MONTHLY

EPIC!

Supplementary reading material for MGP and Current Affairs classes of ForumIAS Academy

AN EXCLUSIVE CURRENT AFFAIRS MAGAZINE FOR

PRELIMS + MAINS

PREPARATION

JUNE 2021

The 14th edition

Dear Forumites,

The 14th edition of EPIC magazine comes when the Civil Services Preliminary Examination,2021 is just more than a couple of months away. In this scenario, the EPIC team has tried to bring you the most relevant content to give you an edge in the preparation. This edition of EPIC showcases an analysis on developing the island territories, a researched article on the Deep Ocean Mission, a focus on the primary and rural health care system of India and many more.

A special shoutout to the students who diligently write to us and provide feedback. Your opinion is important to us. Also, topics are regularly included in the subsequent editions of EPIC based on student's demand. Keep writing to us.

Stay safe and Happy reading!

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IT RULES 2021

In news:
- In India, the **Information Technology (Guidelines for Intermediaries and Digital Media Ethics Code) Rules, 2021,** were enacted. The new IT standards have been tailored to specifically target social media, Digital Media, and OTT platforms.
- The Delhi High Court gave its **verdict in a plea alleging failure by Twitter** to comply with the Centre's new Information Technology Rules.
- The **digital news portals sought a stay** on the applicability of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 on digital news media. But the Delhi High Court declined to pass any order in favor of the digital news portals.

About the Twitter Case:
- As per the New IT Rules, **significant social media intermediaries** like Twitter, WhatsApp have to appoint a Chief Compliance Officer, Nodal Contact Person, and a Resident Grievance Officer (RGO) in India. All of them should be Indian Residents.
- The HC was currently hearing a **plea alleging failure by Twitter to comply with the Centre's new Information Technology Rules**. The Court also observed that the three-month window was given to the intermediaries to comply with the rules.
- Despite the time window, the HC pointed out that **only an interim RGO was appointed by Twitter.** The Court observed this as a violation of Government rules. The Delhi high court recently said that the government was **"free to take action"** against microblogging site Twitter for not following the new IT Rules and warned the platform it would be "in trouble" if it fails to comply.

About the Digital News Portal Case:
- The digital news portals **sought a stay on the applicability of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021** on digital news media.
- The digital news portals argued that the **executive power to virtually dictate content to digital news portals would squarely violate Article 14 and 19 (1)(a)** of the Constitution.
- They also argued that **the rules create a space for the state to enter and control news** by way of deletion, modification or blocking, censure, compelled apology and more.
- But the Delhi High Court rejected the arguments.

Rationale behind the introduction of Rules:
- **No specific rules:** India at present doesn't have any specific rules to govern the digital news media and OTT platforms. At present, these are governed under **Section 79 of the IT Act, 2000.** But it was not able to effectively control the misuse of data over social media and digital platforms.
- **Increasing User base of companies:** The user base of big-tech companies has expanded rapidly**.** Currently, there are over 53 crore WhatsApp users, over 44.8 Crore YouTube users and 41 Crore Facebook users.
- **Rejection of self-regulatory methods:** The government rejected the Self-regulatory toolkit submitted by 17 OTT Platforms. The government rejected them for reasons **like lack of independent third-party monitoring, the tool-kit did not have a well-defined Code of Ethics,** etc. This induced the government to come up with new rules under the IT Act, 2000. The IT Rules 2011 got replaced with the new **IT Rules 2021.**
- **Threatening states:** huge volumes of data give better bargaining power to enforce profit motives over national interests. **For example, recently Facebook and google threatened to de-platform Australia.**
- **Role of states in a democracy:** In democratic societies, **states are the guardians of the public interest**. So, curtailing speech or permitting it, is the role of states, not big techs.
- **Flaws in tech industry:** There is a **lack of sufficient choice of platforms** and there are asymmetries in power between companies and users. Big tech is amassing data on the citizens and using this information for its purposes.

- **Misuse of power:** For instance, Twitter's non-compliance to obey orders from a sovereign country like India. Similarly, Donald Trump was de-platformed from Facebook and Twitter.

About Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021
- The new rules have been framed by the Central Government in exercise of powers under **section 87 (2) of the Information Technology Act, 2000** and in supersession of the earlier Information Technology (Intermediary Guidelines) Rules 2011.

Guidelines related to Social Media Intermediaries
- **Due diligence to be followed by intermediaries:** The rules prescribe due diligence that must be followed by intermediaries, including social media intermediaries. In case, due diligence is not followed by the intermediary, safe harbour provisions will not apply to them.
- These **safe harbour provisions have been defined under Section 79 of the IT Act,** and protect social media intermediaries by giving them immunity from legal prosecution for any content posted on their platforms.
- **Removal of unlawful information:** Social media companies are prohibited from hosting or publishing any unlawful information. This information is "about the interest of the sovereignty and integrity of India, public order, friendly relations with foreign countries, etc.
- **Government can take down content:** If such information is hosted or published the government can take down such information within 24 hours. The user will be **given a notice** before his/her content is taken down.
- **Strengthening traceability:** The government can direct messaging platforms to tie the identity of the user with the message transmitted by him/her for strengthening traceability.
- **Monthly compliance report:** The IT rules 2021 call for social media companies to publish a monthly compliance report.
- **Categories of social media**: Social media platforms are classified into two categories
    - **Social media intermediaries** – Platforms that have a limited user base.
    - **Significant social media intermediaries** – These are the platforms with a large user base.
- **Additional measures:** The significant social media intermediaries have to follow few additional measures like:
    - These platforms should **have a physical contact address** in India.
    - **Appointing a Chief Compliance Officer**, **Nodal Contact Person, and a Resident Grievance Officer in India**. All of them should be Indian Residents.
    - Nodal Contact Person will maintain 24×7 coordination with law enforcement agencies.
    - The Resident Grievance Officer must acknowledge the complaint within 24 hours, and resolve it within 15 days of receipt.

Guidelines related to Digital Media and OTT Platforms
- **Code of ethics for OTT:** A Code of Ethics has been prescribed for OTT platforms and digital media entities.
- **Self-classification of content:** The streaming platforms (Like Netflix and Amazon Prime) will have to self-classify content on five age-based categories: U (universal), 7+, 13+, 16+, and A (adult).
- **Age verification system:** They need to have suitable **parental locks** for 13+ content and a robust **age verification system** for accessing adult content.
- **Cable Television Networks Regulation Act:** Publishers of news on digital media will have to observe the norms of journalistic conduct of the Press Council of India and the Programme Code under the Cable Television Networks Regulation Act.
- **Grievance redressal mechanism:** A three-level grievance redressal mechanism has also been established:
    - **Level-I**: **Self-regulation by the publishers**
    - **Level-II: Self-regulating body**: This body shall be headed by a retired judge of the Supreme Court or a High Court or independent eminent person.
    - **Level-III: Oversight mechanism**: I&B Ministry will formulate an oversight mechanism and

- **Categories of Content that should not be posted:** The rules lay down categories of content that the social media platform should not host. It includes content that
  - Threatens the unity, integrity, defence, security or sovereignty of India, friendly relations with foreign states or public order
  - Causes incitement to the commission of any cognizable offence or
  - **Prevents investigation of any offence** or is insulting any foreign States
  - Content is defamatory, obscene, pornographic, paedophilic, invasive of another's privacy,
  - Related to encouraging money laundering or gambling or is inconsistent with or contrary to the laws of India.

Expected Benefits from the IT Rules:

- **Balance over platforms:** It will ensure that social media platforms have to keep better checks and balances over their platforms. This will ensure the data is not shared unlawfully. This will ensure adherence to the **rule of law.**
- **Enhance accountability:** The new IT rules enhance government regulation over social and digital media. This will enhance accountability and **prevent arbitrary actions by digital platforms.**
- **Empowering the citizens: The** mechanism for redressal and timely resolution of their grievances will lead to the empowerment of citizens.
- **Disinformation of data can be controlled**: Since there is a proper regulatory mechanism, disinformation can be removed easily. This will reduce **instances of fake news, violence, the spread of defamatory content and disruption of public order.**
- **Prevent arbitrary removal of content:** Giving due notice before removing content will prevent arbitrary removal of content.
- **Print and electronic code of conduct on digital news:** The imposition of print and electronic code of conduct on digital news media would ensure a level playing field for every media.
- **Strengthening India's position:** It will strengthen India's position as a leader in digital policy and technological innovation. For example, China, with its larger digital population, has not been able to provide a fair and open local market for global companies in the digital space due to the absence of proper IT Rules and Regulation.

Issues surrounding the New IT Rules 2021 for social media

- **Issues with rule provisions requiring traceability:** The guidelines demand that the information be traced back to its source. Some social network policies prohibit this. **WhatsApp**, for example, **cannot accept new IT requirements despite claiming to be end-to-end encrypted.** If they accept, their services will no longer be encrypted end-to-end.
  - **Against the Proportionality Doctrine**: This is a principle that requires **courts to review administrative processes** in order to reach or reverse a decision. Proportionality refers to the fact that an activity should not be more harsh than necessary to achieve the desired goal.
  - Under this approach, it is debatable whether the executive could achieve the purpose (i.e., eliminating the threat of social media to national security and sovereignty) by taking harsh steps such as message tracking.
- **Increased political control of social media firms and posts**: The implementation of New IT Rules will boost political control of social media companies and postings. This is due to the lack of legal basis for the New IT Rules for social media.
  - The Telecom Regulatory Authority of India Act, for example, gives TRAI authority (Telecom Regulatory Authority of India). However, because the new IT rules are being drafted by bureaucrats, discretionary censorship may be used more widely.
- **Putting up roadblocks in the marketplace**: The new rules raise the expenses of doing business for social media companies. They need nodal officers, compliance officers, and physical offices in India because they are based in India. Their operational expenditures will skyrocket as a result of this. It will also hinder the growth of international organizations and new intermediate businesses in India.

- **Revoke protection under Section 79 of the IT Act**: Non-compliance with the new requirements would result in the loss of Section 79 of the IT Act protection for social media intermediaries. Removal of safe harbor can **lead to internal censorship by intermediaries** which have impacts on users' right to free speech.
    - This section states that any intermediary is not legally or otherwise responsible for any third-party information, data, or communication link made available or hosted on its platform.
- It will be at **conflicts with extraterritorial jurisdiction norms made in the IT Act.** Since according to the new rules action can be taken against a message that originated outside India.

View of Social media companies

WhatsApp has filed a lawsuit to stop the implementation of the New IT standards. During this time, WhatsApp presented its stand on the following grounds:

- **Inadequate stakeholder consultation**: The rules were announced in a **short period of time with little public or stakeholder input.** Companies like Facebook have stated that they are willing to follow the guidelines. But first, they need to talk to the government about some legitimate concerns about the rules. However, the government did not allow for this.
- **Legal issues:** No legislation (including the Information Technology Act) or other law requires a social media intermediary to reveal the identity of the message's primary creator. Furthermore, the IT Act makes no provision for the regulation of digital media. However, the new IT Rules for social media, which are subordinate to the IT Act, go beyond the parent Act's original objective and bounds (IT Act).
- **Changing the core operation of social media companies**: Certain requirements are connected to the immunity of intermediaries under Section 79 (of the IT Act). However, the new IT Rules affect not only the provision of intermediary services, but also the entire role of a social media organization as a publisher. This is in violation of the IT Act's restrictions.
- **Against right to privacy:** The new laws restrict free speech on digital platforms, which is in **violation of the right to privacy.** In the well-known **Puttuswamy case**, the Supreme Court stated that any law that violates a fundamental right is unconstitutional. This iteration was also highlighted in the Internet freedom case of Anuradha Bhasin. The new IT Rules for social media will be in violation of the judgement and its provisions if they are implemented.

Government arguments in support of New IT rules for social media

- **Social media companies are not legally intermediaries:** Legally the social media companies are not considered as an intermediary. Under section 2W of the IT Act, the definition of intermediary does not include social media companies. This section mentions Intermediaries like internet service providers, online auction sites, online marketplaces, etc. But under the rules, the government mentioned that the social media companies will be **treated as an intermediary** if they adhere to the new IT rules.
- **Adherence to Indian laws and regulation:** Social media platforms use curated content for money-making and not take any editorial regulation. So far, these social media platforms not followed specific Indian guidelines regarding the content on their platforms. The new IT rules aimed to change that perception. From now on the content in social media platforms will follow Indian publishing rules and regulations. Just like the print media is following during their publication.
- **Benefits end-user:** The government underlines that these new IT rules on social media will benefits society at large. Such as,
    - **Secure right to privacy:** After the rules come into effect, users' personal photographs, personal data will remain safe with the user.
    - **Safety for vulnerable sections:** Children and women will now be safe and secure in social media. The chances of cyber-bullying, exposure to obscene content, and harassment will reduce on social media platforms.
    - **Promote the integrity of the nation:** If the rules adhered to strictly, then any posts promoting a particular race, sex, caste, religion will reduce in time. This will promote India as a multi-cultural society.
    - **Security of state:** The social media companies will have to remove any posts that promote radicalism, online terrorism, violence over social media. Thus, it will weaken India's internal and external threats.

The way forward
- **A model combining state censorship and self-regulation**: A multistakeholder approach to self-regulation can be adopted, that safeguards the creative freedom of content creators and artists, and protects the interests of consumers in choosing and accessing the content.
- **Establishing a global rating system:** A standard rating system for content and quotas for indigenous content on OTT platforms can be created.
- **Independent mechanism for complaints redressal:** An autonomous organization can be created to look into citizen complaints about content made available by respective OCCPs.
- **Formulating broad guidelines**: The Government can frame guidelines that cover principles laid out in statutes like The Information Technology Act, 2000, Indian Penal Code, 1860, Indecent Representation of Women (Prohibition) Act, 1986, Protection of Children from Sexual Offences Act, 2012, Copyright Act, 1957 etc., to aid OTT platforms in self-regulating its content.

GENERAL STUDIES PAPER -I

Pandemic through Gandhian Principles

Syllabus - Modern History: Modern Indian history from about the middle of the eighteenth century until the present- significant events, personalities, issues.

In News
- **Vice President** calls for reviving the **Gandhian ideals** to address social, political, economic & environmental problems faced by the world.
- The current **COVID-19 pandemic is not just a health crisis; instead, it is a human, social, and economic crisis (UN, 2020).**

Introduction
- The coronavirus pandemic has emerged as a **threat to the entire humanity**. It has affected society at large and has created a lot of chaos and uncertainty in the world. This has created the need to **restore and establish social sustainability in the society**.
- Social sustainability is viewed as a process for creating successful places that promote people's well-being by understanding people's needs and wants. Here, **Gandhi's comprehensive vision for society** can be related to the sustainable development approach and the social dynamics prevailing in the society amid the pandemic.
- As the **three pillars of sustainable development-environmental, economic, and social-are interlinked**, Gandhi's ideas and principles of value-based approach and ethical living hold good in sustainable development discourse.

Issues faced during pandemic
- **Increasing socio-economic inequality** - The current COVID-19 pandemic has deepened the **existing inequality in society**. In the COVID-19 pandemic context, not everyone in society is placed in the same position when it comes to combating the ill effects of the virus. **Marginalized women, migrant workers, and poor people** can't sustain in the same way as the well-off people could during COVID-19 times. Thus, the virus has accentuated inequality in sections of our society.
- **Shadow pandemic** – According to **UN women, one in three women** worldwide experience physical or sexual violence mostly by an intimate partner. **Violence against women and girls is a human rights violation**. Since the outbreak of COVID-19, emerging

BEFORE THE PANDEMIC

243 million
women and girls, aged 15-49, experienced **sexual and/or physical violence** by an intimate partner in the past year.

SINCE THE PANDEMIC

Violence against women, especially **domestic violence**, has intensified.

Exacerbating factors include:

Security, health & money worries | Cramped living conditions | Isolation with abusers | Movement restrictions | Deserted public spaces

data and reports from those on the front lines, have shown that all types of violence against women and girls, particularly domestic violence, has intensified. This is the Shadow Pandemic growing amidst the COVID-19 crisis.

- **Mental-health related challenges** - With prolonged lockdown and mobility restrictions, while some have gone through **anxiety, stress, and depression, while many lost their livelihood**. Fear of contracting the virus, its direct and indirect repercussions on their lives, and relations concerns have a detrimental effect on the masses' overall well-being.
- **Lack of self-sufficiency and self-reliance** – Pandemic has highlighted **India's overdependence, on other nations, for basic essentials like PPE kits, ventilators, N-95 mask as well as testing kits**. For example, the average cost of ventilators in India in February-March, 2020 was approximately Rs. 15 lakh and nearly all were imported.
- **Wildlife trade and destruction of biodiversity** - **Connections to the wildlife trade** as the likely source of the virus have spotlighted the devastating impacts this trade can have on human health and economies. **The World Health Organization has determined that COVID-19 is a zoonotic disease**, meaning it originated from an animal. Many countries have wildlife markets that are high-risk, particularly in Southeast Asia and parts of Africa.

Significance of Gandhian principles
- **Principle of social equality** - Gandhi viewed that the **progress of a society should be determined by the state of the most vulnerable and the weakest ones**. Gandhi also emphasized that the majority should take the initiative to inspire and motivate minorities. For him, adjustments could be possible when more powerful people take the initiative rather than the other way around.
  - Therefore, in current times, learning from Gandhi, it is the **government, civil society, Non-Governmental Organizations (NGOs),and individuals' duty** to come forward and work for the poor and the needy people who have suffered exponentially in these pandemic times.
- **Principle of gender equality** - Gandhi opined that woman are not inferior to men. He strongly **advocated for their education and social positioning**. Thus, the Gandhian perspective still shows us the path for promoting gender equality through social positioning that we need today. If women had given a **better social positioning** as envisioned by Gandhi, the chances of gender-based violence that took place during the current pandemic would have reduced significantly.
- **Principle of Sarvodaya** - For him Sarvodaya represents **economic emancipation, social upliftment, and the moral resurrection of all**. To achieve this objective, he opted for an integrated view of life and disagreed in viewing an individual's life in different compartments. Simultaneously, Gandhi didn't consider the individual as a separate entity; instead, for him, an individual is a constituent unit of the society. He believed in the well-being of all, irrespective of rich and poor.
  - Thus, on one side, Sarvodaya tried to reorient the human mind, and on the other side, it talked of reconstructing human society as well.
  - For example, from **migrants' workers' perspective who faced the multi-layered vulnerabilities amid the pandemic**, Gandhi's efforts regarding them are quite significant even today. He tried to restructure the existing social structure by calling **laborers as "Mahajans," which was normally used as a title to show respect to elites**. This resulted in enhancing the pride of laborers and workers.
- **Principle of swadeshi and self-reliance** - Gandhi emphasized that everyone should become self-reliant. For this, he promoted **the use of local raw materials in the production**. Gandhi opined that the real India lives in villages. Therefore, he advocated the promotion of cotton industries and economic decentralization. Also, when the Prime minister of India is advocating the need to **become Atma Nirbhar and become Vocal for Local**, it is important to note that both of them were part and parcel of Gandhi's life. For example, self-reliance is important because from independence of the country till pre-COVID times, all the public health facilities in the country had only about 16,000 ventilators but in less than 12 months 36,433 'Make in India' ventilators have been supplied to all the public health facilities. All export restrictions on ventilators have now been removed and "Make in India" ventilators are being exported.
- **Principle of environmentalism** - Gandhi considered the **earth a living organism**. The Universal law views the entire universe as a single, interconnected, interrelated and interpenetrated system. He believed that the **universe was structured and informed by the cosmic spirit**, that all men, all life and indeed all creation were

one. Reducing the likelihood of another viral spill over sweeping the world requires a fundamental change in how we interact with nature. It requires:

- o **Minimizing human interface with wild animals and wild spaces.**
- o **Eliminating transmission points where the likelihood of viral spill over to humans is high, such as unhygienic commercial markets in wild animal meat and live animals.**
- o **Better monitoring of the legal trade in wildlife.**
- o **Diligently suppressing illegal and unsustainable trade in wildlife.**
- o **Conserving natural habitats.**

Conclusion

The Mahatma's greatness lies in his ability and willingness to learn. He not only influenced the world deeply, but allowed the world to equally influence and get inspired by his ideas. When Dr. Martin Luther King was asked, 'Where is Gandhi today?' he replied, "**Gandhi is inevitable. That if humanity is to progress, Gandhi is inescapable.** He lived, thought and acted, inspired by the vision of a humanity evolving towards a world of peace and harmony. We may ignore him only at our own risk. The life-story of Gandhi as a man is of the greatest relevance to every human being who aspires to rise above the average level and lead a meaningful life". Thus, **Mahatma's views and principles will continue to be the guiding light for overcoming various challenges facing the humanity**—from promoting sustainable development and self-reliance to combating terrorism.

Equality is everyone's work

Syllabus: GS 1: Role of Women

In news: Women-only chairs, such as a recently established chair at IIT Bombay, **do not address** the underlying causes of the **gender gap in science and technology.** Institutions must do more to address **gender discrimination.**

Gender-divide in science, technology, engineering, and mathematics (STEM) fields

- **Weak representation:** In Indian higher education, women account for approximately **half of all scientific PhDs.**
  - o However, granular statistics from physics, engineering, and the **industrial workforce reveal a significant gender disparity,** which grows even more at higher levels.
  - o Despite comparable scientific production, women scientists tended to be **at the bottom** of the institutional ladder.
- **Systemic genderisation manifests itself in a variety of ways –**
  - o It is still widely considered by both men and women that women are the primary caregivers, putting their **professional obligations** at risk.
  - o It is still acceptable to consider a woman scientist's parental or life-partner status when deciding whether or not to hire her or promote her to a leadership position, regardless of her qualifications.
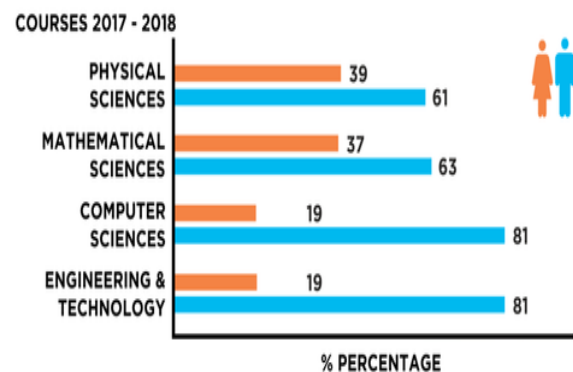
Fig. Subject enrolment percentage

Factors responsible for the gender gap in STEM fields:

- **Mentality:** One element contributing to this is the belief that **men are better at science** than girls. **Women** are still thought to be **less efficient** than men in STEM industries, which is a significant misunderstanding.
- **Fewer role models:** Role models are frequently an influence in professional decisions. In the STEM field, however, there are **fewer female role models** for young female students to emulate. Furthermore, these role models are hardly discussed in our textbooks.
- **Fewer women-alone science institutes:** India has just **11 per cent women-exclusive colleges,** the majority of which offer arts and commerce rather than science.

- **Patriarchy:** When it comes to pursuing a career in science, women are held back by society's **entrenched patriarchy**. When it comes to recruiting methods or giving fellowships and grants, patriarchal views exist. Women scientists face additional challenges due to a **male-dominated work environment** and **gender insensitivity.**
- **Economic factors:** Another major impediment to women seeking careers in science is a **lack of financial resources.** Even for families with more finances, cost factors influence whether or not to pursue a science degree, which is often more expensive than an arts or commerce degree.

   Viewed as a burden: Families expect daughters to marry and take on their husband's family's obligations. Many families believe that a daughter's education will help her in-laws more than her biological family. **Boys' education has long been seen differently than girls'** education in such families.
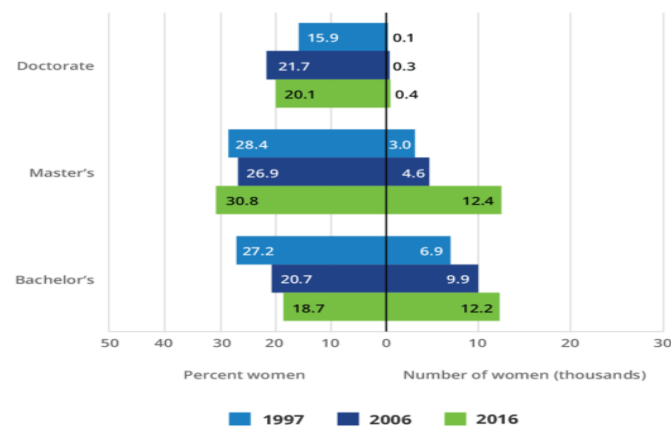
Fig. Number of women in higher education

Government of India initiatives for promoting women in science:
- **Women Scientist Scheme:** Women Scientist Scheme aims to provide opportunities to women scientists and technologists who desire **to return to mainstream science** after a break in their career due to social responsibilities.
- **Knowledge Involvement in Research Advancement through Nurturing (KIRAN): Department of Science & Tech.** restructured all women-specific programmes under one umbrella called KIRAN. The mandate of the KIRAN programme is **to bring gender parity** in S&T through gender mainstreaming.
- **Consolidation of university research for innovation and excellence in women universities' (CURIE):** KIRAN is involved in taking proactive measures through the component- CURIE, to develop state-of-the-art infrastructure in women universities to attract, train and retain promising girl students in S&T domains.
- **S&T for women:** Science and Technology for women programme were initiated in **1981–82** with the mandate **to promote gender equality and empower women** at the grass-root level with inputs of S&T through development, adaptation, adoption, transfer, demonstration of appropriate and successful technologies.
- **Women technology parks:** Women technology parks (WTPs) act as **a single-window hub** for convergence of diversified technologies, leading to the socio-economic development of women through capacity building and adoption of location-specific technologies.
- **Training and capacity building:** Several training programmes specifically for capacity building of women scientists working in various sectors covering multifarious themes are conducted in partnership with premier institutions including the **National Programme for Training of Women Scientists and Technologists** in the Government that provided an opportunity to over 1000 women scientists to upgrade their knowledge base and skills.

Measures to improve women participation in STEM fields:
- **Holistic approach:** Getting more girls and women into STEM education and careers requires holistic and integrated responses that reach across various sectors. Society has to understand that women as an important human resource and can play an important role in economic growth.
- **Private participation:** Companies can invest in building female talent in a multitude of ways, some of which include providing more internship opportunities for women, giving STEM scholarships to meritorious yet economically backward girls, and focusing on retaining women employees in the workforce to maintain better gender ratios.
- **Spread awareness:** Awareness needs to be spread among parents that pursuing science for girls is not as difficult as it is presumed. With family support and encouragement, girls can be high achievers in science.

- **Mentoring:** Along with family support, having teachers who mentor and encourage girls in STEM subjects can have more impact. Mentorship programmes for girls at secondary and senior secondary levels are the need of the hour.
- **Make education gender-sensitive:** There is a need to **promote positive stereotypes** of roles of women in textbooks. It is important that when girls come out of school, they have the dream to carve a path for themselves. Education for boys at the school level should be in the direction of making them gender-sensitive.
- **STEM scholarships to meritorious girls:** Scholarships to meritorious girls at school levels can provide a boost to girls to pursue science at the graduate and postgraduate levels and take up science as a career.
- **Addressing disparities should be everyone's job:** It's all too typical to think that hiring more women, inviting women to conferences and editing books, and even mentoring young women is only the responsibility of women. This is tantamount to the guys abdicating their responsibilities.

Conclusion
- Empowering women in science and technology and their full and equal participation is one of the core objectives mentioned in the Science and Technology Policy of the Govt. of India, 2003. Accordingly, there are several schemes, mostly in the form of scholarships, introduced by the government. However, evidence suggests that not much progress has been made.
- **Gender imbalance is the result of a broken meritocracy**, and everyone must change it, not just women's chairs. Further, there is a need to **invest in supporting infrastructure, incentivising institutions** to promote gender equity, transparency in decision making etc. to bridge the persisting gender imbalance in STEM field.

Lessons from an about-turn
Syllabus: GS 1: Population and associated issues,
In news: Recently, China announced that married couples may have up to three children, officially marking an end to the population control experiment that led to the draconian **one-child policy** in 1980.

Background:
China embarked upon its one-child policy in 1980, to control the country's growing population, which at the time was approaching one billion, would impede economic progress. From 2016, the Chinese government introduced two children policy. A policy change that did little to arrest the rapid fall in population growth.
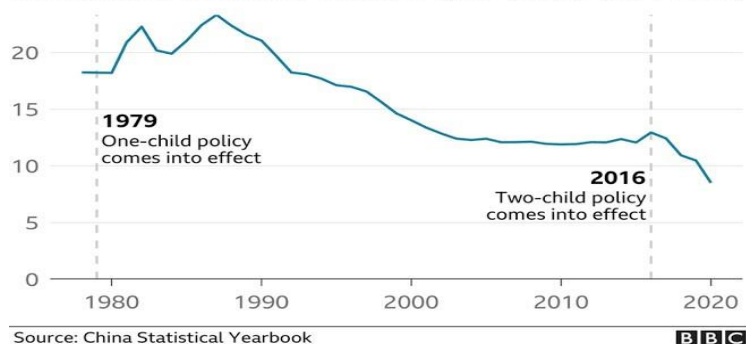
Fig. China's birth-rate

Impact of China's One-child Policy:
- **Drop in demographic dividend:** The programme has been criticised for causing China's population to age quicker than those of other countries, limiting the country's ability to grow.
- **China was unable to fully profit:** It is also stated that, as a result of the one-child policy, China will be unable to fully profit from its economic expansion and will require alternative sources of assistance.
- **Huge demographic change:** The 2020 Chinese census revealed a substantial increase in the share of the population over 60 years old, from 1.3 per cent in 2010 to 18.7 per cent in 2020.
  - The **United Nations** expects China's population to begin declining after 2030, but some experts say this could happen as early as in the next one or two years.

- **Discriminatory:** China's one-child policy has resulted in human rights violations such as sex-selective abortion and the abandonment of girls in a culture where parents yearned for a son but could only have one. A total of 400 million births were avoided as a result of the one-child policy.

Role of socioeconomic development in declining population:
- **Socioeconomic growth:** It is argued that socioeconomic growth, rather than population control programmes, was responsible for the majority of China's Total Fertility Rate (TFR) fall from 5.8 in 1970 to an estimated 1.6 in 2015.
    - This may be accurate, given the easing of the one-child policy to two children in 2016 did not stop the drop in fertility, and the TFR plummeted to 1.3 in 2020.
- **In East Asia, intensive parenting responsibilities have resulted in a decline:** in these countries, competition in education and the job market is fierce, incentivizing families to focus on a single child.

The government's role in reversing the drop in fertility:
- **Positive impact:** Many countries institute policies encouraging people to have more children.
    - They include economic advantages for parents (France), generous maternity and paternity leaves (Sweden, Japan), and increased childcare availability (Sweden, Japan) (Norway, Japan).
    - Family-friendly policies in nations like Sweden appear to have slowed the decline, with TFR hovering around 1.7 in Sweden.
- **No effect:** Despite a slew of policy interventions, Japan's TFR has remained stuck at around 1.4.
    - In nations like Spain (TFR=1.25), large cash incentives known as baby bonuses resulted in only a minor rise in fertility and were finally phased out.
    - Increasing child-rearing expenditures, pregnancy discrimination against women, and elder-care responsibilities put a time and financial strain on families who do not want to raise their fertility.

Lessons for India:
- **To assist families in planning convenient childbearing:** This includes moving beyond the previous language that limited maternity leave and election eligibility for a third child and beyond.
    - This is especially true for young, educated women who must balance the demands of intense parenting in a highly competitive school environment with the unfair load of home chores.
- **Encouraging male participation:** in housework, enhancing their capacity to balance work and family, and boosting family planning services will result in a climate in which our TFR will stabilise around 1.7.
- **Avoid coercive measures:** If stringent measures like a one-child policy are enforced, India's situation could be worse.
- **India should invest in underdeveloped states:**
    - **Different trends in various states:** The significant variation across states in terms of fertility, mortality, age structure, and the ageing phenomena already underway in some states may be seen in national-level population trends.
    - **Bihar, Uttar Pradesh, Jharkhand, Chhattisgarh, Rajasthan and Madhya Pradesh** are still in the early stages of demographic transition. Population growth in the north and central parts of India is far greater than that in south India. This shows regional variations with respect to population growth in India.

- o **United Nations Population Fund estimates** the demographic window will open for Uttar Pradesh, Bihar and other states that are the last to enter fertility transition. This suggests that workers of Bihar will be supporting the ageing population of Kerala in 20 years.

- o **Invest in the education and health of the workforce**, in States whose demographic window of opportunity is still more than a decade away. Enhancing their productivity will benefit everyone.

Still a fertile ground

At 3.2, Bihar has the highest total fertility rate among the states surveyed.

States with a total fertility rate higher than the replacement level of 2.1

2005-07   2015-17

Bihar: 4 / 3.2
Uttar Pradesh*: 4.1 / 3
Madhya Pradesh: 3.5 / 2.8
Jharkhand: 3.5 / 2.6
Rajasthan: 3.5 / 2.6
Chhattisgarh: 3.4 / 2.5
Assam: 2.8 / 2.3
Gujarat: 2.7 / 2.2
Haryana: 2.7 / 2.2

*Includes Uttarakhand

Source: censusindia.gov.in
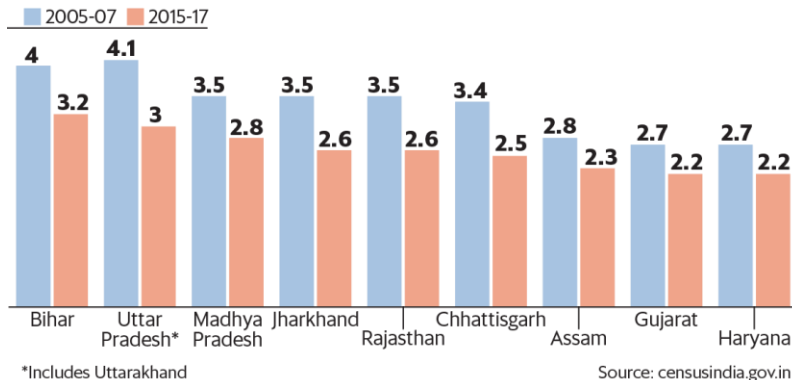
Fig: states with a high fertility rate

Measures to Control Population of India

Social Measures:

- **Minimum age of Marriage:** As fertility depends on the age of marriage. So the minimum age of marriage should be raised. In India minimum age for marriage is 21 years for men and 18 years for women has to be fixed by law. This law should be firmly implemented and people should also be made aware of this through publicity.

- **Raising the Status of Women**: There is still discrimination against women. They are still confined to household activities. So women should be given opportunities to develop socially and economically. Free education should be given to them.

- **Spread of Education**: The spread of education changes the outlook of people. The educated men prefer to delay marriage and adopt small family norms. Educated women are health conscious and avoid frequent pregnancies and thus help in lowering the birth rate.

- **Adoption**: Some parents do not have any child, despite costly medical treatment. They should adopt orphan children. It will be beneficial to orphan children and children couples.

- **Change in Social Outlook**: Social outlook of the people should change. Marriage should no longer be considered social binding. Issueless women should not be looked down upon.

- **Social Security:** More and more people should be covered under social security schemes. So that they do not depend upon others in the event of old age, sickness, unemployment etc. with these facilities they will have no desire for more children.

Economic Measures:

- **More employment opportunities:** raise the employment avenues in rural and urban areas. Efforts should be made to migrate unemployed persons from the rural side to the urban side.

- **Development of Agriculture and Industry**: If agriculture and industry are properly developed, a large number of people will get employment. When their income is increased they would improve their standard of living and adopt small family norms.

- **Standard of Living**: Improved standard of living acts as a deterrent to the large family norm. To maintain their higher standard of living people, prefer to have a small family.

Other Measures:

- **Late Marriage:** As far as possible, marriage should be solemnised at the age of 30 years. This will reduce the period of reproduction among the females bringing down the birth rate. The govt. has fixed the minimum marriage age at 21 yrs. for males and 18 yrs. for females.

- **Social awareness campaign:** Awareness among masses about contraceptives usage and family planning.

- o The Government launched **Mission Parivar Vikas** to promote the contraceptives usage and family planning in the high fertility districts. It needs to implement pan India.
  - o **Social influence or persuasion** to bring behavioural change. **E.g. During his Independence Day Speech in 2019, the Prime Minister appealed to the country that population control was a form of patriotism.**
- **Recreational Facilities**: The birth rate will likely fall if there are different recreational facilities like cinema; theatre, sports and dance etc. are available to the people.
- **Publicity**: The communication media like T.V., radio and newspaper are the good means to propagate the benefits of the planned family to the uneducated and illiterate persons especially in the rural and backward areas of the country.
- **Incentives**: The govt. can give various types of incentives to the people to adopt birth control measures. Monetary incentives and other facilities like leave and promotion can be extended to the working class which adopts small family norms.
- **Employment to Woman**: Women should be given the incentive to give services in different fields. Women are taking an active part in competitive examinations. As a result, their number in teaching, medical and banking etc. is increasing rapidly.

Conclusion
- Population control measures like China are not feasible in India. So, we need a long-term policy for a stable population consistent with the requirements of sustainable economic growth, social development, and environmental protection.

Recognising Caste-Based Violence Against Women
Syllabus: GS 1: Role of women and women's organization,
In news: In the recent Patan Jamal Vali v. State of Andhra Pradesh case, the Supreme Court found the accused guilty of rape under Section 376 of the Indian Penal Code.

Background:
- In the case of Patan Jamal Vali v. State of Andhra Pradesh, the accused was sentenced to life in prison by both the trial court and the High Court. He was convicted guilty of rape under the Indian Penal Code (IPC) Section 376 and the Prevention of Atrocities Act Section 3(2)(v).
  - o They both saw a link between the woman's caste, gender, and handicap, as she was a 22-year-old blind Dalit woman.
  - o The conviction under the Prevention of Atrocities Act (PoA) was, however, overturned. It demonstrates a lack of awareness about caste-based violence against women in India.
- The Supreme Court, on the other hand, disagreed. The accused was found guilty of rape under Section 376 of the PoA Act, but not under Section 3(2)(v) of the Act.

About SC/ST (Prevention of Atrocities) Act 1989 or PoA Act:
- It was enacted to protect the marginalized communities against discrimination and atrocities.
- It was amended in 2015 to specifically recognise more atrocities against Dalit and Adivasi women including sexual assault, Devadasi dedication, etc.
- **Section 3(2)(v)** imposes a punishment of life imprisonment on a non-SC/ST person who has committed an offence under IPC on SC/ST person. However,
  - o The offence should have a minimum punishment of 10 years and
  - o It should be committed against the victim on the ground that such a person is from an SC/ST community.
- The section was amended in 2015, to change the phrase "on the ground that such a person is a member of SC/ST" to **"knowing that such person** is a member of SC/ST".

More about the case:
- **Positive Aspect**: It acknowledged the intersectional prejudice that women endure because of their sex, caste, and disability. This acknowledgement would aid courts in taking into account the victim's various marginalizations.

- o When a woman's identity interacts with her caste, religion, handicap, and sexual orientation, intersectional discrimination occurs.
  - o The court also directed that judges, police officers, and prosecutors be trained to be sensitive in such circumstances, as she may face violence and discrimination on two or more grounds as a result of this.
- **Negative Aspect:** It, like many other earlier Supreme Court decisions, overturned the conviction under the PoA Act.
  - o **In Ashrafi v. State of Uttar Pradesh (2017**): the court concluded that the facts and documents on record did not demonstrate that the appellant committed rape because the victim belonged to the SC group.
  - o **In Khuman Singh v. State of Madhya Pradesh (2019**): the court upheld the victim's membership in the SC group. However, because there was no evidence that the offence was committed solely on that basis, the conviction was overturned.
  - o **In the current case**: the court found that there was insufficient evidence to determine whether the offence was committed because of caste, gender, or disability. As a result, under the PoA Act, the accused was acquitted.

Statistics or Facts on caste-based violence
- **Anti- Dalit violence**: When looking at anti-Dalit violence in India through time, the four northern states of Uttar Pradesh, Bihar, MP, and Rajasthan, also known as the "cow-belt" state, come out on top.
- **NCRB data:** According to the National Crime Records Bureau, there were 32,643 crimes against SCs in the country in 2010, with 7,522 of them occurring in Uttar Pradesh (23 per cent).
  - o In 2014, there were 47,064 offences reported, with UP accounting for 8,075. Despite a four-percentage-point drop in its national share to17%, it remained at the top of the list.
  - o UP's share fell because a crime against SCs surged in MP and Rajasthan. UP's share
  - o fell, because crime against SCs surged in MP and Rajasthan.

Why was Conviction under the PoA Act desired?
- **Reversals rate:** The recurring reversal of convictions under the PoA Act boosts claims that the law is being abused by marginalised groups.
- **Encouragement to dominant group:** The hight number of acquittals encourages dominant communities to perpetrate crimes against the SC/ST population. As seen in the recent Hathras rape case. 2020
- **Wasted opportunity:** The court's failure to use intersectionality to support the conviction under the PoA Act was a wated opportunity. It should have referred the case to a larger bench at the very least in order to gain clarity on the crucial componenets that establish conviction under the PoA Act.

The issues which promote sexual violence in rural India:
- **The primary reason:** Sexual Violence against women in rural -India is linked with caste, status and patriarchy.
- **Ancient social structure:** Many things have altered since ancient times, but rural India's fixation with the caste system has remained unchanged. While the upper castes fight to maintain the status quo, the lower castes have serviced the upper castes. Maintaining the existing quo becomes a tactic of violence.

- The **political mobilization of the lower caste** and the fight for rights by the lower caste against the dominant caste led to a tussle between the communities. Women are major victims of that kind of tussles. For example, In the Khairlanji rape and massacre, the upper castes retaliated brutally against the Bhotmanges, a Scheduled Caste family in the village, after the Bhotmanges filed a police complaint in relation to a land dispute.
- **Political pressure on police**: Due to administrative pressure to not file sexual offences under their jurisdiction, police officers tend to favour the dominant caste groups, as these cases make them targets for transfers and dismissals.
- **Women are seen as a sign of a family's, a community's, or a caste's honour in civilizations plagued by caste structure and patriarchy:** In many communities, sexual assault against women who oppose the status quo of land and caste becomes a tool for depriving them of their honour.
  - o Women's bodies undergo collateral harm during land disputes between two caste groups with significant power and influence differences.
- **Women as a tool:** Women are used as a tool to tactically employ Section 354 of the Indian Penal Code (outraging a woman's modesty) to punish the opposite side in confrontations among caste groups who are reasonably close together in the caste (and class) order.

CRIMES AGAINST SCHEDULED CASTES

State	No. of crimes	Rate
Rajasthan	6,794	55.6
Madhya Pradesh	5,300	46.7
Bihar	6,544	39.5
Gujarat	1,416	34.8
Telangana	1,690	31.1
Uttar Pradesh	11,829	28.6
Kerala	858	28.2
Odisha	1,886	26.2
Andhra Pradesh	2,071	24.5
Haryana	1,086	21.2
Jharkhand	651	16.3
Maharashtra	2,150	16.2
Karnataka	1,504	14.4
Himachal Pradesh	189	10.9
Chhattisgarh	341	10.4
Tamil Nadu	1,144	7.9
Uttarakhand	84	4.4
Delhi	76	2.7
Punjab	166	1.9
Assam	21	0.9
West Bengal	119	0.6
Jammu & Kashmir	2	0.2
India	**45,935**	**22.8**

Source: Crime in India, 2019, NCRB

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Fig. Crimes against Scheduled castes

Way forward:
- **Women empowerment:** In addition to police reform, caste discrimination, patriarchy, and land reform, we must put in place policies that promote women's empowerment in both letter and spirit.
  - o The phrase "women's empowerment" has now become a catchphrase for governmental and corporate entities. We need to demand more women in positions of power, such as reserved seats in MP, MLA, and MLC elections, as well as in the judiciary and corporate boards.
- **Holistic approach:** We need to have a holistic approach that addresses all of the concerns.

- **Reforming land ownership:** Land ownership reform must address delineation inconsistencies and a lack of proper recordkeeping. Illegal buildings on Abadi land and Banjar zameen should be addressed by sound policy including all parties.
- **Multiple efforts:** Caste abolition will be impossible to achieve without massive efforts in the educational, professional, and social integration of lower castes into all fields, including healthcare, judiciary, education, entertainment, and sports.
- **Providing sexual education:** We must endeavour to ensure that our youth receive high-quality sexual education and consent training to avoid sexual assault and to equalise and normalise healthy relationships between people of all genders and sexes.
- **Eliminating gender gap:** we must eliminate the gender gap in consumer technology's transformative and emancipatory power.

Conclusion:
- As stated in the recent **Parliamentary Standing Committee Report on Atrocities and Crimes against Women and Children**, the "high acquittal rate motivates and boosts the confidence of dominant and powerful communities for continued perpetration". **This judgment was a missed opportunity for the court to use intersectionality to uphold the conviction under the PoA Act or refer the matter to a larger bench if needed.**

Affection Via Coercion

Syllabus: GS-2- Indian constitution, government policies and intervention

In news: Supreme Court rejected a plea urging it to re-examine the constitutional validity of Section 124A of IPC, which deals with sedition.

What is Sedition?

- **Indian Penal Code defines sedition (Section 124A)** as an offence committed when any person brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India by: **words, either spoken or written, signs, visible representation, or otherwise.**
- **'Disaffection'** includes disloyalty and all feelings of enmity. However, comments without exciting or attempting to excite hatred, contempt or disaffection do not constitute an offence under this section.

Evolution of Sedition in India:

- **No mention in IPC:** The original Indian Penal Code, drafted by Lord Macaulay, did not have Section 124-A, and treason was limited to waging war.
- **Inclusion due to Wahabi movement:** In 1870, It was sir James Fitzjames Stephen who had it included in response to the Wahabi movement, which had called on Muslims to wage jihad against the colonial rule.
- **Gandhi views:** During his trial in 1922m Mahatma Gandhi reffered to Section 124-A as the "prince among the political provisions of the IPC designed to destroy citizen liberty."
  - He said that affection cannot be generated ro controleed by law. If you don't like someone or a system, you should be able to voice your displeasure to the utmost extent possible as long as it doesn't include, promote, or inspire violence.
- **The Fundamental Rights Sub-Committee:** led by Sardar Patel, sedition as a justifiable cause for restricting free expression on April 29, After receiving negative feedback he decided to drop it.

Supreme Court on sedition law

- **In the case of Kedar Nath vs the State of Bihar**: The legitimacy of sedition was questioned in the Supreme Court (1962). The law was affirmed by the Supreme Court because the state needed this power to protect itself.
  - **It included a crucial warning** that "a person might be tried for sedition only if his activities resulted in encouragement to violence or the intention or inclination to cause a public commotion or disrupt the public peace."
  - **Freedom of expressing**: The court ruled that "a citizen has the freedom to say or publish whatever he wants about the government, or its policies, as long as he does not incite others to violence against the government constituted by law or to cause public disorder."
  - The Supreme Court reaffirmed these required measures in September 2016, ruling that they should be observed by all agencies.
- In **Balwant Singh v. State of Punjab (1995)**, Supreme Court had clarified that merely shouting slogans does not amount to sedition.

National Crime Records Bureau (NCRB) data on Sedition Law:

- **Case of sedition in India:** According to NCRB data, the number of sedition accusations filed increased by 160 per cent from 2016 to2019, with only a 3.3 per cent conviction rate. Of the 96 people charged in 2019, only two could be convicted.
- **Increase in cases:** Since 2014, the NCRB has been collecting separate data on sedition cases. In 2014, there were 47 incidents of sedition, but by 2018, that number had risen to 70.

- **Cases since CAA:** According to the NCRB, 194 sedition cases have been filed since the CAA was passed on December 11, 2019. According to NCRB data, more charges of sedition have been filed after December 11 than in the previous three years combined.
- **Conviction rates:** However, the figures also show that despite the number of sedition cases filed has increased year after year (numbers for sedition cases began being reported in 2014), just four cases have resulted in a conviction in the last four years.

Viewpoint of Law Commission of India on Sedition
- In its **39th Report (1968)**, the Law Commission had rejected the idea of repealing the section.
- In its **42nd Report (1971),** the panel wanted the scope of the section to be expanded to cover the Constitution, the legislature and the judiciary, in addition to the government established by law.
- In **2018, the Law Commission of India published a consultation paper** recommending that it is time to rethink or repeal the Section 124A of the Indian Penal Code that deals with sedition.
- In the recent consultation paper on the sedition, the Law Commission has suggested **invoking 124A to only criminalize acts committed with the intention to disrupt public order** or to overthrow the Government with violence and illegal means.

Sedition laws in international jurisdiction:
- **In the UK:** The United Kingdom repealed the seditious libel statute in 2009 with the Coroners and Justice Act.
- **In Australia:** the term sedition was replaced with allusions to "urging violence offences" after the Australian Law Reform Commission (ALRC) recommended it.

Arguments in support of Section 124A:
- **Countering terrorist groups:** Section 124A of the IPC is useful in countering anti-national, separatist, and terrorist groups.
- **If contempt of court is punishable, then contempt of government** should be as well.
- **State stability**: It protects the elected government against violent and illegal attempts to overthrow it. The existence of a legally created government is a necessary condition for the state's stability.
    o Maoist insurgency has erupted in several areas across many states, and rebel groups are effectively running a parallel government. These organisations openly urge for a revolution to topple the state government.
    o In light of this, repealing Section 124A would be ill-advised simply because it has been incorrectly utilised in a few high-profile cases.

Arguments against Section 124A:
- **Hinders freedom of speech:** Section 124A is a colonial remnant that has no place in a democracy. It restricts the legitimate exercise of constitutionally protected freedoms of speech and expression.
- **Democratic concept**: In a healthy democracy, dissent and criticism of the government are necessary components for lively public discourse. They should not be designed to incite dissent. The right to question, criticise, and replace authorities is **central to the democratic concept.**
- **Britain removed it**: The British, who first used sedition to persecute Indians, have since repealed the statute in their own country. There is no reason why India should not eliminate this part.
- **Use of vague terms:** The terms employed under Section 124A, such as "disaffection," are ambiguous and open to multiple interpretations depending on the investigating officers' whims and fancies.
- **Section 124A is not required:** The IPC and the Unlawful Activities Prevention Act both have clauses that make it illegal to "disrupt public order" or "overthrow the government using violence and criminal methods." These are sufficient to safeguard national security.
- **Repressing political dissent:** The legislation against sedition is being utilised to repress political dissent. It has a broad and focused executive discretion built-in, allowing for blatant misuse.
- **Misuse of the term:** The International Covenant on Civil and Political Rights (ICCPR), which establishes internationally accepted norms for the protection of freedom of expression, was ratified by India in 1979. Misuse of the term "sedition" and arbitrary charges are incompatible with India's international obligations.

Way Forward:
- **Role of National Human Rights Commission:** The National Human Rights Commission is duty-bound to map all these misuses of the sedition law. It should make the Commissioner of Police of that State personally responsible.
- **Role of Judiciary:** The time has come for the judiciary to set up a search committee in every State, and a particular judge of the High Court has to suo moto check each sedition case being filed. if baseless, it must be quashed without putting the onus on the citizen to come to the court.
- **Role of Parliament:** A strong will of Parliament holds the key to get rid of this draconian colonial-era law that has been used only to suppress dissent.

Dissent, criticism of the government, and questioning politicians are essential to a democracy, have been labelled sedition by the police and a segment of the judiciary in the current political order. The terrorization of critics and protestors jeopardises democracy itself. The old colonial age sedition statute has been particularly useful for today's self-proclaimed nationalists in suppressing opposition.

The Disinformation Detox
Syllabus: GS-2- Fundamental rights, freedom of expression and speech in india
In news: Free expression in the digital era is possible, despite the danger of information disorder. A Supreme Court judgement and a report from the United Nations Human Rights Council suggest the way forward.

Two recent events on clampdown of free speech:
- India's Supreme Court (SC) recently warned against any repression of "free speech:
  o Now, the SC will exercise coercive jurisdiction if there is a crackdown on information on social media or harassment of those seeking/delivering help on any platform.
  o The Supreme Court upholds previous rulings enshrining the idea that abuse of governmental power should not be used to restrict freedom of speech and press on media platforms arbitrarily or unreasonably.
- Report by UNHRC: Irene Khan, Special Rapporteur of the United Nations Human Rights Council (UNHRC), has presented her report on "Disinformation and Freedom of Opinion and Expression."

About Disinformation
- **Disinformation:** According to the UNHRC study, **disinformation** causes **"information disorder,"** which "politically polarises individuals, prevents them from effectively exercising their human rights, and erodes their trust in governments and institutions."
- **Difference between Disinformation and Misinformation:** "**Disinformation**" is defined as "**false information** broadcast to cause substantial social harm."
  o **Misinformation,** on the other hand, is defined as "the **unintentional distribution** of erroneous information."
- **Cyber-attack and disinformation:** Cyber-attacks target computer systems, but misinformation takes advantage of **cognitive biases** and **logical fallacies.**
  o Viruses, botnets, and social engineering are all used in cyber-attacks. Deep fakes and inexpensive fakes are used in disinformation attacks to alter information.
  o Cyber-attacks and disinformation campaigns have always been seen as separate incidents. However, it is time to acknowledge that disinformation is a cyber-security concern.
- **The link between DDoS and disinformation:** Websites and online services are targeted by **Distributed Denial-of-Service (DDoS) assaults**. The goal is to overwhelm them with traffic that exceeds the server's or network's capacity. It obstructs the completion of genuine requests and causes service disruptions.
  o Similarly, a **well-coordinated disinformation effort** floods the public with false information, causing many to doubt the truth.
  o Disinformation is a **psychological technique** for persuading people to take action on a large scale.

- **Cognitive Hacking**: Cognitive hacking is a type of **cyber-attack** that aims to affect people's perceptions by **exploiting psychological flaws**. The attack's goal is to alter people's minds by exposing them to false information.
  - o **Examples of cognitive hacking**: misinformation caused false anxiety about US presidential election fraud in 2020.
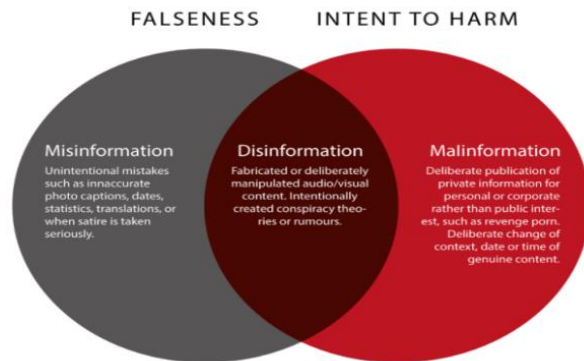
TYPES OF INFORMATION DISORDER

FALSENESS   INTENT TO HARM

Misinformation
Unintentional mistakes such as innaccurate photo captions, dates, statistics, translations, or when satire is taken seriously.

Disinformation
Fabricated or deliberately manipulated audio/visual content. Intentionally created conspiracy theories or rumours.

Malinformation
Deliberate publication of private information for personal or corporate rather than public interest, such as revenge porn. Deliberate change of context, date or time of genuine content.

Fig. Types of information disorder

What did the Oxford study find out?
- **Industrialized Disinformation**: According to a 2020 Oxford research titled "Industrialized Disinformation," 81 governments utilise social media to propagate political misinformation and disinformation.
  - o More than 3,17,000 profiles and pages were terminated from Facebook and Twitter.
- **Role of the cyber army**: The cyber army, on the other hand, serve as political party operatives and geopolitical influence tools.
- **Anti-democratic narratives**: Coronavirus disinformation aided authoritarian regimes such as Russia, China, and Iran in spreading anti-democratic narratives aimed at undermining public trust in health professionals.
- **Trolling**: Pro-party propaganda, post-insult campaigns, trolling, and devising plots that foster division and polarisation are all possible with cyber troops.
- **Result of online disinformation**: Offline behaviours of violent social assault on genuinely existing persons and communities, such as racial, gender, immigration, and sexual minorities, are also a result of online disinformation.

Challenges due to the disinformation:
- **Endangers the right to freedom of opinion and expression**: Puts the right to freedom of expression and opinion in jeopardy.
- **Manipulates the media ecosystem**: It "threatens not only the safety of journalists but also the media ecosystem in which they operate," forcing "legacy media to redirect valuable resources from reporting to dispelling and refuting lies."
- **Violent social excursion**: Online disinformation leads to offline violent social excursion against real people and communities, such as ethnic, gender, and sexual minorities.

Factors responsible for disinformation:
- **Used by separatist groups**: Terrorists and extremists frequently use "false news and narratives" as part of their propaganda to radicalise and recruit people.
- **Media literacy**: The general public has a low level of digital and media literacy.
- **Societal crisis**: Disinformation spreaders exacerbate an increasing number of people's disappointments and grievances, decades of economic suffering, market failures, political disenfranchisement, and social inequality.
  - o As a result, disinformation is not the "cause" of societal crises and the loss of public trust in institutions, but rather the "result."
- **Surveillance capitalism**: According to an Oxford research published in2020, "81 governments" utilise "social media to propagate algorithmic propaganda and disinformation about politics."
  - o Despite the recent removal of over 3,17,000 profiles and pages from Facebook and Twitter, "cyber armies" are frequently used as "agents" of political parties and as an instrument of geopolitical influence.

India's WhatsApp Addiction
More than 200 million Indians use the app and that number is growing fast

* Figures are estimates
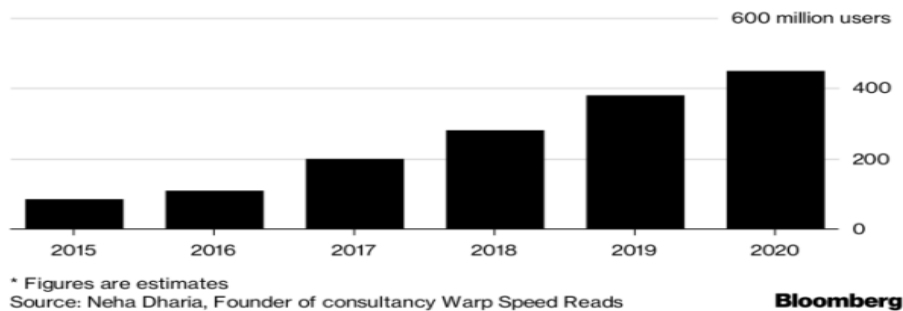Source: Neha Dharia, Founder of consultancy Warp Speed Reads   **Bloomberg**

Fig. India's Whatsapp addiction

Way Forward: Countermeasure for disinformation attacks

- **Disinformation defence systems:** Disinformation defence systems can be developed using cyber-security experience to mitigate disinformation hazards.
- **Deception strategies:** Examining deception methods is one way to do so. It aids in the understanding of the identities, activities, and behaviours of harmful actors in the cyber-security arena.
- **Layered Security**: Mechanisms like Defense-in-Depth can be employed to counteract disinformation threats. To filter out the bogus information, a set of proactive filters are required.
    o The first layer should be authentication at the moment of log in. If the deception is still being spread, humans and artificial intelligence can be utilised to detect it.
- **Information sharing structure:** To collect and communicate information regarding the identity, content, actions, and behaviours of disinformation actors, an information-sharing structure such as ISACs is required.
- **Educating users:** The tech industry, public society, and government should work together to educate customers about cyber-attacks.
- **Role of media:** The media should be used to raise awareness among the general public.
- **Using existing tactics:** The best method to combat this danger is to use existing cyber-security standards, norms, and tactics.

Defence in Depth (DID) is an approach to cyber-security. In it, a set of defensive mechanisms are layered to secure valuable data and information. If one system fails, other steps up immediately to thwart an attack. For example, firewall is the first layer, antivirus is the 2nd, Regular patching is the 3rd layer.

Information Sharing and Analysis Center (ISAC) – An industry-specific organization that collects and shares information on cyber threats to critical infrastructure.

One Nation One Election

Syllabus: GS- 2: Salient features of the Representation of People's Act.
In news: India should hold simultaneous elections (**One nation one election)** to tackle various challenges associated with frequent elections.

Background:

- It is interesting to note that the concept of simultaneous elections is in-fact not new to the country. Post adoption of the Constitution, the elections to Lok Sabha and all State Legislative Assemblies were held simultaneously between 1951 till 1967 when the cycle of synchronized elections got disrupted.

About One nation one election:

- It is the concept of holding Lok Sabha and State Assembly elections at the same time. The existing Indian election cycle can be restructured to achieve this.
- The following considerations are cited by supporters of simultaneous elections as a necessity:
    o elections are held in one go rather than staggered elections.
    o Simultaneous elections will save time, money, and labour in the election process.
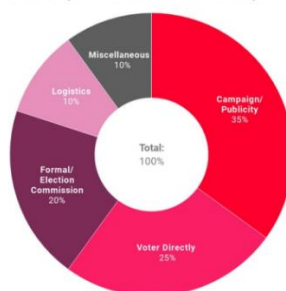
- **Higher voter turnout:** Election fatigue, at least among certain voters, can be exacerbated by frequent elections.

Challenges in holding one nation one election in India

- **Federal challenge:** simultaneous elections will lead to arbitrarily acting on states. (i.e. curtailing or extension of the term needed)
- **Viability challenge:** The first general elections held simultaneously to Lok Sabha and the Legislative Assemblies of the States in October 1951.
    o But in 1968, 1969 and 1970 the cycle got disrupted due to the premature dissolution of some Legislative Assemblies.
    o This is the reason that some experts believe that if a government loses its majority in the House, it eventually leads to fresh elections and disrupt one nation one election in India.
- **Dilution of Democratic accountability:** Having to face electorate once in every 5 years will diminish the accountability of politicians by decreasing interaction between citizens and politicians.
- **Undermines depth of Indian democracy:** Simultaneous elections would lead to larger national parties winning both State and Lok Sabha elections thereby marginalizing regional parties which often represent the interests of local social and economic groups. This may undermine the depth and breadth of Indian democracy.
- **Operational feasibility / Do-ability:** Few scholars believed that it is practically not feasible for the Election Commission India to conduct elections at such a massive scale considering logistics, security and manpower resource requirements.
- **Impact to voter behaviour:** National issues impacting electorate's behaviour for voting in State Assembly elections and vice versa. As a result, voter behaviour gets influenced and he/she may vote for the same political party, which in most cases may be larger national parties.
- **Challenges to match the terms of the Houses:** India must put in place enough measures to avoid mid-term dissolution and to protect the election cycle.
    o There must also be a strong political will. As a result of the single election, various Houses' tenure will be extended or reduced. Extension/curtailment can last up to three years in some areas.
- **EVM costs:** Expenses for electronic voting machines (EVMs) and the voter-verifiable paper audit trail (VVPAT) printer will be doubled. Because the Lok Sabha and Assembly elections are not held simultaneously, identical EVMs and VVPATs are used in both. The cost of EVMs and VVPATs alone will exceed Rs. 4,000 crores.
- **Need to avoid Local Body elections in one nation one election:** Elections to local bodies are held under the supervision, guidance, and control of the respective State Election Commissions. As a result, the elections for local government bodies are not governed by the National Election Commission. This is going to be a problem.
    o For example, the same polling officials may report to and receive instructions from two distinct authorities at the same time.
    o The State Election Commission in several states uses a specific set of polling locations for local elections. Having them vote at the same time will cause them unnecessary problems.
- **Different authority for challenging election petitions:** The election of local bodies can be challenged in the Court of District Judge and other lower courts. An election petition challenging a Parliamentary or Assembly election, on the other hand, must be filed with the High Court. As a result, scenarios may develop in which the identical issue is brought in two distinct Courts as a basis for challenging the election.

Where It Was Spent
Estimate of the various expenditure heads in Lok Sabha 2019 polls.

Miscellaneous 10%
Logistics 10%
Campaign/ Publicity 35%
Formal/ Election Commission 20%
Voter Directly 25%
Total: 100%

Source: Centre For Media Studies

Bloomberg | *Quint*

Fig. expenditure in Lok sabha elections

Benefits

- **No additional labour:** The Lok Sabha and Legislative Assembly polling stations are the same. Furthermore, there is no need to double-up on work when it comes to preparing the electoral rolls for the two elections. As a result, there is no additional labour or expense required for these reasons.
    - Additionally, all logistical plans, exercises, training, and deployment of the Central Police Force can cater to both elections during their conduct.
    - All of this would save money on transportation, lodging, storage, training, and remuneration, among other things.
- **Reduced cost on campaigns**: Simultaneous elections will reduce political party campaign costs. Following one nation's election, political parties will hold public rallies, roadshows, smaller roadside gatherings, print and electronic media adverts for both elections. As a result, all of these will greatly minimise campaign costs.
- **Improved governance**: If a single-nation election is held, the MCC limits will only be in effect for a limited time. As a result, India's overall governance will improve.
- **Boost in voter turnout**: Election fatigue can develop as a result of frequent elections, at least among some voters. As a result, a simultaneous nationwide election could boost voter turnout, as a once-in-five-year event is certain to elicit greater enthusiasm from all demographics. The election's credibility will be enhanced even further by increased voter turnout.

The Model Code of Conduct

- The Model code of Conduct (MCC) will take effect on the day the Election Commission announces the election. The MCC forbids the use of government resources for electoral purposes, such as publishing cash grants, new initiatives.
- The MCC applies to both the Union and State governments in the Lok Sabha election. During a state's Assembly elections, the Union administration is prohibited from introducing new plans that are exclusive to that state.

Challenges in frequent Elections

- **Unprecedented and unquantifiable expenditures to hold elections:** For example, the assembly election in Bihar cost almost Rs 3000 crore in 2015.
- **Elections have an impact on the delivery of critical services:**
    - Teachers, for example, missed teaching weeks due to electoral duty.
    - Almost every other department's officers and vehicles are "requisitioned" for election duties.
    - Elections disrupt important public services such as road development, welfare plan oversight, and so on.
- **Imposition of the Model Code of Conduct**: This will influence policy governance and implementation.
- **Crucial meetings get delayed:** During a campaign, a politician's ability to do good for the public is decreased. This is because the majority of the labour 16-18 hours each day on demonstrations and campaigning. As a result, crucial meetings and decisions are pushed back.
- **Cost of security**: There is also a significant cost associated with repeatedly deploying security forces during elections.

Way forward

- **Revisiting constitutional and statutory provisions:** Article 83(2) for Lok Sabha and Article 172 (1) for State Assembly provides for a normal term of five years. Both Lok Sabha and State Assemblies do not have a fixed term and can be dissolved earlier than their normal terms.
    - Section 14 and 15 of the Representation of People Act 1951 empowers the Election Commission of India to notify the elections to both the Lok Sabha and State Legislative Assemblies six months prior to the end of the normal terms of the Houses.
- **Department related Parliamentary Standing Committee** in its 79th report has recommended an alternative and practicable method of holding simultaneous elections.
    - The Committee has recommended a two-phase approach i.e. holding of elections of some Legislative Assemblies at midterm of Lok Sabha and remaining with the end of tenure of Lok Sabha

- **International legal procedures**: With the present anti-defection rule, it is nearly difficult for a ruling party or coalition to lose support.
- **Combining a "no-confidence motion" with a "vote of confidence" in a different government:** A leader will be named as part of this vote of confidence. The alternate government will lead the government for the remainder of the term after passing both of them (no-confidence motion and vote of confidence). This aids in the preservation of the fixed term.

The Good Cop Manifesto
Syllabus: GS 2: Important aspects of governance, transparency and accountability.
Context: How IPS officers can increase credibility and deliver a sense of security.

Challenges of a cop:
- **To meet a variety of citizen expectations**: Citizens expect the police to keep crime under control so they can breathe easily and sleep soundly. They want the cops to be as fearless as a tiger, as fast as lightning, as altruistic as Mother Teresa and as subservient as slaves, all at the same time.
- **Dual control**: dual command structure over the district police means that control and direction over the police vests with the SP (head of district police) and district magistrate (executive).
- **Political influence:** Political affiliations play a large role in departmental inquiries and punishment proceedings of officials. Nowadays, politicians are influencing the way in which performance appraisals and awards are given to officers and staff.
- **Social media and entertainment**: Hypercritical media and uncontrolled message-sharing platforms have created an echo chamber in which even well-intentioned people demand immediate and harsh retaliation for acts of violence.
- **Limited and complex resource management:** A unit's organisational personality is fragmented due to many entry levels. At the top, people are well-educated and articulate, but as they progress down the line, they become less so, resulting in a communication breakdown.
- **Increased cyber-crime**: Economic crimes and cyber-crime have increased dramatically in recent years.

Fig. role of cops

Need and significance of police reforms:
- **Low police-to-population ratio:** The global average police-to-population ratio is 270 to 100,000, whereas in India it is 120. India's citizens are the least protected on the planet, with significantly fewer police officers, many of whom are ill-equipped and assigned to protect political figures.
- **Corruption:** The vigilance department conducted 55 per cent more investigations into its men in 2016. In 2015, a Delhi Police poll indicated that 34% of cops were dishonest.
- **Changing nature of crime:** Recent social and technological advances, fuelled by the internet and new social media, are rapidly altering the character, intensity, and reach of crime, resulting in lawlessness and global terrorism.
- **Police misconduct:** The public's trust in the police has been eroded due to a lack of efficient accounting systems and periodic performance reviews. Citizens' trust in police has been eroded as a result of a recent mob attack on officers.
- **Inadequate technological capabilities**: One of the causes for India's low conviction rates is the poor quality of police investigations. Police officers lack the contemporary technology tools required to conduct thorough investigations.

- **Unsympathetic:** Women and downtrodden castes have a low representation, making the police insensitive to these sections. Increasing violence as a result of caste tensions, especially the recent Dalit revolt, and farmer distress across the country.
- **Overburdened:** In addition to preserving law and order, police officers do a variety of other duties such as traffic management, disaster response, and encroachment removal. These additional responsibilities cause the police force to be overburdened, which has a severe impact on their efficiency and performance.
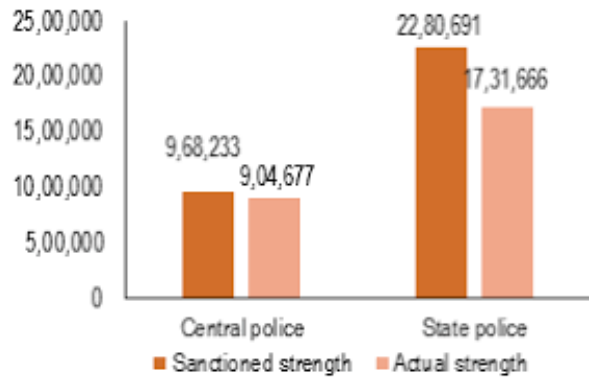

Fig. Number of personnel in the centre and state forces

Various committees on police reforms:

Gore committee, 1971-73	The main thrust of the Committee's recommendations was towards enlarging the content of police training from law and order and crime prevention to greater sensitivity and understanding of human behaviour.
National police commission, 1977	Its major recommendations were centred on the problem of insulating the police from illegitimate political and bureaucratic interference.
Padmanabhaiah Committee	In 2000, the Padmanabhaiah Committee on Police Reforms was constituted to study, inter alia, recruitment procedures for the police force, training, duties and responsibilities, police officers' behaviour, police investigations and prosecution.
Soli Sorabjee Committee	The Police Act Drafting Committee (PADC or Soli Sorabjee Committee) drafted a new model police bill to replace the colonial 1861 Police Act.
2nd ARC	The ARC recommended separation of crime investigation from other police functions i.e. maintenance of law and order, the establishment of state police boards, welfare and grievances redressal mechanisms for police personnel.
Supreme Court guidelines	The 2006 verdict of the Supreme Court in the **Prakash Singh vs Union of India case** was the landmark in the fight for police reforms in India. The Court provide the following directives to kick-start reforms: **Constitute a State Security Commission** (SSC) to ensure that the state government does not exercise unwarranted influence or pressure on the police. **Separate the investigation and law and order functions** of the police. There was a recommendation of setting up **State Police Complaints Authority (SPCA)** to give a platform where common people aggrieved by police action could approach. Ensure that the Director General of Police is appointed through a merit-based, transparent process, and secures a minimum tenure of 2 years. Set up a **Police Establishment Board (PEB)** to decide transfers, postings, promotions and other service-related matters of police. Set up a **Police Complaints Authority (PCA)** at the state level to inquire into public complaints against police officers above the rank of Deputy Superintendent of Police. Set up a **National Security Commission (NSC)** at the union level to prepare a panel for selection and placement of Chiefs of the Central Police Organizations (CPO) with a minimum tenure of two years.

NITI Aayog	**State-level legislative reforms:** States should be encouraged, with fiscal incentives, to introduce 'The Model Police Act of 2015' as it modernizes the mandate of the police. **Administrative and operational reform:** A Task Force must be created under the MHA to identify **non-core functions** that can be outsourced. The states should be encouraged to ensure that the **representation of women** in the police force is increased. India should launch a common nationwide contact for attending to the urgent security needs of the citizens. It also suggested moving **police as well as public order** to the **Concurrent List.**

Way forward:
- **Improving the Criminal Justice System**: Our criminal justice system, as well as our grassroots policing institutions, must be strengthened to equip our police for current and future problems, as well as to improve their investigative capabilities and emergency response infrastructure.
- **Increasing the focus of lower-level officers:** better training, better pay and allowances, and the creation of a system that promotes initiative and constructive action rather than negative behaviour can all help to improve the overall performance of lower-level officers.
- **Independent Complaints Authority**: An independent complaints authority is needed to investigate accusations of police misconduct. To better investigate crimes, states should have specialised investigation units inside their police forces.
- **Gender-sensitive police:** Police officers should be more gender-sensitive. A 33 per cent reserve for women in the police force should be implemented.
- **Political will:** A larger political will is required to address the need for police reform. Some states, such as Kerala and Telangana, have attempted to accelerate the process.
- **Modern technologies:** Local concerns such as crime prevention and investigation, as well as preserving peace and order, are generally handled by state police agencies. To ensure prompt justice, police forces must use modern technologies such as forensics and data analysis.

Build Healthcare System from Bottom
Syllabus: GS 2: Issues relating to development and management of Social Sector relating to Health.
In news: India's deteriorating basic healthcare system is forcing people into poverty and has been neglected by the government.

Importance of primary health care
- **Detecting diseases early:** Primary health interventions help detect diseases early, well before complications set in. It reduces the need for expensive secondary and tertiary healthcare.
  - Of the total current expenditure on health classified by healthcare functions, preventive care accounts for 6.7 per cent, while spending on curing people account for 51% of the total expenditure on health.
  - Developed nations such as the UK, Australia, Canada, Netherlands and Sweden spend a large share of their federal healthcare budgets on primary care.
- **Non-communicable diseases:** India has been spending a huge amount on the cure of non-communicable diseases, which can only be won through a primary health system that ensures that chronic diseases are not only detected early but also that preventive action is taken to ensure improved lifestyles.
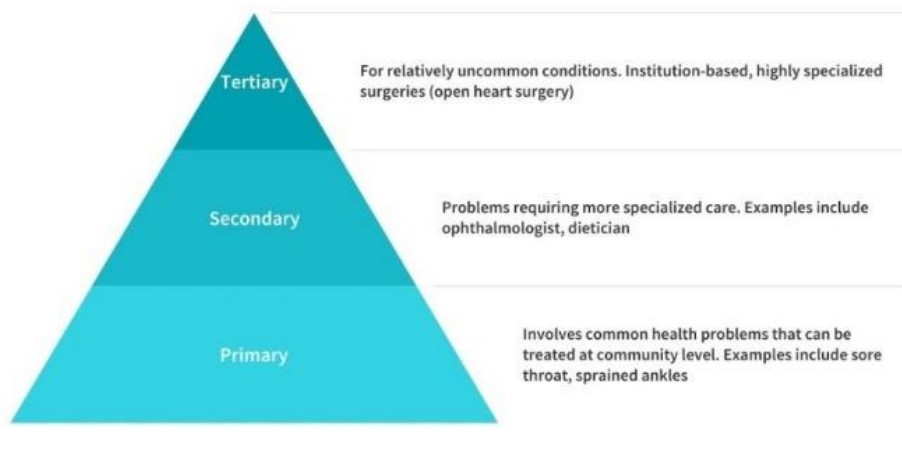
Healthcare pyramid

Tertiary — For relatively uncommon conditions. Institution-based, highly specialized surgeries (open heart surgery)

Secondary — Problems requiring more specialized care. Examples include ophthalmologist, dietician

Primary — Involves common health problems that can be treated at community level. Examples include sore throat, sprained ankles

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Fig. healthcare pyramid

Problems of PHC in India

- **Poverty:**
  - **Post-Covid care** and **hospitalisation costs** are pushing the middle class into poverty, particularly when incomes are lost due to lockdowns.
  - According to the Central Government's estimates, 2.6 crore people infected with Covid-19 have been recovered thus far across the country. If 80% of these patients recovered at home and **each spent Rs10,000, the total spending would be Rs 19,700 crore.**
  - **According to studies published by the Pew Research Center** in the United States, India's poor, defined as those earning less than $2 per day, were estimated to number around 59 million before the pandemic.
  - India's poor are now predicted to number 134 million, more than double the previous estimate.
- **Farmer suicides:** Farmer suicides accounted for around 40% of all suicides, with the farmer being pushed to the brink by the costs of a family member's chronic illness.
- **Limited services:** Although the Primary Health Care system exists in India its scope is limited to pregnancy care, limited childcare and certain services related to national health programmes.
- **Conversion in Health and Wellness centres:** The government announced the conversion of 150,000 sub-centres into HWCs in the 2017 budget and also in National Health policy 2017, only a few thousand such centres have been sanctioned.
- **Funding:** Funding for overall health care is very low, leaving an insufficient amount that requires to be spent on Primary Health Care.
- **Human resources for health:**
  - **Staff shortage:** PHCs are also suffering from inadequate skilled and trained manpower. There is a shortfall of about 9,000 doctors in about 25,000 PHCs in the country.
  - **Training and manpower problems:** PHCs are suffering from poor management skills, lack of appropriate training and supportive supervision for health workers.
- **Poor facilities:** Primary level facilities need complete building reconstruction, as they operate out of rented apartments and thatched accommodations, and lack basic facilities such as toilets, drinking water and electricity.
- **Overburdened PHCs:** India has a large network of primary health centres (PHCs), each supposed to serve a population of 25,000. But in states such as Madhya Pradesh, Bihar and Jharkhand, however, a PHC covers as many as 45,000, 49,000 and 76,000 people.

Reasons for the absence of primary healthcare:

- **Over-promised policy ambitions:** India's policymakers were absolutely and hopelessly captivated by the prospect of accomplishing something heroic.

- Policymakers preferred to focus on physical infrastructure for large hospitals, as well as the establishment of tertiary care facilities and research centres.
- Secondary and tertiary care services, on the other hand, necessitate a significant investment, a long-term commitment to research, and can be easily given.
- While basic healthcare necessitates a large number of practitioners and low capital expenditure, it also necessitates a social link between the practitioner and the patient, which the state lacks.
- **Less involvement of private doctors:** Due to the public health establishment's purported "moral hazard" against private doctors' involvement.
  - Until today, their numbers were insufficient to meet all of the people's needs. The majority of them are graduates of for-profit medical schools.
  - The public health system has been so suspicious of the private sector that the Rashtriya Swasthya Bima Yojana, which preceded Ayushman Bharat, was handled by the Ministry of Labour for many years rather than the Ministry of Health and Family Welfare.

Government measures
- **National health policy:** The National Health Policy (NHP) 2017 advocated allocating resources of up to two-thirds of the total health budget to Primary Health care.
- **Wellness centres:** Last year, an outlay of ₹_1,200 crore was proposed to transform 1.5 lakh sub-health centres into health and wellness centres(HWC) by 2022, which would provide a wider range of primary care services than existing sub and primary health centres (PHC).
  - Each HWC is to be operated by a well-trained, mid-level health provider (nurse practitioner or community health officer) who will be supported by a team of front line health workers to provide an expanded package of services.

Best National and International Practices
- **Polyclinic:** Cuba has one of the most effective primary healthcare systems in the world, the system provides a community-based polyclinic, each polyclinic serves a catchment area hosting between 30,000 and 60,000 people.
  - Polyclinic facility is further extended by neighbourhood-based family doctor-and-nurse offices closer to the communities, one such office for 1,000-2,000 people. Prevention is the cornerstone of these services, complemented by community analysis and treatment.
- **Citizen's participation:** In a cross-country analysis of governance systems and health outcomes, countries with higher fiscal decentralisation (Citizen's participation) were found to have consistently lower infant mortality rates than those with more centralised forms.
  - In West Bengal and Kerala in India – states in which primary healthcare is co-managed by panchayats – health outcomes are better than in most other states at similar levels of economic development.
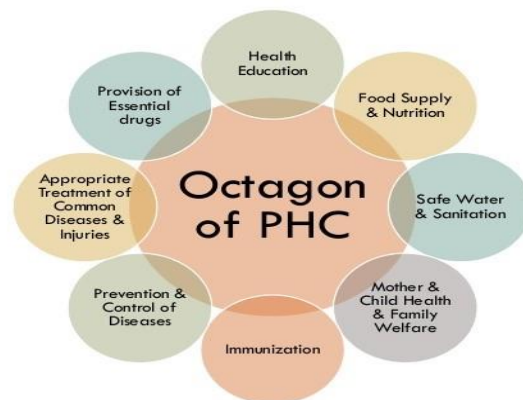

Fig. octagon of PHC

Way forward
- **Convert sub-health centres faster:** Government must fasten the process of conversion of Sub-health centres into health and wellness centres so that it can achieve its target by 2022-23.
- **Digitize records:** Digitization of family records and information from the community to the facility level, to provide better treatment.

- **Training the nurses:** Nursing staff must be prepared to provide treatment to the patient in case the doctor is absent from the clinic. Adequate orientation and training must be provided to nursing staff for that.
- **Increasing allocation:** Government must increase budgetary allocations to healthcare to at least 3-4% of GDP so that public expenditure on healthcare is at least 70% of total health expenditure.
- **Research programme**: Undertake a well-funded research programme to find the best pathways for effective and context-specific scaling up of primary health care.
- **Building protocols for private engagement:** The government should develop protocols that are used for everyday illnesses and tie the private primary healthcare doctor to these protocols.
- **Developing protocols for private engagement:** The government should create procedures for common ailments and relate these protocols to the private primary healthcare doctor.
  - Once protocols are established, they serve as the foundation for interactions between health seekers and providers, leaving little space for extortion.
  - Maharashtra has had such protocols in place since 2013. They were crucial in ensuring that patients were not duped and received high-quality care.
- **Create a health-care system that is built from the ground up** A system based on the general practitioner, who is based in and devoted to a community and is required to treat patients according to government-specified norms.

Rural health care needs fixing, and now

Syllabus: GS-2: Issues Relating to Development and Management of Social Sector/Services relating to Health
In news: To meet the health needs of the 65 per cent of the population who live in rural regions, rural health infrastructure (SHCs, PHCs, and CHCs) must be modernised.

Inadequate and poor health infrastructure in the rural areas
- **Shortage of resources:** According to information presented in the Rajya Sabha by the Union Minister of State for Health and Family Welfare specialists, and other services in India are in short supply.
- **Inadequate primary health care centres (PHCs):** India has just 25,743 primary health care centres (PHCs), despite the estimated need for 29,337 in rural India. (There is a 3,594-unit shortage.)
- **Inadequate community health centres (CHCs):** While rural India needs 7,322 CHCs, it only possesses 5,624 community health facilities (CHCs).
- **Inadequate specialists in CHCs:** According to CHC data, there is an overall shortage of 81.8 per cent specialists as compared to the need for current CHCs.
- **Inadequate infrastructure:** According to the Human Development Report 2020, India has eight hospital beds per 10,000 people, but China has 40 beds per 10,000 people.
- **Lack of health literature and health awareness**: as well as poor maternity and child health services and occupational dangers are all factors that contribute to the basic nature of rural health problems.
- **Preventable infections**: Infections including communicable, parasitic, and respiratory disorders account for the bulk of rural deaths, which are preventable. In rural locations, infectious diseases dominate the morbidity pattern (40 per cent rural: 23.5 per cent urban).
  - **Waterborne infections**, account for roughly 80% of illness in India, resulting in an Indian becoming every fourth person to die from such diseases worldwide.
  - Waterborne infections are responsible for 1.5 million fatalities and 73 million lost workdays per year.
- **Pregnancy-related illnesses and deaths are more common in rural locations due to the following factors:**
  - **Early marriage**: 72.5 per cent of women aged 25–49 married before the age of 18, despite an 80% literacy rate.
  - **Pregnancy at a young age:** 75% of married women had their first child before the age of 18.
  - Until late in their pregnancy, all women are required to perform **strenuous physical labour**. A conventional **birth attendant,** who is **untrained**, performs 51% of deliveries at home.
  - Only 28% of pregnant women had a prenatal check-up before they were 16 weeks pregnant.
  - Only 67 per cent of pregnant women received full prenatal care (minimum of three check-ups).
  - Only 30% of women had postnatal check-ups
- **Agricultural and environmental-related injuries and diseases**: such as mechanical accidents, pesticide poisoning, snake, dog, and insect bites, zoonotic diseases, skin and respiratory diseases; oral health problems;

female, geriatric, and adolescent socio-psychological problems; and diseases caused by addictions, are all quite common in rural areas.

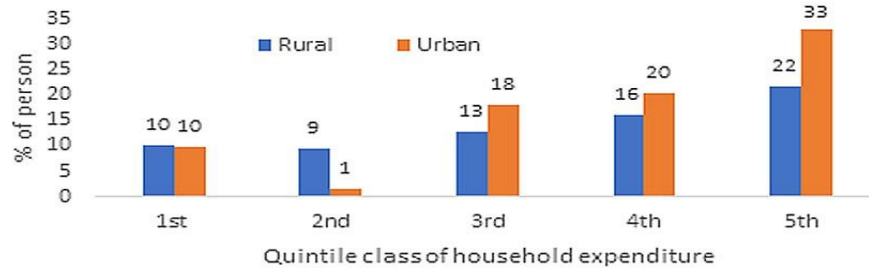Fig: % of persons having health expenditure coverage

Fig. health expenditure coverage comparison

Three groups of infections are widespread in rural areas:
- **Diseases in gastrointestinal system:** Diarrhoea, amoebiasis, typhoid fever, infectious hepatitis, worm infestations, and poliomyelitis are all diseases that are transported through the gastrointestinal system.
- **Airborne diseases:** measles, tuberculosis (TB), whooping cough, and pneumonia are spread via the air by coughing, sneezing, or even breathing.
- **Malaria, filariasis, and kala-azar are among the more challenging infections to treat.** These are frequently the outcome of growth. Irrigation brings malaria and filariasis, pesticide use has resulted in a malaria-resistant strain, and ditches, gutters, and culverts excavated during road building and cattle ranch development, for example, are snail and mosquito breeding grounds.
    - o Malaria kills about 1000 people in India every year, with an estimated 2.3 million episodes. Microfilaria is carried by 45 million people, 19 million of them are active cases, and 500 million people are at risk of contracting the disease.

Significance of rural health infrastructure in the effective delivery of health Services
- **Population in villages:** Information indicates that out of India's 139 million people, at least 91 million live in 649,481 villages. The rural area was the hardest hit by Covid-19's second wave.
- **Non-communicable diseases:** NCDs such as hypertension, diabetes, cancer, and cardiovascular disease are also on the rise in rural India. According to the WHO, NCDs account for roughly 5.87 million (60 per cent) of all deaths in India.
    - o As a result, there is a pressing need to concentrate on bolstering the existing rural health infrastructure.
- **Prioritising healthcare:** Making the development of the rural health network (SHCs, PHCs, and CHCs) a priority will aid in the efficient delivery of health services to rural residents.
- **Rural health networks will aid in the primary treatment of diseases:** Furthermore, it will enable us to save a significant amount of money and resources currently spent on tertiary health care.
    - o **For example,** if our Sub-HCs perform well, PHCs will be under less stress. If the PHCs work well, the pressure on the CHCs and other components will be negligible.
- **It will allow individuals to participate in improving the efficiency of rural health care:**
    - o In Haryana, for example, Swasthya Kalyan Samitis, or SKSs, were established for all CHCs and PHCs.
    - o It aided health practitioners in collaborating with a variety of rural community organisations (panchayats, Gram Sabhas, notified area committees, municipal entities, and non-governmental organisations) to reduce the pandemic's negative impact on rural life.

Way forward to improve rural health infrastructure:
- **Health data:** Access to health data for people in rural areas should be available to rural health networks. It will allow them to spot those who are more likely to end up in secondary or tertiary care.

- **PM Atmanirbhar Swasth Bharat Scheme:** It aspires to strengthen basic, secondary, and tertiary care health systems even in the country's last miles. Creating a modern ecology in the country for research, testing, and treatment.
- **Health camps must be held regularly**: It will assist us in identifying those who are at risk of contracting tuberculosis, hypertension, diabetes, or any other disease as a result of their socio-economic circumstances.
- **A community health centre (CHC)**: referral centre should be upgraded with efficient and adequate health infrastructure. A single CHC, for example, should contain at least 30 beds for indoor patients, as well as an operating room, labour room, X-ray equipment, pathological laboratory, and standby generators.
- **WHO's Universal Health Coverage**: According to the World Health Organization, achieving Universal Health Coverage requires maintaining **accessibility, affordability, and quality.** The government should try to meet regular and complete healthcare needs in rural areas following the WHO's Universal Health Coverage premise.

Covid 19 and Higher education

Syllabus - GS 2 - Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

In News - Recently experts have warned that public universities could be damaged **"beyond repair"** in the fallout from India's COVID-19 catastrophe.

Background
- Universities and college campuses are places where students live and study in close proximity to each other. They are also buzzing cultural hubs where students are brought together from nations around the world.
- Recently, the foundations of this unique ecosystem have been impacted significantly by the rapid spread of the coronavirus (Covid-19) outbreak, creating uncertainty regarding the implications for higher education.

Negative Impact of Covid 19 on higher education
- **Issues with use of e-learning technique** - The e-learning technique has s**everal limitations such as lack of knowledge of tutors on using e-learning** tools and **limited bandwidth**. Importantly **many students without having internet facility** are struggling a lot to attend e-learning. Also, student's passive role in the classroom became one of the significant reasons for ineffective online teaching and learning process.
  o For example, the survey performed by n**ational sample survey office (NSSO) during 2017-18 indicates that only 15% of Indian rural households could access internet** but in Indian urban households it is 42%.
- **Increased unemployment in country** - Recently passed out students are struggling to c**ontinue their career due to the delay in completing regular and arrear examinations** as well as a delay in getting degree certificates. So, this pandemic situation would **increase the unemployment in the country**. Also, new graduates are struggling to join in the desired corporate because of the fear about the Covid-19 pandemic.
- **Departures from conventional teaching** - The teachers have been affected significantly by **losing their continuity in conventional teaching activity** and they have been forced to adopt virtual modality. The **quality of education** is being impacted as there is no substitute **to face-to-face learning.**
- **Effect on International admissions** – Covid 19 also has affected the worldwide transportation. This also will affect the **international admissions in higher educations**. So, the effect of Covid-19 will create a difficult situation for entering a dream career and it will create anxiety and uncertainty among young students and graduates.
- **Delayed internationalization of India's higher education system** - The latest COVID-19 wave has interrupted what was going to be the implementation of the ambitious **National Education Policy,** which outlined major expansion and internationalization of India's higher education system. The future **attractiveness of Indian cities as education hubs**, both for students from India and abroad, would be affected.

Positive impact of covid 19
- **Increased use of e-learning techniques** -After the Covid-19, higher education system majorly moved to **conduct classes and examinations through e-learning and digital technology,** respectively.

- **E-learning provides for accessibility**- E-learning encourages teaching and learning remotely, and it can improve the **retention of knowledge with less time.**
- **Increased investment for e-learning** -The **global investment for e-learning** during the year 2019 was US$18.66 billion and it is forecasted that around US$350 billion would be required for **virtual learning tools by 2025**.
- **Affordability due to e-learning** -Some studies describe that the **e-learning technology provides 25 % to 60 % more materials** by comparing with the conventional classroom learning as well as r**educes 40 % to 60 % of time**.
- **Innovation of digital resources based on demand** -It encourages the use of different d**igital resources, digital learning management systems (DLMS), mobile phone applications, offline functionality systems, massive open online course (MOOC) platforms, self-directed learning contents, collaborative platforms for live-video conference,** tools for creation digital leaning contents, and other digital learning solutions listed out by UNESCO.

Issues

- **Failure of UGC recommendations** - UGC has recommended measures for higher education institutions to fight COVID 19. It recommended, inter alia, **constituting a task force and setting up helplines, roping in counsellors and mentors for providing mental health support and enabling the wellbeing of all stakeholders, and creating a team of well-informed volunteers trained in life skills**, including the NCC and the NSS. However, it **did not mention the means and mechanisms for training the workforce** for these specialised tasks. In the absence of that, such measures can't be implemented.
- **Shortage of funding for public institutions** - The abysmal **financial state of higher education institutes**, especially State-run universities, combined with lack of will on the part of State governments already overwhelmed by the vaccination drive, has exacerbated the situation.

Solutions

- **Implementing recommendations of UGC** - It recommended that **State governments should estimate and prepare for the required procurement of essentials, such as disinfectants and facemasks**, in each of their districts and zones in consultation with higher education institutes. Universities and colleges were instructed to ensure a sufficient supply of these items to students, faculty and staff.
    - o It also suggested that higher education institutes setup **on campus facilities for the isolation of symptomatic persons and for quarantining** of those who were in contact with infected persons. Alternatively, they could tie up with State run hospitals or other approved premises, as suggested by local authorities, for providing essentials to quarantined or isolated persons.
- **Revised methods for evaluation** - The examination subsystem requires more attention. The **final examination requires proctoring**. EdTech solutions are developing various AI-based solutions for better proctoring in online examinations. But no such solution is as close to as physical examinations. This allows r**evisiting the evaluation system based on the final written examination.** Assessment of students in a class should be a regular process. It will also help in better learning.
- **Transforming students** - Students now need to prepare themselves for a world that is **not just demanding newer skillsets but a completely new mindset** — a mindset that allows them to acquire newer knowledge in different forms, applying it in situations where they've never been tested before, and ensuring that their **knowledge and skills** are socially useful and financially rewarding.
- **Flexibility in education institutions** - One important change which is to be a permanent feature of the Indian education system is **flexibility**. Most of the courses offered by any **Indian University have a single entry and single exit opportunity**. Pandemic told us about uncertainty in life. Therefore, the higher education system needs to be more flexible, w**here multiple entries and multiple exit opportunities** are possible.
- **Eradicating the digital divide** - In order to strengthen the backbone of e-learning the government should deploy the **necessary infrastructure at remote places** where people don't have access to internet; thereby fixing the internet gap which would facilitate students to learn digitally.
- **Serving the marginalised people** - Every state government in India should come up with **creative strategies to make the education accessible** to each and every student especially for those who come from **marginalised, underprivileged and remote sections of the society**.

Digital initiatives that have proved to be very effective during the COVID crisis:

- **E-Gyankosh**- e-**Gyankosh is a national repository** for storing the digital learning resources developed by Open and Distance Learning Institutions in the country.
- **Gyandhara** – **Gyandhara is an internet audio counselling service** offered by IGNOU. Students can listen to the live discussions by the teachers and experts on the topic of the day and interact with them through telephone, email and also chat mode.
- **Swayam** – It is a programme initiated by Government of India and designed to achieve the t**hree cardinal principles of Education Policy viz., access, equity and quality**. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged.

Conclusion

The **purpose of education** is to enable oneself to better the world in which they live. Technology today has become need of an hour. It is difficult to imagine colleges and university education **without the use of digital resources** which has provided different educational and academic information. However, it is also necessary to understand that it shouldn't **reinforce structures of power and inequality.** It should not create digital divide between rich and poor. **Online mode of learning can be the best mode of teaching** if it can be accessed by all the sections of the society however it can pose threat if certain section of society cannot avail this facility and thus exclusion. It is therefore important to take **cognizance of online education and plan for interventions that will prioritize greater inclusivity, connectivity and equitability.** It is important that colleges and University understands the experience and issues of the students and prepare according the further and design the study pattern in such a way that all students benefit.

Breaking the cycle of child labour
Syllabus: GS-2- Government policies and interventions, issues related to children
In news: The Pandemic has amplified the contributing factors for Child labour in India.

What is child labour?

As per ILO, **child labour** is defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to their physical and mental development.
- It refers to **work that is mentally, physically, socially or morally dangerous** and harmful to children. Or the work schedule that interferes with their ability to attend regular school or work that affects in any manner their ability to focus during school or experience healthy childhood.
- Children or adolescents who participate in work that does not affect their health and personal development or interfere with their schooling is not child labour. Such work includes activities such as helping their parents at home, assisting family or earning pocket money outside school hours and on holidays.

Traditional reasons of Child Labour
- **Dependence of some industries:** Some of the industries exclusively depend on child labour due to their short stature such as mica mining, bangle-making, beedi-making etc.
- **Ineffective enforcement of laws and schemes** due to limited administrative capacity. For instance, inadequate tracking and rehabilitation of children post rescue.
- **Poverty:** In low-income families, parents and guardians often view their children as "source of income".
- **Poor quality of public education** in India limits future employment opportunities for children, forcing them to engage in menial labour at a young age.
- **Informal economy:** India's vast informal economy makes it easier for contractors and middlemen to exploit children.
- **Rural workforce:** According to Census 2011 reports, India has 10.1 million working children in the age group of 5-14 years. Out of this, 8.1 million are in rural areas, mainly engaged as cultivators (26%) and agricultural labourers (32.9%).

Impact of pandemic on child labour
- **Rising poverty:** Impact of the crisis on employment opportunities, supply chains in agriculture sector etc will suppress incomes for industrial labour and farmers. Research has indicated that one percentage point increase in poverty leads to about 0.7 percent percentage point increase in child labour.
- **Increasing informality:** post-Pandemic, capital-intensive small enterprises are likely to decline which may result into increase in self-employment producing work especially conducive to child involvement.

- **Dilution of labour laws by some states** to mitigate economic effects of COVID-19: Many employers may exploit these changes to **hire "cost-effective" child labour** as they have lower bargaining power and are mostly unable to press for their rights.
- **Factors that may drive children away from schools and into child labour:**
  - **Declining remittances** from migrant workers due to lockdown measures and business closures;
  - **Credit crisis and reduction in household income** and savings;
  - **Discontinuation of mid-day meals;**

What are the factors that need to be addressed to eliminate Child labour in India?
- **Increase in 'out of school' children:** UNESCO estimates that around 38.1 million children are "out of school".
- **Economic crisis:** The economic contraction and lockdowns lead to income reductions for enterprises and workers, many of them in the informal economy.
- **Socioeconomic Challenges:** caused by the return of migrant workers has compounded the problem.
- **Issues in the Indian Economy:** India experienced slower economic growth and rising unemployment even before the pandemic.
- **'Digital divide':** Lack of access to the internet, Digital devices have forced challenges in distant learning and online learning for children. According to the NSS Report titled 'Household Social Consumption on Education in India' only 24% of Indian households had access to an Internet facility.
- **Other reasons:** increased economic insecurity, lack of social protection and reduced household income, children from poor households Children are being pushed into child labour.

Child Labour: Global estimates 2020 report

Overall gist: The report warns that progress to end child labor has stalled for the first time in 20 years. It has reversed the previous downward trend that saw it fall by 94 million between 2000 and 2016.

Key Findings
- **The number of children** in child labor has risen to 160 million worldwide – an increase of 8.4 million children in the last four years.
- **Covid-19 Impact:** Globally, 9 million additional children are at risk of being pushed into child labor by the end of 2022 as a result of the pandemic.
- **Sectors:** The agriculture sector accounts for 70% of children in child labour (112 million) followed by 20% in services (31.4 million) and 10% in industry (16.5 million).

The amount of Kids working in each factory

- Hand-Knotted Carpet — 400,000
- Gemstone Polishing — 100,000
- Brassware — 45,000
- Footwear — 25,000
- Silk — 5,000
- Matches and Fireworks — 100,000
- Glass — 50,000

- **Age Group:** Nearly 28% of children aged 5 to 11 years and 35% of children aged 12 to 14 years in child labour are out of school.
- **Gender:** Child labour is more prevalent among boys than girls at every age. But the gap narrows when household chores performed for at least 21 hours per week are taken into account.
- **Rural vs Urban:** The prevalence of child labour in rural areas (14%) is close to three times higher than in urban areas (5%)
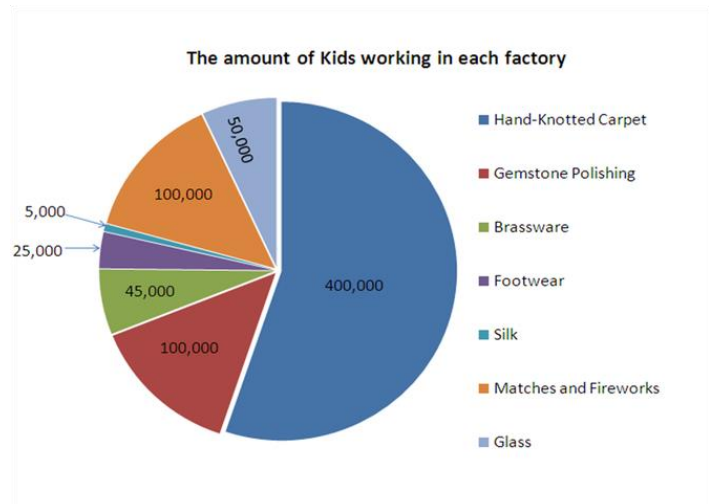
Recommendations of child labour: Global estimates 2020 report
- **Adequate social protection** for all, including universal child benefits.
- **Increased spending** on quality education and getting all children back into school- including children who were out of school before COVID-19
- **Promotion of decent work** for adults, so families don't have to resort to children helping to generate family income.
- **An end to harmful gender norms** and discrimination that influence child labour.
- **Investment in child protection** systems, agricultural development, rural public services, infrastructure and livelihoods.

Fig. non-farm jobs for children

Initiatives taken by government
- **Right policymaking and programmatic interventions**
  - **Child labour in India decreased in the decade 2001 to 2011** owing to the right combination of policy and programmatic interventions.
  - Policy interventions such as (MGNREGA) 2005, the Right to Education Act 2009, and the Mid-Day Meal Scheme have helped working Children in receiving formal education.
  - **By Ratifying International Labour Organization Convention**s Nos. 138 and 182 in 2017, the Indian government further demonstrated its commitment to eliminate child labour.
- **About PENCIL Portal:**
  - **PENCIL Portal** stands for Platform for **Effective Enforcement for No Child Labour**.
  - **Purpose:** It is an electronic platform that aims at achieving the target of a child labour free society. For this aim, it coordinates actions of the Centre, State, District, Governments, civil society, and the public.
  - **Nodal Ministry:** The portal is administered by the Ministry of Labour & Employment.
  - **Components:** PENCIL Portal has five components- Child Tracking System, Complaint Corner, State Government, National Child Labour Project, and Convergence.
  - **Significance:** The portal has been launched for the effective implementation of the Child Labour Act and the National Child Labour Project (NCLP) Scheme.
  - **NCLP aims to eliminate all forms of child labour** and rehabilitate them through education in Special Training Centres.
- **About CHILDLINE 1098:**
  - **CHILDLINE 1098** is a free, emergency phone service for children in need of aid and assistance.
  - **The helpline responds** to the emergency needs of children. Further, it also links them to relevant services for their long-term care and rehabilitation.

- o **The helpline is managed** and monitored by the CHILDLINE India Foundation (CIF).
- **About World Day Against Child Labour: World Day Against Child Labour** is observed on 12 June every year. **It was started in 2002** by International Labour Organization (ILO) to raise awareness and prevent child labour.
  - o **Theme: "**Act now: End child labour".
- **About CHILDLINE India Foundation (CIF): CHILDLINE India Foundation (CIF)** is the nodal agency of the Union Ministry of Women and Child Development.
  - o **Purpose:** It acts as the parent organisation for setting up, managing, and monitoring the child-line 1098 service all over the country.
  - o **It is also the sole agency** responsible for monitoring childline service delivery and finance, training, research, and documentation, creating awareness, advocacy as well as resource generation for the service.

Way forward

- **Strategic collaborations:** Strategic partnerships and collaborations involving government, employers, trade unions, community-based organizations, and child labour families can reduce the menace of child labour in India.
- **Reinforcing the commitment to the cause:** The government needs to reinforce its commitment to protecting children from unacceptable forms of work. It will ensure achieving Sustainable Development Goal 8.7. (Ending child labour in all its forms by 2025)
- **UN declaration:** UN's declaration of 2021 as the International Year for the Elimination of Child Labour will ensure that the world countries will take swift actions against Child Labour.
- **Policymaking**: India needs to address the causative factors for Child labour through effective Policymaking and programmatic interventions. It should aim at the elimination of child labour in all its forms by 2025.
  - o Effective Policymaking and programmatic interventions can save children from the misery of Child labour.

G7 countries (Group of 7) - Issues and Prospects

Syllabus: GS-2 -Important International institutions, agencies and fora - their Structure, Mandate
In news: The meeting of G7 countries was held in Cornwall, England. The meeting was supposed to draw out a framework that is inclusive and resilient.

More on news:

- **Cornwall consensus:** The new **Cornwall Consensus** should be able to overcome the gaps of the current **Washington consensus.** The Washington consensus **supports** the notion of **free market and globalization.**
  - o However, it failed to prevent the occurrence of the **2008-09 financial crisis**, raised **inequalities within the countries,** and **neglected** focus on **social goods** like education and health.
- **New consensus**: Due to Washington consensus, the countries are facing **greater challenges** in coping up with the **Covid-19 pandemic**. Thus, relying on the Washington consensus is not feasible for developed as well as developing countries.
  - o Therefore, it is now imperative that grouping creates a new consensus that can **reflect the demands of the 21st century.**

About G7

- **An informal forum:** The G7, originally G8, was set up in **1975 as an informal forum**. It brought together the leaders of the world's **leading industrial nations**. It was established to **tackle the oil crisis of 1973** created by the OPEC oil embargo.
- **Members:** The member states are **Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.** The EU is not a member but is usually invited to the summits. The member countries represent **40% of the global GDP** and **10% of the world's population.**
- **G8 in the past: From1998 to 2014,** it was the G8 that included Russia. However, **post the Crimean crisis, Russia** was expelled from the group. In 2014, Russia carried out armed aggression on Ukraine and ceded the Crimean Peninsula from it.

Current Scenario of G7 countries

- **Hybrid participation:** The recent summit of G7 was held in Cornwall, England from **11-13th June** as the UK is holding the G7 presidency for 2021. It will witness a hybrid of **physical and virtual participation.**
- **Guest countries**: **India, Australia, South Korea, and South Africa** are invited as guest countries for the Summit.
- **Focus areas:** The theme of this year's summit is '**Build Back Better'** and the focus was on 4 priority areas:
    o Leading the **global recovery** from coronavirus while strengthening resilience against future pandemics;
    o Promoting **future prosperity** by championing free and fair trade;
    o Tackling **climate change** and preserving the **planet's biodiversity;**
    o Championing **shared values** and **open societies**
- **Communiqué:** At the end of the summit, the UK published a document called a communiqué which will outline what has been agreed upon during the meeting.

Fig. current G7 and possible G20 members

Outcome of recently concluded summit
- **Covid-19 vaccine doses:** The G7 leaders agreed to provide an additional 870 million vaccine doses to the poor countries, in addition to the US's 250 million and the UK's 100 million already pledged. Over the next year, deliveries will be made.
- **There will be no more coal:** G7 leaders agreed to phase out coal-fired power generation in their own countries and to stop supporting new coal-fired power facilities in developing countries.
    o The leaders agreed to provide $2.8 billion to underdeveloped countries to assist them in making the transition to greener fuels.
- **America's participation:** "America is back at the table," claimed US Vice President Joe Biden, attempting to put some of the political squabbles between his predecessor and the international community behind him.
- **Targeted are tech giants and shell companies:** The meeting reached an agreement on steps to deter multinational corporations from moving profits to low-tax jurisdictions. Leaders agreed to levy a corporation tax rate of at least 15%.
    o **Global Minimum Corporate Tax: A consensus** should be formed over the **Global Minimum Corporate Tax** by the head of states. The consensus of **15%** Global Minimum Corporate Tax was developed in a recently concluded Cornwall meeting of G7 country's finance ministers.

Significance of G7 countries
- **Purpose:** The major purpose of the G-7 is to **discuss** and sometimes **act** to help resolve **global problems** with a special **focus on economic issues.**
    o In response to mounting concern over money laundering, the **Financial Action Task Force** was established by the G-7 group in Paris in **1989**. It became more relevant in the 1980s when it started discussing issues related to **foreign policy and security** as well.

- **Responses to challenges**: G7 leaders have met to formulate **common responses** to **challenges** encompassing counterterrorism, development, education, health, human rights, and climate change.
  o In **1997**, the G7 countries agreed to provide **$300 million** to **contain the effects of the reactor meltdown in Chernobyl**.
  o **In 2002,** members decided to launch a coordinated response to fight the threat of AIDS, Tuberculosis, and Malaria. This led to the formation of the **Global Fund**, an innovative financing mechanism that has disbursed more than $45 billion in aid.
  o **In 2015,** members launched the **Global Apollo Program**. It was designed to tackle climate change through clean energy research and development.
    ▪ The programme calls **for developed nations** to commit to spending **0.02% of their GDP** on tackling climate change from 2015 to 2025. This would mean spending $150 billion over 10 years.
- **Importance:** It is considered to be the **second most important grouping** after the UNSC which can effectively deal with global issues.

Issues with G7 countries
- **Disregards the interest of smaller nations:** Several countries and individuals still perceive the G7 as **an exclusive**, **closed group** that blatantly exercises its power over other nations. The collective power of the group is so huge that it creates a disproportionate impact on other nations.
  o For instance, the **1985 Plaza Accords** had major ramifications for global currency markets as they brutally impacted exchange rates of various currencies.
- **Shortcomings of Washington Consensus:** The grouping has mainly focused on realising the Washington consensus. **It is a collective term used for 10 economic policy prescriptions to promote a free-market economy.** It was promoted for crisis-wracked developing countries. However:
  o It puts **ruthless condition**s on the **global South** countries that **undermine** their **economic sovereignty.**
  o It **ignores environmental** and **social** considerations for economic growth. The little focus placed on global goods like health enhanced the **vulnerability of smaller nations** against the pandemic.
  o It enhanced the **economic inequality** within and among the countries.
  o **East Asian crisis** in the late 1990s and the **Global recession of 2008–09** were further reminders that increased deregulation would only result in financial instability.
- **A tussle between the members**: The **US relationship** with Germany and Canada **deteriorated** during the Trump era.
  o He criticised Germany for its **trade surplus** and threatened to block the US import of German cars.
  o U.S **refused to endorse the official G7 statement** of the 2018 summit as Trump got offended by the Canadian PM's comments during a news conference.
- **Failed in tackling Global problems**: G7 accounts for **59% of historical CO2 emissions** and pledged to phase out fossil fuels. Yet there is **no visible progress** of the same, and they currently account for twice the CO2 emission than African continent.
  o In terms of terrorism, **ISIS** has thousands of fighters from G7 countries.
  o **West Asian crises** like in Syria, Yemen, Iraq led to a migrant exodus towards the European nations. G7 nations **failed in addressing this migrant crisis,** leading to deaths and inhumane statelessness for millions.
- **Out-dated Group**: The group **no longer reflects** the modern-day geopolitical realities. Many **incumbent** members like Italy and Canada **possess less economic and political power** in comparison to **non-members** like **India and China.**
- **Non-Binding nature**: Unlike other bodies such as NATO, the G7 has **no legal existence or a permanent secretariat**. Further, the meeting commitments are non-binding.
  o All decisions and commitments made at G7 meetings **need to be ratified independently** by governing bodies of member states.

Suggestions
- **Expansion required**: The grouping needs expansion **to reflect the current geopolitical reality.** It can be converted to **G 11** with the inclusion of **India, Australia, South Korea, and Russia.**

- **Vaccinate the world**: The G7 countries should **expeditiously meet their commitment** to supply one billion doses of Covid-19 vaccines to poor and middle-income countries. The doses would be supplied as part of a campaign to **"vaccinate the world"** by the end of 2022.
- **A permanent secretariat:** The grouping requires a **G7 charter** and **a permanent secretariat** for the organisation. It must realise that **global interdependence** cannot be managed without global public goods.
- **India's participation**: India should actively participate in the talks, especially the ones related to global vaccine delivery as it is both a major manufacturer and consumer of vaccines.

The new principles and policies of the group should **reflect a global outlook** rather than merely focusing on the myopic interests of the developed world. This would result in **prudent tackling of global problems** like climate change and the Covid-19 pandemic.

GENERAL STUDIES PAPER -III

Two cheers
Syllabus: GS 3- Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.
In news: India received a higher score in the most recent SDG Index, although there are concerns about procedural tampering.

Background:
- In the case of Legislative Assembly also, in the event of 'no-confidence motion', it should be mandatory to simultaneously move a 'confidence motion' for formation of an alternative government.
- The SDG India Index 2020–21 is also live on an online dashboard, which has cross-sectoral relevance across policy, civil society, business, and academia.

Introduction
- **Increased SDG score:** According to the NITI Aayog's SDG India Index 2020-21, India's efforts to achieve Sustainable Development Goals (SDGs) linked to sustainable energy, urban development, and health has helped it to increase its overall SDG score from 60 in 2019 to 66 in 2021.
- **Key factor:** The SDGs on poverty and hunger eradication, as well as initiatives relating to the availability of affordable, clean energy, have shown progress in several States and Union Territories. A key factor has been the push to improve household access to power and clean cooking fuel.
- **Deterioration in some areas:** According to the Index, there has been a significant deterioration in the areas of industry, innovation, and infrastructure. Lockdowns enforced by nations to combat the COVID-19 outbreak exacerbated the situation.
- **State-wise Performance:** The performance of the southern-western states compared to the north-central and eastern states on resolute socioeconomic and governance gaps was striking. If not remedied, these will result in federal lawsuits

SDG India Index
- **Major contributor:** India is a major contributor to the United Nations Sustainable Development Agenda 2030, and the Sustainable Development Goals match much of India's National Development Agenda (SDGs).
  - The world's progress toward achieving the SDGs is primarily dependent on India's success. However, the SDGs may be difficult to grasp and understand, with 17 goals, 169 targets, and 306 national indicators, and defining and assessing progress may be tough.
- **SDG India:** The SDG India Index was created by NITI Aayog and covers 13 of the 17 SDGs (leaving out Goals 12, 13, 14 and 17). The Index measures the success of all States and Union Territories (UTs) on a set of 62 National Indicators, which track the outcomes of the Government of India's actions and schemes.

- **Aim:** The SDG India Index aims to present a comprehensive picture of the country's social, economic, and environmental situation, as well as those of its States and UTs.
- **Broad metric:** SDG India Index is a broad metric that governments, corporations, civil society, and the general public can all understand and apply.
- **Overall assessment**: It was created to provide an overall assessment of all Indian states and union territories, as well as to assist leaders and change makers in evaluating their performance on social, economic, and environmental aspects.
    - Its goal is to track India's and its states' progress toward the 2030 SDGs.

Fig. SDG India index

Overall Results and Findings

Fig. states in different categories

- **Increase by 6 points:** The country's overall SDG score increased by 6 points from 2019 to 2020–21, rising from 60 to 66. Goals 6 (Clean Water and Sanitation) and 7 (Affordable and Clean Energy) have excellent country-wide performance, with composite Goal ratings of 83 and92, respectively, driving this great stride toward reaching the targets.
- **Top Fast-Moving States (Score-Wise):** Mizoram, Haryana, and Uttarakhand are the top gainers in2020–21, with gains of12, 10 and 8 points, respectively, over 2019.
    - **While ten States/UTs were classified as Front-Runners in 2019** (scores in the range of 65–99, including both), twelve more States/UTs will be in this group in 2020–21.
    - Gujarat, Maharashtra, Mizoram, Punjab, Haryana, Tripura, Delhi, Lakshadweep, Andaman and Nicobar Islands, Jammu and Kashmir, and Ladakh were all promoted to the Front-Runners category (scores between 65 and 99, including both).
    - **The SDG India Index report** includes a part dedicated to each of the country's 36 states and union territories.
    - **These State and UT profiles will be particularly valuable** for policymakers, academics, and the general public in analysing success across all Goals on the 115 indicators.

GOAL-WISE TOP STATES/UTs

Goal 1: No Poverty
Tamil Nadu, Delhi

Goal 2: Zero Hunger
Kerala, Chandigarh

Goal 3: Good Health and Well-being
Gujarat, Delhi

Goal 4: Quality Education
Kerala, Chandigarh

Goal 5: Gender Equality
Chhattisgarh, Andaman and Nicobar Islands

Goal 6: Clean Water and Sanitation
Goa, Lakshadweep

Goal 7: Affordable and Clean Energy
Andhra Pradesh, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Mizoram, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telangana, Uttarakhand, Uttar Pradesh, Andaman and Nicobar Islands, Chandigarh, Delhi, Jammu and Kashmir, Ladakh

Goal 8: Decent Work and Economic Growth
Himachal Pradesh, Chandigarh

Goal 9: Industry, Innovation and Infrastructure
Gujarat, Delhi

Goal 10: Reduced Inequality
Meghalaya, Chandigarh

Goal 11: Sustainable Cities and Communities
Punjab, Chandigarh

Goal 12: Responsible Consumption and Production
Tripura, Jammu and Kashmir, Ladakh

Goal 13: Climate Action
Odisha, Andaman and Nicobar Islands

Goal 14: Life Below Water
Odisha

Goal 15: Life on Land
Arunachal Pradesh, Chandigarh

Goal 16: Peace, Justice and Strong Institutions
Uttarakhand, Puducherry

Fig. goal wise top states

The methodological changes in the index:

- **Less comparison**: Key methodological adjustments to the Index have resulted in fewer comparisons between years on some SDGs.
- **Indicators changed**: Although the SDG on inequality has improved since 2019, the indicators used to calculate the score have changed.
- **Economic metrics de-emphasized:** The 2020-21 Index de-emphasizes numerous economic metrics in favour of social equality indicators.
  - **For example,** women's and marginalised community representation in administrations and local governance institutions, as well as crimes against SC/ST communities.

- **Gini coefficient eliminated**: They eliminated the well-known Gini coefficient and the growth rate for household expenditures per capita in 40% of rural and urban populations. The impact of the pandemic on wealth disparity may have been overlooked by the SDG score on inequality.
  - This could be a big oversight, given a UN assessment of COVID-19's impact predicted increased inequality in the South Asian region.
  - Methodological concerns with measuring other SDGs have previously been identified. The lack of adequate measurement of economic disparity, on the other hand, is a clear oversight.
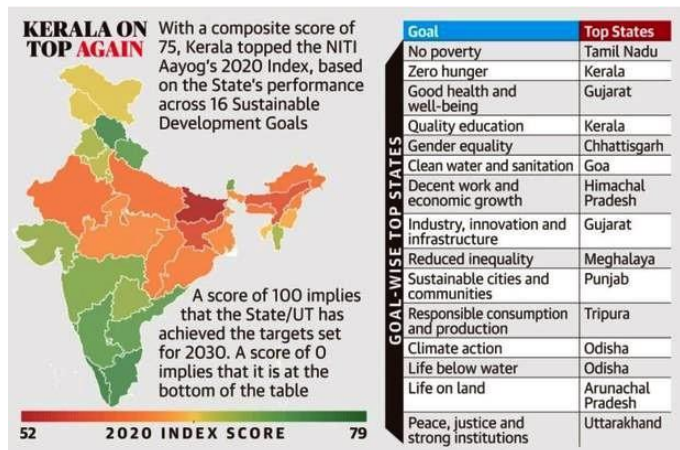
KERALA ON TOP AGAIN With a composite score of 75, Kerala topped the NITI Aayog's 2020 Index, based on the State's performance across 16 Sustainable Development Goals

A score of 100 implies that the State/UT has achieved the targets set for 2030. A score of 0 implies that it is at the bottom of the table

Goal	Top States
No poverty	Tamil Nadu
Zero hunger	Kerala
Good health and well-being	Gujarat
Quality education	Kerala
Gender equality	Chhattisgarh
Clean water and sanitation	Goa
Decent work and economic growth	Himachal Pradesh
Industry, innovation and infrastructure	Gujarat
Reduced inequality	Meghalaya
Sustainable cities and communities	Punjab
Responsible consumption and production	Tripura
Climate action	Odisha
Life below water	Odisha
Life on land	Arunachal Pradesh
Peace, justice and strong institutions	Uttarakhand

52 2020 INDEX SCORE 79

Fig. 2020 index score

Way forward
- The SDG index performance of states and union territories needs to be evaluated based on social, economic, and environmental parameters. It will help leaders and change-makers to take steps to improve their performance.
- The SDG India Index performance depends on **coordination and level of commitment by** policymakers, businesses, civil society, and the general public. All stakeholder needs to act selflessly to improve our performance in SDG Index.

Conclusion
The pandemic's second wave had similar effects on people's livelihoods and jobs. The improved score for India in its efforts to attain the SDGs would inspire hope. Governments must, however, seek to address long-standing challenges such as rising inequality and economic doom.

Record FDI Inflows
Syllabus - Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

In news
- India has attracted **highest ever total FDI inflow of U.S.$81.72 billion** during the financial year 2020-21 and it is 10 percent higher as compared to the last financial year 2019-20.
- The Rajya Sabha has passed the **Insurance (Amendment) Bill, 2021.** The Bill seeks to raise the FDI in the insurance sector to 74% from the current 49%.

Introduction
- **About** - **Foreign direct investment (FDI)** is when a c**ompany takes control of ownership in a business entity in another country**. With FDI, foreign companies are directly involved with day-to-day operations in the other country. This means they aren't just bringing money with them, but also knowledge, skills and technology.
- Generally, FDI takes place when an investor e**stablishes foreign business operations or acquires foreign business assets**, including establishing ownership or controlling interest in a foreign company.

FDI in India
- FDI is an important **monetary source for India's economic development**. Economic liberalisation started in India in the wake of the 1991 crisis and since then, FDI has steadily increased in the country. India, today is a part of top **100-club on Ease of Doing Business (EoDB) and globally ranks number 1 in the greenfield FDI ranking**.

Routes through which India gets FDI
- **Automatic route -** The non-resident or Indian company does not require prior nod of the RBI or government of India for FDI.
  - Sectors which come under the ' 100% Automatic Route' category are
  - Agriculture & Animal Husbandry, Air-Transport Services (non-scheduled and other services under civil aviation sector), Airports (Greenfield + Brownfield), Asset Reconstruction Companies, Auto-components, Automobiles, Biotechnology (Greenfield), Broadcast Content Services (Up-linking & down-linking of TV channels, Broadcasting Carriage Services, Capital Goods, Cash & Carry Wholesale Trading (including sourcing from MSEs), Chemicals, Coal & Lignite, Construction Development, Construction of Hospitals, Credit Information Companies, Duty Free Shops, E-commerce Activities, Electronic Systems, Food Processing, Gems & Jewellery, Healthcare, Industrial Parks, IT & BPM, Leather, Manufacturing, Mining & Exploration of metals & non-metal ores, Other Financial Services, Services under Civil Aviation Services such as Maintenance & Repair Organizations, Petroleum & Natural gas, Pharmaceuticals, Plantation sector, Ports & Shipping, Railway Infrastructure, Renewable Energy, Roads & Highways, Single Brand Retail Trading, Textiles & Garments, Thermal Power, Tourism & Hospitality and White Label ATM Operations.
- **Govt route -** The g**overnment's approval is mandatory**. The company will have to file an application through Foreign Investment Facilitation Portal, which facilitates single-window clearance. The application is then forwarded to the respective ministry, which will approve/reject the application in consultation with the **Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce.** DPIIT will issue the Standard Operating Procedure (SOP) for processing of applications under the existing FDI policy.

FDI prohibition
There are a few industries where FDI is strictly prohibited under any route. These industries are
- Atomic Energy Generation
- Any Gambling or Betting businesses
- Lotteries (online, private, government, etc)
- Investment in Chit Funds
- Nidhi Company
- Agricultural or Plantation Activities (although there are many exceptions like horticulture, fisheries, tea plantations, Pisciculture, animal husbandry, etc)
- Housing and Real Estate (except townships, commercial projects, etc)
- Trading in TDR's
- Cigars, Cigarettes, or any related tobacco industry

Benefits of FDI
- **Increased Employment and Economic Growth -** Increased FDI boosts the manufacturing as well as the services sector. This in turn **creates jobs, and helps reduce unemployment among the educated youth** - as well as skilled and unskilled labour - in the country. Increased employment translates to **increased incomes,** and equips the population with enhanced buying power. This boosts the economy of the country.
- **Improved Capital Flow -** Inflow of capital is particularly **beneficial for countries with limited domestic resources,** as well as for nations with restricted opportunities to raise funds in global capital markets.
- **Human Resource Development-** Human Capital refers to the knowledge and competence of the workforce. **Skills gained and enhanced through training and experience** boost the education and human capital quotient of the country. Once developed, human capital is mobile. It can train human resources in other companies, thereby creating a **ripple effect**.
- **Development of Backward Areas -** This is one of the most crucial benefits of FDI for a developing country. **FDI enables the transformation of backward areas** in a country into industrial centres. This in turn provides a boost to the **social economy** of the area. The **Hyundai unit at Sriperumbudur, Tamil Nadu in India** exemplifies this process.
- **Provision of Finance & Technology -** Recipient businesses get access to latest **financing tools, technologies and operational practices** from across the world. Over time, the introduction of newer, enhanced

technologies and processes results in their diffusion into the local economy, resulting in **enhanced efficiency and effectiveness of the industry**.

- **Increase in Exports –** Not all goods produced through FDI is meant for domestic consumption. Many of these products have global markets. The **creation of 100% Export Oriented Units and Economic Zones** has further assisted FDI investors in **boosting their exports** from other countries.
- **Exchange Rate Stability –** The constant flow of FDI into a country translates into a **continuous flow of foreign exchange.** This helps the country's Central Bank maintain a comfortable reserve of foreign exchange. This in turn ensures **stable exchange rates**.
- **Creation of a Competitive Market –** By facilitating the entry of foreign organisations into the domestic marketplace, FDI helps create a **competitive environment, as well as break domestic monopolies**. A healthy competitive environment pushes firms to continuously enhance their processes and product offerings, thereby **fostering innovation.** Consumers also gain access to a wider range of competitively priced products.

Issues with record FDI inflows

- **Net of disinvestment declined –** According to RBI, the **net of repatriation/disinvestment,** FDI inflows had **declined by 2.4% in 2020-21**.
    - This was due to a 47. **2% increase in repatriation/disinvestment**, which had reached a record level of U.S.$27.0 billion.
- **Increase in the share of Foreign Institutional Investors (FIIs)-** RBI cites a **69-fold increase** in participation by FIIs, totalling the U.S.$38 billion.
- **Skewed distribution –** Department for Promotion of Industry and Internal Trade database shows that **three Reliance Group companies (Jio Platforms, Reliance Retail Ventures and Reliance BP Mobility),** together received 54.1% of total equity inflows during three quarters of 2020-21.
    - RBI Annual Report shows without the top five FDI deals, FDI inflows during 2020-21 would have declined by about a third.
    - The lower incidence of transactions points to the **underlying weakness in FDI inflows**.
- **No creation of productive assets –** **M**ajor part of funds to Reliance Industries was meant to f**acilitate withdrawal of its investments already made** in the form of Optionally Convertible Preference Shares.
    - E.g. Facebook entry in the Jio platform holding 9.9% shares and Google holding 7.7% shares. These **"investments" by the foreign companies involved a mere transfer of shares without creating productive assets** in the country, or, in other words, contributing to the revival of the economy.
- **Not in sync with the development priorities set by the Government of India** - According to the government, F**DI is one of the critical elements for implementing Atmanirbhar Bharat Abhiyan programme**. Contrary to the Government's expectations of a larger magnitude of **inflows into the manufacturing sector**, this sector received just 17.4% of the total inflows during 2020-21.

Trends in India's Foreign Direct Investment

- India has attracted **highest ever total FDI inflow of US$ 81.72 billion** during the financial year 2020-21 and it is 10% higher as compared to the last financial year 2019-20 (US$ 74.39 billion).
- FDI **equity inflow grew by 19% in the F.Y. 2020-21 (**US$ 59.64 billion) compared to the previous year F.Y. 2019-20 (US$ 49.98 billion).
- In terms of **top investor countries, 'Singapore' is at the apex with 29%**, followed by the U.S.A (23%) and Mauritius (9%) for the F.Y. 2020-21.
- **'Computer Software & Hardware' has emerged as the top sector during F.Y. 2020-21 with around 44%** share of the total FDI Equity inflow followed by Construction (Infrastructure) Activities (13%) and Services Sector (8%) respectively.
- **Gujarat is the top recipient state during the F.Y. 2020-21 with 37%** share of the total FDI Equity inflows followed by Maharashtra (27%) and Karnataka (13%).
- Majority of the equity inflow of Gujarat has been reported in the sectors `Computer Software & Hardware' (94%) and `Construction (Infrastructure) Activities' (2%) during the F.Y. 2020-21.
- The major sectors, namely C**onstruction (Infrastructure) Activities, Computer Software & Hardware, Rubber Goods, Retail Trading, Drugs & Pharmaceuticals and Electrical Equipment** have r**ecorded more than 100% jump in equity** during the F.Y. 2020-21 as compared to the previous year.

- Out of top 10 countries, **Saudi Arabia is the top investor in terms of percentage increase during F.Y. 2020-21.** It invested US$ 2816.08 million in comparison to US$ 89.93 million reported in the previous financial year.
- 227% and 44% increase recorded in FDI equity inflow from the USA & the UK respectively, during the F.Y. 2020-21 compared to F.Y.2019-20.

Conclusion

Apart from being a **critical driver of economic growth**, Foreign Direct Investment (FDI) has been a major **non-debt financial resource f**or the economic development of India. Foreign companies invest in India to take **advantage of relatively lower wages, special investment privileges like tax exemptions**, etc. For a country where foreign investment is being made, it also means achieving technical know-how and generating employment. Heading to a situation, wherein a looming financial downturn seems to get real due to COVID 19, the need to create a **contributory and favourable business ecosystem** that allows foreign organisations to produce at a competitive price and utilise resources like human resources. As the world moves toward a new normal, r**ationalising market reforms and institutionalising more investor-friendly reforms to support and facilitate investments is the key for India.**

Developing India's Islands

In news

- In May 2021, Lakshadweep administration introduced three legislations for promoting development, these are **Lakshadweep Development Authority Regulation, The Lakshadweep Animal Preservation Regulation and Lakshadweep Prevention of Anti-Social Activities Regulation.**

More in news

- In January 2019, the Department of Industrial Policy and Promotion under the Ministry of Trade and Commerce brought out the **Lakshadweep and Andaman and Nicobar Industrial Development Scheme (LANIDS)**.
- **Turtle researchers** banded together to launch a **signature campaign against the NITI Aayog's plans** to develop two islands in the Union Territory (UT) of Andaman and Nicobar.
- In August, 2020 the Prime Minister had declared that the Andaman and Nicobar Islands will be developed as a **"maritime and start-up hub"**.
- In March 2021, for the first time, **Japan's government approved a grant aid of approximately ₹265 crore toward developmental projects in Andaman and Nicobar Islands.**

About the Island Territories

- **About Lakshadweep** - India's smallest Union Territory Lakshadweep is an archipelago consisting **of 36 islands with an area of 32 sq km in Arabian Sea**. It is a uni-district **Union Territory** and comprises of 12 atolls, three reefs, five submerged banks and ten inhabited islands. The islands have a total area of 32 sq km. The **capital is Kavaratti** and it is also the principal town of the UT.
- **About Andaman and Nicobar Islands** - The Andaman and Nicobar Islands, located in the east of the Indian mainland geographically, **float in isolation in the Bay of Bengal**. Once a hill range extending from Myanmar to Indonesia, these picturesque undulating islands, islets numbering around 836, are covered with **dense rain-fed, damp and**

MAP OF LAKSHADWEEP

evergreen forests and endless varieties of exotic flora and fauna. Most of these islands (about 550) are in the Andaman Group, 28 of which are inhabited. The smaller Nicobars, comprise some 22 main islands (10 inhabited). **The Andaman and Nicobars are separated by the Ten Degree Channel** which is 150 Kms. wide.

- **About Great Nicobar Island**- Great Nicobar is the **southernmost island** of the Nicobar Islands Archipelago.
  - **It covers 1,03,870 hectares of unique and threatened tropical evergreen forest ecosystems.**
  - It is home to a very rich ecosystem, including 650 species of angiosperms, ferns, gymnosperms, bryophytes, among others.
  - In terms of fauna, there are over 1800 species, some of which are endemic to this area.
  - **Ecological Characteristics** - The **Great Nicobar Biosphere Reserve** harbours a wide spectrum of ecosystems comprising **tropical wet evergreen forests**, mountain ranges reaching a height of 642 m **(Mt. Thullier)** above sea level, and coastal plains.
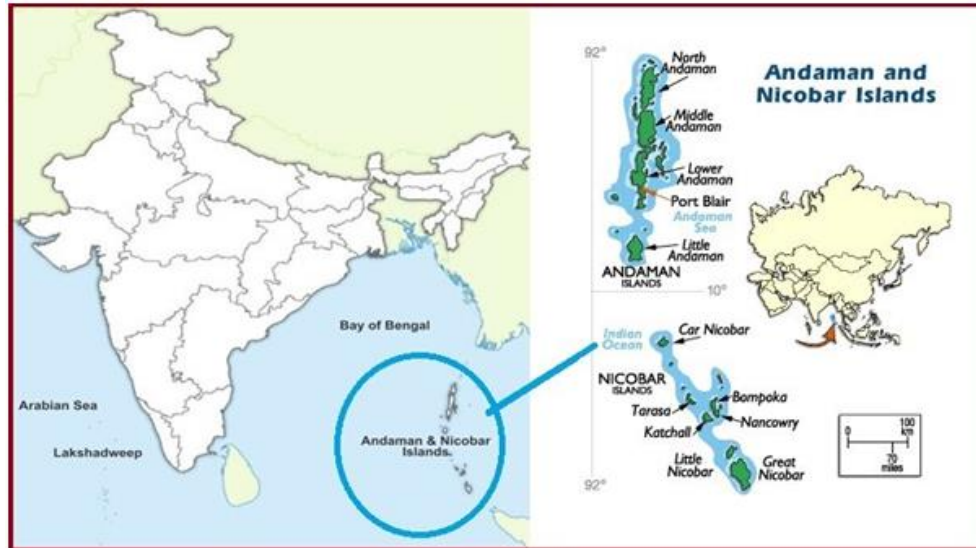
About the new regulations in Lakshadweep
- **The Lakshadweep Animal Preservation Regulation, 2021:** It makes it illegal to slaughter or instigate the slaughter of any animal without first obtaining a certificate from the authorities.
- **The Lakshadweep Panchayat Regulation, 2021:** It introduced a new panchayat regulation that would make anyone with more than two children unsuitable to stand for election or continue as a member of the panchayat.
- **The Lakshadweep Development Authority Regulation 2021:** It empowers the government to evict, change, and/or occupy any common man's land on the island for development needs.3
- **The Lakshadweep Prevention of Anti-Social Activities Regulation, 2021:** It allows the administrator to order a person's imprisonment for a period of up to one year if the offender's activities jeopardise the maintenance of public order.

Arguments in favour of new Lakshadweep regulations
- **Faster development:** The new regulations will augment the development potential of the islands. It will ease the procedural and regulatory requirements for land acquisition thereby enabling faster development of infrastructure.
- **Increase tourism potential:** The new provisions would **boost the tourism potential** of the island. The government intends to develop Lakshadweep into "a renowned international tourist destination" like the Maldives.
- **Realize the objectives of Holistic development of Islands Program: For instance, t**he program focuses on the creation of jobs for the islanders through tourism promotion as well as the export of seafood and coconut-based products made in the Islands.
- **Augmenting security situation:** Regulations like the Prevention of Anti-Social Activities Regulation (PASA) are essential for **augmenting the security situation** in the UT.
- **Empowering women:** The Panchayat regulations will pave the way for **the upliftment and empowerment of women**. The reservation would generate more women representatives who would create gender-sensitive policies.

Arguments against the new Lakshadweep regulations

- **Against the interests of indigenous islanders:** They seem to **fulfil the interest of commercial developers** rather than the indigenous islanders. The developmental plan can be used to vacate land which may later be sold to outsiders.
- **Wide powers to development authorities:** The powers **bestowed on Land development authorities are very wide**. It can prepare comprehensive development plans for any area and relocate people regardless of their will.
- **Onus on the owner:** The new rules put the onus on the owner to develop his holding as per the development plan or bear a heavy penalty in case of non-compliance. This may increase **forcible eviction and relocation of masses**.
- **Affect the cultural milieu:** The new rules may **hamper the cultural milieu** of the region. For instance, the cow slaughter ban and allowance of alcohol consumption go against the cultural practice of the 96% Muslim population of the region.
- **Hamper the environment:** The ease in approvals may **hamper the pristine ecological environment** of the region. The tourism infrastructure will adversely impact the fragile coastal ecosystem of the region.
- **Two-children cap:** The two children cap for panchayat elections seems unjust in a UT with a very low fertility rate. According to the National Health and Family Survey-5 (2019-20), the **total fertility rate is 1.4** (which is far behind the national average of 2.2).

Importance of the Island territories

- **Important Strategically: The Nine Degree Channel,** which is located near the Lakshadweep Islands, as well as the **Six Degree and Ten Degree Channels** in the Andaman Maritime, are **strategic sea lanes.**
  - The Andaman and Nicobar Islands offer India **advantages vis-à-vis South-East Asia and well into the Indo-Pacific, as part of its Act East policy and naval diplomacy ventures**.
  - Lakshadweep offers a **secondary base for maritime** co-**operation** with Mauritius, the Seychelles and the Maldives.
  - According to Strategic analyst Robert Kaplan, India, as a result of the Indian Ocean, integrates the geopolitics of West Asia and East Asia by functioning as a link for mega ships transporting hydrocarbons from West Asia to customers in East Asia's expanding middle-class concentrations.
- **Effective deterrence against China:** As regional maritime forces have expanded their cooperation with the Indian Navy in recent years, there is a new appreciation in **Southeast Asia about India's potential in offsetting China's dominance of littoral-Asia.**
  - For instance, various multilateral and bilateral maritime engagements viz. the **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), the MILAN series of exercises, coordinated patrols, and bilateral exercises** with littoral states in the Bay of Bengal and the Andaman Sea have contributed to this purpose.
- **Promoting tourism:** With Andaman & Nicobar Islands having proximity to est**ablished tourist destinations of South East Asia namely Bangkok, Phuket, Singapore and with Lakshadweep close to Maldives, Colombo and Dubai,** the islands have a huge potential to emerge as one of the leading island tourism destinations in the world.
  - For example ,**Radhanagar beach was awarded the prestigious blue flag certification in the year 2020.**
- **Leveraging the blue economy:** Island development may play a key role in our blue economy concept, which includes **environmental sustainability** and the **coastal economy** (SDG 14: Sustainable use of the Oceans and maritime resources).
  - In the **lagoons and Exclusive Economic Zone (EEZ) around the Lakshadweep Islands,**

India's Maritime Potential
Massive and Unexplored

7516 km — Coastline of India
~5 lakh — Tourist arrivals to islands in 2017
23 lakh km² — EEZ of India
~600 — Unexplored territories
1382 — Offshore islands & islets
1.3 times — Tourism spending impact on GDP spending
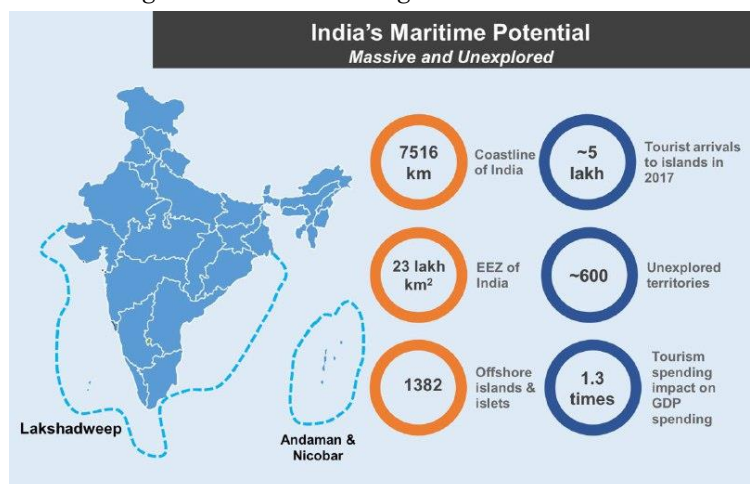
there are substantial fisheries and mineral resources. The Lakshadweep Islands have given India 20,000 square kilometres of territorial seas and 400,000 square kilometres of exclusive economic zone.

Current paradigm of Island developmental strategies: Issues

- **Intrusion into culture:** Interference with ethnic communities' culture and traditions has been disregarded by interventions into culinary culture, reproductive freedom, and people's self-reliance. Despite the fact that more than 90% of the population of Lakshadweep is Muslim, the legislation prohibits the purchase, sale, transit, or storage of beef or beef products in any form that is popularly consumed.
- **Disregarding local knowledge:** The community's tried-and-true methods of land usage, ocean resource utilisation, and/or livelihood possibilities have received little attention.Disrupting the human-nature relationship may destabilise Lakshadweep's coral reefs or the Andaman and Nicobar Islands' mangrove cover, which are nourished and preserved by the life and culture of the islands' homogeneous inhabitants.
- **Limited assessment of catastrophe vulnerability**: The islands are vulnerable to natural disasters, which are becoming increasingly frequent as climate change worsens. Limited assessment of catastrophe vulnerability: The islands are vulnerable to natural disasters, which are becoming increasingly frequent as climate change worsens. The Andaman and Nicobar Islands, for example, are located in a seismically active zone. The NITI Aayog's island development policy does not look well for this vulnerability.
- **Lack of inclusive development:** The island's residents have their own priorities, lifestyles, and requirements. As a result, they have established traditional wisdom in relation to their existence on these islands. In their overall strategy, current development strategies disregard conventional wisdom.
- **Poor connectivity** – These include l**ack of good connectivity with Indian mainland and global citie**s. It also includes poor digital connectivity which not only effects the development of human resources of the region but has widespread implications. For example, **Only BSNL and Airtel provides telecommunication services to Lakshadweep Island**s. BSNL provides connectivity in all 10 inhabited islands whereas Airtel provides connectivity to Kavaratti and Agatti islands. This hinders the online marketing of tourism industry of the Lakshadweep Islands.

These concerns reflect an underlying trade-off between the islands' national importance and the local population's developmental needs and priorities.

Key Initiatives by Government of India
- I**sland Development Agency (IDA): It was constituted in 2017** under the aegis of **Ministry of Home Affairs** to look into the holistic development of islands.
  - Home Minister of India is its chairman and **CEO of NITI Aayog acts as its convener. The** other members of IDA include Secretary- Tourism, Tribal affairs, the Home Secretary, Secretary Ministry of Environment and Cabinet secretary.
  - **NITI Aayog** has been mandated with the task to steer the h**olistic development of the islands in sustainable manner.**
- **Promoting Private Investment**- Exemplary tourism projects, including **island resorts, water villas (India's first), and luxury tents and tree houses,** have been planned under the PPP mode.
- **Promoting fisheries for livelihood** - **NABARD has taken up 14 agricultural projects with a gross refinancing** of more than Rs. 1.2 billion (US$ 16.32 million). The bank is also encouraging **organised farming on the islands and focusing on the growth of skills**.
- **Boost to tourism** - Four tourism-based projects have been initiated in A&N for implementation through the **Public-Private Partnership (PPP) model to attract investment and technical & management expertise** from the private sector.
- **Developing Great Nicobar Island**-A holistic development plan is under preparation for the Great Nicobar Island. This is crucial for leveraging India's **strategic presence in the busy international shipping line, Strait of Malacca.**
- **Responsible Development of Islands**-A holistic development plan was prepared, focusing on the **creation of jobs for islanders through tourism promotion and sustainable extraction and processing of local resources** such as seafood and coconut products.

- **Enabling Connectivity** - Expansion of an **international airport in Port Blair** is nearing completion and will soon be able to offer **international services**. The proposed airports in the Great Nicobar Island of Andaman and Nicobar and Minicoy Island of Lakshadweep would further catalyse the development of the region.
- **Developing Digital infrastructure -** The Andaman and Nicobar Islands are now digitally connected through submarine optical fibre cables with mainland India, facilitating the growth of information technology.

Way Forward
- **Concept of Sister Islands:** India and its maritime partners should lead an effort, utilising their island territories (For instance, India and France could utilise Andaman and Reunion Islands) in developing a **concept of sister islands** aimed **at creating a foundation for a sustainable model for island development** across the Indian Ocean. Similar to sister cities, a **sister island concept would allow India and its partners to co-develop** a sustainable framework for island development.
- **Focus on the real problems of the islands:** The focus should be placed on addressing the real problems of the Island. This includes:
  - Focusing on addressing the rising income disparities in the region
  - Restricting Indiscriminate trawling as it endangers the coral landscape. The Maldives had already banned trawling activities after witnessing excessive exploitation.
  - Restraining from relaxing the quarantine norms as the UT is witnessing a Covid -19 surge
- **The 'Panchatantra Principles of Sustainable Development**,' as proposed by NITI Aayog, can be used to balance the developmental requirements of all stakeholders. These are the guiding principles:
  - **A mix of P2** (Public Projects), **P3** (Public Private Partnership) **and P4** (People Public Private Partnership**) projects.**
  - **Budgetary plan** to create optimum public value.
  - People's **participation in equity.**
  - Creation of an **environment conducive for private sector participation**.
  - **Development strategy = social strategy** (strategies to generate additional income for the islanders) **+ Supportive strategy** (strategies to create assets for sustaining their high level of income in the long run)

Conclusion
As various noted environmentalists have pointed out, the nature of islands itself is very fragile and susceptible to even slightest of human interventions. The impacts caused by the developmental projects as they are envisaged now are bound to impact the various species of flora and fauna inhabiting the islands in more than one way.
Hence, the key lies in the expeditious implementation of the formulated strategies and the planned projects with participation of the islanders and the private sector. It will make the identified islands a role model of sustainable development, which can be later replicated in other islands or even in other parts of the country.

A Clean, Green Future
Syllabus: Environment and Bio-diversity: Conservation, environmental pollution and degradation, environmental impact assessment.
In news: **The United Nations Decade on Ecosystem Restoration** is being inaugurated this year, to achieve the decade's goals. One of the key goals of the UN 2030 Agenda for Sustainable Development is to strike a careful balance between **sustainable development and environmental conservation.**

About United Nations Decade for Ecosystem Restoration
- **Proposal:** El Salvador proposed the Decade on Ecosystems during the Bonn Challenge Summit in March 2018. El Salvador's proposal proposed for the rehabilitation of approximately 350 million hectares of degraded ecosystems by 2030.
- **The resolution passed:** During the 73rd session of the United Nations General Assembly in September 2018, about 71 countries backed the idea. On March 1, 2019, the United Nations General Assembly passed a resolution designating the years 2021–2030 as the UN Decade of Ecosystem Restoration.

- **On June 5, 2021, the Decade for Ecosystem Restoration was declared:** It asked for a restoration of the **biosphere** equal to China's whole land area. In addition, more concerted efforts toward mitigation of climate change were required to safeguard the earth's ecological makeup.
- **Rationale behind UN Decade on Ecosystem Restoration**
    o **Long term resilience:** The Decade on Ecosystem Restoration aims to achieve long-term resilience by balancing ecological, social, and developmental concerns.
    o **Human activities' impact:** Climate change, deforestation, desertification, and land degradation, freshwater reduction, overexploitation, stratospheric ozone depletion, and pollution are all factors that contribute to biodiversity loss and ecosystem deterioration. As a result, it is critical to protect the ecology for future generations.
    o **Healing environment:** Ecosystem restoration tries to heal environmental harm and restore ecological functionality. Increased food and water security, as well as climate change mitigation and adaptation, are all advantages of a restored ecosystem.
        ▪ Additional benefits from ecosystem creation typically outweigh the initial investment costs tenfold, whereas the cost of inaction is at least three times that of ecosystem restoration.

Significance of climate change as an integral part of the planning of Indian cities and towns
- **Testing successful policies:** Cities and towns need to play an active role on important environmental issues by functioning as policy innovators, testing successful policies been adopted across the world.
- **Understanding local situation:** Cities plays an important role in the understanding of the local situation and circumstances and help in coordination with all the stakeholders.
- **Local action**: Local action on climate change is needed to achieve the reductions targets on the ground. They play an important role in policy formulation through local inputs and conveying regional differences.
    o For example, Hill states needs and action differ and are more important than other states concerning climate change action.
- **Ground implementation**: States, cities and towns are responsible for on the ground implementation of national policies. State governments' legislation along with national legislation is critical for wide action on the ground.
- **Voice of the local community**: The role of cities is also important to check any environmental damaging act and policy of the centre. Also, it put pressure on the centre to act against climate change as they are the voice of the local community.
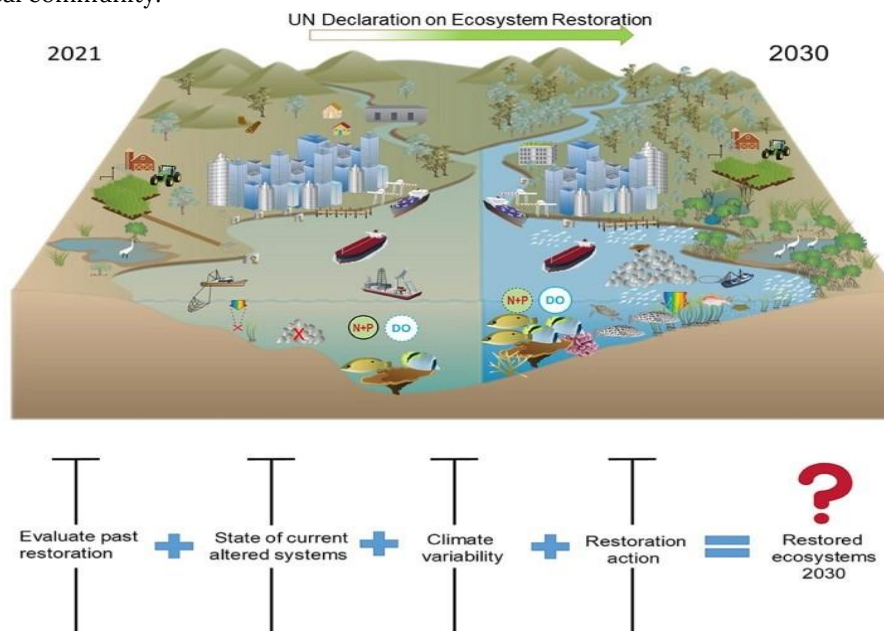

Fig. Undeclaration target 2030

What does United Nations Decade for Ecosystem Restoration strive to achieve?
- **Prioritising ecosystem restoration**: Create a shared vision, prioritising ecosystem restoration from the global to the local level to accelerate ecosystem restoration.

- **Way to international commitments:** Encourage a comprehensive strategy to attain international commitments and national agendas through restoring ecosystems and landscapes.
- **Development concerns:** Make ecosystem restoration a priority in policy and planning to address existing development concerns such as land degradation, biodiversity loss, and climate change vulnerability.
- **Resources:** Increase the flow of financial resources, technology, expertise, and capacity building to countries and jurisdictions seeking to achieve national goals and international commitments, such as the Sustainable Development Goals, through ecosystem restoration.
- **Investments:** Encourage partnerships and investments, which will help to build a more resilient economy by enhancing support for smallholders' ability to generate value from land-use products and contribute to ecosystem restoration.
- **Working together:** Encourage funders, governments, public society, and the corporate sector to work together to overcome obstacles to scaling up resource-efficient productive systems in conjunction with ecosystem restoration.
- **Public awareness**: Raise public knowledge about the value of healthy ecosystems for human well-being, productive activities, community development, and societal economic sustainability.

Fig. ecosystem restoration

What is the relationship between the SDGs and India's indigenous sustainable development?
- **2030 agenda motto:** The 2030 Agenda's motto, "Leave no one behind," encapsulates Gandhiji's principle of Sarvodaya through Antyodaya, or reaching the most marginalized first.
- **Sanitation:** The Swachh Bharat Mission (Urban) aims to eliminate open defecation in India by increasing solid waste management capacity and promoting behavioural change.
  - Cooperative and competitive federalism has become the driving force behind this citizen

- o   By 2022, various SBM-U efforts will have reduced 17.42 million tonnes of carbon dioxide equivalent greenhouse gas (GHG) emissions. -led Jan Andolan through the annual Swachh Survekshan.
- **Smart Cities Mission:** The mission of smart cities is to improve governance, sustainability, and disaster risk resistance.
  - o   The Climate Smart Cities Assessment Framework was adopted, to assist cities in adapting, cooperating, and sharing best practices.
  - o   So far, infrastructure for 417.5 kilometres of smart roadways, 30 megawatts of solar panels, and 253.5 million litres of wastewater treatment capacity has been completed.
  - o   By2022, it will be possible to reduce CO2 emissions by 4.93 million tonnes.
- **Under AMRUT**: In 500 target cities, water supply and management, energy efficiency, and improved green areas were all part of the AMRUT agenda. By2022, it is possible to reduce CO2 emissions by 48.52 million tonnes.
- **Pradhan Mantri Awas Yojana (Urban):** Has focused on innovative, ecologically friendly, and disaster-resilient construction methods.
  - o   The Global Housing Technology Challenge was launched, resulting in the identification of 54 new technologies.
  - o   Additionally, around 43.3 lakh dwellings are being built with fly ash bricks/blocks and concrete blocks.
  - o   Potential to reduce GHG emissions by 12 million tonnes CO2 equivalent by 2022.
- **Efficient mass rapid transport system:** The metro rail, an energy-efficient mass rapid transit system, is in use in 18 cities and has a total length of 720 kilometres.
  - o   From 2015 to 2022, this network is predicted to reduce CO2 eq GHG emissions by roughly 21.58 million tonnes.

Way Forward:
- **Urban development:** The guiding idea should be a progressive urban development path that prioritises sustainability, disaster risk resilience, and community building.
- **Behavioural change:** Technological democratisation, long-term infrastructure development, and behavioural change should all contribute to transitions.
- **Holistic landscape-focused approach**: To accelerate the work needed to sustain and restore ecosystems, the UN Decade intends to encourage a concentrated and holistic landscape-focused approach to the interrelationship of ecosystems, human needs, and biodiversity.

Saving biodiversity, securing earth's future
Syllabus: GS-3 – Environment
In news: The pandemic has exposed the dysfunctional relationship between humanity and nature. The National Mission on Biodiversity and Human Well-Being will help India to restore that dysfunctional relationship.

Background
- Globally, there is a decline in biodiversity. Since 2000, 7% of intact forests have been lost. Further, Climate change and the ongoing pandemic will add additional stresses to our natural ecosystems.
- Protecting Biodiversity loss is critical for India's development. Effective implementation of The **National Mission on Biodiversity and Human Well-Being** can safeguard and reclaim India's Biodiversity.

Significance of Biodiversity
- **Varied ecosystems:** India is home to nearly 8% of global biodiversity on just 2.3% of the global land area. India contains four of the 36 global biodiversity hotspots. The varied ecosystems across land, rivers, and oceans provide us with the following benefits:
  - o   Food security
  - o   Enhanced public health security.
  - o   Protection from environmental disasters.
  - o   Source of spiritual enrichment, catering to our physical and mental well-being.
  - o   The economic value provided by ecosystem services.
  - o   Thus, preserving biodiversity is directly relevant to the social, economic, and environmental well-being of our people.

Causes of biodiversity loss:
- **Habitat loss and fragmentation:** This is the most important cause driving species to extinction. Besides total loss, the degradation of many habitats by pollution also threatens the survival of many species. Fragmentation of habitats leads to population decline.
- **Over-exploitation:** Many species extinctions in the last 500 years were due to overexploitation by humans. Presently many marine fish populations around the world are over-harvested, endangering their continued existence.
- **Alien species invasions:** When alien species are introduced, some of them turn invasive, and cause the decline or extinction of indigenous species.
- **Co-extinctions:** When a species becomes extinct, the plant and animal species associated with it in an obligatory way also become extinct.
- **Global warming:** Global warming is also becoming a major cause of loss of biodiversity. If the present rate of global warming continues, coral reefs which are biodiversity hotspots will disappear in 20-40 years.
- **Pollution:** Pollution alters the natural habitat. Insecticides, pesticides, sulphur and nitrogen oxides, acid rain, ozone depletion and global warming too, affect adversely the plant and animal species.
- **Natural Calamities:** Natural calamities such as floods, drought, forest fires, earthquakes, volcanic eruptions, epidemics etc. are increasing which take a heavy toll on plant and animal life.

PROTECTION ACTS

1. Madras wildlife Acts 1873.
2. All India elephant preservation Act 1879
3. The wild Birds and animals Protection Act 1912.
4. Bengal Rhinoceros preservation Act 1932.
5. Assam Rhinoceros preservation Act 1954.
6. All India wildlife protection Act 1972 amended in 1983,1986,1991.
7. Environment protection Act 1996.
8. Bio-Diversity Act 2002.

Fig. Biodiversity conservation acts

Impact of biodiversity loss:
- **Impact on livelihoods:** The wiping out of a species or a drastic decrease in its numbers can affect the livelihoods of people, for example, those directly dependent on forests. It can cause economic loss for an industry or country.
  - For example, Canada had to ban cod fishing in the 1990s because the number of fish had decreased dangerously, threatening the survival of the fish.
- **Threat to human existence:** The loss or depletion of biodiversity can threaten our very existence.
  - For example, most of the world's food comes from about 20 species of plants. If anyone or more of these plants are affected by some killer disease, it would be necessary to develop new varieties with the help of their relatives in the wild.
- **Threatened flora and fauna:** According to the Botanical Survey of India, which has prepared three volumes of a book on endangered plants, 3000 of our plant species are under threat. As for animals, 20% of our mammals and 5% of our birds are threatened.

INDIA Bio-geographical zones

Trans-Himalaya
Himalaya
Indian Desert
Semi-arid
Western Ghats
Deccan Peninsula
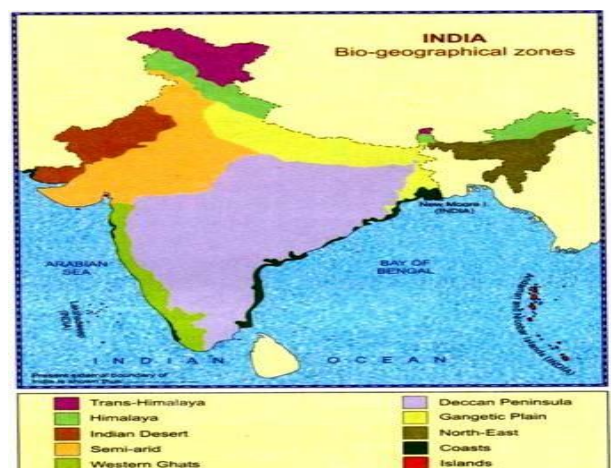Gangetic Plain
North-East
Coasts
Islands

Fig. 17.5 India is divided into 10 bio-geographical zones, each with its own distinct type of plants and animals.

Fig. India's bio-geographical zones with distinct species

Significance of National Mission on Biodiversity and Human Well-Being (NMBHWB)

- **PM-STIAC's approval:** The mission was approved in 2018 by the Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC) in consultation with MoEF&CC and other Ministries.
- **Aim:** The Mission will strengthen the science of restoring, conserving, and sustainably utilising India's natural heritage. It will establish a citizen and policy-oriented biodiversity information system.
- **It will enable biodiversity as a key consideration:** in all developmental programmes, particularly in agriculture, ecosystem services, health, bio-economy, and climate change mitigation.
- **Enhancing capacity:** The Mission will enhance capacity across all sectors for the realisation of India's national biodiversity targets and United Nations Sustainable Development Goals (UN SDGs).
- **The link between natural assets and societal well-being:** Furthermore, it will allow India to emerge as a leader in demonstrating the linkage between the conservation of natural assets and societal well-being.
- **All-inclusive framework:** Above all, the Mission offers a holistic framework, integrated approaches, and widespread societal participation.

Effective implementation of the mission will benefit India in many ways:
- **Increasing natural assets:** The Mission's comprehensive efforts will empower India to restore, and even increase, our natural assets by millions of crores of rupees.
- **Boosting rural incomes**: It will help in rejuvenating agricultural production systems and increase rural incomes from biodiversity-based agriculture.
- **Nature tourism:** It will also result in creating millions of green jobs in restoration and nature tourism.
  - For instance, Restoration activities across India's degraded lands (1/3rd of our land area), alone could generate several million jobs.
- **International commitments:** The Mission will help India to meet its international commitments under the new framework for the Convention on Biological Diversity (CBD), and UN SDGs by facilitating poverty alleviation, justice and equity.
- **Climate-resilient communities:** It will facilitate the creation of climate-resilient communities by offering nature-based solutions to numerous environmental challenges.
- **Ecosystem management:** Further, it will aid in conservation and ecosystem management by gaining from the scientific inputs related to geospatial informatics and policy.
- **Curtail future pandemics**: More importantly, it has the potential to curtail future pandemics. Since, the mission encompasses the "One Health" Programme, integrating human health with animal, plant, soil and environmental health.

Way forward
- **Enhanced outcomes:** To improve the results of the National Mission on Biodiversity and Human Well-Being further, India can implement the following suggestions. Such as**,**
  - India needs to build an **extensive cadre of human resources** required to meet the enormous and complex environmental challenges of the 21st century.
  - **Capacity building of professionals** in sustainability and biodiversity science.
  - Investment in civil society outreach.
  - Public engagement, in the exploration, restoration and conservation of biodiversity, is critical.

Conclusion
- Pandemic outbreak impacted on society by altering human-nature relations. The National Mission on Biodiversity and Human Well-Being Mission will promote **societal participation and holistic approach** to improve relations between human and nature.

Genome sequencing a necessity to fight pandemic

Syllabus - Achievements of Indians in science & technology; indigenization of technology and developing new technology

In News
- **India ranks** a distant **102 in genetic sequencing of coronavirus** and sharing that data with the rest of the world, says **Global Initiative on Sharing Avian Influenza Data (GISAID)**. Only 3,636 genome sequences have been shared with the GISAID between January 12, 2020, and April 28, 2021.

- The **WHO** has called the **integration of genome sequencing** into the regular practices of the global health community **"a must" in preparations for future threats.**

Introduction

- **About DNA** - **Deoxyribonucleic acid (DNA)** is the chemical compound that **contains the instructions needed to develop and direct the activities of nearly all living organisms**. DNA molecules are made of two twisting, paired strands, often referred to as a double helix
- Each DNA strand is made of four chemical units, called n**ucleotide bases**, which comprise the genetic "alphabet." The bases are **adenine (A), thymine (T), guanine (G), and cytosine (C)**. Bases on opposite strands pair specifically: an A always pairs with a T; a C always pairs with a G. The order of the As, Ts, Cs and Gs determines the meaning of the information encoded in that part of the DNA molecule just as the order of letters determines the meaning of a word.
- **About Genom**e - **An organism's complete set of DNA** is called its genome. Virtually every single cell in the body contains a complete copy of the approximately 3 billion DNA base pairs, or letters, that make up the human genome.
- Genome sequencing is **figuring out the order of DNA nucleotides, or bases, in a genome—the order of As, Cs, Gs, and Ts that make up an organism's DNA**.
- While **human genomes are made of DNA** (Deoxyribonucleic acid), a **virus genome can be made of either DNA or RNA (Ribonucleic acid)**. DNA and RNA provide genetic instructions for growth and functioning of organisms. Coronavirus is made of RNA.
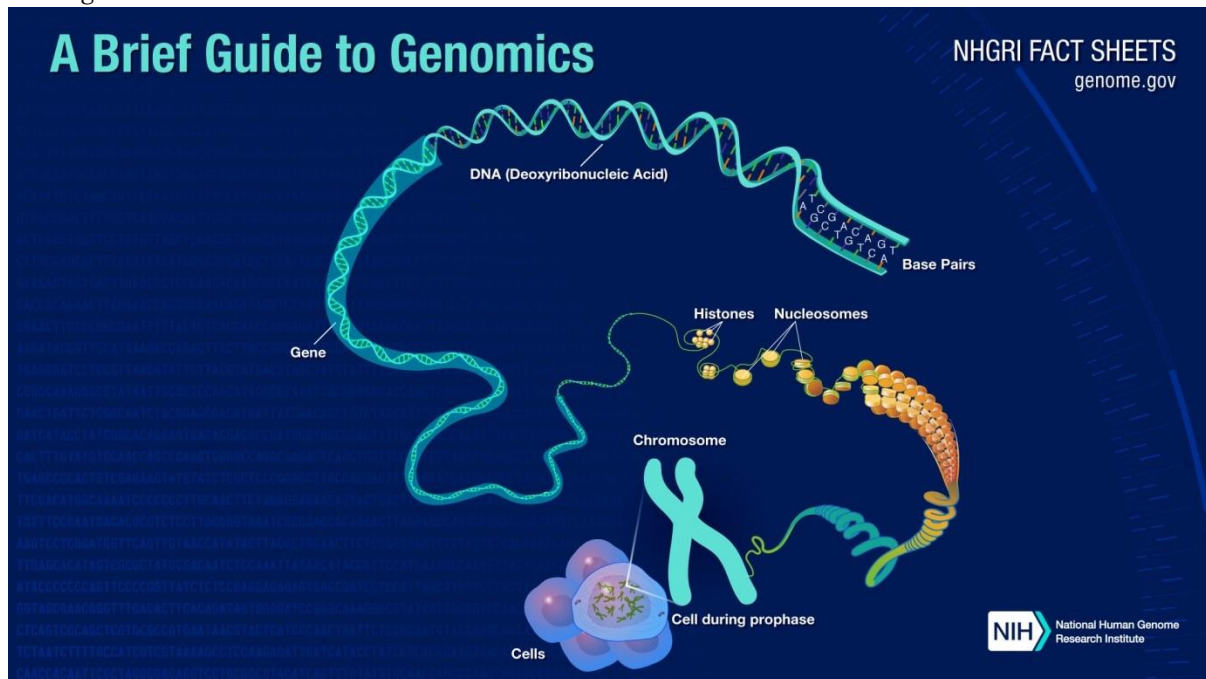
Need for Genome sequencing

- **Identifying emergence of new strains** - By analysing differences in the genetic code of viruses from different patients, **scientists aim to identify the transmission of the virus in real-time** and s**ee if different strains are emerging** and which strains are more dominating in a particular country or area.
- For instance, health authorities around the world are concerned about **several significant variants of SARS-CoV-2** that spread more easily. Among them: **B.1.1.7 (alpha), first identified in the U.K.**, which may carry a greater risk of death; **B.1.351 (beta), first identified in South Africa**, which may have extra resistance to some vaccines; **B.1.617.2 (delta), which was first identified in India** and has become a leading cause of new cases; **P.1 (gamma), identified in Japan** and Brazil; and **B.1.427 and B.1.429 (both known as epsilon)**, first identified in California.
- **Identifying hotspots for public health interventions** - Genome sequencing is useful for **identifying hotspots or super spreaders** (individuals who transmit the infection to a larger number of people than expected). This information provides insights to the policymakers for **planning targeted public health interventions**.

- **Designing the treatment** - An understanding of the viral genomic sequence can assist researchers in designing treatments and vaccines that target specific function of the virus and also helps in **preparing for further changes in the virus as it mutates and evolves.**
- **Better understanding of human body** - Genomic information about SARS-CoV-2 has also uncovered the deep biology underlying COVID-19. It helped scientists **identify the cellular receptor protein that SARS-CoV-2 binds to**, for example, which in turn suggests which types of cells in the body are most vulnerable to infection.

Genomic Surveillance for Coronavirus (SARS-CoV-2) In India

- India started sequencing genomes of COVID-19 positive samples in the beginning of the pandemic itself.
- According to the Ministry of Health and Family Welfare (MoHFW), in order to further enhance the genome surveillance, the Government of India formed **Indian SARS-CoV-2 Genomics Consortium (INSACOG)** in December 2020 for centralised genome surveillance of the novel coronavirus in the country. Coordinated by **Department of Biotechnology (DBT) along with MoHFW, Indian Council of Medical Research (ICMR), and Council of Scientific and Industrial Research (CSIR)**, the consortium brings together 10 labs from around the country with a cumulative sequencing infrastructural capacity of more than 25,000 samples a month.
- The INSACOG **aims to increase the sequencing to 5 per cent** in the coming months. For this, it has asked the labs to ensure that genome sequences are coming from all parts of the country and samples from all the people arriving in India who test positive will be sent for genome sequencing to know about mutations.

Challenges

- **Shortages of samples –** Though the sequencing capacity is up to 1,000 samples a day in Indian SARS-CoV-2 Genomics Consortium (INSACOG), but they are getting only 50-60 samples per day.
- **Prohibition on private agencies** - **An order issued by the Indian Council of Medical Research in March 2020** expressly prohibits private labs doing Covid-19 molecular diagnostic testing from sequencing positive samples. Any violation, the order states, **could result in "legal action".** The restriction was reiterated as part of an email communication ICMR sent to the private labs in April 2021. Allowing only select labs to do genome sequencing amounts to **wasting resources**, some scientists say.
- **Slow pace of sequencing** - Almost 1**80 million confirmed COVID-1**9 infections have been reported globally, but only about **2,042,000 viral genome sequences** — from barely more than 1% of the total cases — have been submitted. **Rates of sequencing** are improving in many countries, but not fast enough.
- **Lack of resources in dark continent** - The **African continent**, as of June 27, has reported more than 5.3 million infections (3.9 million of these are confirmed), but its countries have sequenced and released only about 22,700 genomes, or at **best only 0.6% of its cases**. More than 40% of those genome sequences (about 9,600) come from just one country, South Africa. The **paucity of data on Africa could be serious for people everywhere**. Africa, given its human population variation, is a candidate to becoming the source of ever more pathogenic and refractory strains.
- **Lack of biomedical infrastructure** - COVID-19 surveillance in the India has been compromised by a **systemic lack of connections between facilities that have samples of the virus** — hospitals, public health laboratories and commercial testing facilities — and **facilities with the capacity to sequence them.**
- **Overstressed frontline workers** - When a sample tests positive, it is sent to a genomic lab along with patient's records containing **metadata – their age, sex, co-morbid conditions, vaccination history, symptoms, and mortality** among others for genome sequencing. However, **metadata has to be collected by frontline workers, who are overloaded and overwhelmed** by the sheer number of cases they have to handle.
- **Different terms and conditions** - The collection of samples is a **taxing process.** According to the Union health ministry guidelines, **samples from only RT-PCR tests** — and not the more common rapid antigen tests — would be eligible for sequencing as the latter is known to sometimes result in false negatives. Also, the samples have to be sent within t**hree-four days** of coming out positive. Otherwise, the purpose of sequencing is defeated.

Conclusion

Shortfalls in sequencing cannot be blamed simply on a lack of money. (**Sequencing costs about $120 per SARS-CoV-2 genome**, but the costs can be significantly lowered by sequencing the genomes in large batches.) Some of the poorest countries have sequenced more of their cases than some of the richest countries, so wealth cannot be the only determining factor. **Gambia, for instance, at 7.8%, has sequenced more than India (**>1%), a country with greater

gross domestic product per capita. It requires **multipronged approach to from increasing samples for sequencing to involving private sector in the project**. While sequencing is one part of the game, India also needs to make a **crucial investment in labs** which can study the virus' structure and its working mechanism to prepare for a long-term solution.

Cryptocurrencies in India

Syllabus: Science and Technology- Developments and their Applications and Effects in Everyday Life. Awareness in the fields of IT

In news: The proposed **Cryptocurrency and Regulation of Official Digital Currency Bill, 2021** bans all private cryptocurrencies. It lays down the regulatory framework for the launch of an **"Official Digital Currency"**.

India's response to the crypto-business so far

- **Initial response:** The **cryptocurrency market** in India has advanced **in a mainly unrestrictive regulatory space** since the first recorded cryptocurrency transaction in 2010. Between **2013 and 2018,** the government's response to the rise of virtual currencies was **cautionary,** alerting users to the **potential risks** posed by cryptocurrency transactions.
    - These fears were valid and stemmed from cryptocurrencies' instability, their **vulnerability to hacking,** and they could potentially help **criminal activities** such as money laundering, terrorist financing and tax evasion.
- **Ban by RBI:** The Reserve Bank of India (RBI), in **April 2018,** effectively imposed a ban on cryptocurrency trading **instead of developing a regulatory framework** to address these issues. This ban was **upturned by the Supreme Court in 2020.**
    - The court said that other regulatory measures could be taken **instead of an outright ban through which the RBI could have curbed the risks** associated with cryptocurrency trading.
- **India's next move** lies in the **draft Cryptocurrency and Regulation of Official Digital Currency Bill, 2021:** The draft Bill plans **to criminalise all private cryptocurrencies** while **also laying down the regulatory framework** for an RBI backed digital currency.
    - The Minister of State for Finance stated that **regulatory bodies do not have a legal framework** to directly control **private cryptocurrencies** due to their **vague legal nature in India.**
    - Further holders of private cryptocurrencies will have a **3-6 month exit period** before banning the **trading, mining, and issuing of cryptos.**
    - There is some hope that the concerns will be addressed in the form of a tailored regulatory approach rather than another ban as the draft Bill is yet to be presented in Parliament.
- **CBDC:** The Reserve Bank of India is also working on a **Central Bank Digital Currency (CBDC)** using **DLT (Distributed Ledger Technology).** DLT is a digital system for recording the transaction of assets. It records the transactions and their details in multiple places at the same time.
    - Unlike traditional databases, distributed ledgers have **no central data store** or **administration functionality.**

The rationale behind such proposals:

- **Check on Volatility:** Private Cryptocurrencies are **too volatile** and pose **a threat to India's financial stability.** A fiat currency shouldn't portray such volatility. For instance, **Bitcoin's price has risen** more than **10-fold** over the last year due to:
    - Increased institutional exposure to Bitcoin

- o Global progress in fostering a friendlier legislative environment for cryptocurrencies
- o Supply reduction coupled with increasing demand.
- **Curb Illegal Activities**: In **April 2018, RBI banned** banks and other regulated entities from supporting crypto transactions after digital currencies were used for frauds. In **March 2020, the Supreme Court** clarified that crypto transactions were **not illegal** in India.
- **Ascertaining the Magnitude of Undisclosed Holdings**: Once private currencies are banned, then all investors would have to declare their true digital holdings to exit within the permissible window.
  - o As per an **unofficial estimate,** Indian investors hold around **$1.5 billion** (Rs 10,000 crore) in digital currencies.
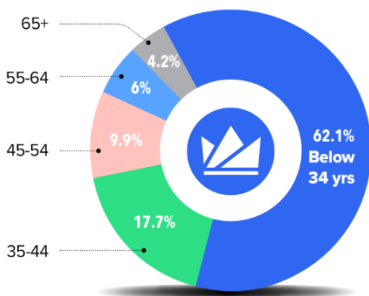
Various concerns related to cryptocurrencies:
- **Privacy Concerns**: There is concern regarding the **privacy of user's data** in using cryptocurrencies as all the transaction information is stored in a **distributed ledger (called blockchain)**, which is **publicly visible.** Thus, hackers can easily observe how the money flows.
- **High Volatility:** The price of Bitcoin suddenly rose to almost $20,000 and then dropped to $6,000. Due to such incidents, it is complicated for investors to trust the ecosystem.
- **Destination for black money**: The fear among regulators and policymakers is that cryptocurrencies, being an alternative source of value to fiat currency, **could be misused** to launder black money or finance terrorist activities.
- **Cybersecurity Concerns**: Cryptocurrencies are prone to **cybersecurity breaches and hacks.** Various attacks are common, even companies and governments are not full proof of them. For example, the Swiss blockchain company, Trade.io, has reported that crypto tokens worth almost $8 million have been stolen from their cold wallet.
- **Dark activities:** The possibility that the new money will nurture illicit activities and markets like drug selling, weapons etc. through **Darknet** anonymously.
- **Monetary control and economic behaviour:** It could dramatically change global monetary policymaking. People will exchange their national currencies for the new digital coin to buy and sell the many products that will be priced in it. This will further impact the profit of banks and will put stress on their balance sheet.
- **Inflation:** Governments and policymakers will have a **reduced ability to control inflation.** Usually, when inflation picks up, central banks take steps to control it through various monetary rates. Cryptocurrency will be out of control of the central bank so liquidity control will be an issue.

Lessons from other countries:
- **Cryptocurrency as property**: There are lessons from the **U.K., Singapore and the U.S.** They have categorized cryptocurrency as property and this has made the way for cryptocurrencies to be included within a regulated legal framework in the country's economy.
- **El Salvador became the first country in the world to adopt bitcoin as legal tender:** This shows the rising global trend of accepting cryptocurrencies with all its associated risks. The dominant theme of almost all countries has been to permit the growth of the cryptocurrency market subject to certain safeguards.
  - o India is still thinking about whether to prohibit or regulate cryptocurrencies. Globally, the inclination towards lenient regulation recognises the freedom of choice given to people for using a medium of exchange other than a central bank-backed fiat currency.
- **U.K. wants to regulate the working of crypto-businesses** while still imposing some restrictions to protect the interests of investors.

- **In Singapore,** there is no precise legal grouping of cryptocurrency in Singapore but the flexibility of cryptocurrency transactions to the **contract law framework** of the country has been resolutely recognised and there is now **a legal framework for cryptocurrency trading**.
- **In the U.S.: The open approach taken by the authorities** has resulted in the trade-in cryptocurrency being both taxed and appropriately regulated.
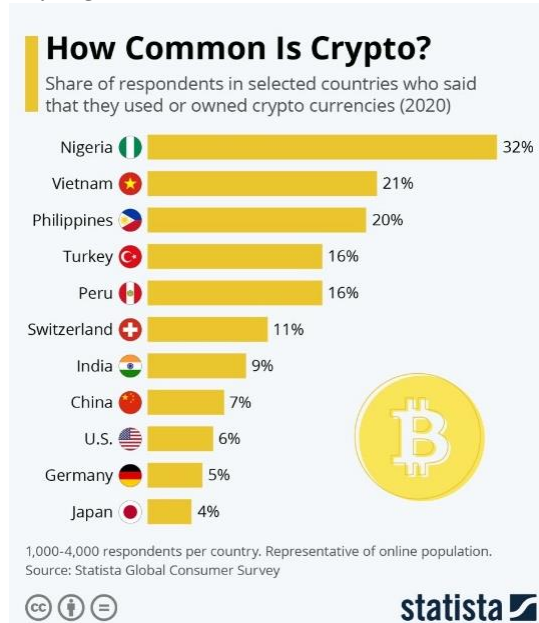

How Common Is Crypto?

Share of respondents in selected countries who said that they used or owned crypto currencies (2020)

Country	Share
Nigeria	32%
Vietnam	21%
Philippines	20%
Turkey	16%
Peru	16%
Switzerland	11%
India	9%
China	7%
U.S.	6%
Germany	5%
Japan	4%

1,000-4,000 respondents per country. Representative of online population.
Source: Statista Global Consumer Survey

statista

Fig. Users of crypto in different countries

Conclusion
- **The various approaches are specific to the countries' economic realities** and cannot be directly implemented in India. However, the global regulatory attitude towards cryptocurrencies gives valuable insights into the other ways to achieve balanced regulation. In India, the absence of an existing legal classification of cryptocurrency should not be the basis to ban its use.
- The government should use this as an opportunity to allow **private individuals the freedom to harness a powerful new technology** with appropriate regulatory standards.
- **The government needs to clear the uncertainty regarding the legal status** of cryptocurrencies in the minds of Indian investors. Further, it also needs to ascertain the economic and social impact of closing start-ups that function on private cryptocurrencies like Unocoin, Zebpay etc.

A Place for Disruptive Technology in Health Sector

Syllabus: GS- 3- Science and Technology- Developments and their Applications and Effects in Everyday Life.
In news: Artificial intelligence, autonomous systems, and data analytics have a defining role to play in shaping the medical sector

Significance of disruptive technologies in healthcare
- **Spurt in NCDs**: The disruptive technologies hold huge significance in the wake of spurt in non-communicable diseases (NCDs) like cancer, stroke and heart-related issue in recent years. As per a WHO report, nearly 61 per cent of deaths are attributed to NCDs.
- **Protection for frontline health-workers:** The medical profession has been selfless in responding to covid-19 pandemic but also lost a lot of doctors and health workers due in the process. Technology is likely to increase their protection in delivering health care.
- **Universal Health Coverage:** Digital technologies can help achieve UHC. This would need a commensurate strategy to integrate technological resources with human, financial, and organisational resources.
- **Lower costs:** Disruptive technologies such as AI, IoMT, 3D-printing and medical robotics are likely to simplify medical procedures and lower the costs of many procedures such as bone marrow transplant, stem-cell therapy etc.
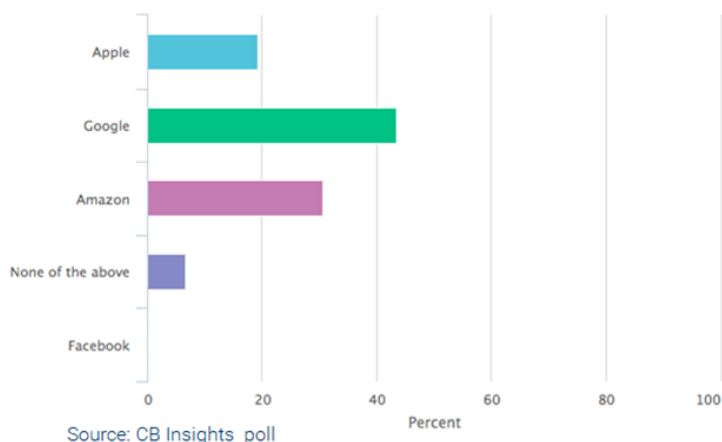
- **Leapfrog health infrastructure:** Development of innovative technologies and business models can leapfrog legacy issues of infrastructure, human resources along with bringing cost-effective and efficient access to health services in Tier-2 and -3 cities and villages.
- **Enhance competition:** Treatments costs as well as business models of healthcare sector are likely to transform. This is likely to disrupt competition in healthcare through reduction of entry barriers. There are already >4,000 healthcare technology start-ups in India today.
- **Better health care services:** Innovations in drugs, vaccines, diagnostic tests, telemedicine are likely to enhance patient care and overall delivery of quality healthcare services. Healthcare providers and start-ups are coming up with innovative solutions to reinforce patient care.

Disruptive technologies and their potential applications in healthcare:

Technology	Description	Benefits
3D printing	Additive manufacturing process, useful in medical field for producing tissues, tools, prosthetics and models	• Already being sued for producing prosthetics and dental implants • Useful for customized medication dosing • Can make personalized pill to treat all the medical conditions of a patient. • Can help meet demands of organ transplants through printing living tissue and organs
3D imaging, AR, VR	Combines virtual reality and gaming technologies with brain imaging.	• Improves the capabilities of physicians to view organs and tissues via scan. • Improves surgical precision as surgeons can see organs accurately which minimizes the chances of damage • Reduces eye fatigue during operations. • Useful in rehabilitation of patients with spinal cord injuries • Can help amputees accept prosthetic limbs by addressing the phantom limb syndrome. • Deepens human-machine interaction with the help of neuroscience.
Wearables	Use of wearable accessories as smart devices for monitoring, diagnosis and treatment.	• Can analyse a patient's health status and alerts one's family or close relations about medical emergencies • Wearable fitness devices address the issue of life style diseases by nudging one to be physically more active • Bio-sensing wearables monitor glucose levels, blood pressure, electrocardiogram etc. • Brain-computer interface with access to a cloud analytics can help in neural healing for serious injuries.
Robotics	Traditionally used for tasks requiring programmable motions, which need to be quick, strong, precise, untiring, and requiring complex articulations. New developments such as robotic arms and micro-robots are emerging.	• More time available to medical professionals. • robotics arms for amputees • micro-robots to repair internal organ damage • Enables remote examination of patients • Can administer therapeutic intervention • fills in for lack of health professionals

Internet of medical things	Made of medical devices and applications that can connect to health care information technology systems using networking technologies.	- key role in future health practices related to diagnostics and condition monitoring. - Can lower healthcare costs and improve treatment's efficiency - real-time tracking of health systems such as of staff and medical equipment.
Big data in health	Data analytics with volume, velocity and veracity in context of biologic, biometric and electronic health data	- Enables early identification of disease though analysis of patient behaviour and risk factors - useful in predicting disease outbreak through predictive analytics - Enables the emergence of personalized care plans - Can reduce the need for hospitalization
Artificial intelligence (AI) in healthcare	Use of machine-learning algorithms to mimic human cognition in the analysis, presentation, and comprehension of complex medical and health care data	- Allows diagnosis of disease through non-invasive methods such as analysis of face, skin etc. - Brings automation in diagnostics such as through chatbots - Can help fill in for shortage of medical professionals as software algorithms become capable of doing tasks that require human intelligence
Mobile health (mHealth)	Practice of medicine and public health using mobile communication devices, such as mobile phones, tablet computers, personal digital assistants, and wearable devices	- enables services such as remote monitoring, e-visits and e- prescription - Can have behavioural impact in health such as regular health check-ups. - Improves health outcomes - Reduces health costs - Enables app-based, data analytics for tracking medical history
Cloud Computing	A data destination that cuts storage costs and serves as a collaboration platform for the health enterprise, healthcare providers, patients and government.	- facilitates collaboration and data exchanges between doctors, departments, and institutions - provides scalability and flexibility, which improves decision-making process - Reduces operational expenses, infrastructural costs, and security concerns

(Fig: tech giant's impact on healthcare)

Successful pilot programmes / Case studies:

- **5G-enabled devices in China**: Chinese hospitals deployed 5G-enabled temperature measurement devices at the point of entrance to identify patients with fever or fever-like symptoms.
- **Humanoid robots in India:** In India, the Sawai Man Singh government hospital in Jaipur held trials with a humanoid robot to deliver medicines and food to COVID-19 patients.
- **Software-based diagnosis:** The Government of Rajasthan recently launched innovative software named Nidaan for presumptive diagnosis and monitoring **of seasonal and non-communicable diseases** as well as the **trends of ailments** found in specific areas. It has also been useful in formulating specific action plans for controlling diseases.

Challenges and concerns

- **Fragmentation of Efforts**: Studies by WHO show that weakly-coordinated technological interventions may develop stand-alone ICT solutions, leading to a fragmentation of efforts and resulting in poor delivery of care. Similarly lack of standardisation of health data, organisational silos, varying standards of protections for data security, data privacy, and investments undermine co-ordination.
- **Absence of regulatory framework:** In India, regulatory framework is still growing, particularly for biomedical start-ups. It's difficult for a start-up to know the minimum necessary validation requirements to qualify for procurement by hospitals, or to know suitability for medical applications. Foreign regulatory standards such as FDA of USA, or CE and GDPR of EU are usually trusted in absence of indigenous standards.
- **Long gestation period for development:** Health-care start-ups spend long periods of their time on the early development of their product, especially where potential clinical risks are concerned. Testing the idea, developing the prototype, receiving certifications, performing clinical and commercial validations, and raising funds make the gestational period long thereby creating challenges for the operational liquidity of the start-up. A low-trust and hazy regulatory environment adds to the uncertainties and risks of large investments in R&D.
- **Lack of incentives**: Health-care providers and clinicians, often lack the incentives, operational capacity, and frameworks necessary to think about and adopt innovations.
- **Procurement challenges**: Start-ups also face procurement challenges as they lack the financial capacity to issue large tenders for optimum price discovery.

Way forward

- **'Ayushman Bharat' and Digital India Missions should be integrated** to combine efforts for health care and digital inclusion.
- **Mainstreaming of telemedicine:** Online consultation through video conferencing should be developed and promoted as a mainstream healthcare delivery model with standardised modules for hardware, software and communications.
- **Combine Global technology with local delivery:** Primary health centres in India would also benefit from using local agency and traditional knowledge while increasing their impact through use of modern technology.
- **India must own its digital health strategy** with emphasis on ethical appropriateness of digital technologies, crossing the digital divide, and ensuring inclusive progress. It would also require developing indigenous standards that facilitate international synergies while securing health, safety and the rights of the people.

Conclusion: Disruptions in technology provide an opportunity to leap ahead of the legacy challenges of infrastructure and accessibility. It also offers the possibility of correcting the mistakes of the past. Synchronisation, integration, and standardisation would be crucial to enable the jump across the traditional divide between haves and have-nots in health with aid of technology. (1340 words).

Deep Ocean mission

Syllabus: Science and Technology- Developments and their Applications and Effects in Everyday Life.
In news: The Union Cabinet has approved the long-pending Deep Ocean Mission. It is supposed to be among the few countries that can launch underwater missions.

The Deep Ocean Mission

- **Deep Ocean Mission**: The Government of India has set out on a mission to explore the various features of the ocean holistically. Deep-sea mining, ocean climate change, underwater vehicles, and underwater robotics will be the mission's primary focus.
- **Estimated cost:** The first phase, which will last three years (2021-2024), is expected to cost Rs 2,823.4 crore. This multi-institutional initiative will be implemented by the **Ministry of Earth Sciences (MoES),** which will serve as the nodal ministry.
- **It proposes two major projects:** It features a tidal-powered offshore **desalination plant** and a **submersible vehicle** capable of exploring depths of at least **6,000 metres.**
- **Deep Ocean Exploration:** The mission aims to investigate the deep ocean in the same way that ISRO has been exploring space for the past 35 years. The exploitation of **polymetallic nodules (PMN)** will be a significant focus of the expedition.
- **Polymetallic nodules (PMN)**: are iron, manganese, nickel, and cobalt-containing rocks found on the seafloor. 380 million metric tonnes of polymetallic nodules are expected to be available at the bottom of the Central Indian Ocean's oceans.
- **The United Nations International Seabed Authority:** has given India a **75,000-square-kilometer tract** in the Central Indian Ocean Basin (CIOB) to exploit polymetallic nodules (PMN).
    - Mineral exploration investigations will pave the way for commercial exploitation shortly after the International Seabed Authority develops a commercial exploitation code.
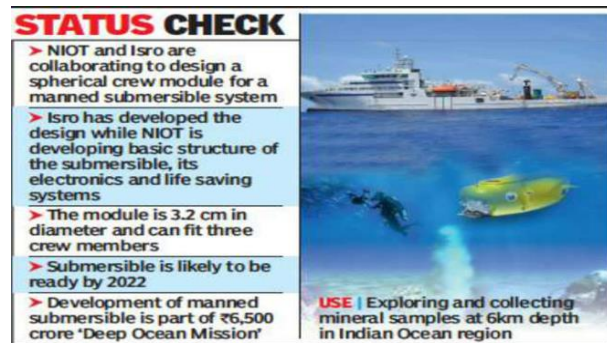
Fig. status of deep ocean mission

About Matsya 6000

- **Matsya 6000 development and launch:** It is part of India's ambitious Deep Ocean Mission, for which Finance Minister Nirmala Sitharaman budgeted Rs 4,000 crore in Union Budget2021-22, to be spent over five years.
- **Dimensions**: A **lithium battery-powered vehicle** capable of staying underwater for **up to 16 hours will go 6,000 metres deep** into the ocean. They'll be placed in a specially created titanium alloy sphere with a diameter of 2.1 metres and a thickness of 80 millimetres, in a space somewhat smaller than a Maruti 800 with three viewports.
- **Institutes involved: T**he submersible is one of the Deep Ocean Mission's several initiatives, which includes NIOT, CSIR, ISRO, and DRDO.
- **NIOT:** The National Institute of Ocean Technology (NIOT) in Chennai is developing India's manned submersible, with ISRO working on the "crew module." By 2024, it is expected to be completed.

Fig. Matsya 6000 design

Components of the mission

- **This also requires the creation of Ocean Climate Change Advisory Services**: which entails the creation of a set of data and models to better understand and forecast crucial climate variables on seasonal to decadal time scales.

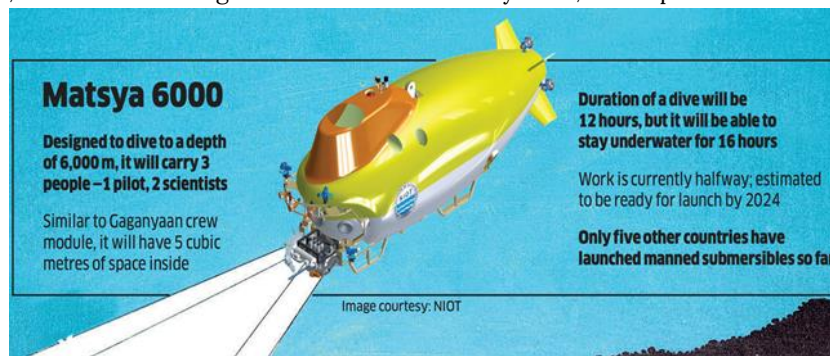- **Research for long-term use:** The next step is to look for deep-sea flora and fauna, including bacteria, and figure out how to use them sustainably.
- **Hydrothermal mineral sources**: Exploring and identifying prospective hydrothermal mineral sources, which are sources of precious metals generated from the earth's crust along the Indian Ocean's mid-oceanic ridges, is another component.
- **Ocean Thermal Energy Conversion (OTEC):** The next step is to research and prepare precise engineering designs for desalination facilities powered by offshore.
- **Expert grooming:** The final component aims to groom ocean biological and engineering professionals. Through on-site business incubator facilities, this component strives to transfer research into industrial applications and product development.

Challenges in exploring the Deep Ocean

- **Working under duress:** Physics is one of the most difficult aspects of ocean exploration. Zero vision, extremely low temperatures, and crushing pressures characterise the water at vast depths.
- **Workload:** The requirement to work regularly and reliably for thousands of hours without the assistance of a maintenance team.
- **Issue of power supplies:** Inadequate, unreliable, or prohibitively expensive power supply is a problem.
- **Complex processes**: Exploration and extraction machinery perform complex operations.

Significance of the Mission for the Indian economy:

- **Economic significance:**
  - **Minerals:** The Indian Ocean is rich in minerals such as **cobalt, zinc, manganese, and rare earth elements**. These minerals are required by the **electronic industry** to manufacture smartphones, laptops, and automobile components, among other things. This may be beneficial to the **Make in India** effort.
  - **Energy resources**: The Indian Ocean's principal energy resources are petroleum and gas hydrates. Petroleum products mostly consist of oil generated in offshore areas. Gas hydrates are chemical formations consisting of water and natural gas that are exceptionally compact.
    - Tidal energy and resources could be better used with the support of a deep ocean voyage and these resources.
  - **Manganese Nodules and Crusts:** Manganese nodules contain high levels of manganese, iron, copper, nickel, and cobalt, all of which have a variety of commercial applications.
- **Long-term development:** Marine resources from the Indian Ocean would be the backbone of India's economic growth, with the potential to help the country reach a $5 trillion GDP by 2022. The blue economy, which makes sustainable use of the waters, has a lot of potentials to stimulate economic growth.
- **Social significance:**
  - **Job creation:** It will give many people jobs and better living conditions. This will contribute to more inclusive growth.
  - **Health care:** Uncovering the secrets of deep-sea ecosystems could lead to new supplies of medical medications, food, and other goods.
- **Climate Change:** It will aid in the investigation of the effects of climate change on the ocean. This would assist India in preparing for any climate-related crisis. Oceans also provide a different and cleaner source of energy. It is also a significant carbon sink. This will aid in climate change mitigation.
- **Disaster preparedness:** Deep-ocean exploration data can aid in the prediction of earthquakes and tsunamis.
- **National Security**: Because many vital military technologies rely largely on rare earth elements, which are abundant in the ocean, they will play a significant role in national security.
- **Technological advancements:** It can also aid in the development of new technologies like underwater vehicles and underwater robotics.

Conclusion

- As per the officials of Earth Sciences Ministry even a fraction of deep-sea reserves can meet the energy requirement of India for the next 100 years.
- **Sustainable Development Goal (SDG 14)** calls to conserve and sustainably use the oceans, seas and marine resources for sustainable development. Thus, deep ocean mission is the right step in this direction.

Polity and Nation

SC releases draft model rules for live-streaming and recording of court proceedings

What is the news?

The Supreme Court e-Committee headed by Justice D.Y. Chandrachud has released the "**Draft Model Rules for Live-Streaming and Recording of Court Proceedings**".

Draft Rules for Live-Streaming and Recording of Court Proceedings:

- **Prepared by:** The Model Rules were framed by a sub-committee consisting of judges of the Bombay, Delhi, Madras and Karnataka High Courts.
- **Part of:** The rules are part of the **National Policy and Action Plan for implementation of Information and Communication Technology** (ICT) in the judiciary.
- **Coverage:** The rules would cover live-streaming and recording of proceedings in High Courts, lower courts and tribunals.
- **Significance:** The draft rules are a step towards implementing **Swapnil Tripathi and Indira Jaising 2018** judgement of the Supreme Court.
    - In this judgement, SC held that telecast of important cases to an audience outside the courtroom would usher in **greater transparency** and aid **accountability.**

Key Features of the Draft Rules:

- **Prior information of live-stream**: The Court has to duly inform the parties before the commencement of proceedings that the proceedings are being live-streamed. If any objections are there, they should be mentioned before the concerned bench. However, the **final decision lies with the bench**.
- **Delay of 10 minutes**: There shall be a delay of 10 minutes in live-streaming, which may be changed as per directions of the Court.
- **No reveal of personal information**: Personal information such as date of birth, home address, identity card number, bank account information and the personal information of related parties will be deleted or muted.
- **The judge can pause or stop the live stream**: A remote-control device shall be provided to the presiding judge on the bench to pause or stop the live streaming at any time.
- **Unauthorized usage of Livestream will be punishable**: The unauthorized usage of the live stream will be punishable as an offence under the Indian Copyright Act, Information Technology Act and other provisions of law, including the law of contempt.

Exemption of Cases: The following cases will be excluded from live-streaming:

- **Matrimonial matters** and cases concerning **sexual offences** and **gender-based violence** against women.
- Matters registered under the *Protection of Children from Sexual Offences Act*, 2012 (**POCSO**) and **Juvenile Justice Act,2015**.
- Cases that may **provoke enmity amongst communities,** likely to result in a breach of law and order.
- **Recording of evidence,** including cross-examination.
- **Any other matter** in which a specific direction is issued by the **Bench** or the **Chief Justice.**

Defence Minister Approves New Policy for Declassification of War History

What is the News?

The Defence Minister has approved a policy on archiving, declassification, compilation, and publication of war and operations histories.

Why do war histories matter?

- **War Histories** give an accurate account of events, authentic material for academic research, and help counter rumours. Earlier, reports on wars and operations were never made public.

- **Committees on war history:** The Committees that recommended on archiving and declassification of war history includes:
- **Kargil Review Committee:** It was headed by K Subrahmanyam. It recommended the requirement of having war histories written with a clear-cut policy on declassification of war records.
- **N N Vohra Committee:** It had said war histories should be declassified in order to analyze lessons learned and prevent future mistakes.

Period of Declassification of War History:
- **According to the policy,** records should ordinarily be declassified in 25 years.
- **Records** older than 25 years should be transferred to the National Archives of India once the war/operations histories have been compiled. However, first, it should be evaluated by archival experts.
- **However, declassification of older wars** like the Henderson Brooks report on the 1962 war with China and the Operation Bluestar of 1984 is not automatic. It is taken up on a case-by-case basis by a committee to be constituted under the policy.

Nodal Body:
- **The History Division** will coordinate with various departments for compiling, seeking approval, and publishing war/operations histories.
- **Each organisation** under the MoD will transfer the records including war diaries to the History Division for proper upkeep, archival, and writing the histories.

Committee to be constituted under the Policy
- **The policy mandates the formation of the committee** within two years of completion of war/operations.
- **The committee will be headed** by the Joint Secretary, Ministry of Defence (MoD). It will also have representatives of the Services, Ministry of External Affairs, Home Ministry along with prominent military historians for the compilation of war/operation histories.
- **Thereafter, the collection of records** and compilation will be completed by the committee in three years and disseminated to all concerned.
- **The war histories** will be for internal use first. Later the committee may decide to publicly release whole or parts of it, considering the sensitivity of the subject.

What is an election petition?

What is the news?
An election petition has been filed by West Bengal Chief Minister in the Calcutta High Court. She has challenged the Assembly election result of Nandigram constituency where she had contested and lost.

What is an election petition?
- An election petition is a procedure for inquiring into the validity of the election results of Parliamentary or local government elections. In other words, it is a means under law to challenge the election of a candidate in a Parliamentary, Assembly or local election.

Where one can file an election petition?
- Election petition filed in the High Court of the particular state in which the election was conducted. Therefore, only the High Courts have the original jurisdiction on deciding on an election petition.

What is the limitation period of an election petition?
- An election petition calling in question an election shall be filed **within the time period of 45 days** from the date of declaration of results.
- Moreover, the Representative of the People Act of 1951 suggests that the High Court should try to conclude the trial **within 6 months**. But it usually drags on for much longer even for years.

Grounds on which an election petition can be filed
Under Section 100 of the Representation of the People (RP) Act, an election petition can be filed on the following grounds:

- That on the day of the election, the winning candidate was not qualified to contest
- That the winning candidate, his poll agent or any other person with the consent of the winning candidate has indulged in a corrupt practice.
  - **Section 123 of the RP Act** has a list of what amounts to corrupt practice, including bribery, use of force or coercion, appeal to vote or refrain from voting on grounds of religion, race, community and language.
- Improper acceptance of the nomination of the winning candidate or improper rejection of a nomination.
- Malpractice in the counting process which includes improper reception, refusal or rejection of any vote, or the reception of any vote which is void.
- Non-compliance with the provisions of the Constitution or the RP Act or any rules or orders made under the RP Act.

What happens if the court finds that a contention of malpractice is correct?
- Under Section 84 of the RP Act, the petitioner may ask that the results of all or the winning candidates **may be declared void.**
- In addition to that, the petitioner may also ask the court to declare her (in case the petition is filed by a candidate) or any other candidate **as the winner or duly elected**.

So the verdict on an election petition, if found in favor of the petitioner may result in a **fresh election** or the **court announcing a new winner**.
Previous cases where election results were declared void:
- **Indira Gandhi Election:** In 1975, the Allahabad High Court verdict had set aside Indira Gandhi's election from Rae Bareli constituency, four years earlier on grounds of corrupt practice.

How judges recuse from cases, and why
Synopsis: Recently, two Supreme Court (SC) judges have recused themselves from hearing cases relating to West Bengal.

What is the recusal of judges?
- **Recusal** is the removal of oneself as a judge or policymaker in a particular matter.

Why does a judge recuse?
The judges usually recuse themselves when there is a Conflict of Interest:
- **Conflict of Interest:** It can occur in many ways, such as, holding shares in a company that is a litigant to having a prior or personal association with a party involved in the case.
  - As the judges have a duty to act fair, they recuse from the case.
- **Another instance for recusal** is when an appeal is filed in the Supreme Court against a judgement of a High Court that may have been delivered by the SC judge when he or she was in the HC.

Government releases India Smart Cities Awards Contest(ISAC) 2020
What is the News?
Government of India has released the ranking of the India Smart Cities Awards Contest(ISAC) 2020.

About India Smart Cities Awards Contest(ISAC) 2020:
- **ISAC 2020 awards** were presented by the Ministry of Housing and Urban Affairs.
- **The awards were announced** on the occasion of the sixth anniversary of Smart Cities Mission(SCM), Atal Mission for Urban Rejuvenation and Urban Transformation(AMRUT) and Pradhan Mantri Awas Yojana-Urban (PMAY-U).
- **Parameters:** The rankings were announced on the basis of several parameters such as social aspects, governance, culture, urban environment, sanitation, economy, built environment, water and urban mobility.
- **For the year of the pandemic,** additional parameters of sustainable business model of Integrated Command and Control Centres and innovation in Covid-19 management were also counted.

Key Take aways:

- **Cities:** Indore and Surat were declared joint winners of the Smart Cities Award 2020.
- **States**: Uttar Pradesh secured the first position in the state awards category. It was followed by Madhya Pradesh and Tamil Nadu.
- **This is the first time** that states have also been awarded for the overall performance of smart cities.
- **Union Territories:** Chandigarh has bagged the first award among Union territories.
- **Region wise:** The Western Region is the best performing. Its regional average score of 45 is much higher than the national average of 32. There are 26 cities in the western region, of which 10 cities have been certified.
- **Surat** has emerged at the top among Indian cities to have successfully implemented governance through institutionalized use of data, especially through big data.

<u>**Enforcing Contracts Portal:**</u> The Department of Justice has launched the "Enforcing Contracts Portal". **The portal** aims to promote ease of doing business and improve the 'Contract Enforcement Regime' in the country.

<u>**Class action suits:**</u> **A class-action suit** is a legal action or claim that allows one or many plaintiffs to file and appear for a group of people with similar interests. Such a group forms a "class". **A class-action suit derives** from representative litigation to ensure justice to the ordinary individual against a powerful adversary.

Govt launches "Performance Grading Index 2019-20": Performance Grading Index (PGI) is a tool to provide insights on the **status of school education** in States and UTs. This includes key levers that drive their performance and critical areas for improvement.

- **Released by:** Department of School Education and Literacy (DoSEL), Ministry of Education.
- **Parameters:** The index is structured in two categories namely: **Outcomes** and **Governance & Management**. These categories comprise a set of 70 indicators aggregate with a total weightage of 1000. These indicators are related to:
    o Learning outcomes
    o Access
    o Infrastructure and facilities
    o Equity and
    o Governance and management.

Indian Economy

"One Nation One Standard Mission" and "Research Designs & Standards Organization"

What is the News?

Indian Railways Research Design & Standards Organization(RDSO) has become the nation's first institution to be declared as Standard Developing Organization(SDO) under the "One Nation One Standard" mission.

About One Nation One Standard Mission:
- **One Nation One Standard** was first conceived in 2019 by the Bureau of Indian Standards(BIS).
- **The mission is** on the line of one nation, one ration card scheme in order to ensure quality products in the country.

Objectives of the One Nation One Standard Mission:
- **To aggregate and integrate the existing capabilities** in standardisation. Further, it will also provide dedicated domain-specific expertise available with various organizations in the country.
    o This will enable one template of standard for one given product instead of having multiple agencies set it.
- **To enable the convergence of all standard** development activities in the country, resulting in One National Standard for One Subject. This will help in establishing a Brand India identity in the long run.

SDO Certification:
- To attain the One Nation One Standard vision, BIS launched the **Standard Developing Organization (SDO) recognition scheme**.

- **The recognition** is valid for 3 years and will require renewal after completion of the validity period.

About Research Designs & Standards Organization (RDSO)
- **RDSO** is the sole R&D Wing of the Ministry of Railways. It was founded by integrating the Central Standards Office (CSO) and the Railway Testing and Research Centre(RTRC) into a single unit in 1957.
- **Purpose:** It is one of India's leading Standard formulating bodies undertaking standardization work for the railway sector.
- **Location**: It is situated in Lucknow, Uttar Pradesh.

Benefits of SDO Recognition for RDSO:
- **RDSO will be recognized** on international standards-making bodies and there will be integration with global supply chain/global trade
- **The competitiveness** amongst the industry will increase
- **There will be a reduction in cost** and quantum improvement in the quality of product and services
- **There will be smooth induction** of the latest evolving & emerging technologies on Indian Railways
- **Dependence on imports** will reduce and "Make-in-India" will get a boost
- **Improved** ease-of-doing-business.

World Bank's "Global Economic Prospects Report" predicts India's growth as 8.3%

What is the News?
The World Bank has released the Global Economic Prospects Report.

About the Global Economic Prospects Report:
- **Global Economic Prospects** is a World Bank Group flagship report. It is issued twice a year, in January and June.
- **Aim**: To examine global economic developments and prospects with a special focus on emerging markets and developing economies.

Key Findings of Global Economic Prospects Report related to India:
- **The World Bank** has reduced its growth forecast for India for the 2021-'22 financial year to 8.3% from 10.1% estimated in April.
  - **Reason**: It has attributed it to the devastating second wave of the coronavirus pandemic that slowed down the economic revival in early 2021.
- **Moreover,** the report has said that the economic activity in India would likely follow a similar but less pronounced '**collapse and recovery' trend** seen during the first wave.

Key Global Findings of Global Economic Prospects Report:
- **The global economy** is expected to expand 5.6% in 2021. This is the fastest post-recession pace in 80 years, largely due to strong rebounds from a few major economies.
- **However, many emerging markets** and developing economies continue to struggle due to the following reasons,
  - A resurgence of COVID-19 cases,
  - Lagging vaccination progress
  - The withdrawal of policy support in some instances.
- **Among major economies,** the growth of the US is projected to reach 6.8% this year. This is due to large-scale fiscal support and the easing of pandemic restrictions.
- **Among emerging markets and developing economies,** China is anticipated to rebound to 8.5% this year, reflecting an increase in demand.

What is Kerala's "SilverLine project"?

What is the News?
Kerala cabinet has given the approval to begin acquiring land for the SilverLine Project.

About SilverLine Project:

- **SilverLine Project** is Kerala's semi high-speed railway project that aims to reduce travel time between Kerala's northern and southern ends.
- **Distance:** The railway line will be around 529 kms long, covering 11 districts through 11 stations. It will link the southern end and state capital Thiruvananthapuram with its northern end of Kasaragod.
- **Implementation:** The Kerala Rail Development Corporation Limited(KRDCL) will execute this project.
  - **KRDCL** is a joint venture between the Kerala government and the Union Ministry of Railways.
- **Significance of the Project:** Once the project is completed, one can travel from Kasaragod to Thiruvananthapuram in less than four hours on trains travelling at 200 km/hr. The current travel time on the existing Indian Railways network is 12 hours.
- **Duration of the Project:** The deadline for the project is 2025.

India should lower entry barriers for companies wishing to float IPOs. SEBI should be more like SEC

Synopsis: SEBI needs to usher in reforms to make Indian public equity markets more attractive to investors and companies willing to issue IPOs (Initial Public Offer).

What is an IPO?
Whenever a company issues its shares first time to the public, it is known as Initial Public Offer (IPO). Issuing shares is a method of raising capital.

Eligibility criteria for companies willing to float an IPO.
- **SEBI** (Securities and Exchange Board of India) has a tougher criterion:
  - Tangible assets of at least **Rs 3 crore**
  - Exhibit **average operating profits of Rs 15 crore** in the preceding three years with no operating losses in any one of those years.
  - **Net worth of Rs 1 crore** in each of the three preceding years.

Quality focus to help in 'setting humane fiscal policy': RBI study

What is the News?
A Reserve Bank of India study has said that the formal weaving of quality targets into the fiscal consolidation paths would result in setting fiscal policy with a "human face".

Key Facts mentioned in the Article:

About Cyclical Fiscal Policy:
- **Cyclicality of the fiscal policy** simply refers to a change in direction of government expenditure and taxes based on economic conditions.
- **There are two types** of cyclical fiscal policies - counter-cyclical and procyclical.

What is Counter Cyclical Fiscal Policy?
- **Counter-cyclical Fiscal Policy** refers to the steps taken by the government that go against the direction of the economic or business cycle.
- **This means that** during a recession or slowdown, the government increases expenditure and reduces taxes to create a demand that can drive an economic boom.
- **On the other hand,** during a boom in the economy, the policy aims at raising taxes and cutting public expenditure to control inflation and debt.

What is pro-cyclical fiscal policy?
- **In a pro-cyclical fiscal policy,** the government reinforces the business cycle by being expansionary during good times and contractionary during recessions.
- **Pursuing a pro-cyclical fiscal policy** is generally regarded as dangerous.It could raise macroeconomic volatility, depress investment in real and human capital, hamper growth and harm the poor.

What is Fiscal Deficit?
- **Fiscal deficit** is the gap between total expenditure and total income of the government.

- **The fiscal deficit** can arise either due to revenue expenses overshooting income or increase in capital expenditure.
- **The fiscal deficit** matters because it indicates the extent by which government spending exceeds its income and the total borrowings needed by it to fill this gap.
- **A fiscal deficit** is usually calculated and expressed as a percentage of a country's Gross Domestic Product (GDP).

What is Gross Fiscal Deficit?
- **The gross fiscal deficit(GFD)** is the excess of total expenditure including loans net of recovery over revenue receipts (including external grants) and non-debt capital receipts.

What is Revenue Deficit?
- **Revenue Deficit** denotes the difference between revenue receipts and revenue expenditure.

SEBI tightens norms related to independent directors
What is the News?
Securities Exchange Board of India (SEBI) has approved various amendments to rules governing the appointment, re-appointment, and removal of Independent Directors.

Who are Independent Directors?
- **An independent Director** is a director on a board of directors representing minority shareholders. He/she does not have a pecuniary relationship with the company or related persons, except for sitting fees.
- **Their role** is to take an unambiguously and independently stand to have a check and balance on the majority shareholders. It reduces exposure of the company to unwarranted risks.
- **As per the Companies Act, 2013** all listed public companies need to have at least one-third of the total Directors to be independent.

Amendments approved by SEBI for Independent Directors:
Appointment of Independent Directors(IDs)
- **The appointment**, re-appointment, and removal of independent directors shall be through a special resolution. It will now require 75% votes in support instead of 51%. This will be applicable to all listed entities.
- **The nomination and remuneration committee(NRC)** will be required to have two-third Independent Directors(IDs) instead of the existing requirement of a majority. NRC selects candidates for appointment as independent directors
- **Further**, the NRC will have to disclose and justify the skill-sets while selecting a candidate as an independent director.
- **The key managerial personnel and their relatives** or employees of the promoter group will have to observe a three-year cooling-off period before they get appointed as an independent director.

Resignation of Independent Directors:
- **In case an independent director resigns,** the company must disclose the entire resignation letter along with a list of her/his present directorships and membership in board committees.
- **Moreover,** a cooling-off period of one year has been introduced for an independent director transitioning to a whole-time director in the same company or subsidiary company or any company belonging to the promoter group.

"Fast Tracking Freight in India" Report:NITI Aayog and Rocky Mountain Institute(RMI) has released a report titled "Fast Tracking Freight in India: A Roadmap for Clean and Cost-Effective Goods Transport".

Envrionment

"State of Finance for Nature Report" demands investment in "Nature-based solutions"

What is the News?
The State of Finance for Nature Report has been released. The report recommended more investments in "Nature-based solutions".

About State of Finance for Nature Report:
- **Released by:** United Nations Environment Programme, World Economic Forum and the Economics of Land Degradation.
- **Purpose:** The report tracks the global trends in public and private investment in nature-based solutions. By this, it aims to <u>improve data quality and identify opportunities</u> for governments, businesses and financiers.

Note: Nature-based solutions(NbS) refer to sustainable management and the use of nature to tackle socio-environmental challenges. These challenges range from disaster risk reduction, climate change and biodiversity loss to food and water security as well as human health.

Key Findings of the Report:
- **The current investments** in Nature-based solutions amount to USD 133 billion. This is about 0.10% of global GDP. Public funds make up 86% and private finance makes up the remaining 14% of these investments.
- **Public Investment:** The largest proportion of public investment is carried out by the United States, with approximately $36 billion a year in NbS spending. It is followed by China, Japan, Germany and Australia.
    - **Countries such as Brazil, India and Saudi Arabia** are likely spending large amounts of money too. But they do not report internationally comparable data, according to the report.
- **Private Investment:** The private investment in Nature-based solutions is mostly contributed by
    - Commercial financial institutions,
    - Investors including insurance companies, asset management firms
    - Philanthropies including foundations and endowments.

Recommendations:
- **Firstly,** the report calls for <u>investments in nature-based solutions to triple</u> by 2030 and to increase four-fold by 2050 from the current level.
    - **By 2050,** the total investment of nature needs will amount to $8.1 trillion, while annual investment should reach $536 billion annually by 2050.
- **Secondly**, the report has called for a<u> comprehensive system and framework</u> for labelling, tracking, reporting and verifying the state of finance for NbS. This would improve data comparability and quality as an input to future decision-making.
- **Lastly**, the report has recommended <u>reforming taxes, repurposing agricultural policies and trade-related tariffs.</u> It also recommended<u> harnessing the potential of carbon markets</u> to finance Nature-based solutions.

"Oil Spill" at Sri Lanka's Coast

What is the News?
Sri Lanka is preparing for a major oil spill. A burnt-out container ship is sinking outside Colombo's harbor with nearly 350 tonnes of oil in its fuel tanks. This ship was burning for the last 13 days, causing Sri Lanka's worst maritime environmental disaster.

What is an Oil Spill?
- **Oil Spill** is the contamination of seawater due to an oil pour as a result of an accident or human error.
- **Oil spills into oceans** most often are caused by accidents involving tankers, barges, pipelines, refineries, drilling rigs and storage facilities.

Impact of Oil Spill:
- **Oil spills** affect marine life by exposing them to harsh elements and destroying their sources of food and habitat.
- **Oil coating on feathers destroys bird's abilities like waterproofing and insulation.** It also decreases the water repellency of birds feathers, without which they lose their ability to repel cold water.

- **Both birds and mammals** can die from hypothermia as a result of oil spills.
- Birds can also die of overheating as they are not able to lose body heat due to oil coating.
- **Ingested oil** can be toxic to affected animals, and damage their habitat and reproductive rate.

Economic Impacts of Oil Spill:
- **It can result in less tourism and commerce on beaches and populated shorelines**.
- **The power plants and other utilities** that depend on drawing or discharging seawater are severely affected by oil spills.
- **Major oil spills** are frequently followed by the immediate suspension of commercial fishing.

Human Impact of Oil Spill:
- **The effects of oil spill** on marine life can in turn adversely affect humans. For instance, the contamination of local ecosystems can impact communities that rely on marine ecosystems to survive.
- **Water supplies** in surrounding areas are at risk of contamination from oil spills.
- **Fishermen and local ship workers** can lose their sources of income. Because now health problems will be associated with exposure to oil such as respiratory damage, decreased immunity, and increased cancer risk.

How are oil spills cleaned? There are a few ways to clean up oil spills including:
- **Skimming**: It involves removing oil from the sea surface before it is able to reach the sensitive areas along the coastline.
- **In situ burning:** It means burning a particular patch of oil after it has concentrated in one area.
- **Releasing chemical dispersants** helps break down oil into smaller droplets. It makes it easier for microbes to consume, and further, break it down into less harmful compounds.
- **Natural actions** in aquatic environments such as weathering, evaporation, biodegradation and oxidation can also help reduce the severity of an oil spill. It also accelerates the recovery of an affected area.
- **Sorbents**: Various sorbents (e.g., straw, volcanic ash, and shavings of polyester-derived plastic) that absorb the oil from the water are used.
- **Dispersing agents:** These are chemicals that contain surfactants or compounds that act to break liquid substances such as oil into small droplets. They accelerate its natural dispersion into the sea.
- **Biological agents:** Nutrients, enzymes, or microorganisms such as Alcanivorax bacteria or Methylocella silvestris that increase the rate at which natural biodegradation of oil occurs are added.

World Bank report highlights the role of "Black Carbon" in the Himalayas
What is the News?
The World Bank has released a report titled "*Glaciers of the Himalayas, Climate Change, Black Carbon and Regional Resilience*".

About the Report:
- The report studies the impact of Black Carbon (BC) on Glacier melting. It covers the Himalaya, Karakoram and Hindu Kush (HKHK) mountain ranges.
- In the end, it concludes that managing Black Carbon emissions in South Asia has the potential not only to achieve global and regional climate benefits but will also lead to other valuable advantages like improved air quality and energy security.

Himalaya, Karakoram and Hindu Kush (HKHK) mountain region
- **The glaciers** in the HKHK mountain ranges, containing almost 55000 glaciers. They store more freshwater than any region outside the North and South Poles.
- **Their ice reserves feed** into three major river basins in South Asia—the **Indus, Ganges,** and the **Brahmaputra**. These rivers are home to 750 million people.

Key findings of the report:
- South Asian countries can reduce BC deposition in the region by **23% by implementing policies** currently in place. It can further reduce to an **additional 50% by implementing new policies** that are currently feasible.

- Glaciers in the Himalaya, Karakoram and Hindu Kush (HKHK) mountain ranges are melting faster than the global average ice mass.
- Even with all existing measures, **water from glacier melt is still projected to increase** in absolute volume by 2040, with impacts on downstream activities and communities.

Reasons for Glacier Melting:
- **Climate change**: One major reason for the accelerating glacier melt is **climate change,** which is altering the patterns of temperature and precipitation.
- **Anthropogenic Black carbon:** A second major reason may be deposits of anthropogenic black carbon (BC). It increases the glaciers melting process in two ways:
  - By decreasing surface reflectance of sunlight, and
  - By raising the air temperature.

About Black Carbon (BC):
- **Black carbon (BC)** is a short-lived climate pollutant. It is the second-largest contributor to warming the planet after carbon dioxide (CO_2).
- It absorbs solar energy and **warms** the atmosphere. When it falls to earth with precipitation, it darkens the surface of snow and ice. Thus reducing their albedo (the reflecting power of a surface), and warming the snow, resulting in the **faster glacial melting**.
- **However,** unlike other greenhouse gas emissions (GHGs), BC is quickly washed out and can be eliminated from the atmosphere if emissions stop.
- **Source of Black Carbon in HKHK region:**
  - Industry [primarily brick kilns] and residential burning of solid fuel together account for 45–66% of BC emissions
  - On-Road diesel fuels(7–18%) and
  - Open burning (less than 3% in all seasons).

Additional info
Other types of Carbon:
1. **Blue Carbon:** It refers to coastal, aquatic and marine carbon sinks held by vegetation, marine organisms and sediments.
2. **Green Carbon**: It is the carbon that is stored in terrestrial ecosystems such as forests, pastures and soils.
3. **Brown Carbon**: It is a light-absorbing particle in the Earth's atmosphere that has the unique characteristics of both cooling the planet's surface and warming its atmosphere.

Clean Cooking Fund (CCF):
- It was launched by the World Bank at the UN 2019 Climate Action Summit.
- The $500 million CCF seeks to scale up public and private investment and accelerate progress toward universal access to clean cooking by **2030**.
- Transitioning to cleaner fuels is necessary to achieve **Sustainable Development Goal (SDG) 7** on energy.
  - SDG7 - *Ensure access to affordable, reliable, sustainable and modern energy for all*

"Clean Energy Ministerial" and "Industrial Deep Decarbonization Initiative"
What is the news?
India along with the United Kingdom has launched a new workstream to promote industrial energy efficiency under the Industrial Deep Decarbonization Initiative (IDDI).

About Clean Energy Ministerial (CEM):
- **The Clean Energy Ministerial(CEM)** was launched at the United Nations Framework Convention on Climate Change Conference Of Parties in Copenhagen in 2009.
- **Objective:** It is a high-level global forum to promote policies and programs for the development of clean energy technology. It also aims to share experience & best practices encouraging the transition to a global clean energy economy.
- **Focus Areas:** The CEM is focused on three global climate and energy policy goals:

- o Improve energy efficiency worldwide
- o Enhance clean energy supply
- o Expand clean energy access.
- **Member Countries:** 29 Countries. **India is a member**.

About Industrial Deep De-carbonization Initiative (IDDI):
- IDDI is an initiative of the Clean Energy Ministerial (CEM).
- **Purpose:** It is a global coalition of public and private organizations that are working to stimulate demand for low carbon industrial materials. IDDI works to
  - o Standardize carbon assessments
  - o Establish ambitious public and private sector procurement targets
  - o Incentivize investment into low-carbon product development
  - o Design industry guidelines
- **Coordinated by:** The initiative is coordinated by UNIDO and is co-led by the UK and India. The initiative also has the support of Germany and Canada.

About United Nations Industrial Development Organization (UNIDO)
It is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability.

TERI organises "World Sustainable Development Summit 2021"

What is the News?
The Union Minister for Environment, Forest and Climate Change has addressed the World Sustainable Development Summit 2021.

About World Sustainable Development Summit:
- **The World Sustainable Development Summit** is an annual event organized by The Energy and Resources Institute(TERI) since 2001.
- **The summit was earlier** known as Delhi Sustainable Development Summit.
- **Purpose:** The summit brings together Nobel laureates, political leaders among others on a common platform to deliberate on issues related to sustainable development and climate change.
- **The theme for 2021:** Redefining our common future: Safe & Secure Environment for All

Key Takeaways from the World Sustainable Development Summit 2021:
- The availability of water is continuously declining. Agriculture sector alone consumes 85% of available water.
- Thus, water conservation methods should be used in Agriculture to manage available water resources efficiently.

About The Energy and Resources Institute (TERI)
- **TERI** is a non-profit research institute. It was established in 1974 as Tata Energy Research Institute and renamed to The Energy Resources Institute in 2003.
- **Purpose:** It conducts research work in the fields of energy, environment, and sustainable development for India and the Global South.
- **Location:** New Delhi.

Other Initiatives by TERI:
- **Lighting a Billion Lives(LaBL):** It is an initiative of TERI to provide clean lighting access to the bottom of the pyramid communities.
- **Green Olympiad:** It is conducted by TERI in association with MoEFCC. It is an international environment examination that is annually organized for middle and high-school students.
- **Green Rating for Integrated Habitat Assessment (GRIHA):** It was conceived by TERI and developed with the Ministry of New and Renewable Energy. It is a national rating system for green buildings in India.

"Sea Snot" outbreak in Turkey and its effect on the marine ecosystem

What is the News?

Sea Snot accumulation in the Sea of Marmara (Turkey) is causing grave environmental concern. This is because Sea Snot can cause considerable damage to the marine ecosystem.

- **The Sea of Marmara** is an inland sea entirely within the borders of Turkey. The sea connects the Black Sea to the Aegean Sea, thus separating Turkey's Asian and European lands.

About Sea Snot:

- **Sea Snot** is also known as **Sea Saliva or Marine Mucilage**. It is a collection of thick, slimy, mucus-like substance found in the sea. It is composed of compounds secreted by marine organisms.
    - **Mucilage** is a thick, gluey substance produced by nearly all plants and some microorganisms.
- **Formation:** It is formed when algae are <u>overloaded with nutrients</u> as a result of water pollution combined with the effects of climate change.
    - **The nutrient overload** occurs when algae feast on warm weather caused by global warming. Water pollution also causes the problem.

Sea Snot in Turkey:

- **A 'sea snot' outbreak** was first recorded in Turkey in 2007. Back then, it was also spotted in the <u>Aegean Sea near Greece</u>. But the current outbreak in the Sea of Marmara is by far the <u>biggest in the country's history</u>.
- **Reason for this outbreak:** The overproduction of phytoplankton caused by climate change. The uncontrolled dumping of household and industrial waste into the seas has also led to the present crisis in Turkey.

Effects of Sea Snot:

Marine Ecosystem:

- **The growth of the mucilage** which floats upon the surface of the sea like brown phlegm poses a <u>severe threat to the marine ecosystem</u> of the country.
- **It has already caused** <u>mass deaths among the fish</u> population and also killed other aquatic organisms such as corals and sponges.
- **Moreover,** the mucilage is now covering the surface of the sea and has also spread to 80-100 feet below the surface.
- **If unchecked**, this can collapse to the bottom and cover the sea floor, causing major damage to the marine ecosystem.

Livelihood:

- **The Sea Snot** outbreak has also affected the livelihoods of fishermen.
- **The sludge** is getting collected in the fishermen's nets making them so heavy that they break or get lost.
- **Moreover, the mucilage** coating the strings makes the nets visible to fish and keeps them away.

Diseases:

- **Several experts have warned** that the 'sea snot' can cause an outbreak of water-borne diseases such as cholera in cities like Istanbul.

Haryana's "Pran Vayu Devta Pension Scheme" and "Oxy Van" (Oxygen Forests)

What is the News?

Haryana Government has launched the Pran Vayu Devta Pension Scheme (PVDPS) and Oxy Van(Oxygen Forests) on the occasion of World Environment Day.

About Pran Vayu Devta Pension Scheme(PVDPS):
- **Pran Vayu Devta Pension Scheme(PVDPS)** is an initiative to honour all those trees which are of the age of 75 years and above. As they have served humanity throughout their life by producing oxygen, reducing pollution, providing shade and so on.
- **Such trees** will be identified throughout the state and these will be looked after by involving local people in this scheme.
- **For the maintenance of these trees**, a "pension amount" of Rs 2,500 would be given per year.
- **The pension shall be given** to the Village panchayats and Urban Local Bodies department for the upkeep of the trees installing plates, grilles among others.
- **This 'tree pension'** shall continue to increase every year on lines similar to the Old Age Samman Pension Scheme in the state.

About Oxy Van:
- **Oxy Van** are identified pieces of land on which as many as 3 crore trees would be planted.
- **The Oxy Vans** will occupy 10% of the 8 lakh hectares of land across Haryana.
- **The total cost of the project** shall be Rs 1 crore.

"Srivilliputhur-Mudumalai Tiger Reserve" and "Vaigai River"

What is the news?
The declaration of the Srivilliputhur-Megamalai Tiger Reserve in Tamil Nadu can rejuvenate Vaigai, India's heritage river.

Tiger Reserves in Tamil Nadu
Srivilliputhur-Megamalai Tiger Reserve will be the 5th tiger reserve of Tamil Nadu. The other four are:
- Mudumalai (MTR)
- Anamalai (ATR)
- Sathyamangalam (STR)
- Kalakkad Mundanthurai Tiger Reserve (KMTR)

About Vaigai River:
- Vaigai is a river in **Tamil Nadu**. The river is also referred to as **Shiva Ganga** in many places.
- It is also called *Kritamaala*, for it runs around the city of Madurai like a garland
- It travels through the Pandiya Nadu region of Tamil Nadu.
- **Historic significance: The Vaigai** was the river that flowed through the city of Madurai, the capital of the ancient and prosperous Pandya kingdom located in southern Tamil Nadu.
    o The river also finds a mention in Sangam literature dated to 300 before the Common Era (BCE).
    o The story of Vaigai is told in **Thiruvilayadal Puranam**
- **Origin:** The river originates in the **Varusanadu Hill**s, the Periyar Plateau of the Western Ghats range.
- **Empties into:** The river finally empties into the **Palk Strait** near the Pamban Bridge in Ramanathapuram district.
- **Tributaries:** Its main tributaries are Suruliyaru, Mullaiyaru, Varaaga Nadhi, Manjalaru, Kottagudi, Kridhumaal and Upparu.
    o **The Vattaparai Falls** are also located on this river.
- **Significance:** The river fulfils the drinking water requirement of five districts of Tamil Nadu namely Theni, Madurai, Ramanathapuram, Sivagangai and Dindigul.

How did things deteriorate for the Vaigai River?
- The deterioration of the Vaigai River happened at the **end of the 18th century** when the British started deforesting the Megamalai region which acts as a major catchment for Vaigai.
    o Consequently, the **water flow in the river reduced** gradually. As a result, a famine occurred and around 2 lakh people died in this region in 1876-77.

- Following the famine, the British Crown proposed **diverting water from the Periyar** and feeding it to the Vaigai through Periyar Dam. After the dam completion, the water from Periyar was successfully brought to the Vaigai and was revived again.
- Presently, due to the **indiscriminate removal of sand from the river**, whatever water flows into the Vaigai gets drained within a few days.
- Moreover, **Megamalai as a Wildlife Sanctuary (WLS) also failed to withstand undue pressure.** The sanctuary is devastated by the encroachers and the money-minded private estate owners which resulted in the degradation of the existing forests.

How will the declaration of Srivilliputhur-Megamalai Tiger Reserve help?
It is expected that the declaration of Srivilliputhur-Megamalai as a Tiger Reserve will help protect wild animals and the natural forests, their habitats which act as watersheds.
- This will provide protection to Megamalai, the Vaigai River's primary catchment, in turn helping water levels to rise in the river.

About Srivilliputhur-Megamalai Tiger Reserve:
- **Srivilliputhur-Megamalai Tiger Reserve** is the fifth Tiger Reserve of Tamil Nadu and the 51st tiger reserve of India.
- It was jointly declared as a Tiger Reserve by the Centre and Tamil Nadu governments in February 2021
- For this, the Megamalai WLS and the adjoining Srivilliputhur WLS were clubbed together.
- **Vegetation:** It has a mix of tropical evergreen forests and semi-evergreen forests, dry deciduous forests and moist mixed deciduous forests, grassland.
- **Fauna:**
    - **Meghamalai** has a **large population of ungulates** (hoofed mammals), spotted deer, Indian gaurs, wild boars and other carnivores.
    - The adjoining **Srivilliputhur** hosts grizzled giant squirrels, flying squirrels, leopards, Nilgiri tars, jungle cats, Sambars, elephants, lion-tailed macaques and many species of birds.

Maharashtra govt clears an amendment to protect "heritage trees"
What is the News?
The Maharashtra Government has cleared an amendment to the Maharashtra (Urban Areas) Protection and Preservation of Trees Act,1975.

What are the key features of the amended act? The key features are:
- **Concept of Heritage Tree**: A tree with an estimated age of 50 years or more shall be defined as a heritage tree. It may belong to specific species which will be notified from time to time.
- **Method to determine the age of the tree:** The environment department in consultation with the forest department will issue guidelines to determine the age of the tree.
- **Compensatory Plantation:**
    - **Compensatory plantation** will include planting the number of trees equivalent to the age of trees to be cut.
    - **The saplings** need to be six to eight feet in height while planting, and they will undergo geo-tagging with seven years of caring period.
    - **The option of monetary compensation** has also been given, instead of the compensatory plantation.
- **Formation of Maharashtra Tree Authority:**
    - **The Tree Authority** will have responsibility related to the protection and conservation of trees, including heritage trees.
    - **The chairman of the tree authority** in the case of a municipal council shall be the chief officer of the council. Experts will also be part of the authority.
    - **The authority will hear applications** seeking permission to cut 200 or more trees that are five or more years old.
    - **The local tree authorities** will come under this body. These bodies will ensure that the tree census is conducted after every five years.
    - **They will also be in charge** of ensuring that 33% of government land is used for tree plantation.

o **Tree Cess:** The State authority will issue directions for the use of tree cess. The fine amount cannot be more than ₹1 lakh per tree in case of violations.

UN High- Level Dialogue on Desertification, Land degradation and Drought

What is the News? The Prime Minister of India has delivered a keynote address at the United Nations (UN) High-Level Dialogue on Desertification, Land Degradation, and Drought.

About UN High-Level Dialogue on Desertification, Land Degradation and Drought:
- **The dialogue** has been organized by the President of the United Nations(UN) General Assembly.
- **Aim:** It aims to focus the international community's attention on land issues. So that it can generate political will for implementing land solutions within COVID-19 adaptation and recovery strategies.
    o **The dialogue** encourages all Member States to adopt and implement Land Degradation Neutrality targets and National Drought Plans.
- **Indian Prime Minister(PM)** presided over the 14th Session of the Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD). Thus, he spoke at the opening segment of the dialogue, which is part of UNCCD.

"Bharitalasuchus tapani"- A carnivorous reptile, lived 240 million years ago

What is the News?
Researchers from the Indian Statistical Institute had carried out extensive studies on rocks of the Yerrapalli Formation in Telangana during the mid 20th Century. During that time, they uncovered several fossils. By studying some of these fossils, the team has now provided information on one of the reptiles(**Bharitalasuchus tapani**).
What information they have provided on the Bharitalasuchus tapani?
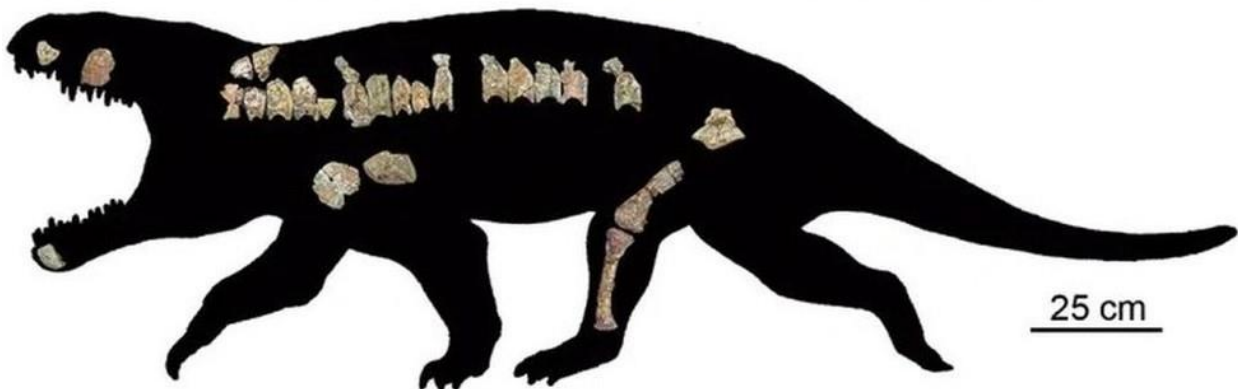
- **The reptile** has been named **Bharitalasuchus tapani**. It is a carnivorous reptile that lived 240 million years ago.
    o **In the Telugu language,** Bhari means huge, Tala means head, and Suchus is the name of the Egyptian crocodile-headed deity.
- **Named after:** The reptile has been named after palaeontologist Tapan Roy Chowdhury. For his contribution to Indian vertebrate palaeontology, and especially his extensive work at Yerrapalli Formation.
- **Genus**: The reptile belonged to a family of extinct reptiles named Erythrosuchidae.
- **Key Features:**
    o Bharitalasuchus Tapani were robust animals with big heads and large teeth, and these probably predated other smaller reptiles.
    o They were approximately the size of an adult male lion and might have been the largest predators in their ecosystems.

About Erythrosuchidae:
- **Erythrosuchidae (**meaning red crocodiles) are a family of large basal archosauriform carnivores. They lived from the later Early Triassic to the early Middle Triassic.
    o **The Triassic** is a geologic period and system which spans 50.6 million years from the end of the Permian Period to the beginning of the Jurassic Period. It is the first and shortest period of the Mesozoic Era.

- **The first Erythrosuchidae** remains were discovered in South Africa in 1905 and more were found in China and Russia.
  - The South African one is about 245 million years old, while the ones from China and Russia are around 240 million years old.

About Yerrapalli Formation:
- **Yerrapalli Formation** is located primarily in the Pranhita–Godavari Basin in Telangana.
- It is a Triassic rock formation consisting primarily of red mudstones. The area preserves fossils of freshwater and terrestrial vertebrates, as well as trace fossils of invertebrates.

Desertification and Land Degradation Atlas of India

What is the news?
'Desertification and Land Degradation Atlas of India' was released recently by Ministry of Environment. It was released on the occasion of **World Day to Combat Desertification.**

Note: *Desertification is the degradation of land in arid, semi-arid and dry sub-humid areas. It is caused primarily by human activities and climatic variations.*

About Desertification and Land Degradation Atlas of India
- **Published by:** The Atlas has been published by Space Application Centre, ISRO, Ahmedabad.
- **Prepared using:** The Atlas was prepared using **IRS Advanced Wide Field Sensor (AWiFS) data** of 2011-13 and 2003-05 time frames in the Geographical Information System (GIS) environment.
- The Atlas provides a state-wise area of degraded lands for the time frame 2018-19.
- It also provides **the change analysis** for the duration of 15 years from 2003-05 to 2018-19.

Significance of the Atlas
- It is helpful in prioritizing areas to be taken up for minimizing the impact of desertification and land degradation.
- Moreover, the Atlas will also be helpful in **strengthening the proposed National Action Plan for achieving land restoration targets** by providing important inputs.

Efforts to Combat Desertification
- India is a **signatory to the United Nations Convention on Combating Desertification (UNCCD)** and is committed to achieving the land degradation neutral status by 2030.
- India hosted the **14ᵗʰ session of the Conference of Parties (COP 14)** of the United Nations Convention to Combat Desertification (UNCCD) in September 2019.
- Further, India is striving towards achieving the **national commitments of Land Degradation Neutrality (LDN)** and the restoration of 26 million hectares of degraded land by 2030.
  - The concept of Land Degradation Neutrality (LDN) **emerged from** the **UN Conference on Sustainable Development (Rio+20) in 2012**. LDN responds to an immediate challenge: intensifying the production of food, fuel and fiber to meet future demand without further degrading our finite land resource base.
- In other words, Land Degradation Neutrality (LDN) envisions a world where human activity has a **neutral, or even positive, impact on the land**.
- The UNCCD Secretariat launched this Land Degradation Neutrality initiative, which has been **enshrined in the SDGs as target 15.3** on achieving a land degradation neutral world by 2030.
- The Government of India has set up a **Desertification Cell** under the Ministry of Environment, Forest & Climate Change (MoEF&CC). The cell represents India in UNCCD.

About World Day to Combat Desertification and Drought
- World Day to Combat Desertification and Drought is observed every year on **17ᵗʰ June**.
- **The day was proclaimed** by the United Nations General Assembly resolution in 1995 after the day when the United Nations Convention to Combat Desertification(UNCCD) was drafted.
- **Aim:** The day is observed every year to promote public awareness of international efforts to combat desertification.

- **The theme for 2021:** "Restoration. Land. Recovery. We build back better with healthy land".

Rare pygmy hogs released in Assam's Manas National Park

Synopsis: Around Eight captive-bred pygmy hogs were released in the Manas National Park of Assam.

About Pygmy Hog:

- **Pygmy Hog** is the smallest member of the pig family. It is native to alluvial grasslands in the foothills of the Himalayas at elevations of up to 300 m.
- **Habitat:** The only known population of Pygmy Hog lives in Assam, India, and possibly southern Bhutan.
- **Features:** The pygmy hog is one of the very few mammals that build its own home, or nest, complete with a 'roof.'
- **Indicator Species:** Pygmy Hog is an indicator species. Its presence reflects the health of its primary habitat, the tall, wet grasslands of the region.
- **IUCN status:** Endangered
- **Indian Wildlife Protection Act,1972:** Schedule 1

Pygmy Hog Conservation Programme(PHCP)

- **The Programme** is a collaboration among Durrell Wildlife Conservation Trust of UK, Assam Forest Department, Wild Pig Specialist Group of International Union for Conservation of Nature and Union Environment Ministry.
- **Under the programme,** six pygmy hogs — two males and four females — were captured from the Bansbari range of the Manas National Park in 1996 for starting the breeding programme.
- **The reintroduction programme** began in 2008 with the Sonai-Rupai Wildlife Sanctuary (35 hogs), Orang National Park (59) and Bornadi Wildlife Sanctuary (22).
- **As part of the programme,** around 142 pygmy hogs were reintroduced into the wild. This is much more than their current original global wild population. By 2025, the PHCP plans to release 60 pygmy hogs in Manas National Park.

"Operation Olivia": Operation Olivia was launched by the Indian Coast Guard in the early 1980s.The operation aims to protect Olive Ridley turtles when they arrive at the Odisha coast for breeding and nesting from November to December.

World's first GM rubber sapling planted in Assam: Rubber Board has planted the world's first genetically modified (GM) rubber at its Sarutari research farm in Guwahati, Assam. **GM Rubber Crop** has been developed at the Rubber Research Institute of India (RRII) in Kerala.

"World Energy Investment Report 2021": The International Energy Agency(IEA) has released the World Energy Investment Report 2021. **The report presents** the latest data and analysis of how energy investment flows are recovering from the shock of the Covid-19 pandemic. This includes full-year outlook estimates for 2021.

"World Environment Day" 2021: World Environment Day was observed on the 5th, June 2021.This WED will also mark the formal launch of the **UN Decade on Ecosystem Restoration 2021 – 2030.**

"Blue finned Mahseer": Blue Finned Mahseer which was on the **International Union for Conservation of Nature's** (IUCN) red list of endangered species has now moved to the 'Least Concern (LC)' status.

International Relations

China's shift from "one-child policy" to "three-child policy"

What is the News?

China has announced that it will allow couples to have up to three children after census data showed a steep decline in birth rates.

About China's One-Child Policy:

- **China's** One-Child Policy was announced in 1980 by then-leader Deng Xiaoping.
- **The policy was adopted** out of fear that unchecked population growth would lead to economic and environmental catastrophe. It was also a response to concerns about food shortages.

- **The policy was implemented** through several means. Such as, incentivising families financially to have one child, making contraceptives widely available and imposing sanctions against those who violated the policy.
- **However, the policy** was also a source of discontent as:
  o **The state used brutal tactics** such as forced abortions and sterilisations.
  o **Controversial** for violating human rights
  o Being **unfair to poorer Chinese** since the richer ones could afford to pay economic sanctions if they violated the policy.
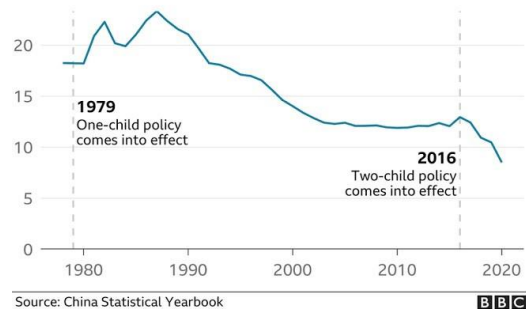
Was the One Child Policy successful?
- **The policy has been blamed** for making China's population aged faster than other countries, impacting the country's growth potential.
- **It is also suggested** that because of the one-child policy, China would be unable to reap the full benefits of its economic growth and will need other ways to support it.

China's Two-Child Policy:
- **In 2016,** China relaxed its One Child Policy. It allowed two children per couple. However, the policy change did little to change the rapid fall in population growth.
- **According to Census 2020,** around 12 million babies were born in 2020. This is a significant decrease from the 18 million in 2016 and also the lowest number of births recorded since the 1960s.
- **Hence, this was the reason** why China has now relaxed its two-child policy and has allowed couples to have up to three children.

China's birthrate has fallen in recent years
Total number of births in China per 1,000 people (1978-2020)

1979 One-child policy comes into effect

2016 Two-child policy comes into effect

Source: China Statistical Yearbook   BBC

Will the Three-child policy increase childbirth?
The experts have said that relaxing limits on reproductive rights alone cannot go a long way in averting an unwanted demographic shift. They have said that the reasons for fewer children being born in China are:
- Rising costs of living, education and supporting ageing parents.
- Country's pervasive culture of long working hours.
- Culture Shift with many couples believing that one child is enough and some expressing no interest in having children.

"Global Liveability Index" 2021 Released by EIU
What is the News? Economist Intelligence Unit(EIU) has released the Global Liveability Index 2021.

About Global Liveability Index:
- **The index** assesses the locations that provide the best and the worst living conditions around the world. It assesses 140 cities around the world.
- **Parameters:** The index takes into account more than 30 qualitative and quantitative factors. These factors are spanning five broad categories: stability (25%), healthcare (20%), culture and environment (25%), education (10%), and infrastructure (20%).
  o **However, due to the pandemic,** the EIU added new indicators to it. It includes stress on healthcare resources as well as restrictions around local sporting events, theatres, music concerts, restaurants, and schools.
- **Scores:** Each factor in a city is rated as acceptable, tolerable, uncomfortable, undesirable, or intolerable. Factor-wise scores are then compiled and weighted to provide a score of 1–100 where 1 is considered intolerable and 100 is considered ideal.

Key Takeaways from the index:
- **Top Five Liveable Cities:** Auckland (New Zealand), Osaka (Japan), Adelaide (Australia), Wellington (New Zealand), and Tokyo (Japan).
- **Top Five Least Liveable Cities:** Damascus (Syria), Lagos (Nigeria), Port Moresby (Papua New Guinea), Dhaka (Bangladesh), and Algiers (Algeria).

"Small Island Developing States" faced most GDP loss in 2020: UN report

What is the News? The United Nations Conference on Trade and Development(UNCTAD) has released a report titled "Development and Globalization: Facts and Figures". The report highlights the numerous challenges faced by Small Island Developing States (SIDS).

Key Findings of the Development and Globalization: Facts and Figures Report:
- **Small island developing states(SIDS)** faced thrice as much fall in Gross Domestic Product(GDP) in 2020 as other developing countries.
  - **SIDS** GDP is expected to decline by 9% in 2020 compared to 3.3% for developing countries.
- **The SIDS countries** were also 35% more vulnerable to external economic and financial shocks than other developing countries.
- **Moreover, COVID-19** has affected all spheres of life in SIDS including health, the economy, and trade.
  - **For instance,** COVID-19 has affected tourism services across the world. This has had a huge impact on SIDS as most of them are heavily reliant on tourism.

What is Small island developing states(SIDS)?
- **Small Island Developing States(SIDS)** are a distinct group of 38 UN Member States and 20 Non-UN Members/Associate Members of UN regional commissions that face unique social, economic, and environmental vulnerabilities.
  - **Maldives** is one of the Small Island Developing States(SIDS).
- **They were recognized** as a distinct group of developing countries in June 1992 at the UN Conference on Environment and Development.
- **The geographical regions** in which SIDS are located are the Caribbean, the Pacific, and the AIS (Atlantic, Indian Ocean and South China Sea).
- **The Barbados Programme** of Action was produced in 1994 in order to assist the SIDS in their sustainable development efforts.
- **The United Nations Office** of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS) represent this group of states.

Why are Small Island Developing States are unique?
- **SIDS countries** are unique as most of them hardly emit greenhouse emissions but are the first to suffer the impacts of climate change.
- **Many of them** are low-lying, situated just five metres above sea level. This makes them vulnerable to sea-level rise, storm surges and coastal destruction.
  - **According to the 2020 Environmental Vulnerability Index**, 4 of the top 10 most environmentally vulnerable countries in the world are SIDS.
- **According to the United Nations report** on World Population Prospects 2019, many SIDS countries would not be able to achieve Sustainable Development Goals by 2030 because of increasing populations and climate risks.

"World Competitiveness Index 2021": India maintained 43rd position

What is the news?
World Competitiveness Index 2021 has been released by the Institute for Management Development (IMD).

About World Competitiveness Index
- **The World Competitiveness Index** is an annual report published since 1989.
- **Released by:** The index is released by the Institute for Management Development (IMD).
- **Aim:** The index ranks 64 economies. It assesses the extent to which a country promotes the prosperity of its people by measuring economic well-being through data and survey responses.
- **Parameters:** The index measures the prosperity and competitiveness of countries by examining four factors:
  - Economic performance
  - Government efficiency
  - Business efficiency
  - Infrastructure

Key Findings of World Competitiveness Index 2021:
- **Top Rankings**: Switzerland has topped the index. It was followed by Sweden, Denmark, Netherlands and Singapore.
- **Asia:** The top-performing Asian economies in order are: Singapore (5th), Hong Kong (7th), Taiwan (8th) and China (16th).
- The **UAE** and the **USA** remain in the same spots as last year (9th and 10th, respectively)

Key Findings Related to India:
- **India's Ranking:** India has maintained the 43rd rank in the world competitiveness index 2021.
  - In 2020, India was ranked 43rd on the index.
- **Comparison with BRICS Countries:** Among BRICS countries, India was ranked second (43rd) after China (16th), followed by Russia (45th), Brazil (57th) and South Africa (62nd).
- **Performance of India:**
  - Among the four factors, India made significant improvements in government efficiency this year. These improvements are due to the following reasons:
    - Relatively **stable public finances** (despite difficulties brought by the pandemic, in 2020 the government deficit stayed at 7 per cent) and
    - **Positive feedbacks** registered among Indian business executives with respect to the support and subsidies provided by the government to the private companies
  - But India's performance in other parameters such as economic performance, business efficiency and infrastructure remained the same.
- **Strengths of India:** India's strengths lie in investments in telecoms (1st), mobile telephone costs (1st), ICT services exports (3rd), remuneration in services professions (4th) and terms of trade index (5th).
- **Weaknesses of India:** India's weakness lies in the broadband subscribers (64th), exposure to particulate pollution (64th), human development index (64th), GDP per capita (63rd) and foreign currency reserves per capita (62nd).

Qualities of higher-ranked countries
The report finds that
- Qualities such as investment in innovation, digitalization, welfare benefits and leadership, resulting in social cohesion, have helped countries to perform better. Thus ranked higher in competitiveness.
- Top-performing economies are characterized by varying degrees of investment in innovation, diversified economic activities, and supportive public policy.
- Competitive economies succeeded in transitioning to a remote work routine while also allowing remote learning. Addressing unemployment has been fundamental

World Bank's Global Economic Prospects (GEP)
Source: Livemint
Syllabus: Indian Economy and issues relating to planning, mobilization, of resources
Synopsis: The World Bank releases a Global Economic Prospects (GEP) report twice a year. It is the most important source for evaluating the current and future outlook for emerging markets and developing economies (EMDEs). The recently released edition is significant because of the warnings it contains.

Key findings of the recent Global Economic Prospects report:
- The world economy is recovering from the pandemic. While the advanced economies (with successful or rapidly progressing covid vaccination programmes) appear to return to or even exceed their earlier growth rates.
- Emerging markets and developing economies (EMDEs) prospects are more mixed.
- The strongest-looking emerging-market region is **East Asia** and the **Pacific** followed by **South Asia.**
- The huge global disparity in vaccine access means that **poorer countries are likely to face more waves of the coronavirus** and its variants in the coming months and years.

- **Inflation**: If inflation in advanced economies persists, central banks may be compelled to tighten monetary policy. That could lead to higher capital inflows for advanced economies and the depreciation of EMDE currencies.
- The report shows that one big stumbling block to faster growth and progress for EMDEs is the **high cost of a trade**. Tariffs account for only one-fourteenth of the total cost of trade, with logistics, transport, bureaucracy and corruption making up the rest. As a result, a **good sold to another country costs on average double what it does domestically**.

Key findings of the Global Economic Prospects related to India:
- The World Bank estimates that covid will cause the number of people living in poverty to increase by 143-163 million in 2021. More than half of the newly poor in South Asia, mainly in India
- The problem with India is not its economic fundamentals, which are strong, but the fact that **poor management of its economy, and the pandemic** means "confidence remains depressed, and balance sheets damaged.

<u>**"Global Peace Index 2021" Released:**</u> **The Global Peace Index** is released by the Institute for Economics & Peace (IEP), an international think tank. The index presents the most comprehensive analysis of trends in peace. It ranks countries according to their levels of peacefulness and identifies potential determinants of peace.

<u>**"World Giving Index 2021":**</u> **The World Giving Index(WGI)** is published by the Charities Aid Foundation(CAF). The index provides combined insight into the scope and nature of giving around the world.

<u>**El Salvador makes "Bitcoin a legal currency":**</u> El Salvador has become the first country in the world to officially classify Bitcoin as a legal currency. **El Salvador** has made Bitcoin a legal currency. This means that the bitcoin must be accepted when offered as payment for goods and services. The tax contributors can also pay through bitcoin.

<u>**World Health Assembly Adopts New Resolution to End Malaria:**</u> The 74th World Health Assembly(WHA) has adopted a new resolution to end malaria. It will accelerate efforts towards this aim. **The resolution** is led by the United States of America and Zambia. **The aim of the resolution** is to urge the Member States to step up progress on containing the disease. It is in line with WHO's updated global malaria strategy and the WHO Guidelines for malaria.

<u>**"I-Familia"**</u> **:** Interpol has launched a new global database named "I-Familia". **I-Familia** is a global database launched to identify missing persons through family DNA. It will help the police to solve cases in member countries.

<u>**"Operation Pangea"**</u> **:** **Interpol** has conducted **Operation Pangea XIV** to target the sale of counterfeit and illicit medicines and medical products. **Operation Pangea** is an international effort to target the online sale of counterfeit and illicit health products. It also aims to raise public awareness of the potential dangers of buying medicines online.

<u>**"Indo-Thai CORPAT"**</u> **:** India and Thailand have commenced the 31st edition of Indo-Thai CORPAT Exercise. **India and Thailand** have been carrying out the Coordinated Patrol (CORPAT) exercises along their International Maritime Boundary Line twice a year since 2005. Indian Naval Ship(INS) Saryu, an indigenously built Naval Offshore Patrol Vessel will be participating in the exercise from the Indian Side.

Science and Technology

2nd "Positive Indigenisation list" Notified by Defence Ministry
What is the News?
The Defence Ministry has notified the second negative import list of 108 items. These items can now only be purchased from indigenous sources as per Defence Acquisition Procedure (DAP) 2020. The list has now been renamed as the 'positive indigenisation list'.
Note: The first positive indigenisation list of 101 Defence Items was announced in August 2020. This means that the second list takes the total number on the list to 209.

What does Positive Indigenisation List mean?
- **Positive indigenisation list** essentially means that the Armed Forces—Army, Navy, and Air Force—will only procure all of these 209 items from domestic manufacturers.
- **The manufacturers could be** private sector players or defense Public Sector Undertakings(DPSUs).

Why was the Positive Indigenisation List announced?

- **India** has been one of the largest importers of weapons in the world for over a decade.
  - **As per Stockholm International Peace Research Institute**, India was the second-largest importer between 2014 and 2019. It imported weapons worth US$ 16.75 billion during this period.
- **Hence,** the government wants to reduce the dependence on imported items in defense.
- **Further, the list** encourages Indian Defence Industry to step up and manufacture the items mentioned in the Negative List for the needs of the forces.
- **Moreover, the list is also in line** with the government's target to reach a turnover of USD 25 billion by 2025 through indigenously manufactured defence products

What does the Second Negative list contain?
- **The second list lays special focus** on weapons and systems which are currently under development/trials and are likely to translate into firm orders in the future.
- **It comprises defence items** such as complex systems, sensors, weapons and ammunition like helicopters, Airborne Early Warning and Control (AEW&C) systems among others.

Implementation of the List:
- **Firstly, this second negative list is planned** to be implemented progressively with effect from December 2021 to December 2025.
- **Secondly, the government of India has also** bifurcated the capital procurement budget for 2020-21. It is between domestic and foreign capital procurement routes.
  - **Out of Rs 1.35 lakh crore** allocated for capital acquisition for defence in this year's budget, the government has reserved more than 60% for domestic procurement.

IFFCO launches world's first "Nano Liquid Urea"
What is the News?
Indian Farmers Fertiliser Cooperative Limited(IFFCO) has launched the world's first Nano Urea Liquid

What is Nano Liquid Urea?
- **Nano Urea Liquid** is a nutrient to provide nitrogen to plants as an alternative to conventional urea.
- **Developed by:** Nano Urea Liquid has been developed indigenously through proprietary technology at IFFCO"s Nano Biotechnology Research Centre(NBRC) in Gujarat.
- **Efficacy Trials:** IFFCO had conducted around 11,000 farmer field trials (FFT's) on more than 94 crops across India to test the efficacy of nano urea. The trials had shown an average 8% increase in yield.

"Corbevax Vaccine" and its difference from other Covid-19 vaccines
What is the News?
India has placed an advance order to block 300 million doses of a new Covid-19 vaccine, Corbevax from Hyderabad-based company Biological E.

About Corbevax Vaccine:
- **Corbevax** is a recombinant protein subunit vaccine. The vaccine is being indigenously produced by Biological E, Hyderabad-based Pharmaceutical company.
- **Made up of:** The Corbevax vaccine is made up of a specific part of SARS-CoV-2 — the spike protein on the virus's surface.
- **Administration of Vaccine**: The vaccine will be administered in two doses. It is expected to be among the cheapest available in the country.

What are Spike Proteins?
- **The members of the coronavirus family** have sharp bumps that protrude from the surface of their outer envelopes. Those bumps are known as **spike proteins.**
- **These spike proteins** allow the virus to enter the cells in the body so that it can replicate and cause disease.
- **However, in Corbevax Vaccine the spike protein** alone is given to the body. So, it is not expected to be harmful as the rest of the virus is absent. The body is expected to develop an immune response against the injected spike protein.

- **Therefore, when the real virus** attempts to infect the body, it will already have an immune response ready that will make it unlikely for the person to fall severely ill.

Note: The technology to inject spike protein to develop immunity against a disease is not new. It has been used previously in making hepatitis B vaccines. However, Corbevax is the first vaccine made for COVID-19 to use this technology.

What is the "Delta variant of Covid-19"?

What is the news?

As per a study carried out by INSACOG (*the consortium of labs undertaking genome sequencing in India*), Delta variant of Covid-19 is the primary cause of the second Covid-19 wave gripping the country presently.

What is the Delta Variant of Covid-19?

- The World Health Organization (WHO) has named B.1.617.1 variant as '**Kappa**' and B.1.617.2 variant as '**Delta**'
  - These variants are **sub-lineages of B.1.617** which was detected in India in 2021.
- This new nomenclature for the various variants of the coronavirus using Greek alphabets was introduced to simplify public discussions and also help remove the stigma from the names.
- Moreover, WHO has also categorized the Delta variant as a **Variant of Concern (VOC)**.

What is Variant of Concern (VOC)?

WHO classifies a variant as a VOC when it is associated with

- **An increase in transmissibility** or detrimental change in Covid-19 epidemiology or
- **Increase in virulence** (Ability to cause severe/life-threatening disease)
- **Decrease in the effectiveness** of public health measures or available diagnostics, vaccines and therapeutics.

Why is Delta Variant more dangerous than other variants?

- This variant has **multiple mutations** that appear to give it an advantage over other strains.
- The most important advantage is that the mutations may make the strain **more transmissible.**This will make the delta variant the **most dangerous variant** yet.
- One study indicated that the Delta variant may be up to 50% more transmissible than the B.1.1.7 (U.K./Alpha) variant.

What is a mutation?

- A mutation means a **change in the genetic sequence** of the virus.
- In the case of Covid-19, which is a Ribonucleic acid (RNA) virus, a mutation means a change in the sequence in which its molecules are arranged.
- A **mutation** in an RNA virus often happens when the virus makes a mistake while it is making copies of itself.

"CHIME telescope" detects numerous "Fast Radio Bursts"

What is the news?

Scientists from the Canadian Hydrogen Intensity Mapping Experiment (CHIME) have detected 535 Fast Radio Bursts (FRB). It is the largest collection of FRB till date.

CHIME telescope (Source: Wiki)
- They have detected this in collaboration with India's **Tata Institute for Fundamental Research (TIFR)** and the **National Centre for Radio Astrophysics (NCRA)**.

What are Fast Radio Bursts (FRBs)?
- **FRBs** are bright bursts of radio waves *(radio waves can be produced by astronomical objects with changing magnetic fields)* that blaze for a few milliseconds before vanishing without a trace.
- They are spotted in various and distant parts of the universe as well as in our own galaxy. However, their **origins are still unknown,** and their appearance is highly unpredictable.
- **The first FRB** was spotted in 2007. Since then, scientists had only caught sight of around 140 bursts in their telescopes.
- **Source:** Magnetars could be the source of some fast radio bursts(FRBs).

What is a Magnetar?
- **Magnetar:** It is a type of neutron star. The magnetic field of such a star is very powerful. It can be over a thousand times stronger than a typical neutron star's magnetic field.
- **Neutron:** The formation of a neutron star occurs when the core of a massive star undergoes gravitational collapse at the end of its life.

Fast Radio Bursts (FRBs) discovered by CHIME Telescope
- The CHIME telescope has detected 535 new fast radio bursts in its first year of operation between 2018 and 2019.
- **Location of FRBs:** When the scientists mapped their locations, they found the FRBs were evenly distributed in space, seeming to arise from any and all parts of the sky.
- **Types:** The newly discovered FRBs appear to fall into two distinct classes: those that repeat and those that don't repeat.
    - **The repeater FRBs** looked different. Each burst lasted slightly longer and emitted more focused radio frequencies than bursts from non-repeating FRBs.
    - These differences strongly suggest that **emission** from repeaters and non-repeaters is generated either by **different physical mechanisms** or in **different astrophysical environments**.
- **Significance:** Scientists hope that the CHIME telescope will soon help them discover more properties of fast radio bursts and know more about the possible sources they are coming from.

CHIME Telescope
- Canadian Hydrogen Intensity Mapping Experiment (CHIME) is a **radio telescope** designed to answer major questions in astrophysics and cosmology.
- The telescope is a **partnership** between the University of British Columbia, McGill University, the University of Toronto and the Canadian National Research Council's Dominion Radio Astrophysical Observatory.
- **Working of CHIME Telescope:**
    - **The CHIME telescope functions a bit differently** from others used for radio astronomy. Most radio astronomy is done by rotating a large dish to focus light from different parts of the sky.
    - On the other hand, the CHIME telescope comprises four massive parabolic radio antennas. It has **no moving parts,** and it receives radio signals each day from half of the sky as the Earth rotates.
    - The telescope has a powerful **digital signaling processor** that works at about seven terabits per second – equivalent to a few percent of the world's internet traffic.
    - This digital signal processor reconstructs and looks in thousands of directions simultaneously. That's what helps it to **detect FRBs** a thousand times more often than a traditional telescope.
- **Location**: The telescope is located at Dominion Radio Astrophysical Observatory in British Columbia, Canada.

Govt launches "Project O2 for India" to increase supply of medical oxygen
What is the News?
The Government of India has launched the 'Project O2 for India'.

About Project O2 for India:

- **Project O2 for India** is an initiative of the Office of Principal Scientific Adviser, Government of India(GoI).
- **Purpose:** The project aims to:
  - **Step up production** of medical oxygen to meet the potential increase in demand due to further waves of the pandemic .
  - **Help the stakeholders** working to increase the country's ability to meet the rise in demand for medical oxygen.

Key Features of the Project O2 for India:
- **Under the Project,** a National Consortium of Oxygen has been set up. It has been raising funds from private sector organisations, individuals among others.
- **These funds are being used** by the consortium to <u>supply critical raw materials</u>. Such as zeolites, setting up of small oxygen plants, manufacturing compressors, ventilators among others.
- **Moreover, the consortium** is also working to strengthen the manufacturing ecosystem of medical oxygen for long-term preparedness.
- **Further, a committee of experts** has also been <u>set up to evaluate critical equipment</u>. Such as oxygen plants, concentrators, and ventilators from a pool of India-based manufacturers, start-ups, and MSMEs.

About Office of the Principal Scientific Adviser (PSA):
- **Setup in**: Office of the Principal Scientific Adviser (PSA) was set up in 1999 by the Cabinet Secretariat. It is currently a Secretary level position.
- **Mandate**: This office is the chief advisor to the government on matters related to scientific policy. The policies focus on critical infrastructure, economic and social sectors.

India successfully test-fires Agni P, a new missile in Agni series
What is the News?
Defence Research and Development Organisation(DRDO) has successfully flight-tested a New Generation Nuclear-Capable Ballistic Missile Agni P from Dr APJ Abdul Kalam island off the coast of Odisha.
About Agni-P:
- **Agni P** is a new generation advanced variant of the Agni class of missiles.

Features of Agni P Missile:
- **Canister Based Missile:** Agni P is a canisters based missile. Canisterisation of missiles reduces the time required to launch the missile while improving its storage and mobility,
  - This means that it can be launched from rail and road and stored for a longer period. It can also be transported across the length and breadth of the country.
- **Weight:** The missile weighs 50% less than Agni III and has new guidance and a new generation of propulsion.
- **Range:** The missile has a range between 1000km to 2000km.It has been developed specifically to strike targets in Pakistan. Its range is too short to reach targets in the Chinese mainland.
- **Replaced by:** The Agni-P will replace the Prithvi, Agni-1 and Agni-2 missiles that were built two decades ago with technologies that are now considered outdated.

About Agni Missiles:
- **Agni Missiles** trace their origins back to the Integrated Guided Missile Development Programme(IGMDP).
- **IGMDP was conceived by** APJ. Abdul Kalam in the 1980s to enable India to attain self-sufficiency in the field of missile technology.
- **The missiles developed** under this programme include (a)Agni (b)Akash, (c)Trishul (d)Prithvi and (e)Nag.

NHP-Bhuvan Portal: The Government of India has launched the NHP –Bhuvan portal of the National Remote Sensing Centre(NRSC).**The National Hydrology Project or NHP-Bhuvan Portal** is a repository of information on the initiatives undertaken by NRSC under NHP (National Hydrology Project).**The portal also has a facility** to download the reports and knowledge products being developed by NRSC.
"AmbiTAG"- Indian Institute of Technology, Ropar(IIT Ropar) in Punjab has developed a device named **AmbiTag.AmbiTag** is the first-of-its-kind Internet of Things(IoT) device. The device will be helpful in following areas.

They are: secure transportation of vaccines, blood and body organs, perishable products (food and dairy) among others.

"EnVision Mission": European Space Agency(ESA) has announced a new mission with the name EnVision mission. **EnVision** is a European Space Agency(ESA)-led mission. National Aeronautics and Space Administration (NASA) is working as a contributor. The mission will carry instruments to study the Venus atmosphere and surface. Also, to monitor trace gases in the atmosphere, and analyze the surface composition of Venus.

Ventilators(PRENA, VaU, SVASTA) to battle Covid-19: Indian Space Research Organisation(ISRO) has developed three types of ventilators (PRENA, VaU, SVASTA). These three ventilators have been developed at Vikram Sarabhai Space Centre(VSSC), a major space research centre of ISRO in Kerala.

"XraySetu" Service: The government has launched **XraySetu service** for rapid screening of COVID 19. with the help of Chest X-ray interpretation over WhatsApp for doctors who have access to X-ray machines. **XraySetu** is an Artificial Intelligence (AI) driven Xray interpretation platform. It has been developed to identify COVID-19 positive patients even from low-resolution Chest X-Ray images sent over WhatsApp. **Developed by:** ARTPARK (AI & Robotics Technology Park) in collaboration with Bangalore-based HealthTech startup Niramai and Indian Institute of Science(IISc).

Miscellaneous

"OFB Corporatisation" Approved by Cabinet

What is the News?

The Union Government has approved a plan for Ordnance Factory Board(OFB) Corporatisation.

About Ordnance Factory Board(OFB):
- **Ordnance Factory Board(OFB)** is an umbrella body of 41 Ordnance Factories.
- **Origin:** In 1775, British authorities accepted the establishment of the Board of Ordnance in Fort William, Kolkata. This marked the official beginning of the Army Ordnance in India.
- **Nodal Ministry:** It is currently a subordinate office of the Ministry of Defence (MoD).
- **Mandate:** It provides a major chunk of the weapon, ammunition, and supplies for Indian armed forces, paramilitary forces, and police forces.
- **Headquarters:** Kolkata, West Bengal

Corporatisation of OFB (Ordnance Factory Board):
- **Ordnance Factory Board(OFB)** will be dissolved. It will be replaced by seven new Defense Public Sector Undertakings (DPSUs). Each undertaking will have a specific manufacturing role.
- **The 41 factories under the OFB** will be subsumed under one or the other of the seven new companies. These all will be 100% government-owned public sector undertakings(PSU).
- **There would be no change** in the service conditions of the OFB employees.
    - **All OFB employees** (Group A, B, and C) from different production units will be transferred to the corporate entities on deemed deputation for an initial period of two years.

Significance of Corporatization of OFBs: The restructuring of OFBs is aimed at achieving the following objectives:
- Making it a productive and profitable asset;
- deepen specialisation in the product range;
- enhance competitiveness;
- improve quality and cost-efficiency
- overcome various shortcomings in the existing system and provide these companies opportunities in the market, including exports
- Provide more autonomy, as well as improve accountability and efficiency.

Kerala's "Bell of Faith Scheme" for elderly

What is the News?

Kerala's 'Bell of Faith' scheme will be expanded to the villages to reach senior citizens staying alone. Earlier, the scheme was successfully implemented in a number of urban households in Kerala.

About Bell of Faith Scheme:
- **Firstly, Bell of Faith Scheme** was launched by the Kerala Police in 2018. It aims to provide security to senior citizens staying alone as part of Kerala's Community Policing Scheme.
- **Secondly, under the Scheme,** police have installed a bell in the senior citizens' houses.
- **Thirdly, the neighbour** will get an alert with an alarm when the senior citizen rings the bell during an emergency.
- **Fourthly, the neighbour can immediately** rush to the house or contact the police or hospital.

Significance of the Scheme:
- **The Bell of Faith scheme** sets an example for community participation to ensure the well-being and safety of the elderly.
- **Moreover,** this scheme can be of great support for the senior citizens during the COVID-19 pandemic as many live in fear for their health.

Union Minister launches "Horticulture Cluster Development Programme"

What is the News?
The Union Minister of Agriculture and Farmers Welfare has launched the Horticulture Cluster Development Programme(CDP).

About Horticulture Cluster Development Programme(CDP):
- **Horticulture Cluster Development Programme(CDP)** aims at growing and developing identified horticulture clusters to make them globally competitive.
  - **A cluster** is a group of enterprises. They are located within an identifiable and, as far as practicable, contiguous area and producing similar products or services.
- **Nodal Agency:** The nodal agency for the programme will be the National Horticulture Board(NHB). It will implement the programme as a Central Sector Component of NHB.

Coverage:
- **The Ministry of Agriculture and Farmers' Welfare(MoA&FW)** has identified 53 horticulture clusters. Of which 12 have been selected for the pilot launch of the programme.
  - **Based on the learnings** from the pilot project, the programme will be scaled up to cover all the identified clusters.
- **These clusters** will be implemented through Cluster Development Agencies(CDAs). CDAs are appointed on the recommendations of the respective State/UT Government.

Key Features of the Programme:
- **Firstly**, the programme will address all major issues related to the Indian horticulture sector. This includes pre-production, production, post-harvest management, logistics, marketing and branding.
- **Secondly**, the programme is designed to leverage geographical specialisation and promote integrated and market-led development of horticulture clusters.
- **Thirdly**, the programme is expected to converge with other initiatives of the Government such as the Agriculture Infrastructure Fund.

Govt Launches "Seed Minikit Programme"

What is the News?
The Ministry of Agriculture has launched the Seed Minikit Programme.

About Seed Minikit Programme:
- **Seed Minikit Programme** aims to distribute high yielding varieties of seeds of pulses and oilseeds to farmers.
- **Nodal Agencies:** The seed mini-kits are being provided by the following central agencies
  - National Seeds Corporation(NCS)
  - NAFED
  - Gujarat State Seeds Corporation

- **Funding:** The programme is wholly funded by the Center through the National Food Security Mission.
- **Significance:** This programme is a major tool for introducing new varieties of seeds in fields and instrumental in increasing the seed replacement rate.
  - **Seed Replacement Rate (SRR):** Out of the total area of a crop planted in a season, SRR is the percentage of total area sown using certified/quality seeds other than the farm-saved seed (the practice of saving seeds to plant in the next season).

Pulses and Oilseeds Production in India:
- **The Government of India** in collaboration with states has been implementing programmes to enhance the production of pulses and oilseeds under the National Food Security Mission.
- **Since 2014-15,** there has been a renewed focus on increasing the production of pulses and oilseeds. The efforts have **yielded good results**.
  - **Oilseeds production** has increased from 27.51 million tonnes in 2014-15 to 36.57million tonnes in 2020-21.
  - **On the other hand,** pulses production has increased from 17.15 million tonnes in 2014-15 to 25.56 million tonnes in 2020-21.
  - **However, India still** imports a lot of pulses and edible oils to meet domestic demand.

About National Food Security Mission(NFSM):
- **The National Food Security Mission(NFSM)** was launched in 2007-08 by the Ministry of Consumer Affairs.
- **Aim:** To increase the production of rice, wheat and pulses through
  - area expansion and productivity enhancement
  - restoring soil fertility and productivity
  - Creating employment opportunities and
  - enhancing farm level economy.
- **Coarse cereals** were also included in the Mission from 2014-15 under NFSM.

Govt launched (Seniorcare Ageing Growth Engine) "SAGE Initiative and SAGE Portal"

What is the News?
The Union Minister for Social Justice and Empowerment has launched the (Seniorcare Ageing Growth Engine) SAGE Initiative and SAGE portal for elderly persons.

About SAGE Initiative and SAGE Portal:
- SAGE Initiative and SAGE Portal have been launched with an aim to provide "one-stop access" for elderly care. The portal will provide access to all elderly care products and services developed by credible start-ups.
- **Launched by**: Ministry of Social Justice and Empowerment (MoSJ&E)

Key Features of the Initiative:
- **Helping start-ups**: The initiative aims to help startups that are interested in the field of providing services for elderly care.
  - **Selection of start-ups**: Start-ups will be selected by an independent screening committee of experts.
  - **Basis of selection**: The committee will select the startups on the basis of their innovative products and services across sectors. Such as health, housing, care centres and technological access linked to finances, food, wealth management and legal guidance.
  - **Fund**: A fund of up to Rs 1 crore as one-time equity will be granted to each selected start-up.
- **Ministry will act as a facilitator**: After the product is made, the Ministry of Social Justice will act as a facilitator enabling the elderly to access these products.

What was the need for this initiative?
- There has been a **rise** in India's **elderly population**.
  - As per surveys, the share of elders as a percentage of the total population in the country is expected to increase from around **7.5%** in 2001 to almost **12.5%** by 2026, and surpass **19.5%** by 2050.

Hence, there is an urgent need to create a more robust elder care ecosystem in India, especially in the post-COVID phase.

NITI Aayog launches "Surakshit Hum Surakshit Tum Abhiyaan"

What is the news?

Surakshit Hum Surakshit Tum Abhiyaan' has been launched by NITI Aayog and Piramal Foundation.

About Surakshit Hum Surakshit Tum Abhiyaan:

- **Surakshit Hum Surakshit Tum Abhiyaan** has been launched in 112 aspirational districts.
- **Aim:** To assist district administrations in providing home-care support to COVID-19 patients who are asymptomatic or have mild symptoms.
- **Features of the initiative:**
  - **Firstly,** the initiative will be **led by district magistrates** in partnership with local NGOs.
  - **Secondly,** the NGOs will help mobilise **local volunteers.** They shall be trained so that they can provide support to affected families by educating them to follow Covid-19 protocols. They shall also be trained to provide **psycho-social support** and **timely updates** about patients to the administration.
  - **Thirdly,** local leaders, civil societies and volunteers will also work with district administrations to address emerging problems across key focus areas of the Aspirational Districts Programme.
- **Significance of the campaign:** The Surakshit Hum Surakshit Tum Abhiyaan campaign is expected to contribute to **district preparedness** for managing nearly 70% of COVID cases at home. Hence, it shall reduce pressure on the healthcare system and curbing the spread of fear among the people.

"ELDERLINE": The Minister of State for Social Justice & Empowerment has said that the Elderline is providing assistance to thousands of elderly persons. This was said on the occasion of World Elder Abuse Awareness Day.

ELDERLINE was launched by the Ministry of Social Justice and Empowerment. It is a toll-free helpline number (Toll-Free Number-14567) for elderly persons. It aims to help elderly persons by extending emotional care, health and legal assistance through dedicated call centres.