued for various regions. Atlas will help in understanding region specific impact of certain extreme weather events.
  - **Help disaster management sectors to identify the vulnerable districts** for taking preventive and adaptive measures.
  - **Aid in disaster preparedness as extreme weather events rise** in the wake of the climate crisis.
  - **Planning climate-resilient infrastructure.**
  - **Changes in the hazard-prone areas** in recent times have also been incorporated.
  - **Supporting monitoring** and forecasting, Improving public health facilities i.e. emergency response capabilities, better early warning systems etc.
- **Hazard:** defined as physical phenomena that pose a threat to the people, structures or economic assets and which may cause a disaster.

- **Vulnerability:** It is the extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of a particular hazard.

## 5.9.3. GLOBAL RISKS REPORT 2022

- The Report is published annually by the World Economic Forum (WEF).
- It is based on Global Risks Perception Survey (GRPS) and highlights key risks emanating across five categories: Economic, Environmental, Geopolitical, Societal, and Technological.
- **Key findings**
  - **Vaccine inequality and resultant uneven economic recovery risk** has compounded social fractures and geopolitical tensions.
    - ✓ E.g. Poorest 52 countries with 20% world population have only 6% vaccination.
  - **Economic Stagnation:** By 2024, developing economies (excluding China) will have fallen by 5.5% below their pre-pandemic expected GDP growth.
  - **Growing dependence on digital systems** with increasing cybersecurity threats.
    - ✓ E.g. 435% increase in ransomware in 2020.
  - **Worsening of Climate change impact** with 200 million projected climate refugees by 2050.
  - **Space as a new frontier of divergence** with 5 new government-developed space stations by 2030.
  - **Increasing pressure to transition to net-zero economies** could have severe short-term impacts, such as putting millions of carbon-intense industry workers out of jobs or triggering societal and geopolitical tensions.
- **Implications of risks**
  - **Increasing polarisation and resentment** within societies on income disparities.
  - **Drive for regional convergence** among countries at the expense of global integration.
  - **Worker deficits and demand shocks** from constrained migration.

### Top 5 Global Risks

- Climate Action Failure,
- Extreme Weather,
- Biodiversity loss,
- Social Cohesion Erosion, and
- Livelihood crisis

### Top 5 India Risks

- Fracture of interstate relations,
- Debt crises in large economies,
- Widespread youth disillusionment,
- Failure of technology governance, and
- Digital inequality

#### 5.9.4. RECORD OCEAN WARMING IN 2021, COASTAL COMMUNITIES SHOULD BE ON ALERT: STUDY

- According to recent annual **Ocean Heat Content (OHC) study**:
  - Oceans have been experiencing an **unambiguous increase in heat** since the late 1980s with an **eight-fold increase** in warming rates in 1986-2021 in comparison to 1958–85.
  - Upper 2,000 metres of the ocean absorbed 235 zettajoules (ZJ) of heat** in 2021 relative to the 1981-2010 average.
- About Ocean warming**:
  - Ocean absorbs most of the **excess heat** from GHG emissions, leading to **rising ocean temperatures**.
  - Ocean heat is a better indicator of climate crisis** in comparison to air temperature because natural cycles like El Niño and La Niña play a relatively smaller role in ocean warming as-
    - ✓ **During El Niño oceans release heat**, contributing to a mini global warming, and
    - ✓ **During La Niña oceans take up heat** and bury it at depths away from the surface.
- Impact of Ocean Warming**
  - Sea-level rise** due to accelerated ice melting and thermal expansion of water.
  - More **powerful storms and hurricanes**; increased **precipitation** and **flood risk**.
  - Increase **ocean stratification or separation**,
  - Effects on marine life** because less oxygen penetrates to depths, and all organisms are affected.



##### What needs to be done for reducing ocean warming?

- Include ocean warming in climate risk assessments, adaptation, and mitigation.
- Reach **net-zero carbon emissions** at the earliest.
- Need to achieve the mitigation targets set by the **Paris Agreement**.
- Establishing **marine protected areas** and putting in place **adaptive measures**.

#### 5.9.5. 4TH ASIA MINISTERIAL CONFERENCE (AMC) ON TIGER CONSERVATION

- Ministry of Environment, Forest and Climate Change released its statement on 4<sup>th</sup> AMC hosted by Malaysia in collaboration with Global Tiger Forum (GTF).
  - AMC is a meeting of thirteen tiger range countries (TRC)** to discuss the plight and plans for conservation of the wild Tiger population.
    - TRCs consist of Malaysia, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Myanmar, Nepal, Russia, Thailand, and Vietnam.
  - According to the **St. Petersburg Declaration on Tiger Conservation** (2010), TRC agreed to Global Tiger Recovery Programme (GTRP) **which envisages doubling the wild tiger population by 2022**.
- Tiger Conservation efforts of India**:
  - Under **Project Tiger** (launched in 1973), **India has achieved the remarkable feat of doubling the tiger population in 2018 itself**, 4 years ahead of the 2022 target.
    - India has 70% of the world's tiger population.
  - Conservation Assured Tiger Standards CA|TS**: It is a set of criteria which allows tiger sites to check if their management will lead to successful tiger conservation.
    - 14 Tiger Reserves in India have already been awarded with international CA|TS accreditation.
  - Tiger Reserves (TRs) increased to 51 TRs**, spreading over 18 tiger range states.
- Significance of Conservation**
  - The **Successful model of India's tiger governance is now replicated for other wildlife conservation** like Lion, Dolphin, Leopard, Snow Leopard and other small wild cats like Cheetah.
  - Tiger guarantees the wellbeing of forested ecosystems and habitats they inhabit in India**- high mountains, mangroves swamps, tall grasslands, dry and moist deciduous forests and evergreen forest systems.
  - Being top predators in an ecosystem, Tigers are **vital in regulating and perpetuating ecological processes**.

#### 5.9.6. RENEWABLE ENERGY CERTIFICATE (REC) SCHEME SHOWS LAGGARD GROWTH

- REC is a market based instrument** introduced in 2010 to **facilitate compliance of renewable purchase obligations (RPO)** and promote Renewable Energy (RE).



- It is aimed at addressing the mismatch between availability of RE resources in state and the requirement of the obligated entities to meet RPO.
- ✓ As per Indian Electricity Act 2003, RPO mandates that all electricity distribution licensees should purchase or produce a minimum specified quantity of their requirements from RE Sources.
- 1 REC is equivalent to 1 MWh (megawatt hour) generated from a renewable energy resource.
- 2 categories of RECs: Solar RECs and Non-solar RECs.
- **Current status of REC Scheme**
  - Only 4% of the installed RE capacity stands registered as on December, 2021.
  - Wind and solar power account for 58% and 21% share, respectively, of the total registered capacity.
  - States with attractive renewable resources such as Tamil Nadu, Maharashtra, Rajasthan and Gujarat account for 73% share of total registered capacity.
- **Reasons behind slow uptake under the scheme include:**
  - Owing to low RPO targets in some states, lax enforcement by regulators and virtually non-existent voluntary market.
  - Concentration of RE potential in a few states, hence expensive cross-border procurement.

#### Plausible steps for REC

- Government needs to lay out a clear RPO trajectory until 2030 and seek consistency between national and state RPO targets.
- State government should ensure no waiver or carry forward of RPO targets are provided to discoms.
- Merge solar, non-solar and hydro power RPO targets into one consolidated target and allow more technologies including solar-wind hybrid, rooftop solar, and green hydrogen to participate in the scheme.

### 5.9.7. NATIONAL WATER AWARDS (NWA) 2020

- In the 3<sup>rd</sup> NWA-2020, Uttar Pradesh has been awarded the first prize, followed by Rajasthan and Tamil Nadu.
- These awards were instituted to recognize and encourage exemplary work and efforts made by States, districts, individuals, organizations, etc. across the country in attaining the government's vision of a 'Jal Samridh Bharat'.
- It is given with the objective of encouraging the stakeholders to adopt a holistic approach towards water resources management in the country as well as create awareness among people.

- It has been instituted by the Ministry of Jal Shakti since 2018.

### 5.9.8. ZOJI LA PASS

- For the first time Border Roads Organisation (BRO) has kept the Zoji mountain pass open beyond 31st December.
- Zoji La Pass is a high mountain pass at an elevation of 3,528 m (11,575ft) above the sea level, located in the Kargil district of Ladakh.
  - It is the strategic link connecting Ladakh to Srinagar and the rest of India.
- To provide all-weather connectivity to Ladakh, the Zojila Tunnel is being constructed.
- Once completed, at 14.15 km, it will be India's longest road tunnel, and Asia's longest bi-directional tunnel.



### 5.9.9. INDONESIA

- Recently, Indonesia has announced to shift its capital from Jakarta to East Kalimantan.
- New capital will be called Nusantara, meaning "archipelago" in Javanese.
- Indonesia is the largest archipelago of the world with over 17,000 islands straddling the equator in Southeast Asia.
- It is located in the Indian and Pacific Ocean.
- It is the fourth most populous nation of the world and shares:
  - Land border with Malaysia (on the island of Borneo), with Papua New Guinea (on the island of New Guinea), and with Timor-Leste (East Timor) on the island of Timor,
  - Maritime borders with Australia, India, Palau, the Philippines, Singapore, Thailand, and Vietnam.



#### 5.9.10. PERU (CAPITAL LIMA)

- Peru government has **declared a 90 day environmental emergency** in the coastal area of Lima due to the recent oil spill.
- **Political boundaries:** **3<sup>rd</sup> largest** South American country and shares its land borders with **Ecuador, Colombia, Brazil, Bolivia** and **Chile**.
  - It is also **home to the Historic Sanctuary of Machu Picchu**, centre of Inca Civilization (last great Andean Civilization) and a **World Heritage Site**.
- **Geographical features:** It is located just **South of the Equator** and **Mount Huascaran** is its **highest peak** in Cordillera Blanca (part of Andes Ranges).



**SMART QUIZ**

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## 6. SOCIAL ISSUES

### 6.1. GLOBALIZATION: SLOWDOWN OR MUTATING?

#### Why in News?

With global interconnectedness emerging as an essential mechanism behind the spread of changing coronavirus variants, the world is going through debate on the future of globalization.

#### Globalization and its Growth

Globalization is defined as 'a process associated with **increasing openness, growing economic interdependence and deepening economic integration** in the world of economy'.

Such economic integration and interdependence are not new. But in the last 3 decades, the **global economic conditions** have encouraged the spread of Globalization-

- **Greater mobility** of goods and people due to faster and safer transportation with sharp decline in costs.
- **Global flow of Information** through advancements in communication and technology due to the Internet and IT Revolution.
- **Rule-based global trade system** with help from World Trade Organization (WTO) towards reduction in tariff and non-tariff barriers to establish open markets.
- **Spread of Multinational Companies (MNCs)** with global supply chains spread across nations based on demand and supply.
- **Promotion of Privatization for Innovation and competition** with by creation of level-playing field between local and global players.
- **Easy flow of capital** between different economies.

#### McDonaldization of Society

- McDonaldization of society is a phenomenon which occurs when society, its institutions, and its organizations are adapted to have the same characteristics that are found in fast-food chains.
- Some of its characteristics include efficiency, calculability, predictability and standardization, and control.

#### Slowdown of Globalization: Dissatisfaction and Reducing Significance

The rapid growth in globalization has given rise to multiple domestic and international problems as well.

Prevalence of these reasons was further aggravated with **rising concerns over use of global infrastructure** E.g., 'Belt and Road' initiative and **threat to sovereignty arising from deeper global economic integration**.

#### COVID-19 and Globalization: Phase of Slow Down or Mutation

In almost two years of its existence, Covid-19 pandemic had a significant influence on the **economic, social, and political dimensions** of globalization visible in various forms.

- **Economic Globalization:** Increased domestic restrictions, breakdown of global supply chains due to lockdowns.
- **Social Globalization:** Travel restrictions on domestic and international travelers, especially tourists and students. Reduced migrant's remittances due to job loss.

#### REASONS FOR DISSATISFACTION FROM GLOBALIZATION





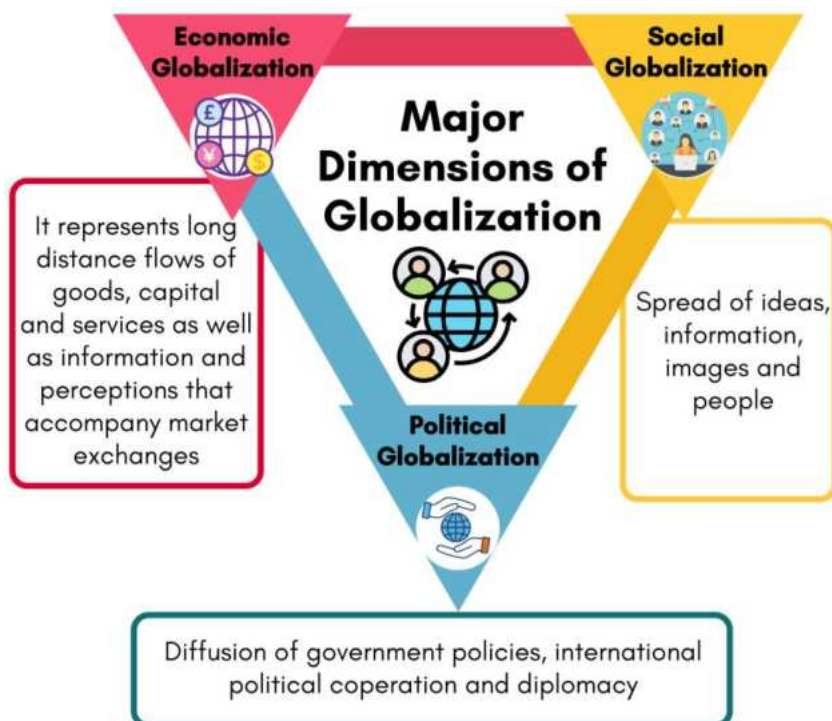
- **Political Globalization:** Increased blame game among nations (USA-China), expansionism (e.g. China) leading to global tensions as well as cooperation (e.g. AUKUS, QUAD). Some countries have also worked to fight the pandemic jointly (e.g., Vaccine Maitri by India).

The outbreak of COVID-19 and its repercussions have acted like an inflection point for the already fragile ecosystem of globalization. These trends point towards a different form of globalization.

#### Future of Globalization: Globalization 4.0

- **Structural shifts in the Global Value Chain (GVC):**
  - **Goods-producing value chains have grown less trade-intensive** which is indicated by the falling value of trade intensity (that is, the ratio of gross exports to gross output).
  - **Trade in services has grown faster than trade in goods** with the former growing almost 60% faster.
  - **Share of trade based on labor-cost arbitrage has been declining.**
  - GVCs are growing **more knowledge intensive and are becoming more regional and less global.**
- Geography of **global demand is continuously shifting towards developing countries** with rising domestic consumption in countries such as India and China.
- **Technological developments** like growth of digital platforms, 5G technology, 3D Printing, artificial intelligence could **boost trade and simultaneously change the nature of trade.**
- **Fundamental shift in the definition and behavior of a customer in a highly digitized world.**

Globalization will need to be built on exchanges and learning on a more equal footing, **stressing more on diversity, rather than in contrast to erstwhile single-minded homogenization of societies.**



## 6.2. HATE CRIME

### Why in News?

Recently, perpetrators of mobile apps, which featured a humiliating mock auction of more than a hundred Muslim women active in public life, were arrested.

### About Hate Crimes

- Hate crimes, or bias-motivated crimes, are defined as **offenses motivated by hatred against a victim** based on his or her race, religion, sexual orientation, disability, ethnicity, or national origin.
- Hate crimes are the **most extreme expression of prejudice**. Compared to other crimes, hate crimes **have a more destructive impact on victims and communities** because they target core aspects of our identity as human beings.
- Hate incidents **may result in severe harms, and/or escalate over protracted periods of time** into more serious forms of emotional, sexual and/or physical abuse.
- Perpetrators of hate crimes are **not always motivated by a single type of prejudice or hatred** but can be influenced by a combination of different prejudices.

### Causes of hate crime

- **Prejudices:** Perpetrator may have intense feelings of prejudice against an entire identity group leading to him or her feeling disgust and even hatred towards members of that group.

- **Lack of Understanding** about differences among people, and their traditions, contributes to fear and intolerance. Left unaddressed, these sentiments can lead to acts of intimidation and hate-motivated violence.
- **Perception of threats:** Realistic threats consist of tangible conflicts of interest – such as perceived competition over jobs, housing and other resources. Immigrants and disabled people are two groups often targeted.
  - Other symbolic threats relate to people's social identities, such as different way of life, including culturally important values and norms.
- **During armed conflict:** Political tensions and armed conflicts can pit communities, defined by ethnicity, origin, language or religion, against one another
- **Administrative Failure:** Given the state of the police and judiciary in the country, there is a wide-ranging perception that 'culprits' go unpunished and that there is a chance that the accused in hate crimes will go scot-free.
- **Political Patronage:** In the competitive electoral politics, the culture of political mobilization based on social faultlines for polarization of electorate into votebanks and use of violence for garnering support and intimidating opponents, has gained strength.

#### Impact of hate crimes

- **Fear Psychosis:** emotional and psychological trauma caused by hate crime is heightened compared with other types of crime and affects not just the person experiencing it, but the community to which they belong.
- **Attacks on core of victim's identity:** Hate crimes increase feelings of vulnerability, anxiety, anger, and sometimes shame; these emotional reactions motivate specific behavioural responses:
  - Anger leads to pro-active behaviours and less avoidance
  - Anxiety leads to avoidance and security concerns
  - Shame is linked to avoidance, pro-active behaviours, security concerns, and uniquely to retaliation
- **Hate crimes tend to increase in numbers:** If law/community does not effectively punish and repudiate hate crimes, perpetrators are encouraged to continue their activities, and the number of hate crimes will increase.



Hate Crimes	Related provisions in India
 <b>Hate Speech</b>	> Punishable under various sections of Indian Penal code (IPC)- 153A, 153B, 295A etc. > Representation of People Act, Information Technology Act, Unlawful Activities (Prevention) Act and the like also contain provisions concerning hate speech and its prevention.
 <b>Lynching and Mob Violence</b>	> Supreme Court guidelines in Tehseen Poonawala case. > Various sections under Criminal Procedure Code, 1973 and IPC.
 <b>Violence against Women</b>	> Sections under IPC, Specific acts like Child marriage Restrain Act, Dowry Prohibition Act etc.

- **Hate crimes tend to escalate:** Offenders who start by committing minor crimes often go on to commit increasingly violent acts if they are not caught and stopped.
- **Hate crimes tend to spiral:** If victims and their communities feel unsafe and unprotected by state authorities, they are likely to retaliate. This can lead to further attacks, creating a spiral of violence that leads to serious social breakdown.

#### Way forward for responding to hate crimes

- Where a hate crime is proven, the **punishment should be increased to recognize the potential impact** of the crime on the community, beyond the victim
- **Direct disciplinary action against concerned police and administration officials** for their failure to prevent hate crimes within their territorial jurisdiction after holding an enquiry by an independent commission of enquiry.
- **Hold registered political parties and other registered entities accountable** for the acts of commission or omission by their members involved in hate crimes and direct suitable penal action against them;
- **Prohibit those holding constitutional and public offices** including as ministers, Members of Parliament or state assemblies, panchayat/municipal office bearers **from identifying themselves with lynch-mob accused publicly** in any manner.
- **Sensitise subordinate judiciary dealing with such hate crimes** by holding seminars and workshops at regular intervals involving social activists, psychologists, other activists, lawyers from all communities.
- **Promoting school projects to educate students** about hate crimes and counter possible bias-motivated bullying. There is a need for systematically educating all students about prejudice and intolerance.
- **Civil society plays an indispensable role** in raising awareness about hate crime. The relevant authorities can work with civil society to improve the identification, registration and monitoring of hate crimes/incident.

In **Tehseen S. Poonawala judgement**, Supreme Court set out **'preventive', 'remedial' and 'punitive' measures** for the Central, state governments as well as law enforcement agencies **to deal with the increasing incidents of lynching.**

- **Measures included**
  - **States to designate a senior police officer in every district** to prevent incidents of mob violence and ensure that the police take prompt action;
  - Set up **fast-track courts** in such cases;
  - Take **action against policemen** or officials who failed to comply.
  - State governments shall immediately **identify districts, sub-divisions and villages** where instances of lynching and mob violence have been reported in the recent past
  - State governments shall prepare a lynching/mob violence **victim compensation scheme.**
  - To set a stern example, the **trial court must ordinarily award maximum sentence** upon conviction of the accused person

## 6.3. MARITAL RAPE AND CONJUGAL RIGHTS

### Why in News?

Recently, the Centre sought reasonable time from Delhi High Court to share government opinion on Marital Rape after consultation with all stakeholders.

### About Marital Rape and Legal position in India

- Rape represents any **nonconsensual sexual intercourse** or **consent gained** by using any kind of **fear, fraud** or under situation of unsoundness of mind, intoxication etc.
- Such sexual intercourse or Rape between non-spouses is illegal but **Marital Rape**, i.e., the act of having nonconsensual sexual intercourse with one's own wife, is kept **outside the definition of rape in many countries.**
- In India also, under **Section 375** of the **Indian Penal Code (IPC)**, nonconsensual sexual intercourse or sexual acts by a man with his own wife, the wife **not being under fifteen years** of age, is kept as **exception** outside the **definition of rape.**
  - **Section 376-A** criminalizes the rape of judicially separated wife.
- Also, the either spouse carries **the right for 'Restitution of Conjugal Rights'** under **Divorce Act, 1869** (related to the divorce of persons belonging to the Christian religion), **Special Marriage Act (SMA) of 1954** and **Hindu Marriage Act (HMA) of 1955** etc.
- Although **Section 3 of the Protection of Women from Domestic Violence, 2005** contradicts the exception provided by **section 375** and considers **any physical, sexual, verbal, and emotional abuse** as **Domestic Violence.**



### Conjugal Rights (Right to Stay Together)

Conjugal means relating to marriage. So, **conjugal rights represent the 'rights relating to marriage or created by marriage'.**

- It traces its roots in medieval ecclesiastical law of England when women lacked individual identity and were treated as husband's personal possession.
- Conjugal rights are **part of Indian laws** dealing with marriage, divorce etc., **allowing a spouse to move to court for restitution of conjugal rights** in case wife or husband withdraws from society without reasonable excuse.
- Though a gender-neutral law with utility in saving marriage, the restitution provisions were recently challenged in Supreme Court (**Ojaswa Pathak versus Union of India**) as:
  - It goes against the **individual dignity, bodily autonomy** and **privacy** (in **Joseph Shine judgement, 2018**- SC held that State can't exercise authority in a person's private affairs).
- **Decree of restitution of conjugal rights** goes against individual right to autonomy and self-determination and a coercive act from state.
- It goes against **individuality** and empowers courts to attach the property if the restitution order isn't complied.

### Negative impact of exception to Marital Rape in Section 375 of IPC

- **On Individual:** It forces the wife to live in an environment that is emotionally unsupportive, physically violent, and strongly patriarchal, limiting her **individuality and dignity**.
  - E.g., As per **National Family Health Survey-4** (2015-2016), **7%** of ever-married women experienced spousal sexual violence with 83% reporting it from current husband.
- **On Relationship:** It indirectly makes husband the master of wife, which affects the behavior, choices and thinking of wife as well as the sanctity of marriage.
  - **Justice Verma Committee** set up in the aftermath of Nirbhaya Case recommended for removal of this exception. It pointed out that the acceptance for marital rape stems from the outdated notion of wives as property and goes against the institution of marriage in modern times as a partnership of equals.
- **On Children:** It also forces the children to live in an atmosphere of sexual abuse and violence, carrying risks of serious developmental issues.
- **On Society:** It increases the **societal inequalities** based on gender and weakens community sanctions against perpetrators. Thus, creating an **environment of tolerance** towards **sexual assault** from husband.
- **On Institutions:** It **limits the ability of institutions** such as the police and judicial system **to provide support** to vulnerable women.

The negative impact created by this exception points towards criminalization of marital rape. But the implementation of the same has some issues.

### Concerns over criminalization of Marital Rape

Marriage is considered as a sacred bond in India by a large section of society. It is an important institution for the survival of the family with living together at its foundation. For long, State's approach was largely of **non-intervention in family life** due to their concerns such as:

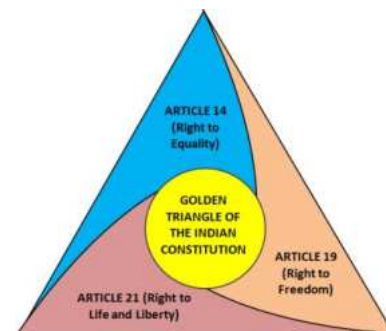
- **Threat to the Institution of marriage** as it may amount to excessive interference with the marital relationship (**172<sup>nd</sup> Report of the Law Commission on Review of Rape Laws in 2000**).
- **Risk of its misuse** as a tool to harass husband, if criminalized.
- **Subject the entire Family System** to great stress (Standing Committee on Home Affairs, 2013).
- **High Subjectivity**, as it is difficult to prove in a court of law whether the sex was consensual or not.

### Way Forward

The civility of a civilization earns warmth and respect when it supports the **individuality** of a **woman**. In the last few years, several laws have gone through progression to ensure **real spirit of equality** and make individual dignity a sacred realm of Indian Society.

Marital Rape is also one such exception which should go as- Consent in marriage can't be **consent forever** and at the cost of dignity of one **individual**. Therefore, all stakeholders must come together, especially state to end all forms by **sexual assault or violence** through:

- **Proper definition of marital rape** under criminal laws in order to remove provisions which **lead to inequality** and allow wife to take up the issue as a criminal offense.  
E.g.
  - In **Independent Thought vs Union of India** (2017), Supreme Court criminalized the marital rape with wife between 15-18 years of age.
  - Similarly, the Kerala High Court allowed **Marital Rape as a valid ground for Divorce**.
- **Progressive interpretation of the Civil and Criminal laws** of the Indian Constitution and Fundamental Rights for comprehensive amendments to criminal laws related to rape.
- **Study laws of other country** who have abolished the immunities of marital rape made it a criminal offence i.e. goes against **right to bodily self-determination**.
- **Create awareness in society on violence** in order to change attitude towards women and modify the old socio-cultural practices which allow woman to be treated as property and lead to violence in private spaces.



## 6.4. INDIA'S PERFORMANCE IN SPORTS

### Why in News?

Recently, the PM called youth to consider careers in sports and others to encourage the youth in the country to foster a sports culture in the country.

### How has India's performance been in Sports?

Despite sports being an integral component of all-round human personality development and entertainment, India has very little to show as achievement in international sports. This can be evidently seen through the following-

- **Limited international participation:** India has had **very few big names in international sports** except in some sports like cricket.
- **Poor performance in Olympics:** At the recent **Tokyo Summer Olympics** and **Paralympics**, India had its best performance till date with **7** and **19** medals respectively.
  - Overall, India has won only **35 medals** at the summer Olympics since 1900 edition.
  - In the Winter Olympic Games India is yet to win a medal. Similarly, it qualified **only once** for FIFA World Cup in 1950.

This poor performance from Indian athletes at international competitions can be attributed to a number of reasons (see image).

### What are the steps that have been taken to address the poor performance?

With sports being an important means to **promote bonding** among people and **gain national pride** and **prestige**, government has taken number of initiatives to promote sports in India such as:

- **Policy Initiatives:** **National Sports Policy** for broad basing of sports and achieving excellence in sports at national and international level.
- **Administrative Initiatives:** Set up of **Sports Authority of India (SAI)** as an autonomous organization to provide training facilities to athletes and to identify and develop young talent.
  - E.g., **Special Area Games Scheme** to identify sporting talent at young age from the tribal, backward, and hilly areas.



**Reason for Poor performance in International Competitions**

- **Support and Promotion Schemes:** The Ministry of Youth Affairs and Sports has started number of flagship **Central Sector Schemes** such as:

- **Target Olympic Podium Scheme (TOPS)** to provide assistance to a selected set of athletes.
- **Khelo India - National Programme for Development of Sports** to infuse sporting culture and achieve sporting excellence in the country through various initiatives (see image).

- **Digital Initiatives:** Development of **National Sports Repository System (NSRS)** as a digital platform for online registration of athletes, coaches, and sports training centers.

- **Sports Education Development:** Setting up of institutions to provide higher education in branches of knowledge related to Physical Education and Sports Science. E.g., Lakshmibai National Institute of Physical Education.

- **Incentives to Sportspersons:** National Sports Award to recognize outstanding performances. E.g., Major Dhyan Chand Khel Ratna Award, Arjuna Award, Dronacharya Award etc.



#### What are the foundational issues and limitations of existing Initiatives?

- **Poor Health:** Due to malnutrition, i.e., deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients, the interest and performance in sports suffer.
- **Low participation at the base:** Due to lack of resources, a large section of the Indian population doesn't take sports seriously or lack participation in sports.
- **Lack of Sports Culture:** Except few states (e.g., Haryana), sports are seen as an extracurricular activity or passion. Therefore, children are encouraged to devote majority of their time on studies and treat sports as a leisure activity, not to be taken very seriously.
- **No Assured Career Progression:** In India, except athletes who excel at national and international level, others leave sports early due to absence of career opportunities at state or local level.
- **Governance Issues:** In day-to-day functioning of sports federations, training centers etc. a number of sports federations/bodies face issues of political interference, maladministration etc. such as corruption, nepotism or discrimination in sports selection. E.g., Commonwealth Games (CWG) Scam.
- **Lack of Recognition:** Except few sports like Cricket, most sports and players lack recognition and encouragement from government, broadcasters, media and most importantly from people around them.
- **Lack of Technology and Support System:** In comparison to other nations, Indian athlete's face issues of outdated technology, lack of coaching, limited medical facilities etc.

#### Way Forward

To create international athletes and foster a sports culture in the country, India will have to take steps toward:

- **Creation of world-class sports infrastructure** to provide necessary training facilities.
  - **Big sports infrastructure** will also help in creation of **new job opportunities** for the youth and encourage them to pursue sports as a career.
- **Building of Institutions**, i.e., School, colleges, and universities to develop dedicated staff, infrastructure, competitions to foster the culture of sports.
- **Governance reforms in sports federations/bodies** to reduce political interference and ensure transparency in their



functioning ensuring fair selection.

- **Use of scientific knowledge** (e.g., Kinanthropometry) in the process of early identification of talent and training them for sports.
  - Kinanthropometry is defined as the **study of human size, shape, proportion, composition, maturation, and gross function**, in order to understand growth, exercise, performance, and nutrition.
- **Engaging the private sector in sports promotion.** E.g., Pro Kabaddi League (PKL) with corporate participation has helped Kabaddi as a sport and its players to gain recognition.
- **Develop an assured Career Progression** for athletes with clearly identified opportunities. This can be done by supporting a complete ecosystem which includes coaches, infrastructure, trainers and leagues at every level.
- **Promotion of Physical Fitness** among people through sports by encouraging existing players to interact with people. E.g., the recent call from PM to Olympians for visit to 75 schools by the 2023 Independence Day.
- **Develop India as a manufacturing hub** for sports to ensure availability of equipment. It will also help in promotion of R&D to aid in performance of athletes.

## 6.5. ORGAN TRANSPLANTATION

### Why in News?

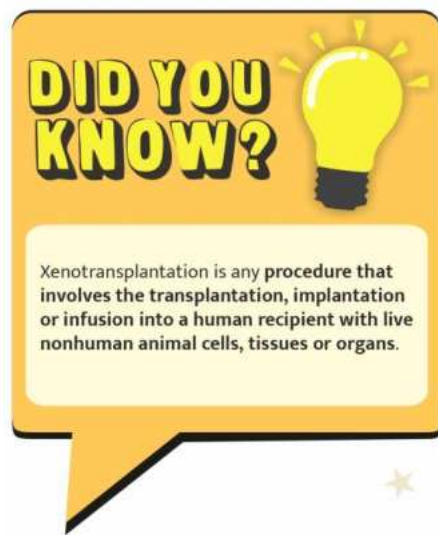
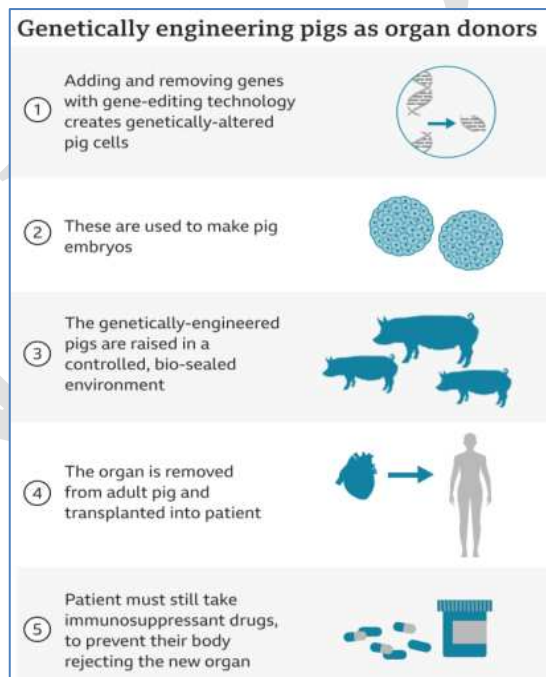
Recently, the world's first pig-to-human transplant took place in USA.

### More in News

- Recently, the world's first pig-to-human transplant took place in USA.
- A team at the **University of Maryland Medicine transplanted a heart from a pig with 10 modifications** into a terminally ill man.
  - The **patient had been deemed ineligible for a human transplant**, hence went for pig heart transplant.
- The pig used in the transplant had been **genetically modified to knock out several genes** that would have otherwise led to the organ being rejected.
  - These pigs are bred to lack genes that can cause rejection. They are **reared until they reach an age where their organs are big enough** to be harvested for transplantation.
  - Also, in **October 2021, Doctors in New York announced had successfully transplanted a pig's kidney into a person.**
- The possibility of **using animal organs for Xenotransplantation** is to **meet the demand for organs** and pig heart valves are already widely used in humans, and pig skin is grafted on human burn victims.
  - **Xenotransplantation** has seen **significant advances in recent years** with the advent of **CRISPR-Cas9 genome editing**, which made it **easier to create pig organs that are less likely to be attacked by human immune systems.**

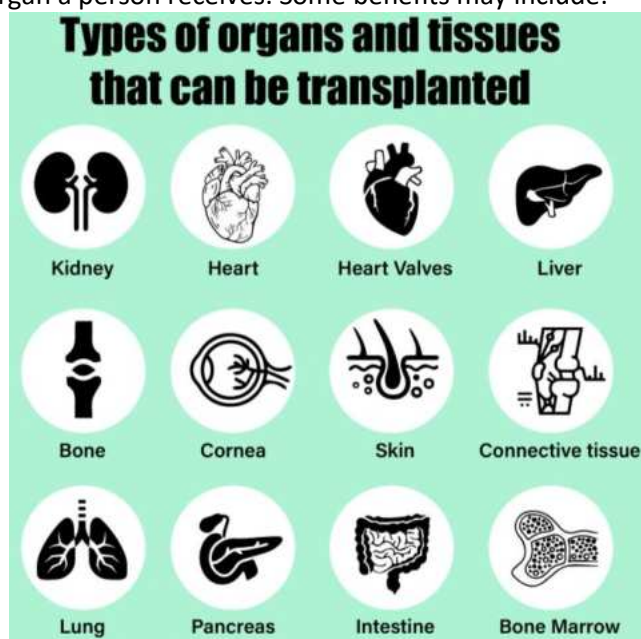
### About Organ transplant

- Organ donation and transplantation is **removing an organ from one person (the donor) and surgically placing it in another (the recipient) whose organ has failed.**
  - **Organs must be removed as soon as possible after the determination of brain death**, while circulation is being maintained artificially. Tissues may be removed within 12 to 24 hours.
    - Brain death results from a severe, irreversible injury to the brain. All areas of brain are damaged and no longer function due to which a person cannot sustain his/her own life, but vital body functions may be maintained by an artificial support system.
  - People who have a **cardiac death cannot be organ donors** however they can donate tissues after death.



- Cardiac death results when the heart and breathing cease to function.

- **Benefits:** The benefits of an organ transplant depend on the organ a person receives. Some benefits may include:
  - Avoiding medical procedures such as dialysis
  - Living a longer life
  - Living a healthier or less painful life
  - Gaining an improved quality of life, such as when a cornea transplant restores a person's sight
  - Correcting congenital disabilities that endanger a person's life
  - Spending less time in the hospital, needing fewer surgeries, or taking fewer medications
- **Risks:** Some risks associated with organ transplant surgery Trusted Source include:
  - Complications related to the use of anesthesia, including death
  - Bleeding or other complications during the procedure
  - Postsurgical complications, such as infection
  - A higher risk of infections and other illnesses due to anti-rejection or other transplant-related drugs
  - Organ rejection
    - Organ failure



#### Transplants from other people

- A transplant between two people who are not genetically identical is called an **allotransplant** and the process is called **allotransplantation**.
- Donor organs and tissues can be from people who are living, or people who have died because of a significant brain injury or lack of circulation.

#### Challenges in Organ Transplantation

- **Shortage of organs:** The shortage of organs is a major problem worldwide. There are many more patients awaiting transplantation than there are organ donors.
- **Socioeconomic Factors:** Low socioeconomic status is a big hurdle for organ transplantation.
- **Cultural and Religious Aspects:** Superstitions such as being born with a missing organ (that has been donated); and that tampering with the body will not free their dead relatives from the cycle of life–death–rebirth are some of the prevalent superstitions.
- **Organizational Support:** The lack of an adequate number of transplant centers with staff as well as transplant coordinators who are adequately educated and well versed with the procedures required to conduct an organ donation program is acting as a significant roadblock to the deceased organ donation program.
- **Organ Transport:** Sometimes, organs are transported from the donor hospital to the transplant center where the recipient is located. There have been many instances where valuable organs have been wasted due to delay in the transportation process.
- **Illegal organ trade and trafficking:** The increasing demand for organs pushed profiteers to exploit poverty-stricken parts of India to offer cash for organs.
  - Organ trafficking, according to World Health Organization (WHO), is a commercial transplantation, where there is profit, or transplantations occur outside of national medical systems.

### Types of organ donation

**Living Donor Organ Donation:** Living Donor is any person not less than 18 years of age, who voluntarily authorizes the removal of any of his organ and/or tissue, during his or her lifetime, as per prevalent medical practices for therapeutic purposes.

A person during his life can donate one kidney (the other kidney is capable of maintaining the body functions adequately for the donor), a portion of pancreas (half of the pancreas is adequate for sustaining pancreatic functions) and a part of the liver (the segments of liver will regenerate after a period of time in both recipient and donor).

**Deceased Donor Organ Donation:** Deceased Donor is anyone, regardless of age, race or gender can become an organ and tissue donor after his or her Death (Brainstem/Cardiac).

A person can donate multiple organ and tissues after (brain-stem/cardiac) death. His/her organ continues to live in another person's body.

## Way Forward

- **The Use of Stem Cells and Cloning in Transplantation:** Some of the very recent developments in transplantation have been the use of stem cells from bone marrow, cord blood, and from fetal and adult tissue, including somatic cells and neural cells. These cells have the great potential for differentiation and proliferation into other types of body cells including neuronal, hepatic, hemopoietic and muscular and thus help many patients with organ failure after their transplantation into the patients.
- **Reduce shortage:** Reducing the shortage of organs by promoting deceased organ donation with presumed consent and by educating the public.
- **Curb treatment cost:** Reducing the problem of finances by bringing in insurance, roping in philanthropists, getting some government help and requesting pharmaceutical companies to reduce the cost of medicines.
- **Organisational support:** Hospitals should have a clear protocol for declaring brain death and intensive care staff including paramedics should be aware of the protocols.
- **Curb illegal trade:** Strict policing for illegal transplants and punishment of all the persons involved.
- **Cultural and Religious Aspects:** Religious leaders should be made familiar with the concept of brain death and organ allocation policies of the country. It will indirectly percolate within the community through the spiritual leaders and will in turn increase the faith in organ donation and allocation policies.
- **Organ Allocation:** In a study, about 59% of the study participants believed that there was a potential danger of donated organs being misused, abused, or misappropriated. Hence, it is very important to have a transparent system of organ allocation.
- **Organ Transport:** The government can help by providing financial help by collaborating with air carriers to help in mobilizing the donated organ to different parts of the country and thereby preventing organ wastage. Green corridor concept should be taught in the school curriculum to make the next generation aware of the process.
  - A 'green corridor' is a special route that is managed in a way that all the traffic signals that come in the route of the hospital where an organ is harvested and the hospital where it is to be transplanted.

### Legislative framework for organ transplantation in India

- **Transplantation of Human Organ Act (THO)** was passed in India in 1994 to streamline organ donation and transplantation activities. Broadly, the act accepted brain death as a form of death and made the sale of organs a punishable offence.
- The Government of India enacted the **Transplantation of Human Organs (Amendment) Act, 2011** and the title was revised as Transplantation of Human Organs and Tissues Act, 1994. The rules were notified in 2014.
- **This amendment introduced several important changes to the Act**
  - This allows swapping of organs and widens the donor pool by including grandparents and grandchildren in the list.
  - The Act allows **unrelated live donors by reason of affection or attachment towards recipient or for any other special reason** with the approval of Authorization Committee.
  - The Act regulates the hospitals where removal, storage or transplantation human organs are performed by constituting the Appropriate Authority assisted by an Advisory Committee.
  - The Act mandates the appointment of a transplant coordinator in every registered hospital.
  - The Act also directs for the setting up of a **National Network for coordination of several registered hospitals and maintenance of a data bank of donors and prospective recipients.**

### National Organ Transplant Programme

- **Directorate General of Health Services is implementing National Organ Transplant Programme** for carrying out the activities as per amendment Act, training of manpower and promotion organ donation from deceased persons.





#### Challenges in Animal to Human transplantation

- **Adequate study:** Experts suggest that it is **important to study the transplants in humans**. Pig hearts are **anatomically similar to human hearts but not identical**. It's not ideal, compared to swapping in a human donor heart.
- **Commercialisation:** Several **companies are engineering pigs for solid organ transplants with different genetic modifications**, although none yet has medical-grade facilities. There are concerns regarding the unknown **long-term effects of genetic modification** on the pig's health.
  - **E-Genesis in Cambridge** is making pigs that cannot pass on retroviruses that are present in all pig genomes.
  - **NZeno in Auckland**, is breeding miniature pigs whose kidneys remain human-sized.
- **Animal Rights:** **People for the Ethical Treatment of Animals (PETA) has condemned pig heart transplant as 'unethical, dangerous, and a tremendous waste of resources**. They contest that animal have a right to live their lives, without being genetically manipulated and bear trauma only to be killed for their organs harvested.

## 6.6. NEWS IN SHORTS

### 6.6.1. CENSUS FIRST PHASE, NATIONAL POPULATION REGISTER (NPR) DATA COLLECTION PUT OFF TILL SEPTEMBER 2022

- Exercise was scheduled to be held from April-September, 2020 but **was postponed indefinitely due to pandemic**.
  - **Census involves a detailed questionnaire eliciting particulars of every person**, including age, sex, birthplace, mother tongue, religion etc.
  - **NPR collects basic demographic data** and biometric particulars.
- **NPR is a Register of all usual residents** of the country regardless of whether they are citizens or non-citizens of India.
  - A "usual resident of the country" is one who has been **residing in a local area for at least last 6 months** or intends to stay in a particular location for next 6 months.
- It is prepared at local (village/ward of town), sub-district, district, state and national levels under **provisions of Citizenship Act 1955 and Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003**.
- Data collected under NPR is shared with States and used by Central government **for various welfare schemes at individual level**.
- According to Citizenship Rules (2003), NPR is first step towards **compilation of National Register of Indian Citizens (NRIC) or NRC**.
  - NRC is a register containing names of **all genuine Indian citizens**. At present, **only Assam** has such a register.

### 6.6.2. PADHE BHARAT

- **Launched by:** Department of School Education & Literacy
- It is a **100 days reading campaign** (starting from 1<sup>st</sup> January) **to support and encourage students to read** for joyful learning experience.

- It will focus on **children studying in Balvatika to Grade 8**.
- It aims to have **participation of all stakeholders** including children, teachers, parents, community, educational administrators etc.
- Campaign **will also focus on Indian languages** including mother tongue/local/regional languages.
  - Also, 21<sup>st</sup> February which is celebrated as **International Mother Tongue Day**, has been **integrated with this campaign**.

### 6.6.3. MINISTRY OF EDUCATION LAUNCHES NEAT 3.0 TO PROVIDE BEST-DEVELOPED ED-TECH SOLUTIONS

- National Educational Alliance for Technology (NEAT) 3.0 will serve as a **single platform to provide the best-developed ed-tech solutions** and courses to students of the country.
  - It aims to:
    - ✓ Provide the **use of best-developed technological solutions** in the education sector
    - ✓ **Enhance the employability of the youth** on a single platform for learners' convenience.
  - Solutions use **Artificial Intelligence for a personalized and customized learning experience** for better learning outcomes and skill development in the niche areas.
  - During the first phase, the portal was **launched as a pilot phase in AICTE** (All India Council for Technical Education) **approved Government Colleges of India only**.
- **Benefits of NEAT 3.0 and EdTech:**
  - **Bridging the digital divide**, particularly amongst economically disadvantaged students
  - **Enables scale and speed** using a direct to the device model,
  - **Breaks down geographical barriers** helping students access high-quality education,
  - Teachers become **facilitators and curators**, managing remotely.

- In related news, government also **launched AICTE** prescribed **technical books in regional languages**.
  - Learning in regional languages is **one of the features of National Education Policy 2020**.
  - **Diverse languages helps to strengthen at grass root level** in building an innovative society.

#### 6.6.4. NATIONAL HEALTH MISSION LAUNCHES PROJECT NIRAMAY IN ASSAM

- Project was launched in collaboration with Piramal Swasthya (NGO) and Cisco (tech company) to **demonstrate the integration of digital health technology** to strengthen the public health care delivery in the state.
- **About Niramay Project**
  - It is a **digital health project** that will provide tele-consultation, patient's health records, digital health infrastructure in three aspirational districts in Assam.
  - It aims to leverage the learnings of the pilot to **facilitate Ayushman Bharat Digital Mission (ABDM) roll out in the state to develop a digital backbone** on transforming healthcare delivery in the state and nation.
    - ✓ ABDM is a voluntary healthcare programme that aims to **reduce the gap among stakeholders such as doctors, hospitals, citizens etc by connecting them in an integrated digital health infrastructure**.
  - It is based on the integrated technology platform - **AMRIT (Accessible Medical Records via Integrated Technologies)**.
    - ✓ **AMRIT is an indigenous integrated health technology platform**, enables beneficiary management and clinical decision-making through technology platform
    - ✓ It will **integrate unique, cost-effective, and lightweight hardware and software** to deliver quality healthcare at low-cost, to the vast underserved population of the country.
- **Significance of the initiative:** Reduce out of pocket expenditure on health, increase health service outreach to remote area etc.

#### 6.6.5. SWACHHATA START-UP CHALLENGE AND GREYwater MANAGEMENT UNDER SWACHH BHARAT MISSION

- Swachhata Start-Up Challenge was launched by **Ministry of Housing & Urban Affairs** in collaboration with AFD (Agence Française de Développement) to **nurture the evolving ecosystem of the Indian waste sector**

- Challenge is open to **start-ups registered in India and French actors collaborating with an Indian start-up**.





- Solutions are invited across four thematic areas - **social inclusion, zero dump (solid waste management), plastic waste management and transparency through digital enablement**.
- Recently, Haryana also stepped up **ODF+ activities with greywater management** by adopting waste stabilization pond, construction of community leach pits etc.
- **Greywater** is wastewater being discharged from a house including water from showers, bathtubs, sinks, kitchen, dishwashers and washing machines.
  - It makes **50% to 80% of the wastewater** from a household.
- **Principles of Greywater management:**
  - **Reduce:** Judicious use of fresh water which will result in generation of minimum quantity of Greywater.
  - **Reuse:** Using Greywater for purposes such as kitchen garden, vehicle washing, toilet flushing etc.

- **Recharge:** Recharge of ground water with Greywater by adopting technologies such as soakage pit, leach pit etc.

#### 6.6.6. SWACHH VIDYALAYA PURASKAR (SVP) 2021-22

- **Launched by:** Ministry of Education.
- It was **first instituted by the Department of School Education and Literacy** (Ministry of Education) in 2016-17.
- Its emphasis on **promoting safe and appropriate hygiene practices in schools and behaviour among children.**

- Water, Sanitation and Hygiene (WASH) have a significant role for students in **their attendance, dropout rate, and learning outcomes.**
- It is **open to all categories of schools.**
- Schools will be assessed on virtually on **6 sub-categories:**
  - Water
  - Sanitation
  - Hand Washing with soap
  - Operation Maintenance
  - Behaviour Change and Capacity Building
  - COVID-19 Preparedness and Response.

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# 7. SCIENCE AND TECHNOLOGY

## 7.1. GAGANYAAN

### Why in news?

Recently, Indian Space Research Organisation (ISRO) plans to launch Gaganyaan before Independence Day in 2022.

### About Gaganyaan

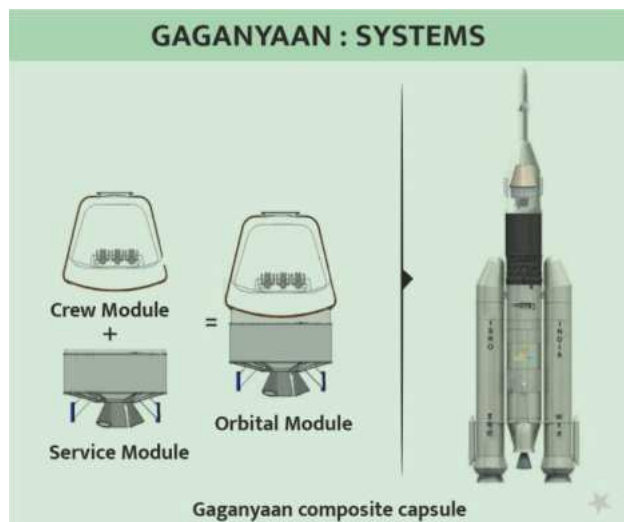
- The word '**Gaganyaan**' is derived from **Sanskrit**, meaning '**sky-vehicle**'.
- The Gaganyaan Programme envisages **undertaking the demonstration of indigenous capability to undertake human spaceflight to Low Earth Orbit (LEO)**.
- As part of this programme, **two unmanned missions and one manned mission will be carried out**.
  - ISRO is planning to launch the **first uncrewed mission under Gaganyaan in 2022**, following which the **second unmanned mission "Vyommitra" will carry a robot** and this will then be **followed by the manned mission**.
    - The uncrewed missions are for **technology demonstration, safety and reliability verification** and will aim to **study the performance of systems before crewed flight**.
    - The robot will **mimic the space crew activities set for the human flight mission** in order to assess all the possible challenges prior to the final mission.
- The overall **programme co-ordination, systems engineering and implementation** will be carried out by **ISRO**.
- The **major new technologies required** for Gaganyaan programme are as follows:
  - **Human rated launch vehicle**
  - **Crew escape systems**
  - **Habitable orbital module**
  - **Life support system**
  - **Crew selection and training and associated crew management activities**
- The **Gaganyaan orbital module** has two parts the **Crew Module (CM)** and the **Service Module (SM)** and weighs about 8000 kg.
  - The **Crew Module (CM)** is a **double walled system** and a **habitat of astronauts**. It has an **ablative thermal protection system (TPS)** to protect it during the intense aerodynamic heating during the flight.

The current status of Gaganyaan programme is as follows:

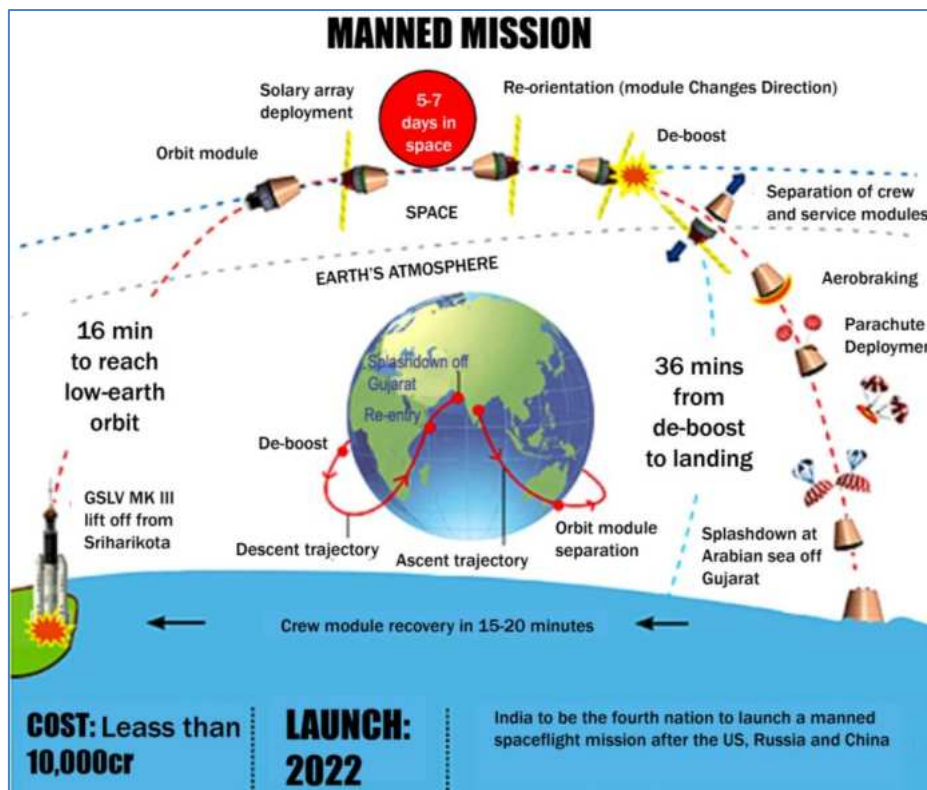
- **The astronaut training facility is getting established at Bengaluru** and in advanced stage of completion. Basic Aeromedical training and flying practice completed as part of Indian leg of training.
- **The design of all systems of Gaganyaan has been completed**. Realisation of various systems are in different stages of progress. Ground qualification tests of human rated launch vehicle propulsion stages have been already commenced and successfully progressing.
- **The configuration and design of ground infrastructure has been completed** and modifications needed are being implemented.
- The **MoU, contracts and Implementation arrangement (IA) related activities with both national and international agencies are progressing well**.
  - Receipt of deliverables has commenced against contracts with M/s Glavkosmos (Russian Space Agency) for space suit, crew seat and View port. Also receipt of deliverables under various work packages of CNES (French Space Agency) IA has commenced.
- **The activities related to development of microgravity experiments have commenced**, the conceptual design for experiments is under review.

### About GSLV Mark III

- It is a **three-stage heavy lift launch vehicle developed by ISRO**.
  - The vehicle has **two solid strap-ons, a core liquid booster and a cryogenic upper stage**.
  - The two strap-on motors of GSLV Mk III are located on either side of its core liquid booster. It is **designated as 'S200'**.
- It is designed to **carry 4 ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO)**, which is about twice the capability of the GSLV Mk II.



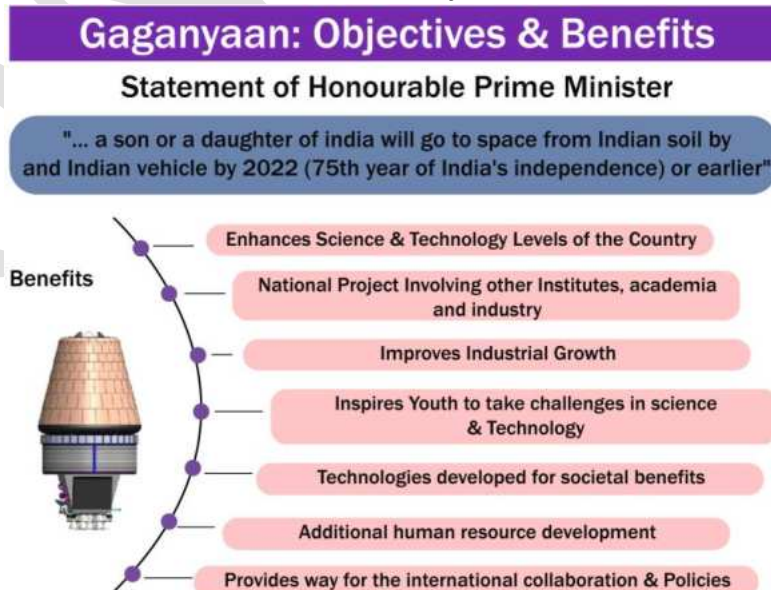
- The **Orbital module (OM)** will be launched by a human-rated **GSLV MK-III vehicle** and will orbit the Earth with a velocity of about **7,800 metre/second**.
- For the **first crewed mission** of Gaganyaan programme, astronaut trainees are selected, **based on selection criterion jointly defined by ISRO and Indian air force** which comprises of: **flying experience, fitness, psychological and aeromedical evaluation**.
  - The crew will undergo training in **weightlessness condition** by **flying in special aircraft through a parabolic path** that will give **25 to 30 seconds duration of weightlessness**.
  - To familiarise the crew with rescue under abort conditions, **they will undergo special survival training in sea, snow, mountain and desert conditions**.



- Gaganyaan would be **smaller in size** than the current manned missions of **Russian Soyuz, Chinese Shenzhou and NASA's planned Orion spacecraft**.

## Challenges

- **Hostile environment:** The 'Gaganyaan' has to **create an atmosphere like Earth inside a small volume** and ensure that adequate supply of oxygen, removal of carbon-dioxide and comfortable temperature and humidity levels are maintained throughout the mission.
- **Gravity field:** Transitioning from one gravity field to another has impact on the physical bodies. It affects hand- eye and head-eye coordination. NASA has learned that without gravity working on the human body, bones lose minerals.
- **Isolation:** Due to isolation, one may encounter depression, fatigue, sleep disorder and psychiatric disorders.
- **Radiation:** In space stations, astronauts receive over ten times the radiation than what people are subjected to on Earth. **Radiation exposure may increase the risk of cancer. It can damage the central nervous system** and cause nausea, vomiting, anorexia, and fatigue.
- **Rockets:** These are extreme machines. Travelling in a rocket is like sitting on an exploding bomb which will push your speed from 0 kmph to 29,000 kmph in less than 30 minutes. **Many safety features have to be built into rocket systems to ensure the probability of loss of life is minimized.** However, testing of all these systems in an actual operating environment is difficult.
- **Physiologic and metabolic requirements:** An astronaut requires approximately 5 kgs of oxygen, food and water per day to perform the standard activities. These levels can vary with the activity of a specific mission. Water use may also be double. A composite management system has to be designed to minimize and store the waste efficiently.



- **Launch escape system:** Space flight requires much higher velocities than air transportation which in turn requires high energy density propellants. This requires high amount of energy through the Earth's atmosphere. Anything may go wrong during the prelaunch, launch and post launch phase including the explosion of rocket into a fireball. Launch escape systems safety features have to be built to minimize the losses.
- **Re-entry and Recovery:** The mastering of the highly complicated reentry and recovery technology is needed. When a spacecraft reenters Earth's atmosphere, it would have to withstand high temperatures of thousands of degrees due to friction with air. The spacecraft's re-entry into the atmosphere has to be very precise, even the slightest deviation could lead into a disaster.

## Conclusion

The Gaganyaan mission could **propel India** to the **centre of human space exploration**. The manned missions will push India further in **exploration beyond Earth's orbit** as countries are eager to control the next space race, which has the **potential to trigger major changes in the global order**.

Upcoming Space Missions	Expected date of launch	Key features
<b>Small Satellite Launch Vehicle (SSLV)</b>	<ul style="list-style-type: none"> <li>Scheduled for launch in the first quarter of 2022</li> </ul>	<ul style="list-style-type: none"> <li>It has been built to carry a <b>500 kg payload to an altitude of 500 km</b>.</li> <li><b>It is a three-stage</b>, all-solid vehicle to carry multiple satellite-like nano, micro and small ones.</li> <li>It would help to <b>meet the demand of the global launch services market for small satellites</b>.</li> </ul>
<b>Radar Imaging Satellite (RISAT)-1A (EOS-4)</b>	<ul style="list-style-type: none"> <li>It is likely to be launched in early 2022.</li> </ul>	<ul style="list-style-type: none"> <li>It will be the <b>sixth in the series of RISAT satellites developed by ISRO</b>.</li> <li>It is a remote sensing satellite has been built to map terrains and study Earth's different land areas and oceans.</li> </ul>
<b>Aditya-L1</b>	<ul style="list-style-type: none"> <li>ISRO plans to launch it by the middle of 2022.</li> </ul>	<ul style="list-style-type: none"> <li>This is the first mission <b>designated by ISRO to study the Sun's atmosphere</b>.</li> <li>ISRO has selected L1, or Lagrangian point 1, between the Earth and the Sun to place the Aditya satellite.</li> <li>The spacecraft will travel a long journey of 1.5 million km from the Earth for this task.</li> <li>It will conduct <b>comprehensive research on the processes that occur in the Sun's atmosphere, which would enable us to decipher the outstanding problems in solar physics</b>.</li> </ul>
<b>Chandrayaan 3</b>	<ul style="list-style-type: none"> <li>It is likely to be launched during the third quarter of 2022.</li> </ul>	<ul style="list-style-type: none"> <li>The space agency is aiming to achieve a <b>soft landing on the south pole of the lunar surface, which is the least explored region of the Moon to date</b>.</li> <li>Unlike its predecessor, Chandrayaan 3 will not carry an orbiter—but will include a lander and a rover to study the lunar surface</li> </ul>
<b>NASA-ISRO Synthetic Aperture Radar (NISAR) mission</b>	<ul style="list-style-type: none"> <li>It is scheduled for launch in 2023.</li> </ul>	<ul style="list-style-type: none"> <li>It is optimised for <b>studying hazards and global environmental change and can help manage natural resources better</b>.</li> <li>It will provide information to scientists to better understand the effects and pace of climate change.</li> </ul>
<b>Shukrayaan-1</b>	<ul style="list-style-type: none"> <li>It is expected to be launched either in 2024 or 2026.</li> </ul>	<ul style="list-style-type: none"> <li>It is a <b>proposed orbiter to Venus</b>.</li> <li>It will be the first visit to the brightest planet in solar system, Venus.</li> </ul>

## 7.2. ANTI-MICROBIAL RESISTANCE (AMR)

### Why in News?

According to a study by Lancet, **Antimicrobial resistance (AMR) is now the leading cause of death** across the world.

### Key Facts/Findings regarding AMR

- **Young children were found to be particularly affected by AMR.** In 2019, 1 in 5 deaths attributable to AMR occurred in children under the age of five.



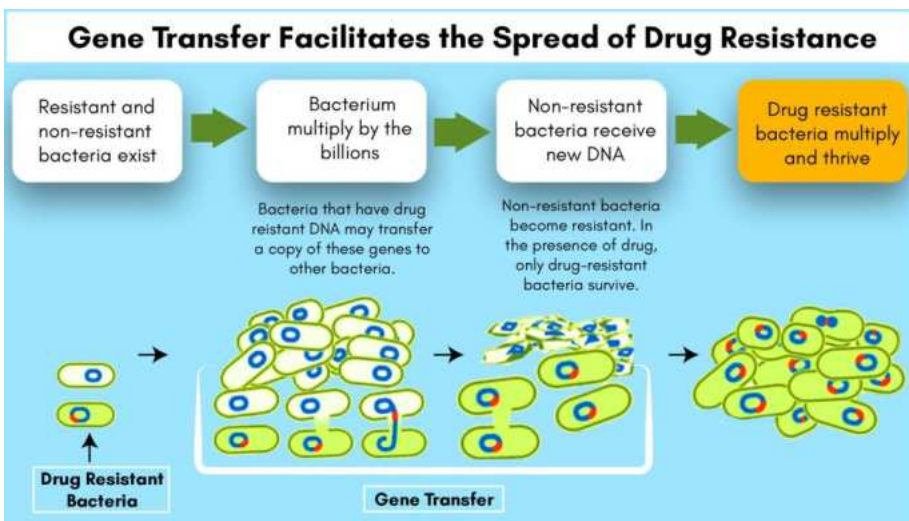
- While resistance levels continue to grow, **antibiotic development has not.**
  - While 63 new antibiotics were approved between 1980 and 2000, **only 15 new drugs have been approved between 2000 and 2018.**
  - Out of the seven deadliest drug-resistant bacteria, **vaccines are only available against bacteria causing pneumonia and tuberculosis.**

#### What is AMR?

- Antimicrobials are **used to fight diseases** in humans, animals and plants and include **antibiotic, antiviral, antifungal and antiparasitic medicines.**
- **Antimicrobial Resistance (AMR)** occurs **when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines** making infections harder to treat and increasing the risk of disease spread, severe illness and death.
- Microorganisms that develop AMR are referred to as **“superbugs”**.
- **Reasons for the occurrence of AMR**
  - **Unnecessary and injudicious use of antibiotic fixed-dose combinations** - It leads to the emergence of bacterial strains resistant to multiple antibiotics. Also, **patients leaving treatment mid-way** contributes to AMR.
  - **Antibiotic Consumption in Food Animals** - Antibiotics that are critical to human health are commonly used for growth promotion in poultry. For e.g. Colistin is used as a growth supplement in poultry and animals.
  - **Pharmaceutical Industry Pollution** - The wastewater effluents from antibiotic manufacturing units contain a substantial amount of antibiotics, leading to the contamination of rivers and lakes.
  - **Infection Control Practices in Healthcare Settings** - poor infection control in hospitals promotes the development of AMR.
  - **Social factors** - including self-medication, access to antibiotics without prescription and lack of knowledge about when to use antibiotics.
  - **Cultural Activities**- Mass bathing in rivers as part of religious mass gathering occasions.

#### Impacts of AMR

- **Inability to treat common infections:** New resistance mechanisms make it difficult to treat infectious diseases resulting in prolonged illness, disability and an increase in death rate.
- **Increased threat to medical procedures:** Medical procedures such as organ transplantation, cancer chemotherapy, diabetes management and major surgery (for example, caesarean sections or hip replacements) become very risky.
- **Increased cost of healthcare:** Owing to lengthier stays in hospitals, additional tests and use of more expensive drugs. **This also increases the cost of AMR to national economies.**



#### AMR in India

- As the largest producer and consumer of antibiotics in the world, **India has been labelled the “epicentre” of AMR**, with both substandard healthcare practices and poor water quality and sanitation contributing to the problem
- The **Ministry of Health & Family Welfare (MoHFW)** identified **AMR as one of the top 10 priorities** for the ministry’s collaborative work with WHO.
- In 2012, India’s medical societies adopted the **Chennai Declaration**, a set of national recommendations to promote antibiotic stewardship.
- **India’s Red Line campaign** demands that prescription-only antibiotics be marked with a red line, to discourage the over-the-counter sale of antibiotics.
- **National Action Plan on AMR (NAP-AMR) (2017-21) was adopted**, with the Ministry of Health and Family Welfare (MoHFW) as the nodal ministry and the National Centre for Disease Control (NCDC) as the key surveillance body.
- A **separate Schedule H-1** has been incorporated in Drug and Cosmetic rules to regulate the sale of antimicrobials in the country.
- Government has **capped the maximum levels of drugs that can be used for growth promotion in meat and meat products.**

- **Adverse impact on animal health:** As it undermines the **effectiveness of veterinary medicines**.
- **Impact on agriculture and livelihood:** Beyond more direct implications for food production and food safety, it is estimated that in **ten years' time, 24 million more people may be forced into extreme poverty because of AMR**.
  - It will also increase the number of people **suffering from malnutrition**.
- **Endangers Sustainable Development Goals (SDGs):** Antimicrobial resistance is putting the gains of the Millennium Development Goals at risk and endangers the achievement of the SDGs.

#### Shortcomings in fighting AMR

- **Lack of holistic approach:** A cross-cutting programme dealing with antimicrobial resistance across multiple microbes has been lacking.
- **Lack of regulatory mechanism:** The absence of stringent framework to limit the use of antimicrobials **in livestock and food animals**, especially for non-therapeutic purposes, has resulted in antibiotic overuse at the community level.
- **Absence of a One Health Approach in addressing AMR** – which recognizes that human well-being is inextricably tied to the health of animals and the environment.
- **Awareness - Limited capacity development** and awareness among stakeholders.
- **Effluent standards** - In India, current effluent standards do not include antibiotic residues, and thus they are not monitored in the pharmaceutical industry effluents.

#### Way Forward

- **Conducting Research and Development -**
  - Conducting **national-level surveillance** of antibiotic residues in food from animals & in environment.
  - Development of **antibiotic resistance breakers (ARBs)** to restore the efficacy and efficiency of antibiotics in the population.
- **For agriculture sector** - Only give antibiotics to animals under veterinary supervision, vaccinate animals to reduce the need for antibiotics, prevent infections through improved hygiene and animal welfare.
- **Cross Sectoral Response** - Since AMR is a systems failure that requires a cross-sectoral response, it is important to look beyond the biomedical or health sectors for solutions.
- **One Health Approach** - To restrain AMR, there is need for a One Health Approach through coherent, integrated, multi sectoral cooperation and actions, including **policy makers, farmers, veterinarians & food producers and Health workers & patients**.

#### Global Efforts towards controlling AMR

- **One Health Global Leaders Group on Antimicrobial Resistance (AMR):** Launched by **Food and Agriculture Organization, World Organisation for Animal Health and World Health Organization**.
  - It works for policies and legislation **to govern the importation, manufacture, distribution and use of quality antimicrobial drugs across all sectors at global and regional levels**.
- **Global Antimicrobial Resistance Surveillance System (GLASS) by WHO.**
- **AWaRE tool by WHO:** It is aimed at guiding policy-makers and health workers to use antibiotics safely and more effectively. It classifies antibiotics into three groups:
  - **Access-** antibiotics used to treat the most common and serious infections
  - **Watch-** antibiotics available at all times in the healthcare system
  - **Reserve-** antibiotics to be used sparingly or preserved and used only as a last resort
- **Global Action Plan on antimicrobial resistance** aims to ensure prevention and treatment of infectious diseases with safe and effective medicines.

#### Related development

Researchers from Indian Institute of Science (IISc) are working on **two approaches to tackle AMR** -

- Use **bacteriophages, or 'phages', to kill bacterial cells**.
  - Bacteriophages are viruses that infect bacteria.
- **Block the transporters that 'throw out' antibiotics** from bacterial cells.
  - Transporters help move nutrients from the environment into cells and remove toxic metabolites.
  - **Multi-drug resistant pathogens have evolved transporters** that are capable of moving out (or 'effluxing') antibacterial compounds from bacterial cells and membranes, **thereby protecting pathogens (bacteria)**.
  - Researchers are **developing certain type of antibody that could inhibit the transporters** in bacteria.

## 7.3. ELECTRIC VEHICLES

#### Why in News?

NITI Aayog, Rocky Mountain Institute (RMI), and RMI India released Banking on Electric Vehicles in India report.

## Key highlights of the report

- Report provides considerations and recommendations to inform the inclusion of Electric Vehicles (EVs) in the Reserve Bank of India's (RBI's) priority-sector lending (PSL) guidelines.
- Inclusion in PSL guidelines will**
  - Increase investor confidence** by providing an additional market signal that complements central and state governments' existing planning and policies.
  - Institutionalising the importance of EVs in India's financial industry
  - Ensure a swift and equitable transition** by guiding Financial Institutions to increase credit penetration in credit-deficient segments and use cases.

## About electrical vehicle

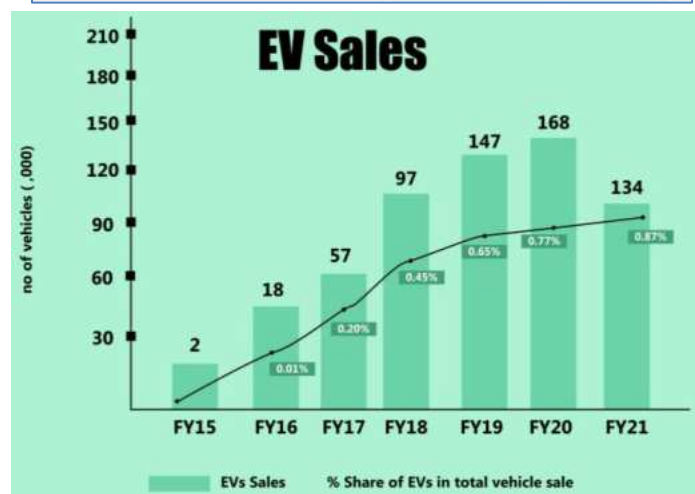
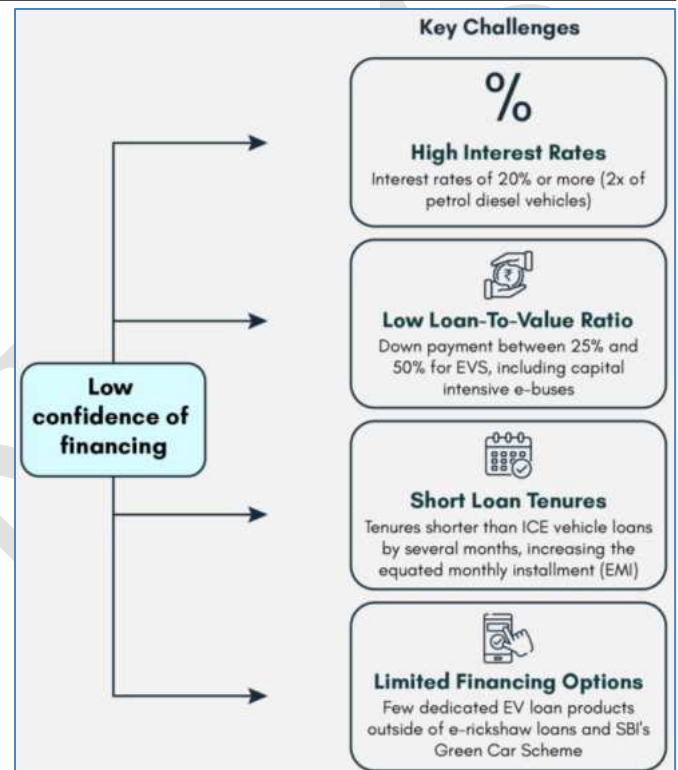
- An electric vehicle (EV) is **one that operates on an electric motor, instead of an internal-combustion engine** that generates power by burning a mix of fuel and gases.
- While some EVs used lead acid or nickel metal hydride batteries, the standard for modern battery electric vehicles is now considered to be lithium-ion batteries as they have a greater longevity and are excellent at retaining energy, with a self-discharge rate of just 5% per month.

## Need/Opportunities for Electric Vehicles (EVs) push

- To minimise GHG emissions:** Transport sector in India is the second largest source of CO<sub>2</sub> emissions worldwide. Within transportation, road transport has been the highest contributor to the GHG emission in the country.
- To reduce crude oil import bill:** Currently, Indian transportation sector accounts for one-third of the total crude oil consumed in the country, where 80% is being consumed by road transportation alone.
- To meet Paris agreement goals:** To achieve the GHG emission target committed under Intended Nationally Determined Contributions (INDCs), it is inevitable that India transits to greener mobility technologies in transport.
- Rising motorization rates:** With one of the lowest motorization rates in the world (22 cars per 1,000 people), India is among the fastest growing countries in transportation sector.
  - India has also set the national target of achieving 30% EV sales penetration by 2030.
- Economic opportunities:** Many start-ups have entered into manufacturing of EVs in past 5-7 years and conventional vehicle manufacturers, both domestic and global, are also launching EVs in Indian marketplace.

## About Priority Sector Lending (PSL)

- RBI introduced **PSL guidelines in 1972 to expand financial access to vulnerable sections of society** by enhancing credit for "priority" sectors with high employment and poverty alleviation potential but low bankability.
- Guidelines mandate that banks subjected to the regulation **direct a specified target percentage of credit to priority sectors.**
- Current priority sectors that can receive this credit include** agriculture; micro, medium, and small enterprises (MSMEs); housing; renewable energy; education; social infrastructure; export credit; self-help groups and startups; and weaker sections of society.





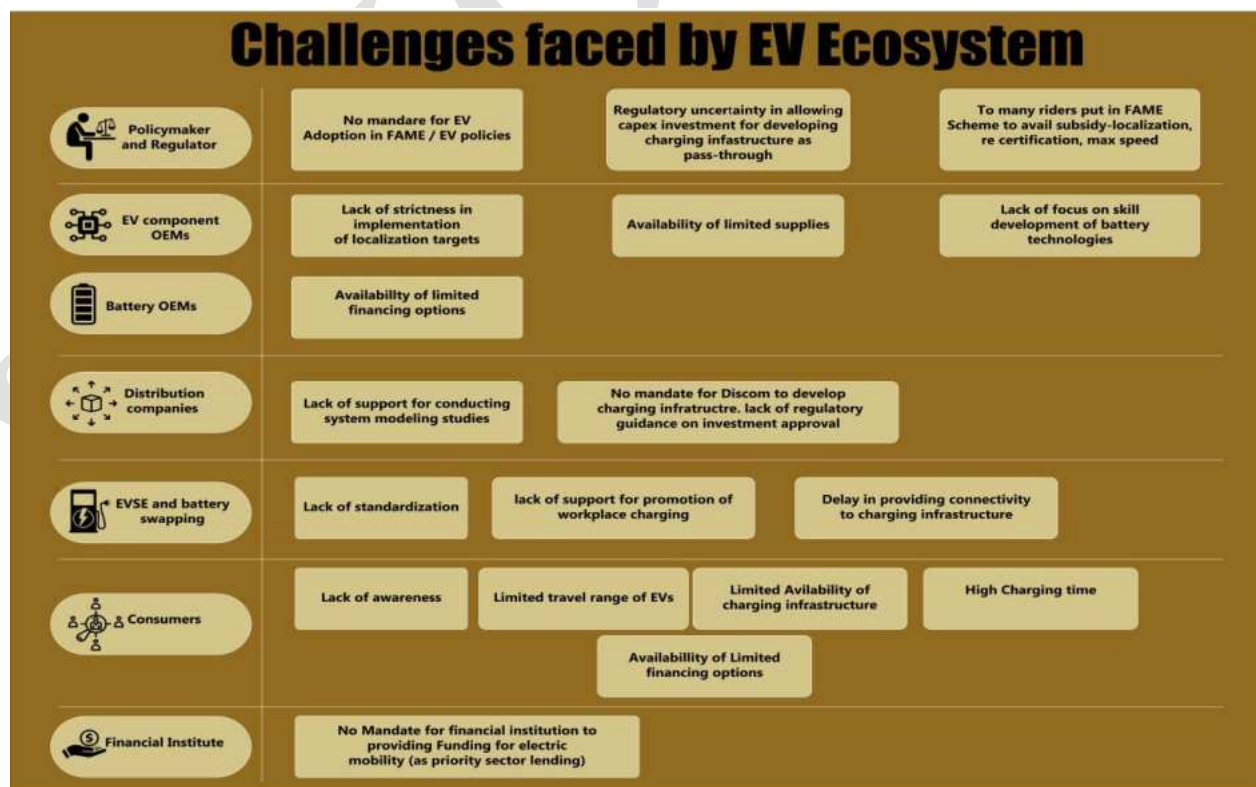
## Steps taken by India to promote Electric Vehicles

- **India launched E-Amrit portal** (at COP26 Summit in Glasgow) as a one-stop destination for all information on electric vehicles.
- **National Electric Mobility Mission Plan (NEMMP) 2020** seeks to enhance national energy security, mitigate adverse environmental impacts from road transport vehicles and boost domestic manufacturing capabilities for Electric Vehicles.
- **FAME (Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles)** scheme was first launched in 2015 under NEMMP 2020 to enhance hybrid and electric technologies in India
- **Phase-II of FAME scheme** to stimulate the market of EVs in the country, de-licensed the charging infrastructure business and specified guidelines & standards for charging infrastructure for electric vehicle.
- **Several states** (including Delhi, UP, MP, Telangana, Andhra Pradesh etc) **have notified their EV policies** aimed at promoting manufacturing and increasing demand of electric vehicles in their respective states.
- **Recently, Ministry of Power released the guidelines on EV charging infrastructure** which addresses the need for adequate availability of charging stations.
- In 2019, **Ministry of Housing and Urban Affairs notified Amendments in Model Building Bye-Laws - 2016** for EV charging infrastructure.
- **ISRO has commercialized indigenously developed lithium-ion battery technology** and has selected 14 companies for transfer of technology.
- **NITI Aayog's initiative to provide a Model Concessionaire Agreement (MCA) document** for introducing Electric-Bus Fleet in Cities for Public Transportation on PPP mode on Operational Expenditure (per km basis) Model rather than paying upfront capital cost.

### Key barriers in EV charging Infrastructure



## Challenges and gaps existing in the EV ecosystem



## Way forward for uptake of electric mobility in India

- **Phased Manufacturing Program, AatmaNirbhar Bharat**, and incentives announced by several states in their EV policy should be leveraged to **strengthen the battery manufacturing** in medium to long run.
- **Discoms need to actively participate in planning for EV charging infrastructure** because of their inherited capability of existing infrastructure, existing consumer base and superior technical skills.
- **Need policy guidance on standardization of battery for EVs**, and strategies to address huge upfront capital requirement **for a massive uptake of battery swapping business model**.
- Financial Institutions should be encouraged to extend their lending facility to electric mobility sector.
- **Creation of non-financial incentives** such as priority lanes, reserved parking for EV only vehicle, EV Purchase subsidy over and above FAME II subsidy etc. **for better response from consumers**.
- **Online portal and single window clearance system** for availing clearances and subsidies/rebate in transparent manner.

## 7.4. INTERNET OF THINGS

### Why in news?

Recently, Telecommunication Engineering Centre (TEC) released 'Code of Practice for securing consumer Internet of Things (IoT)'.

### More about news

- In order to secure Consumer Internet of Things (IoT) devices, **TEC, under Department of Telecommunications, Ministry of Communications, has released a report 'Code of Practice for Securing Consumer Internet of Things (IoT)'** as a baseline requirement aligned with global standards and best practices.
- The Code guidelines aim to **help in securing consumer IoT devices and ecosystem** as well as **managing vulnerabilities**.
- This report is intended for **use by IoT device manufacturers, Service providers/system integrators and application developers etc.**
- As per the projections, there may be **26.4 billion IoT devices in service globally by 2026**.

### Guidelines for securing consumer IoT

1. All IoT device **default passwords shall be unique per device** and/or require user to choose a password that follows best practices, during device provisioning.
2. **Disclosed vulnerabilities should be acted on in a timely manner**
3. **Software components in IoT devices should be securely updateable**. Updates shall be timely and should not adversely impact the functioning of the device.
4. **Unused functionality should be disabled**; hardware should not unnecessarily expose access (e.g. unrequired ports both network and logical should be closed).
5. **Security-sensitive data**, including any remote management and control, **should be encrypted in transit**, appropriate to the properties of the technology and usage of the device. All keys should be managed securely.
6. In case the device collects or transmits **personal data**, such data **should be securely stored**.
7. **Installation and maintenance of IoT devices should employ minimal steps** and should follow security best practice on usability.

### About Internet of Things (IoT)

- It is a **seamless connected network of embedded objects/ devices, with identifiers, in which Machine to Machine (M2M) communication without any human intervention is possible** using standard and interoperable communication protocols.
  - In general terms, it includes **any object or thing that can be connected to an Internet network**, from factory equipment and cars to mobile devices and smart watches.
    - **Phones, Tablets and PCs** are not included as part of IoT.
  - It specifically come to mean **connected things that are equipped with sensors, software, and other technologies** that allow them to transmit and receive data.
    - Traditionally, connectivity was achieved mainly via Wi-Fi, whereas **today 5G and other types of network platforms are increasingly able to handle large data sets** with speed and reliability.
- It is widely being used to create **smart infrastructure in various verticals such as Power, Automotive, Safety and Surveillance, Remote Health Management, Agriculture, Smart Homes and Smart Cities** etc, using connected devices.

**International Telecommunication Union has defined Internet of Things (IoT)** "As a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies".

## How does IoT work?

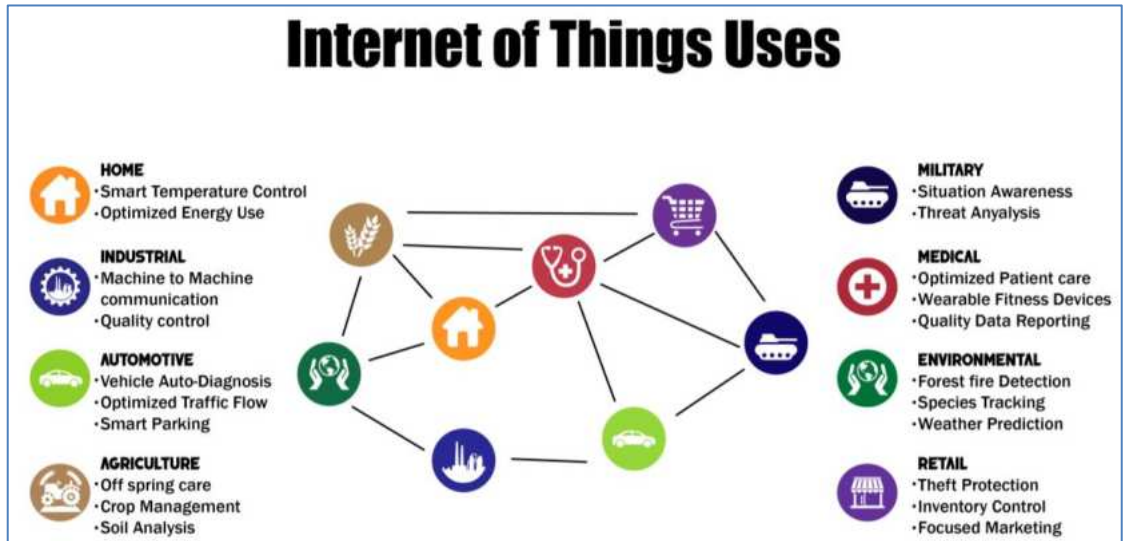
- An IoT ecosystem consists of **web-enabled smart devices** use **embedded systems**, such as **processors, sensors and communication hardware**, to collect, send and act on data they acquire from their environments.
- These share the sensor data they collect by connecting to an **IoT gateway or other edge device** where data is sent to the cloud to be analyzed locally.
- Sometimes, **these devices communicate with other related devices** and act on the information they get from one another.
- The devices do most of the work without **human intervention**, although people can interact with the devices for instance, to set them up, give them instructions or access the data.

## Significance of IoT

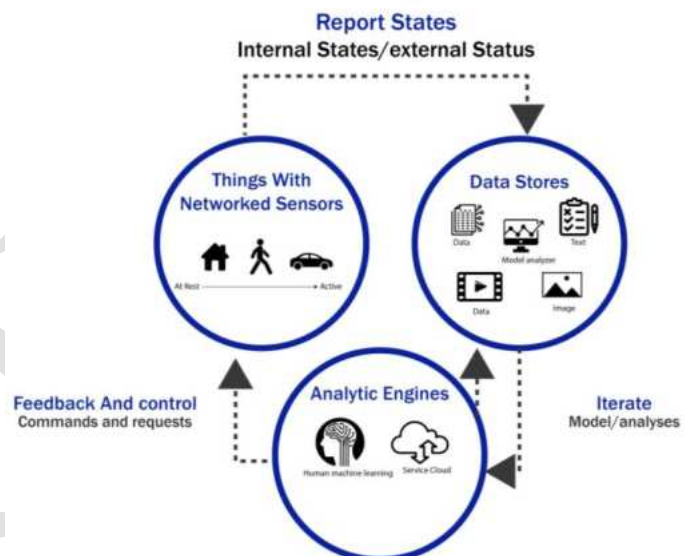
- Communication:** IoT encourages the communication between devices, also known as **M2M communication**. The physical devices are able to stay connected and hence the **transparency is available with lesser inefficiencies and greater quality**.
- Automation and Control:** Due to physical objects getting connected and controlled digitally there is a large amount of automation and control in the workings. **Without human intervention**, the machines are able to communicate with each other leading to **faster and timely output**.
- Better monitoring of devices:** M2M communication helps to **maintain transparency** in the processes. It leads to **uniformity in the tasks and maintain the quality of service**.
- Improve efficiency:** The M2M interaction provides **better efficiency**, hence, **accurate results can be obtained fast**. This results in **saving valuable time**. Instead of repeating the same tasks every day, it enables people to do other creative jobs.
- Saves Money:** Optimum utilization of energy and resources can be achieved by adopting this technology and keeping the devices under surveillance. One can be alerted in case of possible **bottlenecks, breakdowns, and damages to the system**.
- Better Quality of Life:** The applications of IoT in increased **convenience, better management, thereby improving the quality of life**.

## Challenges of IoT

- Data Breach: Personal data gets more exposed.** For instance: A credit card number being compromised, followed by a debit card number is **stressful**. Companies also worry about them and can lose trust if their details are compromised by their clients.



## Interaction Between the Three Components of the Internet of Things





- **Dependence on Technology:** IoT is **mainly dependent on the internet connection**. When there is none, it can't be used. On the other hand, we have become primarily dependent on the IoT's everyday usage.
  - IoT has contributed to the **great decrease in our attention spans**. Today's generation is already using technology for every little work to be done making our daily lives mechanized and being controlled by technology.
- **Complexity in Operation:** IoT **manage tasks with ease, but a lot of complex operations** are involved in it. If by mistake the software makes a wrong calculation, this will affect the rest of the process which can be very critical.
  - **For instance:** If one doesn't know how to deal with the wrong temperature in home. An **error code in water dam software could cause a disastrous flood**. That is the reason, many times a mistake in IoT is not always easy to debug.
- **Security:** As all the household appliances, industrial machinery, public sector services like water supply and transport etc. are connected to the Internet, thus, a **lot of information is available on IoT**. This **information is prone to attack by hackers**.
  - The hacking of the devices/networks being used in daily life would **harm companies, organisations, nations, therefore** securing the IoT eco-system is very important.
- **Inter-Compatibility:** As devices from various manufacturers will be interconnected to each other, the **issue of compatibility in tagging and monitoring increases**. Compatibility issues may result in people buying devices from a different manufacturer, leading to its monopoly in the market.
- **Lesser Employment of Menial Staff:** The **non-educated workers and helpers may lose their jobs** as an effect of automation of daily activities. This can lead to **unemployment in society**. With daily activities getting automated, there will be **fewer requirements of human labor, primarily, workers and less educated staff**.

#### Measures taken by the government to promote IoT

- In 2015, the Government of India had formulated a **Draft IoT Policy** with a vision to **develop connected and smart IoT based system for our country's economy, society, environment and global needs**.
  - The policy **would be implemented through a multi pillar approach, such as capacity building and incubation, R&D, and incentives and engagements**.
  - On Indian context, the various initiatives proposed to be taken under the Smart City concept and the **Digital India Program to setup Digital Infrastructure in the country would help boost the IoT industry**.
- **Centre of Excellence for IoT was set up in Bangalore by GOI and NASSCOM**. The COE will act as a springboard for **budding entrepreneurs to leverage new age technologies** and address issues such as **waste management, women's safety, parking, electricity, water management**.
  - **Also, Andhra Pradesh will become an IoT hub** with first-of-its-kind policy
- The government came up with the **National Digital Communications Policy (NDCP) 2018, released by Department of Telecommunications (DoT)**, to satisfy the modern realities of the telecom such as 5G technology, IoT, M2M communication, etc.
  - As per the **NDCP, an eco-system is to be created for 5 billion connected devices by 2022**. Therefore, it is expected that **around 60% of 5 billion i.e. 3 billion connected devices may exist in India by 2022**.
- In October 2021, the Government notified **100% foreign direct investment (FDI) via the automatic route** from previous 49% in the **telecommunications sector**. This will help in the **development and growth of the IoT**.

## Conclusion

In view of the anticipated growth of IoT devices, it is **important to ensure** that the IoT **comply to the safety and security standards and guidelines** in order to protect the users and the networks that connect IoT devices. However, it is one of the **fastest emerging technology**, providing **enormous beneficial opportunities for society, industry, and consumers** and it will continue to pick up as more people realize the potential of connected devices to keep them competitive.

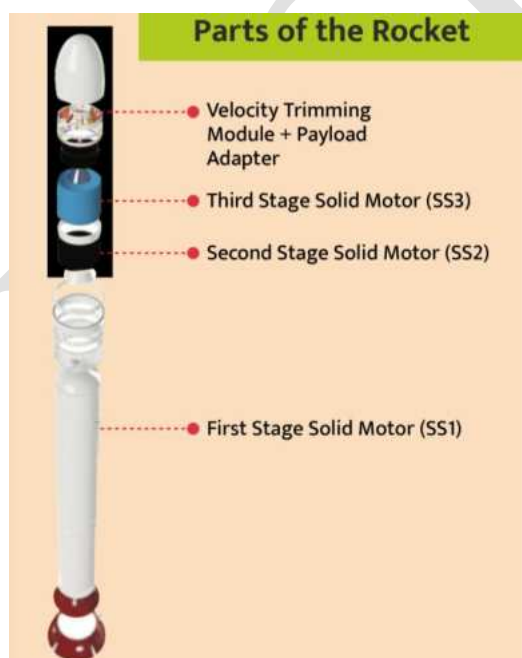
## 7.5. NEWS IN SHORTS

### 7.5.1. DARK GENOME

- Scientists investigating the DNA outside our genes (the 'dark genome') have **discovered recently evolved regions that code for proteins** associated with schizophrenia and bipolar disorder.
- Dark genome refers to **'DNA outside of the regions conventionally defined as genes'**.
  - They are **genes/proteins for which there is minimal knowledge** on biological function and, allied to this, **limited tools for their analysis** (such as antibodies).
  - Thus, it **adversely affects the precision medicine initiative**.

### 7.5.2. INDIAN SPACE RESEARCH ORGANISATION'S SMALL SATELLITE LAUNCH VEHICLE (SSLV) TO HAVE MAIDEN FLIGHT IN APRIL

- **SSLV-D1 Micro SAT is scheduled for launch in April 2022** after the project was delayed in July 2019 owing to COVID 19 pandemic.
- **About SSLV**
  - It has been **designed to meet "Launch on Demand" requirements**.
  - It is a **three stage all solid vehicle** with capability to launch up to **500 kg satellite mass into 500 km low earth orbit**.
    - Polar Satellite Launch Vehicle can launch satellites weighing above 1000 kg
  - It is the **smallest vehicle at 110-ton mass at ISRO**
  - **Reduced turnaround time** (take only 72 hours to integrate, unlike the 70 days taken now).
  - **Cost effective** (cost will be only around Rs 30 crore).
  - **Multiple satellite mounting options** for nano, micro and small satellites.
  - **Minimum infrastructure requirement**
- It aims to **cater to the market for the launch of small satellites into Earth's low orbits** that has emerged in recent years to cater to the need of developing countries, universities for small satellites, and private corporations.
- **NewSpace India Limited (NSIL), a PSU, will be the sole nodal agency** responsible for providing end-to-end SSLV Launch services for customer satellites from contractual, technical, programmatic, launch campaign, launch and post launch activities.



### 7.5.3. CHINA'S CHANG'E 5 LUNAR PROBE FINDS FIRST ON-SITE EVIDENCE OF WATER ON MOON'S SURFACE

- **Presence of water had been confirmed by remote observation** but the lander has **now detected signs of water in rocks and soil**.
  - It also **revealed that the moon had turned drier**, owing probably to the degassing of its mantle reservoir.
- Earlier, India's **Chandrayaan-1 (2008) data showed evidence for water** in the exosphere of Moon, on the surface of Moon and also sub-surface.
  - Also, **Chandrayaan-2 (2019) confirmed the presence of water ice** in the permanently shadowed regions on the Moon.
- In the coming years, **several countries, including India, are planning to launch their lunar missions**.
- **Reasons for renewed interest**
  - **Economic:** Helium-3 (an isotope of the element helium) is abundant on the Moon, but rare on Earth. It is a potential fuel for nuclear fusion.
  - **Base for future space exploration:** It is the best place to test how life reacts to harsh conditions of space.
  - **To study Earth:** Moon and Earth share a common past, studying it will reveal how earth's early past.
- **Other lunar missions:** Artemis (NASA), Volatiles Investigating Polar Exploration Rover (NASA), Korea Pathfinder Lunar Orbiter (South Korea), Chandrayaan-3 (India).

### 7.5.4. MAGNETIC FIELD ON AN EXOPLANET

- Researchers have identified the **first signature of a magnetic field surrounding an Exoplanet HAT-P-11b** (123 light-years from Earth).
  - An exoplanet is **any planet beyond our solar system**.
  - **Most orbit other stars**, but free-floating exoplanets, called **rogue planets**, **orbit galactic center and are untethered to any star**.
- **Earth's magnetic field acts as a shield against energetic particles from the sun known as the solar wind**.
  - Magnetic fields **could play similar roles on other planets**.

### 7.5.5. TELECOM PLAYER OPPOSES SATELLITE PLAYERS' DEMAND FOR SEPARATE EARTH STATION LICENSES

- Telecoms has opposed satellite players' demand for **delinking license of satellite earth stations from service licenses**.

- **Earth stations** are essentially a **telecommunications port on the ground** to connect the satellite communication network in space with the terrestrial network on earth.
- At present, service providers hold the license to set up **earth stations under the unified licensing framework**.
  - In opposition to this, satellite players, especially those looking to provide high-speed internet, are asking for a **separate license regime for satellite earth stations**.
- **About Satellite based connectivity:**
  - They operates by **sending and receiving broadband signal to a satellite in space** rather than using an underground copper/fibre network,
  - Satellite-based low-bit-rate connectivity is possible using **Geo Stationary, Medium and Low Earth orbit Satellites**.
- **Models for satellite-based connectivity include:**
  - **Hybrid (LPWAN + Satellite) or Indirect Model:** In this, 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) gateway.
  - **Direct to Satellite Model:** allows devices to directly communicate with the satellite without the need of any intermediate ground gateway.
- **Advantages:** Easier to deploy and wide coverage, stronger bandwidth capabilities, boosting internet coverage in rural areas, Enabler for **Internet of Things (IoT)** etc.



#### 7.5.6. CONDITIONAL MARKET AUTHORIZATION (CMA)

- Drugs Controller General of India has granted **conditional market authorization of Covaxin and Covishield vaccines** for the country's adult population.
- CMA is a **new category of market authorization** that has emerged during the COVID19.
- It approves **medicine that addresses unmet medical needs of patients** on the basis of less comprehensive data than normally required.

- These vaccines will be **available for private hospitals and private clinics** to procure against required documentation and payment.
- However, **they will still not be available in regular pharmacies**.

#### 7.5.7. OMISURE

- It is made in India kit **to detect the omicron**, recently got **approval by Indian Council of Medical Research**.
- It is **developed by The Tata Medical and Diagnostics** that can detect the Omicron in nasopharyngeal/oropharyngeal specimens during the RT-PCR tests.
  - Omicron patients are detected only after genome sequencing. But this test can help eliminate that step and detection can be done during the testing.

#### 7.5.8. (IHU, OR UNIVERSITY HOSPITAL INSTITUTES): NEW COVID VARIANT

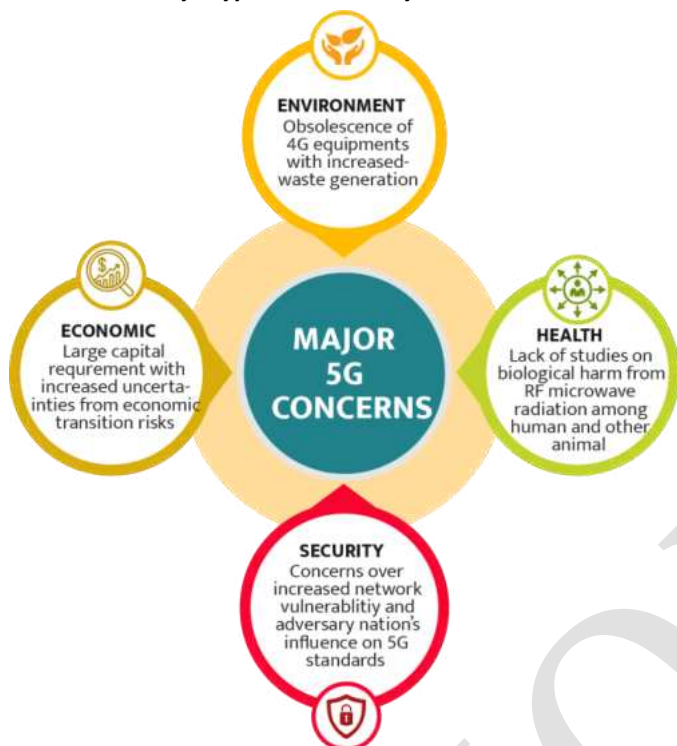
- **France reported** new variant of CoVID - called **IHU**.
  - A variant is a viral genome (genetic code) that may contain one or more mutations.
- It can be detected a polymerase chain reaction analysis, hence lesser need of genome sequencing for its identification.
- The **IHU variant** that the researchers mention is **B.1.640** which, according to global databases, was first discovered way back in January last year.
  - The one that the French researchers found among people in November has now been **classified as a sub-lineage B.1.640.2**.

#### 7.5.9. 5G TECHNOLOGY POSES A SERIOUS THREAT TO THE AIRLINE SAFETY

- Amid growing concerns over the **aviation crisis in the USA over deployment of 5G services**, Air India and other carriers have curtailed flights to US.
- **About the concern**
  - US auctioned **mid-range 5G bandwidth** to mobile phone companies in the **3.7-3.98 GHz range** on the spectrum.
  - This bandwidth is close to the **airwaves the altimeters use**, giving rise to concerns about potential interference of 5G with sensitive aircraft electronics like radio altimeters.
  - **Interference can prevent engine and braking systems** from transitioning to landing mode and in the event of bad weather, cloud cover or even heavy smog pilots will be left with visual approaches only.
- **Potential solutions for this technological concern:**
  - **Set lower frequency standards for 5G services.** E.g. EU has a 5G range of 3.4-3.8 GHz.



- Including a **buffer band** to separate the new 5G signals from those used by radar altimeters.
- **5G** represents the **newest generation of cellular network operating at higher frequencies** to offer a new kind of network that is **designed to connect virtually everyone and everything together** including machines, objects, and devices.
  - It offers advantages such as **higher speeds, low latency, hyperconnectivity** etc.



#### 7.5.10. SOLAR FARE CAUSES RADIO BLACKOUT OVER INDIAN OCEAN

- Recently, sun emitted a large solar flare that was **observed by NASA's Solar Dynamics Observatory (SDO)**.

- SDO **studies how Sun creates solar activity** and drives space weather.
- **Solar flares** are a sudden explosion of energy **caused by reorganizing of magnetic field lines near sunspots**.
  - **Solar magnetic cycle** that works in deep interior of Sun **creates regions that rise to surface and appear like dark spots. These are sunspots**.
  - They appear dark because they are **cooler than other parts of Sun's surface**.
- In a solar flare, **energy stored in sun's magnetic structures is converted into light and heat energy**. This causes emission of high energy x-ray radiation and highly accelerated charged particles to leave the sun's surface.
- Sometimes solar flares **also cause hot plasma to be ejected from Sun**, causing a solar storm, and this is called **Coronal Mass Ejection (CME)**.
- Energy, radiation and high energy particles emitted by solar flares can trigger intense lights in the sky, called **Auroras** (for other possible effects refer image).

Solar flare classification	Possible effects on Earth
B	none
C	Possible effects on space missions.
M	Blackout in radio transmissions and possible damages in astronauts outside spacecraft.
X	Damage to satellites, communication systems, power distribution stations and electronic equipment

Increasing Intensity ↓

 <b>SMART QUIZ</b>	You can scan this QR code to practice the Smart Quiz of Science & Technology at our open test online platform for testing your understanding and recalling of the concepts.	
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## 8. CULTURE

### 8.1. ADI SANKARACHARYA

#### Why in news?

Adi Sankaracharya's birthplace Kaladi in Ernakulam, Kerala will likely be declared as national monument.

#### More about news

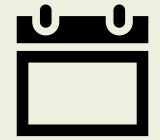
- **Significance of Adi Sankaracharya's birthplace** stems from a legend as per which Sankaracharya was caught by a crocodile that refused to leave him until his mother let him accept Sanyas (renunciation).
  - This location is called **Crocodile Ghat** and holds **religious value**.
  - The place is blessed with important temples dedicated to **Sri Sankara, Sarada Devi, Sri Krishna and Sri Ramakrishna**.
- **About National Monument status -**
  - It is designated by the **Archeological Survey of India (ASI)** under **Archeological Sites and Remains Act, 1958** which authorizes the central government to **"maintain, protect and promote the site"**.
  - Currently, there are around 3,600 monuments of national importance being protected by the ASI.

#### About Archeological Survey of India (ASI)

- It is the **premier organization for archaeological research, scientific analysis, excavation of archaeological sites, conservation and preservation of protected monuments**.
- It was founded in **1861 by Alexander Cunningham**.
- It is an attached office under **Ministry of Culture**.



#### Time period



**788 and 820 CE**

#### About Adi Sankaracharya (788 and 820 CE)

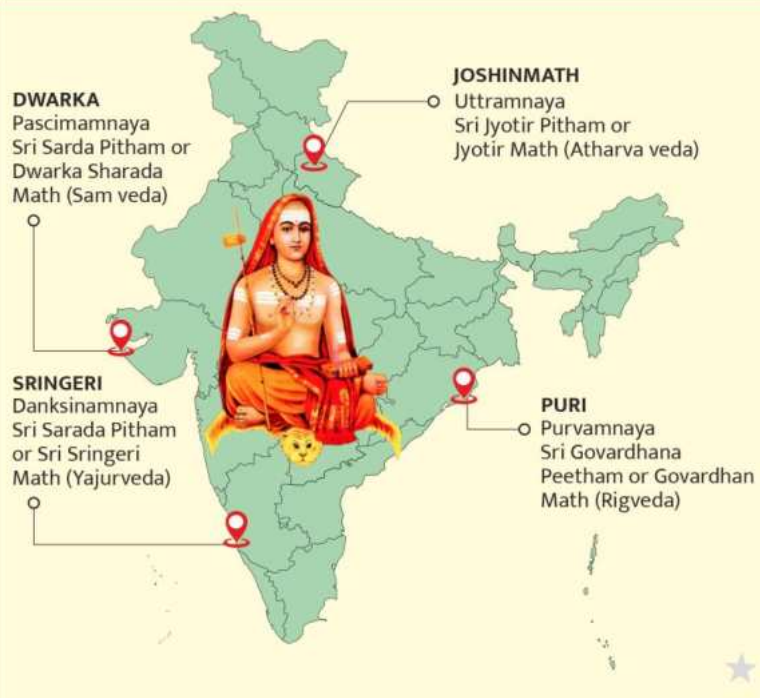
- He was an Indian philosopher and theologian, Sankara (Jagatguru) and **was a firm believer in ancient Hinduism**.
- He is considered as an **incarnation of Lord Shiva**.
- He took **guidance from guru Govinda Bhagavatpada** under whom he studied '**Gaudapadiya Karika**', '**Brahmasutra**', **Vedas**, and **Upanishads**.
- He **propagated 'Advaita Vedanta'** and '**Dashanami Sampradaya**'.
- **Shankara came to be known as Shankaracharya** among his disciples. **His 4 main disciples were:**
  - Padmapada,
  - Totakacharya,
  - Hasta Malaka,
  - Sureshvara.

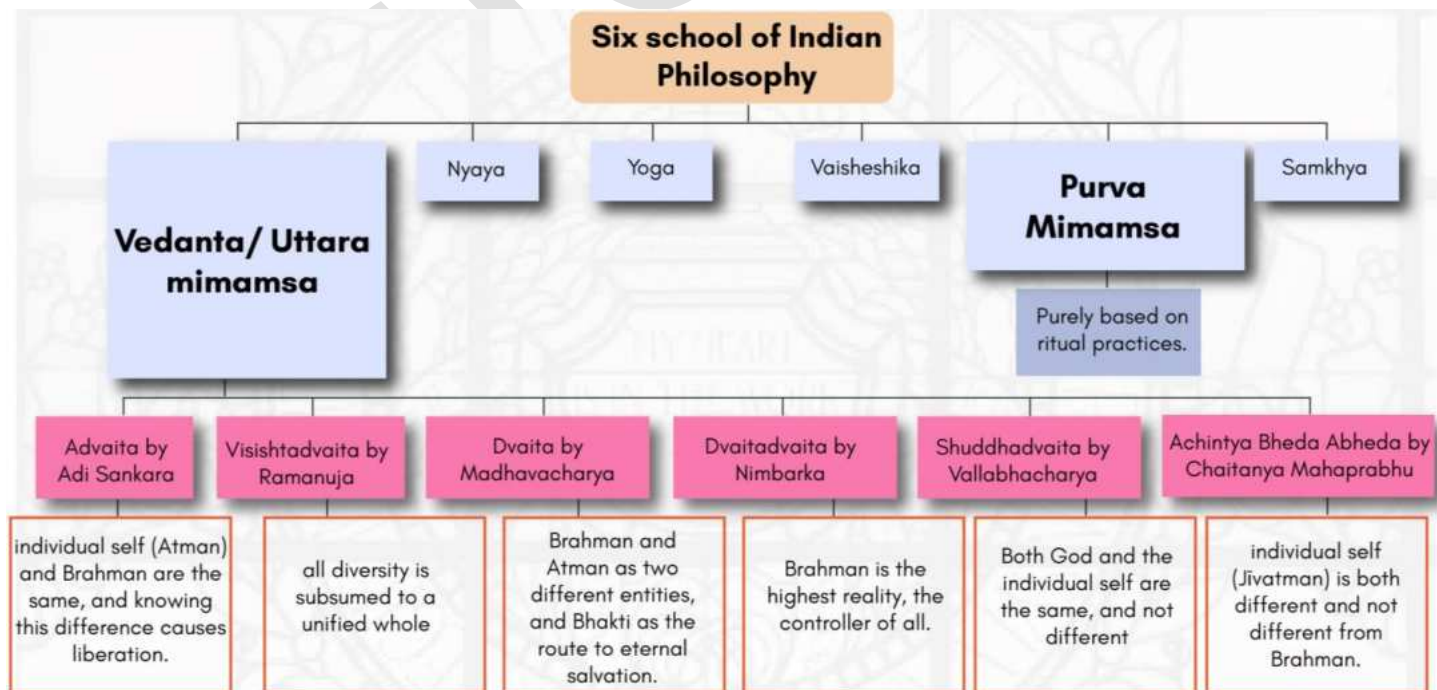
#### About Sanakracharya's philosophy, Advaita Vedanta

- It is a version of Vedanta **translated as non-dualism**.
- According to it, **Brahman** - the ultimate, transcendent and immanent God of the latter Vedas - **appears as the world because of its creative energy (māyā)**.
- The **world has no separate existence apart from Brahman**.
- The **experiencing self (jīva)** and the **transcendental self of the Universe (ātman)** are in reality identical (both are **Brahman**), though the individual self seems different as space within a container seems different from space as such.
- These cardinal doctrines are represented in the verse "brahma satyam jagan mithya; jīvo brahmaiva na aparah" (Brahman is alone True, and this world of plurality is an error; the individual self is not different from Brahman).
- **Plurality is experienced because of error in judgments (mithya) and ignorance (avidya)**.
- **Knowledge of Brahman** removes these errors and **causes liberation from the cycle of transmigration** and worldly bondage.

#### Contributions of Adi Sankaracharya

<b>Philosophical contributions</b>	<ul style="list-style-type: none"> <li>• <b>Formulated the six sect system of worship ( 'Shanmata')</b> which brought to the fore five main godheads – Vishnu, Siva, Shakti, Muruka, Ganesha and Surya</li> <li>• <b>Empowered the sannyasa tradition by revitalizing the dasanami structure</b> (Dashanami Sampradaya,) wherein monks were organized under 10 titles.</li> </ul>
<b>Literary contributions</b>	<ul style="list-style-type: none"> <li>• <b>Composed 72 devotional and meditative hymns</b> like Soundarya Lahari, Sivananda Lahari, Nirvana Shalkam etc.</li> <li>• He authored books on the fundamentals of Advaita Vedanta including <b>Viveka Chudamani, Atma Bodha, Vaakya Vritti, Upadesa Sahasri</b>.</li> <li>• <b>Wrote 18 commentaries on the major scriptural texts</b> including the <b>Brahma Sutras, the Bhagavad Gita and 12 major Upanishads</b>.</li> <li>• His review of '<b>Brahma Sutra</b>' is known as '<b>Brahmasutrabhasya</b>', and it is the oldest surviving commentary on 'Brahma Sutra'.</li> </ul>

<b>Healing of a religion</b>	<ul style="list-style-type: none"> <li>By the time of Shankara's birth, <b>Hinduism had become paralysed by its own inflexible practice of orthodoxy, ritualism and formality</b>, and was in retreat.</li> <li>It was <b>challenged by rise of ascetic Mahavira Jaina (c. 599 BCE-527 BCE) and Gautama Buddha (c. 563 BCE-483 BCE)</b>, whose followers branched out into new religions distinct from Mimamsa Brahminism practised by mainstream Hindus.</li> <li>Adi Shankara's <b>Advaita Vedanta was the philosophically robust response to that era of confusion, integrating diverse thoughts and Hindu practices</b> into a philosophy based on the Vedic dictum of '<b>One Truth, Many Expositions</b>'.</li> </ul>
<b>Four ashrams</b>	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <ul style="list-style-type: none"> <li>He <b>established 4 ashrams in four corners of India</b>.</li> <li><b>Jyotir Matha in Badrinath, Uttarakhand</b> - It advocates 'Ayamatma Brahma' (This Atman is Brahman) and was formed on the basis of Atharva Veda. Totakacharya was the head of this matha</li> <li><b>Govardhana Matha in Puri, Odisha</b> - part of the famous Jagannath temple, it advocates 'Prajnanam Brahma' (Consciousness is Brahman). It was formed on the basis of Rig Veda. Padmapada was made the head of this monastery.</li> <li><b>Sringeri Matha in Sringeri, Karnataka</b> - Located along the banks of Tunga, it advocates 'Aham Brahmasmi' (I am Brahman) and was formed on the basis of Yajur Veda. Sureshvara was made the head of this matha.</li> <li><b>Sarada Matha in Dwarka, Gujrat</b> - It advocates 'Tattvamasi' (That thou art) and was formed on the basis of Sama Veda. Totakacharya was made the head of this matha</li> </ul> </div> <div style="flex: 1; background-color: #f0f0f0; padding: 10px; border: 1px solid #ccc;"> <div style="background-color: #e67e22; color: white; text-align: center; padding: 5px; margin-bottom: 10px;"> <b>4 Vedic Maths established by Bhagwan Adi Shankaracharya</b> </div>  <div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: left;"> <b>DWARKA</b>  Pascimamnaya  Sri Sarada Pitham or  Dwarka Sharada  Math (Sam veda) </div> <div style="text-align: left;"> <b>JOSHINMATH</b>  Uttramnaya  Sri Jyotir Pitham or  Jyotir Math (Atharva veda) </div> <div style="text-align: left;"> <b>SRINGERI</b>  Danksinamnaya  Sri Sarada Pitham  or Sri Sringeri  Math (Yajurveda) </div> <div style="text-align: left;"> <b>PURI</b>  Purvamnaya  Sri Govardhana  Peetham or Govardhan  Math (Rigveda) </div> </div> </div> </div>





## 8.2. NETAJI SUBHASH CHANDRA BOSE

### Why in news?

Recently, Netaji Subhas Chandra Bose **125th birth anniversary ('Parakram Diwas')** was celebrated.

### More about news


- On the occasion, a **holographic statue of Netaji was unveiled at central Delhi's India Gate.**
- It will later be replaced by a **28-foot high and six-foot wide granite statue** of the freedom fighter.
- The statue is symbolic of **exhorting citizens to build a new India before the 100th year of Independence in 2047.**

### Related News

#### Subhash Chandra Bose Aapda Prabandhan Puraskar

- Award is to honour invaluable contribution and selfless service rendered by **individuals and organizations in India in the field of disaster management.**
- It is **announced every year on 23rd January**, birth anniversary of Netaji Subhash Chandra Bose.
- The award carries a cash prize of **Rs. 51 lakh and a certificate in case of an institution** and **Rs. 5 lakh and a certificate in case of an individual.**
  - There are **up to three awards** (every year).
- For 2022, **Gujarat Institute of Disaster Management and Professor Vinod Sharma** have been selected.

### About Netaji Subhash Chandra Bose

Early life	<ul style="list-style-type: none"> <li>Born on January 23, 1897 in Cuttack, Orissa, to <b>father Janaki Nath Bose (lawyer) and mother Prabhavati Devi.</b></li> <li>He was <b>strongly influenced by Swami Vivekananda's teachings.</b></li> <li><b>In 1920 he qualified the Indian Civil Service competitive examination.</b></li> </ul>
Towards a life of Politics	<ul style="list-style-type: none"> <li><b>Netaji's career took a turn after the horrific incident of Jallianwala Bagh</b> where the <b>Lieutenant Governor of Punjab, Michael O Dwyer</b> opened fire on a peaceful crowd in <b>Amritsar in April, 1919</b> and little to no action was taken against him.</li> <li>Shook by the <b>Jallianwalla Bagh massacre</b>, Netaji <b>left his Civil Services apprenticeship midway</b> to return to India in <b>1921.</b></li> <li>After returning to India, Netaji <b>came under the influence of Mahatma Gandhi and joined the Indian National Congress.</b></li> <li>On Gandhiji's instructions, he started working <b>under Deshbandhu Chittaranjan Das (C.R Das), whom he acknowledged as his political guru.</b></li> </ul>
<b>Netaji in mainstream politics and clash of views with Gandhiji</b> 	<ul style="list-style-type: none"> <li>In 1928, the <b>Motilal Nehru Committee</b> appointed by the Congress declared in favour of Domination Status, but <b>Netaji along with Jawaharlal Nehru opposed it, and asserted complete independence for India.</b></li> <li>In 1931, he <b>protested against the Gandhi-Irwin pact</b> and <b>opposed the suspension of Civil Disobedience movement</b> specially when Bhagat Singh and his associates were hanged.</li> <li>He was elected <b>President of the Haripura Congress Session in 1938.</b> <ul style="list-style-type: none"> <li>As the President he mentioned the need of a <b>comprehensive scheme of industrial development under state-ownership and state-control.</b></li> </ul> </li> <li>He talked of <b>economic development of the country through planning</b> and was instrumental in setting up a <b>National Planning Committee (under the Chairmanship of Pt. Jawahar Lal Nehru)</b> later.</li> <li>He was also <b>relected president for the Tripuri Congress session</b> defeating <b>Dr. Pattabhi Sitaramayya</b> who was backed by Mahatma Gandhi and Congress Working Committee.</li> <li>In the backdrop of World War II, he brought a resolution to <b>give British six months to hand India over to Indians or else face revolt.</b></li> <li>This was opposed by many following which Netaji resigned as president and <b>formed a progressive group known as the Forward Block.</b></li> </ul>
Towards establishment of Indian National Army	<ul style="list-style-type: none"> <li>In 1941, <b>Netaji disappeared from his home in Calcutta and reached Germany</b> via Afghanistan.</li> <li>Working on the maxim that "an enemy's enemy is a friend", <b>he sought cooperation of Germany and Japan against the British Empire.</b></li> <li>After reaching Germany in 1942, Netaji started '<b>Azad Hind Radio</b>' and established '<b>Free India Centre</b>' (a precursor of the Azad Hind Government).</li> <li>In Singapore, he formed an <b>Indian government-in-exile 'the Azad Hind Government'</b>. This provisional government also had its <b>own currency, court, civil code, Army (the INA) and national anthem.</b></li> </ul>

	<ul style="list-style-type: none"> <li>In 1943, as the <b>Head of the State of the Provisional Government</b>, he declared war on Britain for the liberation of India.</li> <li>The INA under the <b>clarion call of "Chalo Delhi"</b> reached <b>Moirang in Manipur</b> and shook the British confidence. <ul style="list-style-type: none"> <li>The INA was able to <b>win back Rangoon, Imphal and Andaman and Nicobar Islands</b>.</li> <li>Netaji renamed <b>Andaman and Nicobar (A&amp;N) Island</b> as <b>Shaheed and Swaraj</b>.</li> <li>In 2018, the Ross Island, Neil Island and Havelock Island of (A&amp;N) Islands were renamed as Netaji Subhas Chandra Bose Dweep, Shaheed Dweep and Swaraj Dweep respectively.</li> </ul> </li> <li>However, <b>defeat of Japan and Germany in World War II, forced INA to retreat</b>.</li> <li>Subhas Chandra Bose was reportedly <b>killed in an air crash over Taipeh, Taiwan (Formosa) on August 18, 1945</b>.</li> </ul>
<b>Other Significant Contributions of Netaji</b>	<ul style="list-style-type: none"> <li><b>Literary Contributions</b> <ul style="list-style-type: none"> <li>In 1921, Bose <b>edited the newspaper 'Forward'</b> and later <b>started his newspaper 'Swaraj'</b>.</li> <li>He authored the book <b>'The Indian Struggle'</b>, which covered the <b>country's independence movement in the years 1920–1934</b>.</li> </ul> </li> <li><b>Women upliftment</b> <ul style="list-style-type: none"> <li>He <b>worked towards 'Gender Equality'</b>.</li> <li>Netaji establishing an <b>all Women Regiment within the INA in 1943</b> and named it <b>"The Rani Jhansi Regiment."</b></li> </ul> </li> <li><b>Promoted Secularism</b> <ul style="list-style-type: none"> <li>He introduced <b>common worship and celebrations of all religious festivals</b> in the INA.</li> <li><b>Many from the minority Communities occupied high positions</b> in the Provisional Government of Free India and the Azad Hind Fauj.</li> </ul> </li> </ul>

#### Gandhiji vs. S.C. Bose - A Comparison

- Gandhi and Bose **were legendary personalities, gigantic in their political, moral and ethical stature**.
- Their relationship was one that was **marked with deep mutual respect**.
- Bose hailed Gandhiji as the **'Father of Nation'**. He recognised and admitted Gandhi as the **undisputable, unrivalled leader of the masses**.
- Gandhiji **honoured Bose as a patriot among patriots.** Gandhi wrote in Harijan: **'Netaji was like a son to me.'**
- Similarities between Bose and Gandhiji:**
  - They were **internationalists and humanists**. They were **secular in approach and anti-racial in outlook**.
  - Both **considered socialism to be the way forward** for Independent India.
  - They **worked against untouchability and for women's emancipation**.
- Though their dream was to **free India from the British**, they differed in the means they wanted to adopt.

Difference	Gandhiji	S.C. Bose
<b>Mentorship</b>	Gandhi belonged to the tradition of discussion and talks with the British like <b>his mentor Gokhale and Tagore</b> .	Young Bose, deeply influenced by the Russian revolt and rise of the Japanese empire, was a firebrand nationalist who believed in <b>the tradition of Tilak and Aurobindo</b> .
<b>Means vs end debate</b>	Gandhi had a <b>moralistic stand of opposing the Nazi regime</b> . To him, the means were as important as the ends.	Bose, on the contrary, was more pragmatic and wanted to work <b>with Germany and Japan to destabilize the British</b> .
<b>Non - Violence</b>	<ul style="list-style-type: none"> <li>Gandhi called non-violence "satyagraha" which means 'truth force.' In this doctrine the aim of any non-violent conflict was to convert the opponent; to win over his mind and his heart and persuade him to your point of view. Gandhi's non-violence had three main elements: <ul style="list-style-type: none"> <li><b>self-improvement</b> (the effort to make oneself a better person),</li> <li><b>"constructive programme"</b> (concrete work to create the new social order aimed at),</li> <li><b>campaigns of resistance against evils</b> that blocked the way forward, such as the caste system and British colonial exploitation.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Netaji believed that non-violence could be an ideology but not a creed. Netaji believed that the national movement should be free from violence but, <b>if need be, people could resort to arms</b>. <ul style="list-style-type: none"> <li>According to Bose, violent resistance alone could oust the alien imperialist rule from India.</li> <li>He considered the Gandhian civil disobedience campaign as an effective means of paralysing the administration, but did not think it to be efficacious <b>unless accompanied by a movement aimed at total revolution that was prepared, if necessary, to use violence</b>.</li> </ul> </li> </ul>

## 8.3. NEWS IN SHORTS

### 8.3.1. JALLIKATTU

- Jallikattu is a **bull-taming sport of Tamil Nadu** that has traditionally been part of the festival of Pongal.
- The festival is a **celebration of nature, and thanksgiving for a bountiful harvest**, of which cattle-worship is part.
- There are references to **Jallikattu in Sangam literature too**. Also, a **reference to bull taming is found in a seal discovered at Mohenjodaro**, which is dated between 2,500 BC and 1,800 BC.
- **Other states will similar sports include**—Kambala (Andhra Pradesh), Bullock Kart races (Maharashtra), Cock Fight (Andhra and other states), Camel Race (Rajasthan).

### 8.3.2. CENTRAL INSTITUTE OF CLASSICAL TAMIL (CICT)

- PM will inaugurate a **new campus of CICT in Chennai**.
- CICT is an **autonomous organization under Ministry of Education** and contributes to **promotion of classical Tamil** so as to establish the ancientness and uniqueness of Tamil language.
- CICT is constituted specifically for **carrying out higher research Classical Tamil at international levels**.
  - It also **aims to translate and publish Thirukkural (written by Thiruvalluvar)** in various Indian as well as 100 foreign languages.
- **Classical languages in India:** Tamil, Telugu, Sanskrit, Kannada, Malayalam and Odia.

### 8.3.3. INDIA'S FIRST OPEN ROCK MUSEUM

- It was inaugurated at campus of **CSIR-National Geophysical Research Institute, Hyderabad**.
- Museum **displays around 35 different types of rocks** gathered from different states with ages **ranging from 3.3 billion years to around 55 million years**.
- Also, on the occasion, Union Minister of State for Science & Technology **also released the earthquake risk maps of Lucknow and Dehradun cities**.

### 8.3.4. PILGRIMAGE REJUVENATION AND SPIRITUAL HERITAGE AUGMENTATION DRIVE (PRASHAD)

- Recently, **Ministry of Tourism** inaugurated various projects at Govardhan, Mathura, Uttar Pradesh under PRASHAD Scheme.
- PRASHAD scheme is a **Central Sector Schemes** focussing on **developing and identifying pilgrimage**

**sites across India** for enriching the religious tourism experience. It aims:

- to **integrate pilgrimage destinations** in a prioritised, planned and sustainable manner.
- at **infrastructure development to envisage world class infrastructural development** of the sites with special emphasis on Tourist Facilities.

### 8.3.5. PRADHAN MANTRI RASHTRIYA BAL PURASKAR (PMRBP)

- It is awarded by Government of India to **children between the ages of 5 and 18** to recognise their exceptional abilities and outstanding **achievement**.
- **It is given in six fields** of innovation, scholastic achievements, sports, art and culture, social service and bravery.
- Each awardee of PMRBP is given a **medal, a cash prize of Rs 1 Lakh and a certificate**.
- Formerly known as the National Child Award for Exceptional Achievement, it is **India's highest civilian honour for exceptional achievers under the age of 18**.
- It has **two categories** – Bal Shakti Puraskar and Bal Kalyan Puraskar.
- Award is administered by **Ministry of Women and Child Development**.

### 8.3.6. VARIOUS AWARDS ANNOUNCED ON REPUBLIC DAY

- **Padma Awards:** Highest civilian awards in the country, instituted in 1954 and are awarded to citizens of India for their distinguished contribution in various fields of activity including education, arts, literature, science, acting, social service and public affairs.
  - They comprise of **three categories** based on the scale of the awardee's achievement - The highest being **Padma Vibhushan**, followed by **Padma Bhushan**, and **Padma Shri**.
- **Gallantry awards-** Param Vir Chakra (Highest Military decoration), Mahavir Chakra, Vir Chakra, Ashoka Chakra, Kirti Chakra, Shaurya Chakra.
- **President's Police Medals** for meritorious service to law enforcement personnel in the country.

### 8.3.7. VEER BAAL DIWAS

- PM announced **26th December** as 'Veer Baal Diwas' to mark **martyrdom of Sahibzada Zorawar Singh Ji and Fateh Singh Ji**.
  - **While all four sons of Guru Gobind Singh Ji were martyred**, date has been chosen as it was the day observed as the martyrdom day of Sahibzadas



Zorawar Singh and Fateh Singh, who were killed at the tender age of six and nine in Sirhind by Mughal forces.

- PM described this as **fitting tribute to the courage of the Sahibzades** who preferred death instead of deviating from the noble principles of Dharma.

### 8.3.8. LIVING ROOT BRIDGES

- UNESCO Heritage tag** is being sought for the bridge.
- Living root bridges are **Ficus elastica-based suspension bridges within dense tropical rainforests of Meghalaya.**
  - Ficus elastica** – a tree that grows abundantly in the subtropical terrain of Meghalaya.
- Ranging in span from **15 feet to 250 feet, these bridges are grown by indigenous Khasi tribes over a time period of 15 to 30 years**, and last for several centuries.
- Significance:** minimal material and maintenance cost, no environmental damage, carbon sequestration, exceptional robustness under extreme climatic conditions including storm surges and flash floods.



### 8.3.9. HIGHEST MOTORABLE ROAD IN THE WORLD

- Several **projects built by Border Roads Organisation, including a bridge on world's highest motorable road**, were inaugurated recently.
- Road is in south Ladakh, **connecting Chisumle and Demchok. It passes through Umling La pass**, which is at a height of over 19,000 feet.
  - It **better** previous record of a road in Bolivia, which connects volcano Uturuncu.
- Demchok has been an India-China flashpoint.** New road will make it easier to mobilise troops and equipment.
- It was built under Project Himank**, a project to keep lines of communication open throughout the year (in Ladakh/Siachen sector).



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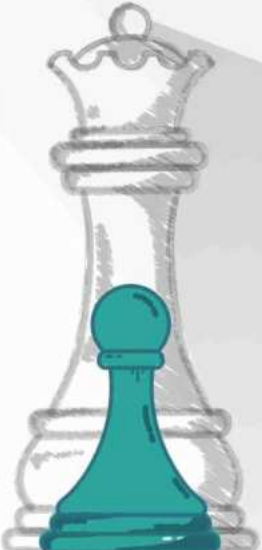


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# 9. ETHICS

## 9.1. ETHICS OF METAVERSE

### Introduction

In Tamil Nadu, a couple hosted India's first wedding reception in Metaverse. The bride's father had passed away but attended and blessed the couple in a digital avatar at the wedding.

"Not only was I groped last night, but there were other people there who supported this behaviour which made me feel isolated in the Plaza." The Plaza here is a digitally created space in the Metaverse.

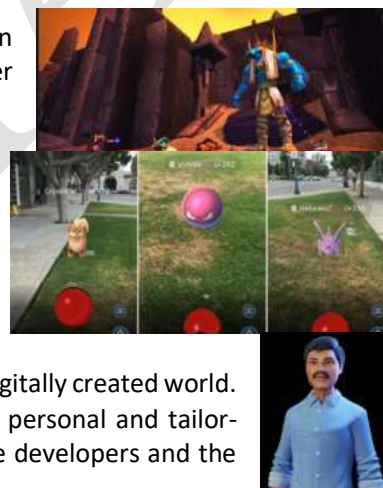
These two instances highlight the level of integration that can happen between the digital and physical spaces, obviating the need for understanding and evolving Ethics for Metaverse.

### What is metaverse?

Metaverse can be understood as a combination of multiple elements of technology, including virtual reality, augmented reality and video where **users "live" within a digitally enhanced surrounding.**

To understand how it works and the impact that it may create, it is important to have clarity on following ideas and technologies-

- **Virtual Reality:** VR can be understood as the use of computer modelling and simulation that enables a person to interact with an artificial three-dimensional (3-D) visual or other sensory environment. E.g., games like World of Warcraft.
- **Augmented Reality:** Augmented reality (AR) is an enhanced version of the real physical world that is achieved through the use of digital visual elements, sound, or other sensory stimuli delivered via technology. E.g., games like Pokémon Go.
- **Hologram:** Holograms are virtual three-dimensional images created by the interference of light beams that reflect real physical objects. E.g., Holograms used by BJP in the run-up of 2014 elections.
- **Avatar:** An avatar in the metaverse is a representation of an individual in the virtual world, this digital avatar enables the person to function like an actual human being in a digitally created world.
- **Platform/Developer/User distinction:** In metaverse, digital engagement will get very personal and tailor-made for the user. In this context, it is important that role played by the platform, the developers and the users is clearly understood.

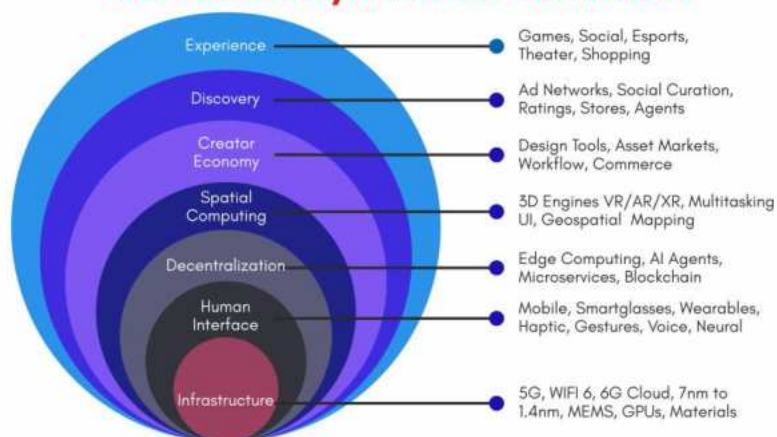


### How it works?

Using the aforementioned digital tools, the idea of metaverse aims to **connect people, places and things in multiple environments.**

The metaverse enables this by merging virtual, augmented, and physical reality, and **blurs the line between your interactions online and in real life.** It would enhance our abilities to express pieces of ourselves through avatars in ways that we may not have been able to test out before.

### The Seven Layers of the Metaverse



### What are the potential changes that it may bring?

- **Opening up new virtual worlds including virtual economies:** Metaverse showcases introduction of multiple virtual environments designed specifically for and sometimes by the user. This could create dedicated environments such as family spaces, workspaces, recreation spaces etc.
  - Creation of virtual world would translate to **creation of virtual economies** such as digital assets such as Non-Fungible Tokens (NFTs), virtual environment developers etc.

- **Development of new digital cultures:** Occupation of a new space by people in physical or digital form leads to creation of a new culture in that space. How people act and what their preferences are in the metaverse could be totally different than how they behave in real life.
  - Also, these cultures may evolve very differently as they would **operate outside direct governmental regulation**.
- **Usage and processing of data will increase exponentially:** Data will be extracted from new sources like behavioural patterns, idiosyncrasies of physical movement among others. This will increase the volume of data and the amount of processing it is subjected to.
- **Affecting Mental health in both ways:** There have been evidences of virtual world nourishing mental health by aiding in confidence development, increased tolerance etc. But at the same time, the seamless integration of the real and virtual worlds has the potential to aggravate issues such as addiction, anxiety, depression among others.
- **Another dimension to cybercrime and cybersecurity:** Metaverse increases the degree of freedom experienced by its users. This opens several dimensions of crime i.e., theft of virtual assets, identity theft in metaverse alongside the already prevalent cybercrime issues.
- **Rising environmental burden:** The technologies that embody the metaverse i.e., Augmented Reality, Virtual Reality, Blockchain and Big Data among others require significant amount of energy. This may increase pressure on already stressed carbon emissions.



#### What kind of ethical issues these changes could create?

- **Translation of Laws and Rights from Real to Digital space:** In the absence of a regulatory framework in the form of laws or a constitution, it is difficult to understand what are the Rights that will be protected and how will they be protected.
- **Misuse and unfair ownership of data:** In a seamless environment such as metaverse, it would be difficult to implement the current consent based permission structure for private data resulting in muddled ownership of data and increased vulnerability to misuse.
- **Multiplication of the prevalent toxicity:** People engage in toxic behaviours such as trolling, bullying and hate speech on social media. This would multiply further in the metaverse where people will be able to hide behind their avatar or “digital twin”.
- **Psychological issues with multiple Identities:** Metaverse would enable the individual to create a digital identity without the pushes and pulls of the society and the situation one is born in. This could create more identification with the digital identity leading to issues like self-pity and dissatisfaction with oneself in reality.
- **Understanding and managing the intangibility of assets:** The idea of virtual assets creates several questions like- who will own these assets, are these assets transferable across platforms and what about the associated copyright issues.
- **Protecting the vulnerable:** The vulnerable section, i.e., children, senior citizens and digitally unaware among others are more vulnerable to influences of the metaverse environment. E.g., hyper-reality experiences could trigger a sensory overload and induce fits or seizures in users who have a disorder like epilepsy.
- **Creating a new class of ‘haves’ and ‘have nots’:** The current rate of technological adoption in the form of Internet of Things (IoT), 5G Technology etc. has aggravated the socio-economic divide. The prevalence of metaverse could create further divide due to economic capacity, urban-rural gaps etc.

The most important ethical issue among these is to ensure that the **digital lives of the participants and connectedly their real life is not sub-consciously dictated** by the platform or the interacting interface.

#### Principles that could guide ethics of the metaverse

It is evident that the rights, principles and doctrines of the real world may not completely translate to the digital realm. But following principles could make metaverse a more **understandable, safe and inclusive** space-

- **Do no harm:** Enabling testing environments which ensure that the effects of its experience are not harmful.
  - A corollary of this principle is to **avoid creating content that objectifies, demeans, or violates the rights of humans or animals**.

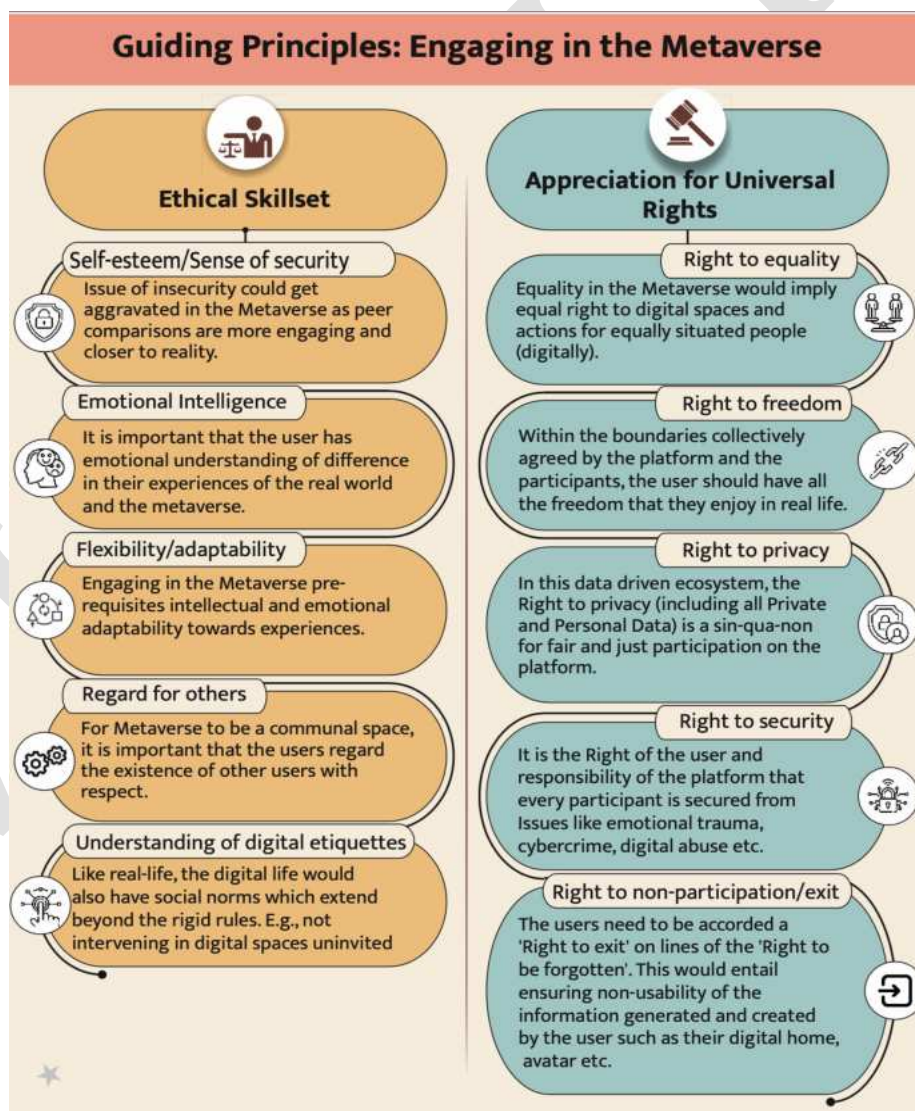


- **Secure the experience:** Use the best security protocols and protection to ensure that malicious actors cannot alter or harm users while they are in the VR experience.
  - For example, a community member might get voted off the island if enough token holders think someone is not operating in a way that adheres to the community guidelines.
- **Be transparent about data collection:** Ensuring that privacy policies specifically mention Metaverse data and how that data will be used, shared, and protected.
- **Ask for permission:** Include permission requests for sensitive data such as eye-tracking, health, and other biometric information including movement-derived data.
- **Diversify representation:** Provide a diverse set of avatars to users and ensure that representations of groups and characters do not perpetuate stereotypes and are free of discriminatory moulds such as racism, casteism, communalism etc.
- **Regulate social spaces:** Preventing cyberbullying and sexual harassment and ensuring inclusivity through community guidelines and privacy protections. Projects involving children or other vulnerable populations should be given special consideration.
- **Consider accessibility for all:** Include options for those without standard vision, hearing, or movement to enable them to participate meaningfully in Metaverse experiences. For example, allow users to integrate additional software or hardware as needed through modular design.

## Conclusion

In this dynamically evolving domain, to ensure that these principles are incorporated in both letter and spirit, the platform, developers and users will have to **innovate continuously and proactively**.

It is said- 'In the digital realm, code dictates life'. The time has come when life should dictate the code.



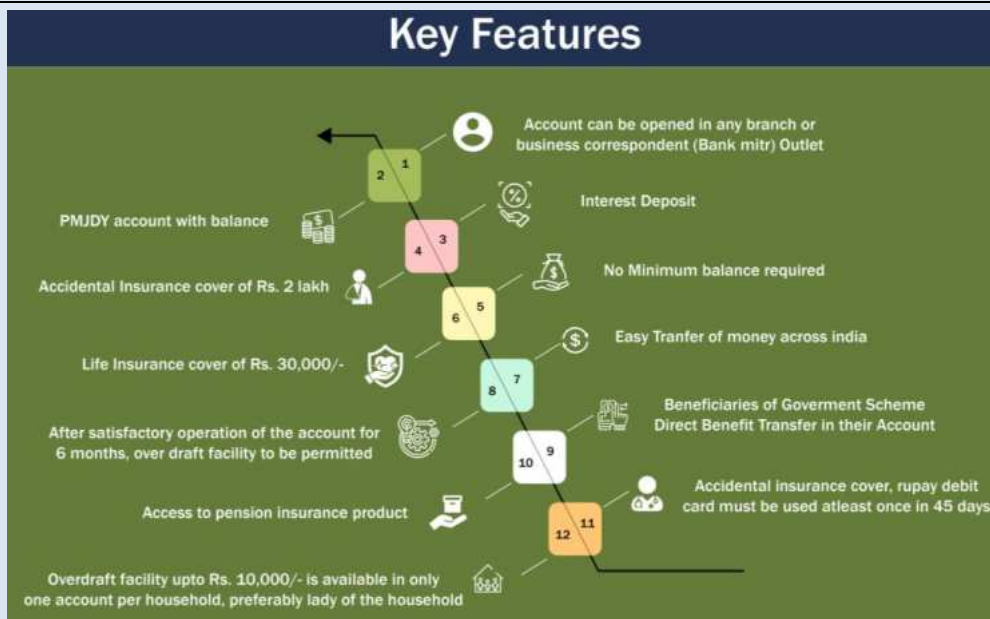
# 10. SCHEMES IN NEWS

## 10.1. PRADHAN MANTRI JAN DHAN YOJANA (PMJDY)

### Why in news?

The total balance in approximately 44.23 million Pradhan Mantri Jan Dhan Yojana (PMJDY) accounts was Rs 1,50,939.36 crore at the end of December 2021, according to the latest finance ministry statistics.

Objective	Salient Features
<ul style="list-style-type: none"> <li>Ensuring access to various financial services like: <ul style="list-style-type: none"> <li>Availability of basic savings bank account,</li> <li>Access to need based credit, remittances facility,</li> <li>Insurance and pension to the excluded sections.</li> </ul> </li> <li>Ensure access of financial products and services at an affordable cost</li> <li>Use of technology to lower cost and widen reach</li> </ul>	<ul style="list-style-type: none"> <li>It was launched in 2015.</li> <li>It is under Ministry of Finance.</li> <li>PMJDY was launched initially for a period of 4 years (in two phases) on 28th August 2014. In 2018, the scheme was extended with new features. <ul style="list-style-type: none"> <li>It is the <b>National Mission for Financial Inclusion</b> to ensure access to financial services.</li> </ul> </li> <li>The intended beneficiaries are <b>Persons not having any other account.</b></li> <li><b>Basic tenets of the scheme:</b> <ul style="list-style-type: none"> <li><b>Banking the unbanked:</b> Opening of basic savings bank deposit (BSBD) account with <b>minimal paperwork, relaxed KYC, e-KYC, account opening in camp mode, zero balance &amp; zero charges.</b></li> <li><b>Securing the unsecured:</b> Issuance of <b>Indigenous Debit cards</b> for cash withdrawals and payments at merchant locations, with free accident insurance coverage of <b>Rs. 2 lakh.</b></li> <li><b>Funding the unfunded:</b> Other financial products like <b>micro-insurance, overdraft for consumption, micro-pension &amp; micro-credit.</b></li> <li>A <b>minimum monthly remuneration of Rs 5,000 to business correspondents</b> who will provide the last link between the account holders and the bank.</li> <li><b>One basic savings bank account</b> is opened for unbanked person.</li> <li>There is <b>no requirement to maintain any minimum balance in PMJDY accounts.</b></li> <li><b>Interest is earned on the deposit in PMJDY accounts.</b></li> </ul> </li> <li><b>Extension of PMJDY with New features</b> – The Government decided to extend the comprehensive PMJDY program beyond 28.8.2018 with some modifications: <ul style="list-style-type: none"> <li><b>Focus shift from ‘Every Household’ to Every Unbanked Adult’.</b></li> <li><b>RuPay Card Insurance</b> - Free accidental insurance cover on RuPay cards increased from <b>Rs. 1 lakh to Rs. 2 lakh</b> for PMJDY accounts opened after 28.8.2018.</li> <li>Rupay Debit card is provided to PMJDY account holder.</li> <li><b>Enhancement in Overdraft (OD) facilities</b> – Earlier, all bank accounts opened under the scheme had an overdraft facility of Rs 5,000 for Aadhar-linked accounts after satisfactory operation in the account for 6 months. OD limit has now doubled to <b>Rs 10,000/.</b></li> <li><b>Increase in upper age limit for OD from 60 to 65 years</b></li> </ul> </li> <li><b>Operative PMJDY Accounts:</b> As per extant RBI guidelines, a PMJDY account is treated as inoperative if there are no customer induced transactions in the account for over a period of two years.</li> </ul>



	<ul style="list-style-type: none"> <li>• <b>Jan Dhan Darshak App:</b> A mobile application, was launched to provide a citizen centric platform for locating banking touch points such as bank branches, ATMs, Bank Mitras, Post Offices, etc. in the country.</li> <li>• PMJDY accounts are eligible for: <b>Direct Benefit Transfer (DBT)</b>, <b>Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)</b>, <b>Pradhan Mantri Suraksha Bima Yojana (PMSBY)</b>, <b>Atal Pension Yojana (APY)</b>, <b>MUDRA scheme</b>.</li> </ul>
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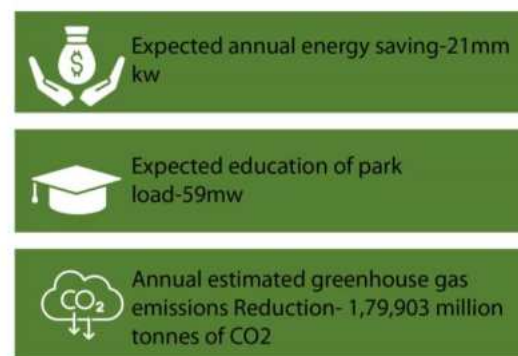
## 10.2. UNNAT JYOTI BY AFFORDABLE LEDS FOR ALL (UJALA) SCHEME

### Why in news?

Recently, UJALA scheme has successfully completed 7 years in 2022

Objectives	Salient Features
<ul style="list-style-type: none"> <li>• To set up a <b>phase-wise distribution of LEDs</b> all over the country.</li> <li>• To <b>promote awareness among the general public regarding the importance of energy efficiency</b>.</li> <li>• To promote the <b>efficient use of energy</b> at a residential level all over India.</li> <li>• To bring about the message of how <b>energy efficiency impacts the preservation of the environment in the long run</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• It is under the <b>Ministry of Power</b>.</li> <li>• It is being implemented by the <b>Electricity Distribution Company and Energy Efficiency Services Limited (EESL)</b>.</li> <li>• Under UJALA scheme, <b>LED bulbs, LED Tube lights and Energy efficient fans</b> are being provide to domestic consumers for replacement of conventional and inefficient variant. <ul style="list-style-type: none"> <li>○ It is the <b>world's largest zero subsidy domestic lighting programme</b>.</li> <li>○ It was <b>first introduced as the DELP (Domestic Efficient Lighting Program)</b>, then relaunched as UJALA.</li> <li>○ UJALA has been adopted by all the states.</li> </ul> </li> <li>• Under the programme, the <b>government has ensured transparency and encouraged competition by e-procurement of goods and services</b>.</li> <li>• <b>Eligibility of acquiring LED bulbs:</b> Every grid-connected consumer having a metered connection from their respective Electricity Distribution Company can get the <b>LED bulbs at about 40% of the market price under the UJALA Scheme</b>. <ul style="list-style-type: none"> <li>○ Consumers also have the <b>option of paying for the LEDs in equated monthly installments</b>.</li> </ul> </li> <li>• <b>Procuring LED bulbs:</b> The <b>bulbs will be distributed through special counters set up at designated places in the city</b>. These will not be available at any other location including shops etc. <ul style="list-style-type: none"> <li>○ As part of its inclusive growth strategy to enable growth in lower income communities, <b>EESL has also enrolled Self-Help Groups (SHGs)</b> for distribution of LED bulbs under UJALA programme.</li> <li>○ <b>In case of faulty bulbs/LED bulb fuses:</b> LED bulbs have very long life (&gt; 15 years if used of 4-5 hours every day) and are not likely to fuse. However, if the LED bulb stops working due to a technical defect, EESL will be providing <b>free of cost warranty for all technical faults for three years</b>.</li> <li>○ Any EESL LED bulb can be <b>replaced with any other company's EESL LED bulb</b>.</li> </ul> </li> <li>• Consumers can avail from a <b>minimum of 2 to a maximum of 10 LED bulbs, depending on the region</b>.</li> <li>• <b>Significance</b> <ul style="list-style-type: none"> <li>○ UJALA succeeded in <b>bringing down the retail price of LED bulbs from Rs 300 to 350 per bulb to Rs 70-80 per bulb</b>.</li> <li>○ It has helped in <b>reducing annual household electricity bills</b>. Consumers have been able to <b>save money, improve their quality of life</b>, and contribute to India's economic growth and prosperity.</li> </ul> </li> </ul>

### Overall Targets

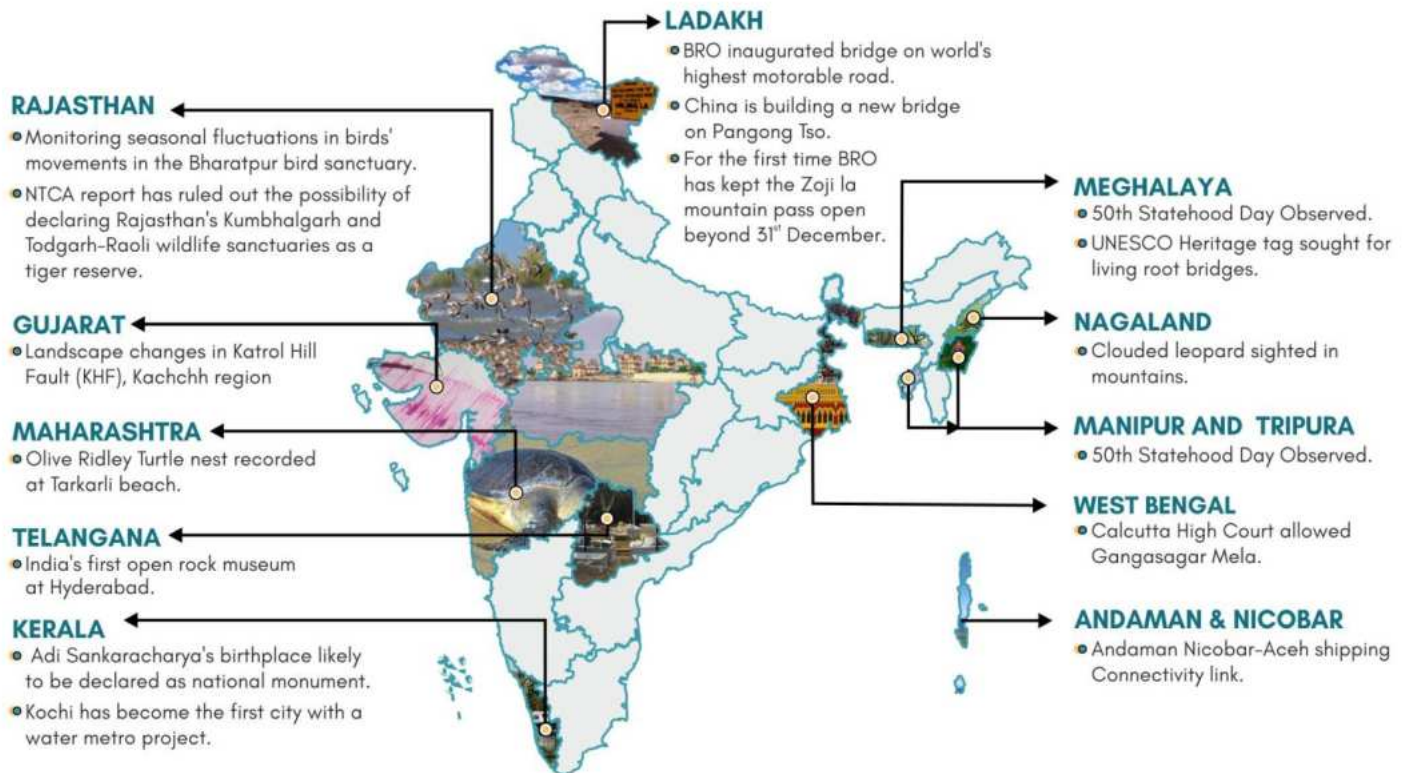


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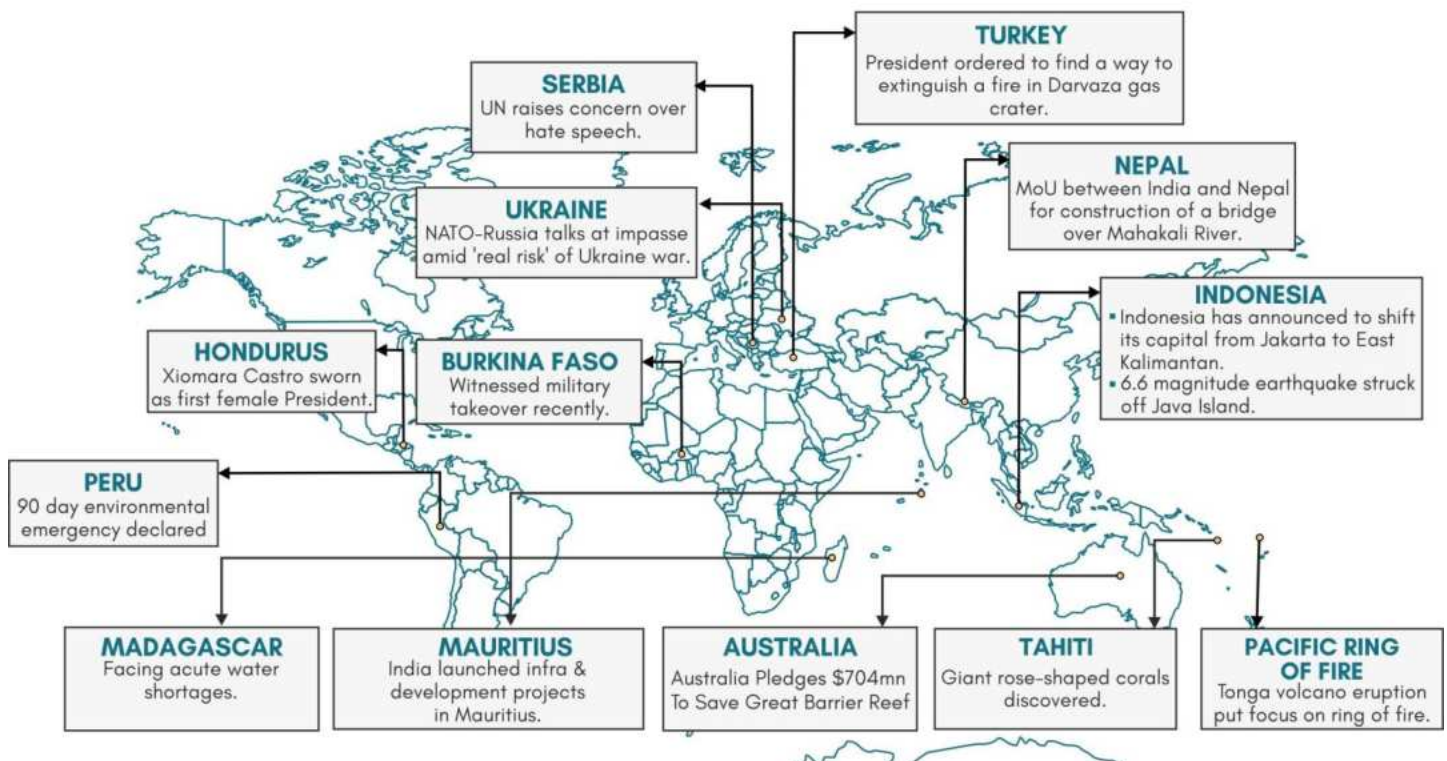
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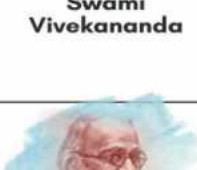
## Places in News: India



## Places in News: World



## Personalities in News

Personality	About	Ethical Values Exhibited by the personality
 <b>Thiruvalluvar</b>	<ul style="list-style-type: none"> <li>He is <b>also known as Valluvar</b>.</li> <li>He is <b>best known for his work – Tirukkural</b>, a collection of couplets on politics, love, ethics and matters concerning economics. <ul style="list-style-type: none"> <li>It is considered as a very <b>important text in Tamil literature</b>.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Commitment to ethical living</b> <ul style="list-style-type: none"> <li>He wrote the first ever book on ethics in human history.</li> <li>He described the importance of both professional and personal ethics in determining well-being of an individual and society.</li> </ul> </li> </ul>
 <b>Guru Ravidas</b>	<ul style="list-style-type: none"> <li>Guru Ravidas was a <b>Saint, philosopher, poet, social reformer of the Bhakti movement</b>. He is known for <b>making efforts in eradicating caste system</b>. <ul style="list-style-type: none"> <li>He was born in Varanasi around 1377 C.E.</li> <li>He was <b>contemporary of Kabir and Guru Nanak Dev</b>.</li> <li>Ravidas' <b>devotional songs were included in the Sikh scriptures, Guru Granth Sahib</b>.</li> </ul> </li> <li><b>Mirabai was a disciple of Ravidas</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>Social Justice</b> <ul style="list-style-type: none"> <li>Moved by the dire conditions of people living in lower end of social ladder, he decided to devote his life for eradicating caste barriers by its spiritual and social critique.</li> </ul> </li> </ul>
 <b>Rani Velu Nachiyar</b>	<ul style="list-style-type: none"> <li>She was also known as <b>Veeramangai</b> (brave women in Tamil).</li> <li>She became the <b>queen of Sivaganga estate</b> (in present day Tamil Nadu) from <b>1780-1790</b>.</li> <li><b>Significant Contributions:</b> She formed an <b>alliance with Hyder Ali</b> against the British in 1780, and was the <b>first queen</b> to wage war against the <b>East India Company</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>Fortitude and Self-Confidence</b> <ul style="list-style-type: none"> <li>According to legend, Rani self-confidence was so strong that she decided to take Britishers on herself but later after advised formed alliance with others and inflicted incalculable damage to the enemies.</li> <li>A trained fighter with proficiency in multiple languages (English, French, Urdu etc.), personifies <b>women empowerment</b> through her virtues of <b>indomitable courage, bravery and strong determination</b>.</li> </ul> </li> </ul>
 <b>Tyagaraja</b>	<ul style="list-style-type: none"> <li><b>A great saint and music composer</b>, he was born in the village of Thiruvayaru in the Thanjavur district of Tamil Nadu.</li> <li>Tyagaraja is considered the <b>most legendary Carnatic music composer</b> of all time, who played a very significant role in the development of this music genre. <ul style="list-style-type: none"> <li>He saw music as a means to <b>experience the love of god and as such, his sole intention was purely devotional while performing</b>.</li> </ul> </li> <li><b>He is the largest composer of Telugu Carnatic music</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>Devotion and Creativity</b> <ul style="list-style-type: none"> <li>His inclination towards music led him to the path of devotion and die hard commitment to spiritual side of the music.</li> </ul> </li> </ul>
 <b>Saint Kuriakose Elias Chavara</b>	<ul style="list-style-type: none"> <li>Also known as <b>ChavaraPithavu</b>, Saint Chavara was born at <b>Kainakary (Kerala)</b>.</li> <li>He belonged to <b>Syro-Malabar Church</b> and became a <b>priest in 1829</b>.</li> <li><b>Significant Contributions:</b> <ul style="list-style-type: none"> <li>Started a <b>Sanskrit school at Mannanam</b> in 1846 for education,</li> <li>Established the <b>first non-government press</b> in Kerala.</li> <li>Worked towards <b>spiritual, educational, cultural and social reforms in the 19<sup>th</sup> century</b>.</li> <li>Started the concept of <b>Palikoodam</b>, i.e. setting up a school alongside every parish church.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Humanist and Progressive</b> <ul style="list-style-type: none"> <li>He bore the strong conviction that education is the precondition for any kind of social progress based on modern lines.</li> <li>He worked steadfastly for cultural and social upliftment of the depressed classes irrespective of their religion.</li> </ul> </li> </ul>
 <b>Fatima Sheikh</b>	<ul style="list-style-type: none"> <li>She was born on 9th January 1831</li> <li><b>Significant Contribution</b> <ul style="list-style-type: none"> <li>Worked relentlessly with Savitribai Phule to focus on <b>issues of caste, Sati, female empowerment, widow remarriage, inter-caste marriage and education</b>.</li> <li>Regarded to be <b>India's first Muslim woman teacher</b>.</li> <li>In 1848, <b>co-founded</b> (along with Savitribai Phule) <b>Indigenous Library in 1848</b> – which was one of <b>India's first schools for girls</b>.</li> <li>Took an <b>active role in Phule's Satyashodhak Samaj</b> (Truthseekers' Society) movement.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Positive Zeal and enlightenment</b> <ul style="list-style-type: none"> <li>She demonstrated extreme zeal and commitment to modern ideals of justice and empowerment of weak.</li> <li>She devoted fair part of her lifetime working for educational and social upliftment of women in rural areas.</li> </ul> </li> </ul>
 <b>Swami Vivekananda</b>	<ul style="list-style-type: none"> <li>Born as <b>Narendranath Datta</b> in Calcutta, He was a <b>philosopher, spiritual leader, reformer and chief disciple of Ramakrishna Paramhansa</b>.</li> <li>He <b>introduced the world to Hinduism and its philosophies of Vedanta and Yoga</b> through his famous 1893 <b>speech at World's Parliament of Religions</b> in Chicago.</li> <li><b>Significant Contribution:</b> <ul style="list-style-type: none"> <li>Wrote <b>four classics – Jnana-Yoga, Bhakti-Yoga, Karma-Yoga, and Raja-Yoga</b> – as his <b>treatises on Hindu philosophy</b> and the teachings of <b>Vedanta</b>.</li> <li>He spread the message of <b>Universal Peace and Brotherhood</b>.</li> <li>He founded the <b>Ramakrishna Mission at Belur Math in 1897</b> for social service and humanitarian activities.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Rationalism and Spiritualism</b> <ul style="list-style-type: none"> <li>Vivekananda emphasized on mass education for rational thinking and enlightened thoughts.</li> <li>Religion for him was essentially a spiritual force with humanism at its core.</li> </ul> </li> </ul>
 <b>Dr. Bhagwan Das</b>	<ul style="list-style-type: none"> <li>He was India Theosophist and has <b>significant role in development of Theosophical society in Banaras</b>.</li> <li>He <b>served in the Central Legislative Assembly</b> of British India.</li> <li>In 1921 went <b>jail for association with Non-Cooperative Movement</b>.</li> <li>He was the <b>founder of Kashi Vidyapeeth</b>. <ul style="list-style-type: none"> <li>Kashi Vidyapith was the first modern university organised by Indians in British India.</li> </ul> </li> <li><b>Received Bharat Ratna in 1955</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>Nationalist and Progressive</b> <ul style="list-style-type: none"> <li>Das was a very active supporter of Indian nationalism and freedom from British rule.</li> <li>He believed in power of education in bringing social progress and founded the first University in the country.</li> </ul> </li> </ul>



 <p><b>Khan Abdul Ghaffar Khan</b></p>	<ul style="list-style-type: none"> <li>● <b>20 January marks the death anniversary</b> of Khan Abdul Gaffar Khan, also called Frontier Gandhi <ul style="list-style-type: none"> <li>▫ He was a Pakhtun or Pathan from the North West Frontier Province, now called Khyber Pakhtunkhwa.</li> </ul> </li> <li>● <b>Role:</b> <ul style="list-style-type: none"> <li>▫ Raised the Khudai Khidmatgar, or Servants of God;</li> <li>▫ Civil Disobedience Movement of 1930;</li> </ul> </li> <li>● <b>Prize:</b> Bharat Ratna Prize, the highest Indian honour.</li> </ul>	<p><b>Patriotism and social dignity</b></p> <ul style="list-style-type: none"> <li>▸ He worked really hard to sensitize people for independence and freedom following the path of non-violence and disobedience.</li> <li>▸ He united people of his region based on idea of dignity and identity.</li> </ul>
 <p><b>Baba Iqbal Singh</b></p>	<ul style="list-style-type: none"> <li>● The noted <b>educationist, social worker and philanthropist</b> passed away recently.</li> <li>● <b>Contribution:</b> Kalgidhar Trust started by him has been active in social work on rural education, drug de-addiction and women empowerment.</li> <li>● He was <b>awarded the Padma Shri Award</b> for social work.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Commitment to social and spiritual progress</b> <ul style="list-style-type: none"> <li>▸ He relentlessly worked for the educational and social development of depressed section of people especially youth and women.</li> </ul> </li> </ul>
 <p><b>Pandit Jasraj</b></p>	<ul style="list-style-type: none"> <li>● <b>Pandit Jasraj Cultural Foundation was launched</b> on the occasion of his 92nd birth anniversary.</li> <li>● He belonged to the <b>MewatiGharana</b>, a school of music known for traditional performances of <b>khayals</b>(genre in Hindustani Classical music).</li> <li>● <b>Contribution:</b> <ul style="list-style-type: none"> <li>▫ Created a <b>jugalbandi</b> called Jasrangi.</li> <li>▫ Rare ragas including <b>AbiriTodi and Patdeepaki</b>.</li> <li>▫ Popularised semi-classical musical styles like <b>Haveli Sangeet</b>.</li> </ul> </li> <li>● <b>Honours:</b> <ul style="list-style-type: none"> <li>▫ Padma Vibhushan.</li> <li>▫ A minor planet <b>2006 VP32</b> (located between Mars and Jupiter), has been named as '<b>Panditjasraj</b>'.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>Dedication and Creativity</b> <ul style="list-style-type: none"> <li>▸ He contributed significantly for the development of traditional style of music and helped to revive the popularity of it.</li> <li>▸ Because of his creative ways of performing music, he became globally popular and won hearts of the people across cultures.</li> </ul> </li> </ul>
 <p><b>Pandit Birju Maharaj</b></p>	<ul style="list-style-type: none"> <li>● Born as Brij Mohan Nath Mishra, he was a legendary Kathak maestro and leading exponent of the <b>Kalka-Bindadin gharana of Lucknow</b>.</li> <li>● He was an equally prolific singer, poet and painter.</li> <li>● <b>Significant contributions</b> <ul style="list-style-type: none"> <li>▫ He served Kathak Kendra (Delhi) as <b>principal Guru for several decades</b>.</li> <li>▫ He brought <b>Kathak (Classic Dance form)</b> to film industry and spread it at global level.</li> <li>▫ <b>Awarded Padma Vibhushan (country's second-highest civilian award)</b> in 1986.</li> <li>▫ Honoured with <b>Sangeet Natak Akademi Award, Kalidas Samman</b> by Government of Madhya Pradesh, Rajiv Gandhi Peace Award</li> </ul> </li> </ul>	<p><b>Commitment to Art and Creativity</b></p> <ul style="list-style-type: none"> <li>▸ He was multi-talented personality who devoted his whole life for encouragement of Art in various forms. He valued creative expressions as important aspect of individual personal development.</li> </ul>

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**2**  
AIR



**JAGRATI AWASTHI**  
(ALL INDIA  
TEST SERIES)

**3**  
AIR



**ANKITA JAIN**  
(ALL INDIA  
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**4**  
AIR



**YASH  
JALUKA**  
(ABHYAAS  
TEST SERIES)

**5**  
AIR



**MAMTA  
YADAV**  
(ALL INDIA  
TEST SERIES)

**6**  
AIR



**MEERA  
K**  
(ALL INDIA  
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**7**  
AIR



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KUMAR**  
(ALL INDIA TEST SERIES,  
ESSAY TEST, ABHYAAS, PDP)

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AIR



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**9**  
AIR



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