

MONTHLY

EPIC!

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The 15th Edition

Dear Forumites,

The 15th edition of EPIC magazine comes when the Civil Services Preliminary Examination, 2021 is around the corner. 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 the Pegasus Project, New ministry of cooperation, RBI's data localization policy 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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FOCUS ARTICLE

The Pegasus Project and Surveillance in India

In News: A multi-organisational investigation involving news agencies, cybersecurity specialists, and Amnesty International released a list of persons allegedly targeted by Pegasus spyware. The list included over 1,000 Indians, with at least 40 journalist and several members of Parliament.

The government has denied any wrongdoing or carrying out any unauthorized surveillance. However, these revelations highlight a disturbing trend of the usage of illegal surveillance net against dissidents and adversaries by government which is a characteristic feature of a surveillance state.

EXPLAINED: The Pegasus Project

What is the Pegasus Project?

It is an international grouping of news publications which have reported that a spyware known as 'Pegasus' was used to spy on politicians, journalists and activists, primarily from 10 countries.

What is Pegasus?

Pegasus is a type of malicious software or malware classified as a spyware. It has been developed by Israeli security firm NSO Group.

How does Pegasus infiltrate devices?

- Pegasus is part of a tier called "zero click exploits" that do not require the victim to do anything. Instead, the spyware is designed to take advantage of bugs in popular apps such as iMessage and WhatsApp to infiltrate the system.
- Pegasus can also use unsecured websites to infiltrate a device. These are called network injection attacks and also happen without the victim's intervention. The device is infiltrated within milliseconds of visiting such a website.

What is a surveillance state?

A surveillance state is defined as a state which legally surveils all actions, locations, and friends of its citizens, in order to prevent crimes or in order to solve them faster.

Case of Misuse of Surveillance Tools:

- **2009 Case of Nira Radia:** The Government of India admitted to have kept her under surveillance for 300 days due to fears of her being a foreign spy, yet no prosecution for espionage was carried out.
- **2012 Himachal Pradesh government raid of police agencies:** Recovered over a lakh phone conversation of over a thousand people, mainly political members, and many senior police officials, including Director General of Police.
- **2013 Gujarat 'Snoop gate' Controversy:** Government admitted surveillance, including phone tapping, yet no legal order was ever produced. Later, the High Court shut down the case on the grounds that it did not serve public interest.

Rationale behind Surveillance state vis-a-vis National Security

- **Countering organized crime:** Social media has become a tool for facilitating organized crime i.e., to commit and provoke extremism, money laundering, violence and crime.
- **Curbing fake news:** Fake news is a new challenge for law enforcement agencies as many lynching incidents reported in 2018 were triggered by fake news being circulated through WhatsApp and other social media sites.
- **Intelligence gathering:** It gives authorities the ability to gather information on critical threats such as inducement for recruitment of terrorists, spread of disharmony, etc.
- **Surveying threats in inaccessible areas:** Technologies such as Unmanned aerial vehicles are critical for surveillance in insurgency-hit areas, mountainous regions, border areas etc.

- **Investigation of crimes:** Facial recognition and CCTVs are being increasingly used to identify and verify criminals, missing persons.
- **Enhanced efficiency of security agencies:** Surveillance technologies allow regimes to automate many tracking and monitoring functions formerly delegated to human operators. This brings cost efficiencies and frees up security forces to conduct other important tasks.
- **Deterrent effect:** Presence of round the clock surveillance through CCTVs deters criminal activities such as thefts, eve teasing etc.

Surveillance Laws in India

- **Telegraph act 1885:** Provisions of the Telegraph Act relate to telephone conversations i.e., **interception of calls.**
 - **Under Section 5(2) of the Indian Telegraph Act,** agencies at the Centre and states can intercept electronic communication “on the occurrence of any public emergency, or in the interest of the public safety”.
 - The law empowers designated officials to put a device under surveillance on being satisfied that “it is necessary or expedient to do so in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign states or public order or for preventing incitement to the commission of an offence.
 - Reasons for ordering interception have to be recorded in writing by the officials concerned.
- **Indian Telegraph rules:** Rule 419A of the Indian Telegraph Rules identify the officers who can order **surveillance of messages.**
 - It states that a secretary to the Government of India in the ministry of home affairs can pass orders of interception.
 - In the case of a state government, a secretary-level officer who is in charge of the home department can issue such directives.
 - In unavoidable circumstances, such orders may be made by an officer, not below the rank of a joint secretary to the Government of India, who has been duly authorized by the Union home secretary or the state home secretary.
- **The Indian Post Office Act, 1898:** It allows the Centre and state to **intercept postal articles** in public emergencies or in the interest of public safety or tranquility.
- **IT Act 2000 & IT Rules 2009:** The IT Act relates to **all communications undertaken using a computer resource.**
 - **Section 69 of the IT Act 2000,** together with the IT (Procedure for Safeguards for Interception, Monitoring and Decryption of Information) Rules 2009, authorise the agencies to issue directions for interception or monitoring or decryption of information through any computer resource, including mobile phones.
 - **Grounds for interception:** Section 69 states that interception is permissible “in the interest of the sovereignty or integrity of India, defence of India, security of the State, friendly relations with foreign States or public order or for preventing incitement to the commission of any cognizable offence relating to above or for investigation of any offence”.
 - **Note:** Hacking is expressly prohibited under the IT Act.

Judicial Position on the Surveillance Issue

- In **Kharak Singh Vs The State of Uttar Pradesh**, the Supreme Court struck down certain UP Police Regulations that allowed for home visits to “habitual criminals” or those who were likely to become habitual criminals. The Constitution bench held that such surveillance was **violative of Article 21** (right to life and liberty).
- **PUCL case 1996:** The Supreme Court held that the right to privacy would certainly include telephonic conversation in the privacy of one’s home or office. Telephone tapping would, thus, infringe Article 21 of the Constitution of India unless it is permitted under the procedure established by law. Subsequently, the Centre codified the guidelines in 2007 under **Rule 419A.**
- In **R Rajgopal alias RR Gopal and another Vs State of Tamil Nadu (1994)**, the Supreme Court held that the right to privacy is implicit in the right to life and liberty guaranteed to the citizens of this country by Article 21.

- **Puttaswamy judgment:** The SC in Puttaswamy judgement held that the **right to privacy is a fundamental right**. The court added that telephone tapping and internet hacking by the State, of personal data, is another area that falls within the realm of privacy.

Issues in legal surveillance framework

- **Lack of clarity in the application of various acts:** It is not clear when Telegraph Act applies or when I.T. Act applies.
- **Ambiguity in powers of intelligence and security agencies:** Intelligence Organizations Act, which restricts civil liberties of intelligence agency employees, only lists four agencies, while RTI Act lists 22 agencies as “intelligence and security organizations established by the central government” that are exempt from the RTI Act.
- **Lack of oversight:**
 - **A secretary (home ministry) has the authority** to order the interception, monitoring, or decryption of a person’s phone if they are satisfied that it is “necessary” or “expedient” to do so under certain circumstances.
 - The **only legal safeguard against misuse** is a review by a three-member review committee comprising the Cabinet secretary and two other top-level bureaucrats.
 - Hence, the authority issuing the interception order and the one which exercises oversight share the same incentives.
 - After the SC’s judgments on privacy (KS Puttaswamy, 2017) and Aadhaar (KS Puttaswamy, 2019), it is clear that **the lack of independent oversight is untenable and unconstitutional**, apart from being contrary to democratic norms followed globally.
- **A surveillance alphabet soup exists:** None of programmes (such as CMS, TCIS, NETRA, CCTNS, and so on), which have an associated surveillance character has been authorised by any statute and thus falls short of 2017 K.S. Puttaswamy judgment.
- **A legalised misconduct:** Even within provisions of existing laws, the government has **total opacity** in respect of its interception and monitoring activities.
 - **Section 69 of the IT Act and the Interception Rules of 2009** are even more opaque than the Telegraph Act, and offer even weaker protections to surveillance.
 - **A Right to Information (RTI) request in 2013** revealed that the Central government had revealed that 7,500 to 9,000 orders for the interception of telephones are issued by it every month. RTI requests are now denied citing threats to national security and to the physical safety of persons.
- **Lack of adequate national legislation:** Weak procedural safeguards, ambiguous language and ineffective oversight reduce accountability and heighten conditions for unlawful digital surveillance. **The proposed legislation related to the personal data protection** of citizens fails to consider surveillance. It also

Concerns related to unchecked expansion of tech-surveillance

Concerns to Citizens

- **Privacy breach of citizens:** According to NSO, this spyware is sold only to governments to investigate and prevent terrorist and national security incidents. However, the list of targets (in the Pegasus Project) in India seems to be far removed from any such potential national security investigation.
- **Lack of informed consent:** Government bodies tend to widen the application of such technologies to newer areas **without the consent of its citizens**. For example, in **Telangana the police recently used its surveillance system** to track people suspected of the novel coronavirus disease.
- **Contravention of fundamental rights:** Existence of a surveillance system impacts right to privacy and exercise of freedom of speech and personal liberty under **Articles 19 and 21 of the Constitution**. It prevents people from reading and exchanging **unorthodox, controversial or provocative ideas**.
- **Affects Right to Constitutional Remedies:** Surveillance, when carried out entirely by the executive, **curtails Articles 32 and 226 of the Constitution** (empowering the Supreme Court and High Courts, respectively, to

issue certain writs) as it **happens in secret**. Thus, the affected person is unable to show a breach of their fundamental rights.

Concerns to the Nation

- **Potential of Misuse:** Surveillance technologies can be misused for a variety of purposes such as intimidating and harassing opponents, stifling legitimate protests, disrupting elections, elevating false information etc.
 - For instance, it has been alleged that lawyers handling the **Bhima-Koregaon case** in India have been targets of surveillance by operators using Pegasus.
- **Effectiveness of surveillance technologies:** The accuracy of surveillance technologies, such as facial recognition technology varies significantly and certain tests have disclosed unacceptably high false-match rates. Growing concerns about **algorithmic bias and prejudice** also impact effectiveness of these predictions.
- **Threat to Sovereignty:** By relying on foreign vendors and third-system integrators for surveillance technologies, India could compromise and dilute its national security.
- **Risk of expanding into state-sponsored mass surveillance:** As the technological tools become more sophisticated, cheap and efficient over time, the risks of state-sponsored mass surveillance would rise.
- **Threat to press freedom:** Amnesty International's Security Lab was able to confirm that Pegasus was used to compromise phones of journalists. **World Press Freedom Index produced by Reporters Without Borders** has already ranked India 142 out of 180 countries in 2021. Such incidents would further jeopardize the perception of press freedom in India.

Institutional concerns for India:

- **Shadow over courts:** There have been allegation that the phones of the woman who had complained of sexual harassment against a former Chief Justice, and her family, were under surveillance. It can have chilling effect on victims.
- **The integrity of democratic institutions:** A system in which political opponents, officials of the Election Commission, and political colleagues could be subjected to this kind of surveillance **will inspire less confidence**.
- **Violates ideals of due process** and goes **against the requirement of procedural safeguards** as mandated in *K.S. Puttaswamy v. Union of India*.
- **Against principle of separation of power:** Surveillance extending to Constitutional functionaries like Supreme Court judges gives disproportionate power to the executive and threatens separation of powers.

Way Forward

- **Revamp the role of the judiciary:**
 - **Judicial oversight over surveillance systems:** To decide whether specific instances of surveillance are proportionate, whether less onerous alternatives are available, and to balance the necessity of government's objectives with the rights of the impacted individuals.
 - **Judicial investigation into the Pegasus hacking:** Necessary to ensure justice in state response and investigation regarding the allegations.
- **Pass the Test of Proportionality:**
 - Surveillance activities conducted by the state must pass the Test of proportionality.
 - The test postulates that the nature and extent of the State's interference with the exercise of a right must be proportionate to the goal it seeks to achieve.

Proportionality can be ascertained on the basis of the following:

- the action must be sanctioned by law;
 - the proposed action must be necessary in a democratic society for a legitimate aim;
 - the extent of such interference must be proportionate to the need for such interference;
 - there must be procedural guarantees against abuse of such interference.
-
- **Need for a strong data protection law:** There is a need for a strong data protection law that protects the individual right to privacy, including protection from surveillance and unauthorized data collection by government agencies.

- **Banning the use of private spyware:** A collective decision banning the use of private spyware will be a step forward.

GS - 1

Population control bill

Syllabus: GS-1- Population and associated issues

In news: The Uttar Pradesh State Law Commission has recently released a draft Uttar Pradesh Population (Control, Stabilisation and Welfare) Bill, 2021. It promotes a two-child policy and thus provides for controlling and stabilising the population of the state.

About the Uttar Pradesh Population (Control, Stabilisation and Welfare) Bill, 2021

- **Promoting two-child policy (“Bachche do hai Achche”):** The proposed law's overarching goal is to promote the two-child rule for the benefit of the state's citizens.
- **Goal:** By 2026, the state's gross fertility rate will be reduced from 2.7 to 2.1.
- **Incentivizes two Child per couple:** a) Preference to single child in government jobs, in admissions in all education institutions b) Two additional increments during the entire service period c) Subsidy towards purchase of plot or house site or built house from Housing Board or Development Authority d) Rebate on charges for utilities such as water, electricity, water, house tax.
- **Disincentivizes more than two children per couple:** a) Debarred from benefit of Government sponsored welfare schemes b) Bar on applying to government jobs, c) Bar on contesting election to local body d) Bar in promotion in government services e) Bar on receiving any kind of government subsidy.

Arguments in favour of UP's Draft Population Policy

- **Limited resources:** The state's natural and economic resources are finite; as a result, unless population growth is controlled, the state will be unable to ensure that all citizens have access to basic rights.
- **The impetus for equitable sustainable development** necessitates a resource-balanced approach. Thus, population control is needed.
- **Legal support:** In the case of Javed & Ors versus State of Haryana & Ors, the Supreme Court upheld a law prohibiting those with more than two children from running for local government elections.
- **International obligations:** India was dedicated to its international obligations, notably the ideas outlined in the 1994 International Conference on Population and Development Programme of Action.

Arguments against UP's Draft Population Policy

- **Against international convention and domestic policies:** India is signatory to Programme of Action of the International Conference on Population and Development (UN 1994). It provides that coercion, incentives, and disincentives have no role to play in population stabilisation, and should be replaced by the principle of informed free choice.
 - **The National Population Policy of 2000** unambiguously supports a goal-free approach, emphasising the importance of education, maternal and child health and survival, and the availability of health-care facilities, including contraception, as critical tools for population stabilisation.
- **Question on the necessity of the policy:** As the population growth of India & Uttar Pradesh is already stabilising. Uttar Pradesh's fertility rate (NFHS-4) is 2.7, down from 3.8 ten years ago (NFHS-3). This trend is linked to improvements in state-level health indices such as the infant mortality rate (IMR), maternal mortality ratio (MMR), and malnutrition during the same period. Further, at least 18 states in India have already achieved a replacement-level fertility rate of 2.1 by NFHS-4.
- **Development is the best population control policy:** All states that attained replacement-level fertility rates have much better development indicators.
 - According to the NFHS-4, Uttar Pradesh has a child mortality rate of 78, compared to 7 in Kerala and 27 in Tamil Nadu. In Uttar Pradesh, 33 per cent of women have completed 10 years of schooling, compared to 72 per cent in Kerala and 50 per cent in Tamil Nadu.

- **Demographic Distortion:** In a community where male children are preferred, it may lead to worsening of child sex ratio.
 - China recently deviated from the one-child norm to three child norm. The one child norm led to a) skyrocketing aged dependents, b) insufficient people of working age & c) huge excess of aged people needing costly medical care.
- **Masking the state's failure to offer contraceptive services:** In Uttar Pradesh, 18% of contraceptive needs are unmet, compared to 10% in Tamil Nadu.
 - The Supreme Court acknowledged human rights violations in criminal sterilisation 'camps' in the case of Devika Biswas versus Union of India & Others in 2012.

Conclusion:

- UP's draft policy on population control has opened up the debate on two child policy. The population stabilisation policies should be based on a communal understanding based on decades of scientific data of what works and what doesn't for population stabilisation.

GS - 2

Ministry of Cooperation

Syllabus: GS- 2- government policies and interventions

In news: The Government of India recently established a distinct Ministry of Cooperation to accomplish the objective of "Sahkar se Samridhhi". Earlier "Co-operation" was one of the Division under the Ministry of Agriculture.

More on news:

- The Ministry of Cooperation, according to the government, would aim to enhance India's cooperative movement.
- The establishment of this ministry is in accordance with the announcement made by the finance minister in her 2021 Budget speech.

Key objectives:

- It will establish a distinct administrative, legal, and policy structure for the country's cooperative movement.
- It will work towards realisation of vision "from cooperation to prosperity".
- It will work towards strengthening of cooperative movement in the country and deepening its reach up to the grassroots.
- Promotion of cooperative-based economic development model, including the spirit of responsibility among its members to develop the country.
- It will look into Matters relating to National Co-operative Organisation.
- It will endeavour to streamline processes to make it easier for cooperatives to do business and to foster the growth of multi-state cooperatives (MSCS).

Need for the ministry:

- **Spreading Cooperatives throughout India:** According to most of the research carried by institutes such as the Vaikunt Mehta Institute of Cooperative Management, the cooperative structure has flourished and left its mark exclusively in a few states such as Maharashtra, Gujarat, and Karnataka. The cooperative movement would gain the financial and legal power it needs to expand into other states under the new Ministry.
- **Spawning the funding structure:** The majority of federal government funding to cooperative institutions go to a few states, namely Maharashtra, Gujarat, and Karnataka, while other states have struggled to keep up. The cooperative finance structure would be given a second chance at life under the new Ministry.

Criticism of the Ministry

- **More authority/control to central government:** Critics observe that the establishment of a new Ministry of Cooperation will consolidate even more authority in the hands of the central government.

- It is being viewed as just another example of the Centre attempting to take control of local institutions, particularly in states ruled by the opposition, and weakening federalism principles.
- **Weakening the grip of opposition:** Some speculate that this action is intended to weaken opposition parties' grip over cooperatives in crucial states like Maharashtra.
- **Correcting a system error:** India's agriculture ministry already has a division in charge of cooperatives. However, majority of new co-operative registrations are not in the agriculture sector. They are now appearing in industries such as housing and labour.

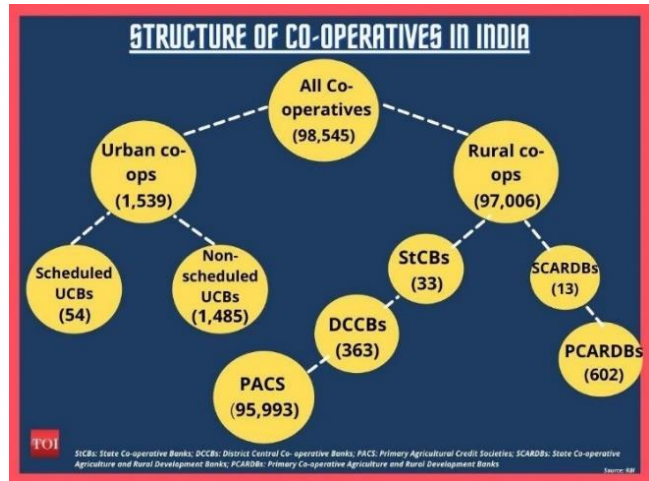


Fig. structure of cooperatives

Constitutional provisions

- **97th amendment:** The Constitution (97th Amendment) Act of 2011 established a new Part IXB (Cooperatives) following Part IXA (Municipals) to cover cooperatives in India.
 - It added the word "cooperatives" after the words "unions and associations," in Art 19(1)(c) under Part III of the constitution. It makes forming co-operatives by citizens as their Fundamental Rights.
 - It added a new Article 43B to the Directive Principles of State Policy (Part IV) regarding the 'promotion of co-operatives societies'

Laws governing cooperatives

- **Governed under state regulations:** Under entry 32 of the State list in Schedule 7 of the Constitution, cooperatives are a state subject. The majority of cooperative societies are governed by state regulations, and their regulating offices are the Cooperation Commissioner and the Registrar of Societies.
- **Multi-State Cooperative Societies Act, 2002:** It provides for registration of cooperative societies that operate in multiple states.
 - These are large banks, dairies, and sugar mills with operations that span multiple states. Their controlling authority is the Central Registrar of Societies, although the State Registrar acts on his behalf on the ground.
- **The National Cooperative Development Corporation (NCDC):** It is a non-profit organisation dedicated to promoting India's cooperative movement. It is in charge of developing, marketing, coordinating, and funding national cooperative development projects. It also provides financial, insurance, and technical assistance to farmer cooperatives and other underserved groups.

Related News: SC junks part of 97th amendment

What is the news?

The Supreme Court has knocked down portions of a constitutional amendment that limited states' exclusive control over cooperative organizations.

What were the court's observations?

The court concluded that cooperative societies fall under **the "exclusive legislative jurisdiction" of the state legislature**. The Supreme Court stated that the **Centre has authority over multi-State cooperative groups**.

- **Firstly**, the court held that under Entry 32 of the State List and Part IX B has "**seriously and considerably harm the State legislature's**" exclusive legislative jurisdiction" over their cooperative sector.
 - In fact, the court noted that Article 243ZI specifies that a state may only enact legislation concerning the incorporation, regulation, and dissolution of a society if it complies with the provisions of Part IXB of the 97th Constitution Amendment.
- **Secondly, parliament, as the recipient of limited power, can only exercise it in conformity** with the procedural and substantive constraints set forth in the Indian Constitution.
- **Thirdly, the parts of Part IXB of the Amendment dealing with "Multi-State Cooperative Societies" were not struck down by the court due to a lack of ratification.** When it comes to Multi-State Co-operative Societies (MSCS) with objectives that are not limited to a single state, the Union of India's legislative power is included in Entry 44 List I. (Union List).
 - Part IXB of the Constitution is deemed to be in effect only in so far as it relates to multi-State cooperative societies inside the several States and in the Union Territories.
- There is no doubt that our Constitution has been described as quasi-federal in that, in terms of legislative powers, the **States have exclusive power to legislate on topics reserved exclusively to them** within their own sphere.

Though an amendment to the Constitution is the exercise of constituent power, which differs from ordinary legislative power, such constituent power **does not convert Parliament into an original constituent assembly**.

Significance of cooperatives

- **Contribution to society:** Cooperatives have made major contributions to poverty alleviation, food security, natural resource management, and environmental protection in India, albeit they are not consistent.
- **Cooperatives at the local level:** Cooperatives are effective at mediating politics at the local level, outside of the parliamentary system, in addition to helping localities and segments that markets may overlook.
- **Leadership development:** Cooperative institutions have served as leadership development schools in places such as Maharashtra. The movement has provided the state with several Chief Ministers and ministers, many of whom have gone on to establish a name for themselves at the national level as well.

Failures of cooperatives in India:

- **In the Financial sector:** The performance of cooperatives, when measured in terms of their **share in overall credit, achievements in technology up-gradation, keeping NPAs low or curbing fraudulent deals**, has been poor. It is often believed that urban cooperative banks had huge transactions during the demonetisation phase and, in fact, were one of the main factors responsible for the failure of demonetisation.
- **In the Sugar sector:** Sugar cooperatives of Maharashtra, initially touted as exemplars of the movement, are in the doldrums now. Many of them are sold to the private sector.
- **In the Dairy sector:** Despite the grand success of Gujarat's milk cooperatives in Gujarat, the model did not spread to other states as successfully. In UP, the biggest producer of milk, cooperatives, are nowhere in the scheme of things. **Almost 60% of milk procured from cooperatives comes from two states, Gujarat and Karnataka.**
- **Responsible for market distortions:** The Karnataka Milk Federation (KMF), which sells its products under the brand name of Nandini, gives them Rs 5 to Rs 6 extra per litre. **This subsidy, given by the state government, cost the exchequer Rs 1,260 crore till 2019- 20.** If Maharashtra and Karnataka were two different countries, Maharashtra would be challenging Karnataka at the WTO.

Way forward

- **Ease of doing business:** From registration to winding up, the Ministry of Cooperation should make it easier for cooperatives to do business. It should free multi-state cooperatives from government control and encourage all states to pass legislation that is in line with the needs of a contemporary market economy.
- **No need for numerous regulators:** Cooperatives may survive as true member-owned companies without the need for multiple regulators.
- **Identify opportunities:** The Ministry of Cooperation should identify sectors where cooperative-based businesses might be established, offer capital and technology, and make doing business easier.
- **Women's cooperatives:** Women's cooperatives should be prioritised because they account for fewer than 3% of the country's 8 lakh cooperatives.

Data localisation policy**Syllabus: GS-2- Government policy and interventions**

In news The Reserve Bank of India (RBI) banned Mastercard from issuing new debit and credit cards to customers in India.

More on news:

- According to the RBI, the US card issuer has failed to follow the central bank's local data storage guidelines, which were published in 2018.

What is the RBI's data localisation policy?

- In 2018, RBI had issued a circular ordering card companies such as **Visa, Mastercard, and American Express** to store all Indian customer data locally (in servers located within India). It said local storage of consumer data is necessary to **protect the privacy of Indian users** and also to address **national security concerns**.
- **RBI banned Mastercard from issuing new cards to customers from July 22** for not complying with these rules. Existing Mastercard customers, however, can continue to use their cards.
- Earlier this year, American Express and Diners Club International were also banned by the RBI from issuing new cards after they failed to comply with the 2018 circular.

About Data Localisation

- **Data localisation:** It refers to the collection and storage of data of citizens on servers located within their country. It helps governments to protect the privacy and rights of their citizens.
- **Data localisation regulations:** Under the proposed data protection law, the enforcement of data protection laws would be contingent on foreign businesses establishing a business presence in India, not on data localization. The bill requires significant data-related businesses (significant data fiduciaries) to register in India.

Why data localisation is necessary for India?

- **Protecting the privacy:** Data localization is required to protect citizens' data and privacy.
- **Capturing the economic value of data:** Data is the new oil. India, with a vast population and a large number of citizens connected to the internet, offers economic prospects. Thus, it could propel country's economic and scientific growth.
- **Conflict of jurisdiction:** The data of Indian users is stored outside of the nation. In the event of a disagreement, this could result in a conflict of jurisdiction. As a result, data localization would assist the Indian judiciary in dealing with conflict situations in accordance with data regulations.

- **Leveraging the potential of disruptive tech:** Digital technologies such as machine learning (ML), artificial intelligence (AI), and the Internet of Things (IoT) may extract enormous value from a variety of data sources. Data localization would allow India to profit from the information provided by these technologies. It can provide opportunities to Indian IT company to expand.
- **Strengthening cybersecurity:** It would strengthen India's cybersecurity system by contributing vital information and experience.

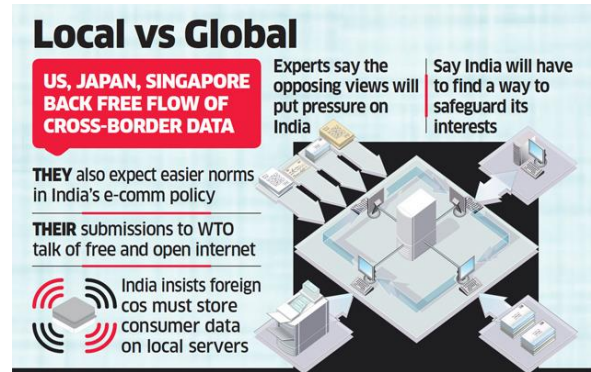


Fig. Free flow of cross border data

What are the various issues India is facing with respect to data localization?

- **Anti-competition:** Foreign corporations have a competitive edge over all other businesses in India. They have a large social base, giving them an advantage against Indian companies.
 - **Facebook and WhatsApp**, for example, have a large social media and messaging user base, giving them the ability to influence their users. Providing a level playing field for small firms is difficult.
- **Privacy Concerns:** The right to privacy of citizens is a major cause of worry. Businesses will still have access to all transaction data, which might be misused, even if they agree to set up data localization in India. **For example, Facebook can use its social media data** to link transactions made over WhatsApp.
- **Harmful to the e-commerce sector:** Requiring localization would be counterproductive to the government's goal of promoting e-commerce. Keeping strict data localization legislation in place **could be perceived as a trade barrier**, jeopardising India's economic success.
- **Would affect the industry:** Data localization will lead to a price **increase for international companies' services**. They may hike the cost of their cloud computing services. It will affect industries and start-ups that rely on these services.
- **Increasing judicial burden:** The number of litigations will increase as a result of data localisation difficulties. This will add to the already overburdened workload of the judges.



Fig. Draft plan for e-commerce

Way Forward

- **Guidelines on transactions:** Clear, unambiguous and detailed guidelines on digital transactions, as well as criteria for storing and processing payments, are required.
- **Analysis of the impact of digital technology:** A thorough examination and analysis of how digital technologies will affect several sectors, particularly finance and payments, is required. Efforts should be taken to foster competition and allow local businesses to thrive. Studies on consumer data protection and data sovereignty are also required.
- **Supporting domestic business:** Domestic businesses should be encouraged and supported to take advantage of the local market in order to become global leaders. In the digital payments sector, local businesses will require a lot more help and incentives.
- **Clarity on data storage:** There must be clarity on how citizens' data will be stored and for how long. This will remove confusion and will also aware citizens of their rights. Any violation of rule can help Indian firms and citizens to sue the companies.
- **Long term plan for data localization policy:** There is a pressing need for a coordinated, long-term plan for data localization policy development. Data localization must take into account a variety of social, political, and economic factors.
- **Adequate infrastructure:** In order for India to become a worldwide hub for data centres, adequate infrastructure in terms of electricity, real estate, and internet connectivity must be made available.

The conclusion

India's digital vision emphasises data sovereignty and offering indigenous businesses a competitive advantage. Local enterprises might acquire huge portions of the digital payments sector and become global e-commerce players with the appropriate policy incentives. These are critical in ensuring that all Indians' rights are protected as we transition from a cash-based to a cashless economy.

Prison Reforms in India

Syllabus: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

In News: The death of Father Stan Swamy has again highlighted the dismal state of prisons in our country.

Introduction

Prisons/'persons detained therein' is a **State subject under Entry 4 of List II of the Seventh Schedule** to the Constitution of India. Administration and management of prisons is the responsibility of respective State Governments. However, the **Ministry of Home Affairs** provides regular guidance and advice to States and UTs on various issues concerning prisons and prison inmates.

Constitutional Provisions

- **Right to life and personal liberty** - The Supreme Court held that right to life is one of the basic human rights, guaranteed to every person by Article 21 and not even the State has authority to violate it.
- **Right to a speedy trial** - The Supreme Court has considered the right to a speedy trial as one of the essential ingredients of Article 21 of the Constitution. Delay in the disposal of cases is a denial of justice, so the Court is expected to adopt necessary steps for expeditious trial and quick disposal of cases.
- **Right to free legal aid** - Article 39A of the Constitution of India deals with the obligation of the State to provide free Legal Aid to such accused prisoners both in the prison and outside.

Need for prison reforms in India

- **Structural Constraints**
 - **Over-crowded jails** - NCRB 2019 data says there are 1350 functional jails in India, with a total capacity of approx. 4 Lakh prisoners but actual strength exceeds 4.78lakh.
 - **Under-staffing** - While 33% of the total requirement of prison officials still lies vacant. Police personnel in India are 181/lakh population which is much less than the UN prescribed 222/lakh.
 - **Under-funding- This has led to a** lack of space, poor ventilation, poor sanitation and hygiene making the living conditions deplorable in Indian prisons.
- **More Under-trials** - Under trials lose four of their fundamental rights: the right to liberty, freedom of movement, freedom of occupation, and freedom of dignity. And the legal right to vote as well.
 - **69 % (approx. 3.3 lakh) were under trials and only 30.11% were convicted for crime.** In general, under trials spend three months to five years in jail before getting bail.
- **Extradition of fugitives** under the UN Convention directly depends on prison reforms.
 - For example, India lost the case of bringing KIM DEVY from Denmark who is accused of PURULIA ARMS DROP CASE.
- **Custodial torture and deaths** - The number of "unnatural" deaths in prisons has doubled between 2015 and 2016, from 115 to 231. The rate of suicide among prisoners has also increased by 28% from 77 suicides in 2015 to 102 in 2016.
 - The **apathy of Jail authorities was again witnessed** in Father Stan Swamy's case. His deteriorating health was neglected, and he was shifted to a hospital after a considerable delay. Which eventually enhanced the probability of his death.
 - It is essential to uncover torture and other forms of ill-treatment, increase transparency and balance the power asymmetry in prisons
- **Discrimination:** According to **Humans Rights Watch**, a "rigid" class system exists in Indian prisons. There is rampant corruption in the prison system and those who can afford to bribe, often enjoy luxuries in prison.

- **Lack of comprehensive data** – The data by NCRB **does not include the number of prison visits by official and non-official visitors** which typically include district magistrates and judges, social workers and researchers.

Why has prison populations increased during a pandemic which necessitated decongestion?

- **Misplace priorities:** High number of lockdown related arrests reveals policing priorities have been misplaced and a public health crisis has been treated more as a law and order issue.
 - For example, arrests made during the first three phases of the lockdown, unusual number of arrests under Excise Act (15.8 percent)
- **Access to bail:** Reduced court capacities due to the pandemic, have impaired the access to bail for arrested persons.
- **Virtual courts:** The adoption of a virtual court system also aggravated judicial delays.
- **Failure of the criminal Justice system:** Police, courts and prisons to work in an integrated manner towards the decongestion even during this pandemic.

Judgements over the condition of prisons

- **Sunil Batra (I) v. Delhi Administration (1978):** The court held that the humane thread of jail jurisprudence runs through Indian prisons, under which no prison authority enjoys amnesty for unconstitutionality.
- The Delhi High Court in **Nina Pillai & Ors v. Union of India** directed the payment of Rs 10 lakh as compensation to the petitioners and the implementation of the Leila Seth Commission's recommendations.

Implementation of recommendation of following committees constituted for prison reforms:

Justice Mulla Committee 1983:

- All India cadre for prison staff and Bringing prison under the concurrent list
- Government should form a National Policy on Prisons
- Government to use alternatives to imprisonment such as community service, etc.

Justice V. R. Krishna Iyer committee on women prisoners 1987:

- Separate institutions with women employees alone for women offenders.
- Necessary provisions to restore the dignity of women even if convicted.

Best Practices

- **Open Prisons:** The criminal justice system in Norway focuses on the principle of restorative justice and rehabilitating prisoners. 30% of prisons in Norway are open and all prisons ensure healthy living conditions, vocational training and recreational facilities.
- **Yellow Ribbon Project (Community Involvement):** The goal of the yellow ribbon project is to reintegrate and rehabilitate prisoners. It involves prisoners voluntarily giving up all gang associations (including having tattoos removed). Part of the challenge prisoners face after being released is that of the social stigma of having been in prison.

Steps to be taken

- **Ensuring right to legal aid** - It is high time that **the access to legal aid** (which is a directive principle to state policy under Article 39A) **should be made a fundamental right.**
- **Undertrials should be released on Bail:** In 2017, the Law Commission of India had recommended that undertrials who have completed a third of their maximum sentence for offences attracting up to seven years of imprisonment be released on bail.
- **Separation of Under Trials, women offenders, first-time offenders and youth offenders** - Under trials are usually people who haven't been convicted of the offence yet and such prisons should be kept in a separate prison cell, away from hardened criminals so that they do not get influenced by such offenders.
- **Unified prison management system:** NALSA has recommended that there should be a unified prison management system that has records of all inmates so they don't have to run from pillar to post for copies of documents like court orders.

- **Social security for prisoners:** Wages that are paid to prisoners who are serving sentences should be increased and should be on par with global benchmarks. So that when they come out, they have some better financial security.
- **Skill development of the prisoners:** The major role prisons should play is of reformation and making sure that, once out, inmates are properly integrated into society. That is possible when more skill development programs are introduced in the jails to enhance their chances of earning.

Conclusion

India is in the forefront of human rights causes all across the world, but the poor condition of Indian prisons reflects the paradox that exists in the Indian criminal justice system. Prison reforms **form the pillars of the criminal justice system which require comprehensive reforms.**

A digital refresh

Syllabus: GS-2- Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

In news: COVID-19 has reaffirmed the need to bridge the gaps in Internet access. The digital divide exists across borders, fields, and generations, impacting virtually every aspect of life. During the pandemic, the impact of the digital divide is evident on both macro and micro levels.

State of digital connectivity in India

- **According to Internet Trends 2017 research**, the internet is used by 27% of India's population (355 million users).
- **The Digital India initiative**, which was introduced in 2015, propelled digitization to the foreground of public debate. This initiative has made **significant progress** in areas such as the construction of broadband roadways, public internet access, e-governance, and the development of basic information technology skills etc.
- **Given the importance of digital connectivity to economic growth** and the need to close the digital divide by 2022-23, India should strive to achieve the following objectives:
 - All states, districts, and gram panchayats have physical-digital connectivity (GPs).
 - By 2022-23, all government services will be delivered digitally, and everyone in the country will have 100 per cent basic digital literacy, allowing them to take advantage of the benefits of digitalization.

Constraints to digital connectivity

Internet-related Issues

- **Broadband connectivity:** Quality and dependability concerns, outages, call dropouts, and poor signals affect Internet access. The existing definition of broadband, which calls for a download speed of 512 kbps, is insufficient and does not reflect future demand.
 - Existing networks have been strained by limited spectrum availability and usage, affecting the provision of quality services.
- **Frequent internet outages:** Research suggests that state governments shut down the internet 374 times between 2012 and 2019, resulting in \$2.4 billion in losses.
 - State governments are widely disobeying the Supreme Court's ruling in **Anuradha Bhasin v Union of India**, which requires the disclosure of internet shutdown orders.

Structural Issues

- **Digital literacy:** A large percentage of our population lacks access to gadgets such as laptops, computers, smartphones etc. In India, less than 10% of the population is expected to be digitally literate.
- **Accessibility:** According to the latest **Telecom Regulatory Authority data (Dec 2020)**, with 308.17 million rural internet subscribers, the rural penetration rate of 34.69 per cent is less than one-third of the urban penetration rate.
 - There are currently 37,439 villages in India that do not have access to telecommunications services.
 - For example, only 4.54 crore target candidates have been identified by the Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA). As of March 2021, only 2.71 crore candidates had been certified out of this total.

Service-related issues

- **Content in Indian languages:** The majority of digital information is currently in English. According to a KPMG11 analysis, “9 out of every 10 new internet users in India over the next 5 years will almost certainly be Indian language users.”
- **Availability of e-services:** A vast number of e-services are not available on the digital platform, and the availability of citizen e-services varies greatly between states. Because municipalities and other government entities have been reluctant to digitise their procedures, citizens must visit government offices to get the most government-to-citizen (G2C) services.

Regulatory issues

- **Cybersecurity:** The cybersecurity regulatory framework is insufficient. Both the government and the business sector have experienced service disruptions as a result of hacking and denial-of-service attacks.
- **Regulation of social media:** There is no clear legislative authority.
 - Due to the involvement of two ministries, the IT Rules are jointly administered by the Ministry of Information and Broadcasting and the Ministry of Electronics and Information Technology.
 - The Ministry of Information and Broadcasting oversees online news portals and video streaming services; but, rather than establishing clear regulatory rules, this has resulted in confusion and disagreement.
 - Nearly 14 individual constitutional challenges are currently ongoing in various high courts.
- **Rise in data breaches:** In India, the typical data breach costs Rs 14 crore, while the average time to notice and contain a breach has increased to 221 days and 83 days, respectively.
 - There have been few policy changes to remedy these flaws since they appear to have been postponed pending the passage of a new data protection law.

Digital India Connected India

Cabinet Approves setting up of Public Wi-Fi Networks by Public Data Office Aggregators to provide WiFi service through Public Data Offices



To accelerate proliferation of Broadband Internet services through Public Wi-Fi network in the country.



There shall be no license fee for providing Broadband Internet through these public Wi-Fi networks.



To promote the growth of Public Wi-Fi Networks in the country.



To help in proliferation of Broadband Internet, enhancement of income and employment and empowerment of people.

Fig. Public Wi-Fi networks

Way Forward

- **Quality of service:** Adequate spectrum availability is critical to ensure service quality. Efficient spectrum allocation in large attached blocks should be explored.
- **Access and digital literacy:** Digital literacy needs special focus at the school/college levels. **The National Digital Literacy Mission** should focus on introducing digital literacy at the primary school level. The multiplier effects of this mission will be realized when these students in turn educate their family members.
- **Content in Indian languages:** State governments should pay special attention to creating content, particularly those relating to government e-services, in Indian regional languages.
 - To fulfil the vision of making all government's online services available in all 22 official languages, there needs to be a focused collaboration between the centre, states and researchers to promote Natural Language Processing (NLP) in Indian languages.
- **Availability of e-services:** Individual ministries and states have to play a pivotal role in ensuring that all their services are available and easily accessible by citizens over digital platforms.
 - Procurement of such digital platforms could be standardized by the central government based on an analysis of successful case studies in India. This would ensure expedited implementation across the country.
- **Cybersecurity:** MeitY will need to evolve a comprehensive cybersecurity framework for data security, safe digital transactions and complaint redressal.
 - The National e-governance Division of MeitY should periodically audit compliance of e-services offered by state governments. It should bring out a performance report of e-services to improve service delivery.
- **Role of TRAI:** As the sector regulator, TRAI should consider putting in place a credible system to track call drops, weak signals and outages to ensure the quality and reliability of telecom services. The results may be put in the public domain. Government should also put in place a telecom ombudsman for complaint redressal.

The Loss of Learning

Syllabus: GS- 2- Issues relating to development and management of Social Sector relating to education.

In news: Long-term school closures put students' futures in jeopardy. We urgently require an evidence-based road map for the safe reopening of classrooms.

Impact of a pandemic on education

- **Effect on children's mental development:** Virtual learning has impacted the classroom's "collaborative learning". Impatience, depression and hostility are emerging as behavioural modifications in children.
- **Accessibility issues:** According to Save the Children, three out of every four children did not have an internet connection during the first wave in 2020, and four out of five children experience learning difficulties (including the inability to understand and too many chores).
- **Parental burden:** Due to their lack of knowledge, many parents are unable to assist their children. Many youngsters have been denied mid-day meals, due to closure of schools. The children are being coerced into child labour and early marriages.

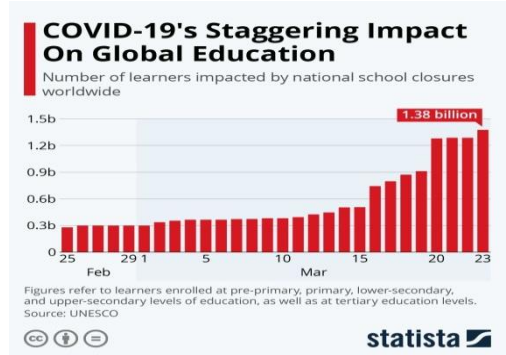


Fig. Impact of Covid-19 on global education

- **Using school teachers as frontline workers:** Elections and quarantine centre management was handled by school teachers resulting in their deaths due to Covid. In Uttar Pradesh alone, over 1,500 teachers died.
- **Economic loss:** According to the Asian Development Bank, each year of lost schooling equates to a 9.7% reduction in prospective earnings.
 - The current value of learning losses in developing Asia (including India) owing to protracted school closures is predicted to be \$1.25 trillion, or 5.4 per cent of the region's GDP in 2020.

Impact of school closure

- **A widening achievement gap among kids:** The bottom half of Class 10 students are nearly two years behind in terms of skills. Long-term school closures have increased this divide, pushing the next generation further into poverty.
- **Increased chances of dropping out:** According to a poll conducted in Ten Indian States in November 2020, approximately two-thirds of youngsters in rural India may drop out of school.
 - The number of students enrolled in private schools in Haryana has decreased by 42%.
 - Social ills such as child labour and child marriage are becoming more prevalent.
- **Issues regarding poor nutrition:** Disrupting the mid-day meal plan might lead to an increase in underweight and wasting.
- **Impact on children's mental health:** A spike in student suicides in Las Vegas, Nevada, led schools to reopen in January 2021. The number of children on antidepressants has increased by 40% in the United Kingdom.

Estimated impacts of COVID-19 on Learning Poverty

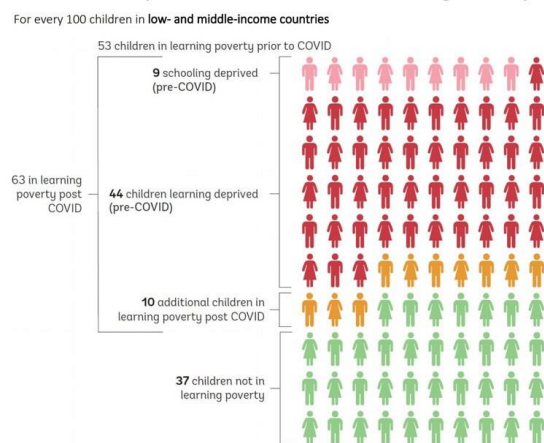


Fig. Learning poverty

A case for reopening school

- **Children's COVID-19 risk is substantially lower:**
 - According to the research of 137 million school-aged children in the United States and Europe, COVID-19 is less than half as risky as seasonal influenza and more than 20 times less risky than death from "unintentional harm" in this age range.

- According to data from Mumbai's dashboard, COVID-19 IFR (Infection Fatality Rate) for under-19s is minuscule, under 0.003 per cent, far lower than India's newborn mortality rate of 3%.
- A study of nearly two million children in Sweden concluded that no child died as a result of COVID-19 since schools were open all year.
- **Dispelling fears about the third wave and new variations that impact children:**
 - Those impacted in the second and first waves had comparable age characteristics.
 - According to research released by Public Health England in June 2021, the newer model Delta is far less risky than the original (case fatality rate of 0.1 per cent) (case fatality rate 1.9 per cent).
- **Addressing the danger of COVID-19 spreading in schools for teachers and parents when schools reopen:** Studies in Europe and the United States show that the risk of COVID-19 spreading in schools is low compared to other areas.
 - To alleviate teachers' fears, the government should recognise them as essential workers and provide them with priority vaccination.
- **Maintaining social equity:** For children with limited resources whose parents must work every day, in-person schooling is essential.

Challenges in reopening school

- **Policy problem— a "one-size-fits-all" solution may not be appropriate:** Because each person's risk-benefit analysis may differ.
- **Children's vaccination issues:** There is a rising worry in the United States over a possible link between cardiac inflammation and the mRNA vaccine among teens, necessitating a rigorous risk-benefit study.
 - "The rarity of severe Covid-19 outcomes for children means that research cannot establish that the advantages of vaccination outweigh the potential harmful effects," according to the British Medical Journal (May 2021).



Fig. Children's rights index

Way Forward:

- **Vaccinate teachers as soon as possible:** According to a recent Israeli study, for every 20 per cent increase in the proportion of vaccinated 16-to 50-year-olds, the proportion of unvaccinated children under the age of 16 who tested positive for Covid reduced by half.
- **Create a plan for the safe reopening of schools:** For example, a hybrid model might boost the usefulness of virtual classes by creating or restoring links between teachers and students.
 - Coursework may need to be rescheduled to make up for the lost time.
 - It will take a lot of time and money, and it may require start-stop openings and closings.

Conclusion:

- There is no such thing as a risk-free situation. Schools cannot be shuttered until every child has been vaccinated, as this might take years. When it comes to reopening schools, policymakers must make informed decisions. This is the very least the Indian working class and children deserve.

Tracking Fugitives Everywhere

Syllabus: GS-2- International Relations, Government Policies and Interventions for Development in various sectors and issues arising out of their Design and Implementation, Important Aspects of Governance, Transparency and Accountability.

In news: There's a need for streamlining Indian extradition law and procedures to check criminals from going undetected.

About Extradition

Extradition is the formal process of one state surrendering an individual to another state for prosecution or punishment for crimes committed in the requesting country’s jurisdiction.

- It typically is enabled by a bilateral or multilateral treaty.
- **Other Related terms:**
 - **Deportation:** Under this, a person is ordered to leave a country and is not allowed to return to that country.
 - **Exclusion:** In exclusion, a person is prohibited from staying in a particular part of a sovereign state.
 - **Repatriation:** It is the process that enables the transfer of foreign prisoners to their native country where they can serve the remaining part of their sentences.



Fig. Fugitives sent to India

Extradition in India

- **Governance Act:** In India, the extradition of a fugitive (accused or convicted) is governed by the **Extradition Act, 1962**.
- **Dependence on treaties:** The extradition of a fugitive depends upon the treaties/conventions/arrangements entered into by India with other countries
 - At present, India has **bilateral extradition treaties with 43 countries** and extradition arrangements with 10 countries.
 - Extradition arrangements are non-binding and do not impose any legal obligations on party states. On the other hand, treaty mechanisms are binding.
- **The Ministry of External Affairs:** It is the nodal body for extradition matters in India.
- **India is also a party to several multilateral conventions:** They provide a binding extradition framework for **curbing transnational crimes** such as drug trafficking, terrorism, and aircraft hijacking. Based on this an extradition request can be made under:
 - **United Nations Convention Against Corruption (2003),**
 - **United Nations Convention against Transnational Organized Crime (2000) etc.**
- **Requests to non-treaty nations:** Requests for the surrender of fugitives can also be made to non-treaty states. These requests will be considered under the laws and procedures of the foreign state.

Principles Governing Extradition

- **Principle of Dual Criminality:** This requires that the offence that the fugitive is alleged to have committed, should be an offence both in the requesting as well as the requested state.
- **Principle of Reciprocity:** Countries must show reciprocity in the exchange for fugitives between requesting and requested State.
- **Principle of Competence:** The requested state must be satisfied that the requesting state has a right to prosecute the fugitive.
- **Principle of proportionality between offence and sentence:** Punishment for a particular crime should not be excessively harsh or inhuman upon the fugitive. **European countries generally don't extradite** when the requesting country has the potential to inflict capital punishment on the fugitive.
- **Principle of relative Seriousness of the offence:** Extradition is usually **permissible only for relatively more serious offences**, and not for trivial misdemeanours or petty offences.

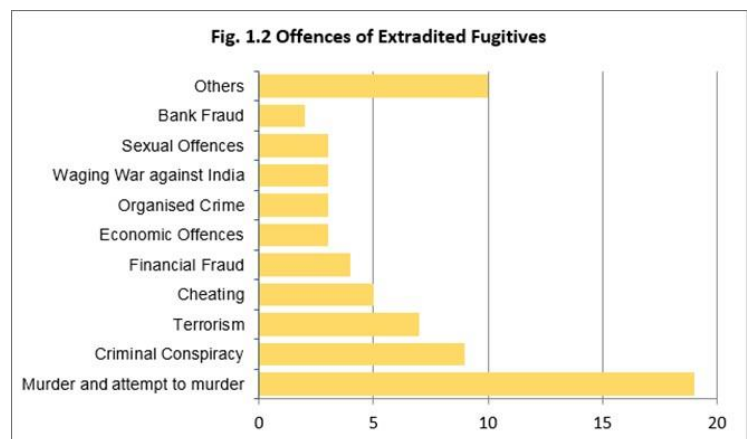


Fig. Offences of extradited fugitives

Issues in Indian extradition law framework

- **Complexity of rules:** Extradition laws in India are scattered throughout the Indian Penal Code, as well as laws relating to narcotic narcotics, information technology, hijacking, and other topics.
 - **The Code of Criminal Procedure** serves as the foundation for procedural legislation.
 - **Other statutes:** the Extradition Act, **the Narcotic Drugs and Psychotropic Substances Act, the Prevention of Corruption Act, the Prevention of Money Laundering Act,** and so on.



Fig. Types of Interpol notices

- **Investigation and prosecution issues:**
 - **The proclivity to close investigations:** Once the accused has fled, both state and federal agencies have a proclivity to close investigations.
 - **A poor track record in coordinating operations:** Few incidents of coordinated efforts to apprehend fugitives, either locally or internationally, have been documented.
 - **Low amount of wanted notices issued:** Only 750 Red Corner Notices have been issued, compared to 300 Blue Corner Notices.
- **There is no unified method or database for tracking criminals:** Interpol Notices are a system for tracking criminals around the world.
 - However, in the lack of such a system in India, criminals from one police station/jurisdiction can easily blend into the populace of any other location, nearly undetected.
- **Poor Prison Conditions:** The Indian prisons fall short of desired facilities like quality food, bedding, health facilities, etc. This discourages western nations from extraditing fugitives on grounds of human rights violations.
 - **Eg – Karamjit Singh Chahal (charges of separatism), Sanjeev Chawla (illegal betting) and Kim Davy (terrorism)** escaped extradition due to poor prison conditions.
- **Disregard to extradition clauses:** India was criticized by Portugal for the violation of the Principle of Specialty. **As India imposed additional cases on Abu Saleem.** The same is feasible in the current extradition cases also. This damages India's image for upholding extradition laws, especially from the EU.
- **Less number of bilateral extradition treaties:** India has a fewer number (43) of bilateral extradition treaties compared to other countries. **The US and the UK, for example, have extradition treaties with over 100 countries each.**

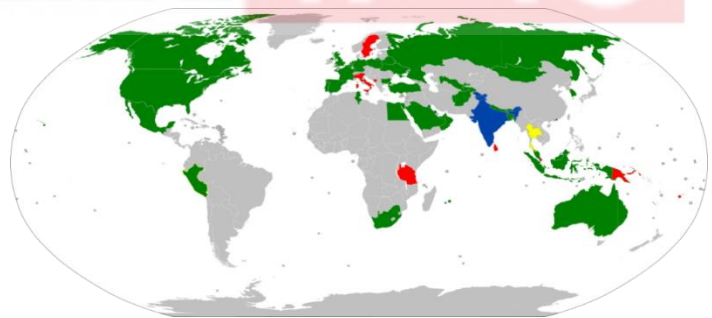


Fig. Countries with which India has extradition treaties

Way forward

- **Create a national database of wanted people:** that is accessible to law enforcement, the public, and others (like passport and immigration authorities).
 - While the Crime and Criminal Tracking Network and Systems and the National Intelligence Grid are positive steps forward, greater integration is needed.
- **Legal integration:** All applicable legal processes and requirements should be unified into one international cooperation statute.
 - A specialised structure with an Integrated International Cooperation Division (IICD) at the helm and links to proposed fugitive tracking units at the state level.
- **Close loopholes in sharing its "wanted" database or granting foreign embassies access to it:** Signing bilateral agreements on policing cooperation on a reciprocal basis or through treaties.

- **Adhere to international standards:** the United States has operational inter-State extradition and fugitive tracking systems.
- **UN Convention against Torture:** India needs to sign the UN Convention against Torture that will generate greater trust in its prisons and police personnel.
- **Conducting speedy investigations:** The country needs to improve the capacity and efficiency of investigating agencies to conduct speedy investigations. The government should **establish a central agency** to take up larger cases involving extradition.
 - The **Justice Malimath Committee report (2003) recommended setting up a Central Agency**, on similar lines with the Federal Bureau of Investigation (USA). This would exercise jurisdiction over crimes and offences affecting national security.

Conclusion

India needs to strengthen its domestic framework and maintain harmonious relations with other countries. The fulfilment of these twin objectives is a requirement in ensuring a smooth, transparent, and speedy extradition process.

India's future Afghan policy

Syllabus: GS -2- India and its neighbourhood, Groupings and agreements involving India and/or affecting India's interests

In news: Taliban has swiftly advanced across Afghanistan after a speedy withdrawal of US troops.

More on news:

- While the USA has confirmed that 90% of the withdrawal is done, the Taliban has claimed that it is in control of 85% of Afghanistan territory.
- These developments mean that the regional powers now have the burden of managing the military vacuum created by the USA retreat.

Why should India intervene in the Afghan conflict?

Because of the following potential reasons, India should establish a long-term strategic policy for Afghanistan:

- **Impact on J&K:** A fundamentalist Sunni rule in Afghanistan, backed by both Pakistan and China, will exacerbate India's vulnerability in Jammu & Kashmir.
- **Anti- India terror groups:** There's a chance that, under the Taliban's rule, Afghanistan would start to cultivate anti-India terror groups.
- **India can play a major role:** India enjoys huge trust among Afghan people due to its developmental work done in Afghanistan.
- **Connect Central Asia Policy** – Stability in Afghanistan is vital for India's Connect central Asia policy.

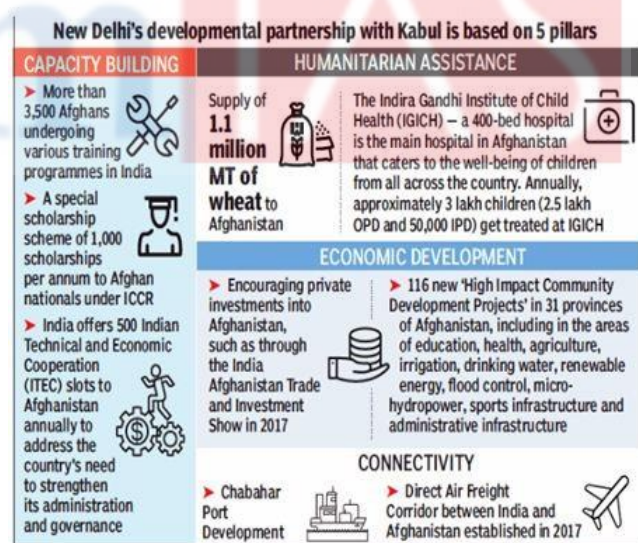


Fig. India's development partnership with Afghanistan

India's Afghan policy

- **Soft power diplomacy:** It emphasise the policy of non-interference in Afghanistan's domestic affairs. India believes any peace process must be Afghan led, Afghan owned and Afghan controlled.
- **Development programmes:** After 2001, India has been steadfast in providing development support to Afghanistan. The **five pillars** of India's development programmes in Afghanistan are:
 - **Infrastructure projects:** the Shahtoot Dam, the Salma Dam (Afghan-India Friendship Dam), the Pule-Khumri transmission line, the Parliament building, and others.
 - **Humanitarian aid:** To address the COVID-19 crisis, India sent over 20 tonnes of medicines and other equipment to Afghanistan, as well as transporting 75,000 tonnes of wheat.
 - Habibia High School's **human resource development and capacity building**

- **Community development programmes** have a big impact. For example, at the Afghanistan 2020 Conference, India had announced about 150 projects worth USD 80 million.
- **Improving air and land connections to boost trade and investment:** For instance, **the Zaranj-Delaram road**. Since 2001, India has given USD 3 billion to Afghanistan's repair and rebuilding.

In regards to Afghanistan, there has been a policy shift.

- **India's partial "withdraw" from Afghanistan:** India has decided to ramp down its civilian presence in Afghanistan and 'temporarily' closed its consulate in Kandahar. It has evacuated its diplomats and Indo-Tibetan Border Police (ITBP) personnel stationed there.
- **Creating communication channels with Taliban:** India has never dealt with the Taliban although that strategy may alter in the future. India will not just focus on the northern alliance. This is apparent in India's decision to develop communication channels with Afghan Taliban factions and leaders.
 - The shift in India's policy is because of the key power positions that the Taliban will have in any future dispensation in Kabul.

India's softening stance towards Taliban:

- **In 2018**, India sent a '**non-official delegation**' to Moscow for a conference that had Taliban, members of the Afghan High Peace Council, and other countries from the region.
- **In 2020**, India's External Affairs Minister S. Jaishankar joined the inaugural session of intra-Afghan negotiations in Doha.
- **In 2021**, the latest reports indicate that India has started reaching out to the Taliban.
- **Focus on Afghani- Taliban:** The outreach is being made to the Afghani-Taliban, which is made up of factions and leaders who are regarded to be "nationalist" and are not controlled by Pakistan's and Iran's deep states.
 - The move is further supported by the new perception that the Taliban is no longer a monolithic organisation and that some sections may not be entirely controlled by Pakistani generals. This marks a significant shift in India's Afghan policy.

Challenges before India

- **Lack of accessibility:** Due to a lack of access, India's participation in Afghanistan is severely limited. India does not have a direct route to reach Afghanistan. Pakistan blocks the roadways and the Iran route is becoming increasingly problematic.
- **Military involvement is not an option:** Military action of any kind can be ruled out without a defined political purpose or strategy. For India, the era of prolonged peace in Afghanistan secured by the US military presence has come to an end, and the Taliban could also begin to nurture anti-India terror groups.
- **India cannot rely on the United States:** India cannot rely on better ties with the United States to influence Afghan politics. When the United States abruptly abandoned the elected government of Afghanistan to the mercies of drug-financed radicals armed by Pakistan, it demonstrated its limited options.
- **Tensions with Pakistan and China:** India's ties with Pakistan and China have deteriorated to new lows.
 - The re-establishment of a cease-fire along the Line of Control with Pakistan is still in jeopardy.
 - The deal to de-escalate tensions and move Chinese forces back along the Line of Actual Control in Ladakh, where the Chinese military made steady progress in 2020, has only been partially implemented.
- **Suspicion of the Taliban:** Despite signs of a policy shift, there has been a **strong level of mistrust of the Taliban** since the **1999 hijacking of an Air India flight to Kandahar**. In addition, the **Taliban's proximity to Pakistan** has impeded Indo-Taliban relations.
 - Furthermore, supporting the Taliban is a **betrayal of the Afghan people**. The Taliban could return to archaic customs and establish a Sharia-based Islamic government. This will result in the **denial of the Afghan people's hard-won rights**.
- **Pro-China Taliban:** The Taliban have already **referred to Beijing as a "friend,"** implying that China-centric militants will be exterminated and the Taliban will protect China's material interests.

Should India's engagement with Taliban be direct or indirect?

Rationale for continuing indirect engagements with Taliban

- **Potential risk of losing a trusted partner:** Direct engagement with Taliban could make Afghanistan President Ashraf Ghani uneasy. It could potentially nudge him to look towards China and Shanghai Cooperation Organisation (SCO) for national security and personal political survival.
- **Challenges in reaching out to Taliban:** India has **little access to members of Quetta Shura or fighters on the ground** in Afghanistan. So, the only option might be Doha-based Taliban negotiators.
- **Lack of clarity on Taliban's real intentions:** Given the global criticism that Taliban faced in its earlier avatar and the lack of evidence about whether the outfit is a changed lot today.
- **Possibility of spill over into Kashmir:** There are chances of Pakistan acting out against India in Kashmir if India were to establish deeper links with Taliban.

Compelling reasons for direct engagement with Taliban

- **Taliban is going to be part of political scheme of things in Afghanistan:** Unlike in 1996, a large number of players in the international community are going to recognise/negotiate/do business with Taliban.
- **Pakistan factor:** The less proactive the Indian engagement with Taliban, stronger Pakistan-Taliban relations would become. Letting Pakistani deep state exclusively deal with Taliban is a bad idea.
- **Fissures in Afghan-Pakistan ties:** A Taliban-dominated Afghanistan, next door to its Tehreek-e-Taliban Pakistan-infested tribal areas, may not really end up becoming a happy space for Pakistan.
 - A **worldly-wise and internationally-exposed Taliban 2.0** would develop its own agency and could call into question the legitimacy of Durand Line separating Pakistan and Afghanistan.
- **Strategic and economic interests:** India needs to engage with all parties in Afghanistan, including Taliban, if it were to protect its interests after **investing over \$3 billion in Afghanistan**.
- **Geopolitical risk:** If India is not proactive in Afghanistan, Russia, Iran, Pakistan, and China will emerge as shapers of Afghanistan's political and geopolitical destiny, which for sure will be detrimental to Indian interests there.
- **Supporting India's continental grand strategy through north-western frontier:** Backchannel talks with Pakistan and a consequent ceasefire on Line of Control, political dialogue with mainstream Kashmiri leadership, all indicate that India is opening up its congested north-western frontier.
 - Proactive engagement of Taliban will provide this effort with more strategic heft.

India's future Afghan policy

- **Soft power:** Even under the Taliban, India should continue to **use soft power diplomacy and engagement strategies** (such as winning hearts and minds of people) to establish cultural and political ties with Afghanistan.
 - One such example is **India's assistance to the growth of cricket in Afghanistan**.
 - India would also benefit from **supplementing its soft power with hard power** in the form of military capacity.
- **Cooperating with Iran and Russia:** India should work together with the Iran and Russia to **ensure a relatively easy transition to a neutral interim government** in Afghanistan.
- **Engaging with the Taliban:** India must engage with Taliban either directly or indirectly.
- **Abandoning Afghanistan:** Abandoning Afghanistan is a policy option for New Delhi, akin to when India closed its consulate general in Lhasa in the aftermath of its war with China in December 1962. India has **already closed its two consulates in Afghanistan, Herat and Jalalabad. India is unlikely to go this route**, even though it is a possibility.
 - **Chabahar revitalization:** The work on the Persian Gulf port of Chabahar must be fast-tracked. It provides a **counter-balance to China's Belt and Road plan**, reducing Chinese influence in Afghanistan.

Conclusion

- India's long-term Afghan policy should take into account variables such as the United States' requirement for tactical cooperation with Pakistan, strategic coordination between China and Pakistan, and China's growing power and influence in South Asia and the Indian Ocean region.

Central Bank Digital Currency - Is This the Future of Money

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

In News: The Reserve Bank of India (RBI) has said that it is working towards a phased implementation strategy for its digital currency (i.e. Central Bank Digital Currency).

Introduction:

- **About currency** - In modern economies, currency is a form of money that is issued exclusively by the sovereign (or a central bank as its representative). It is a liability of the issuing central bank (and sovereign) and an asset of the holding public. Currency is fiat, it is legal tender. Currency is usually issued in paper (or polymer) form, but the form of currency is not its defining characteristic.
- **About Central Bank Digital Currency** - A CBDC is the legal tender issued by a central bank in a digital form. It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different. CBDC is a digital or virtual currency but it is not comparable to the private virtual currencies that have witnessed high growth over the last decade.
 - Central banks across the world have drawn up plans to launch their digital currency to battle cryptocurrencies. China has said that its e-CNY has been tested in 70 million transactions.
- **About private virtual currencies** - They are not commodities or claims on commodities as they have no intrinsic value. They do not represent any person's debt or liabilities. There is no issuer and they are not regulated.

Need for a CBDC

- **Reduce settlement risk** - The payments using CBDCs are final and thus reduce interbank settlement risk in the financial system.
- **Globalization of payment systems** - CBDCs would also potentially enable a more real-time and cost-effective globalization of payment systems.
 - For example, it is conceivable for an Indian importer to pay its American exporter on a real time basis in digital Dollars, without the need of an intermediary. This transaction would be final, as if cash dollars are handed over, and would not even require that the US Federal Reserve system is open for settlement. Time zone difference would no longer matter in currency settlements.
- **Reduce dependency on cash**- India's high currency to GDP ratio holds out another benefit of CBDCs. To the extent large cash usage can be replaced by CBDCs, the cost of printing, transporting, storing and distributing currency can be reduced.
- **Higher seigniorage due to lower transaction costs** - Seigniorage is the return generated by a Central Bank for printing cash money (coins and notes) at cost of the physical bank note, precious metal and printing press and the sale at face value of such cash money to commercial banks. Removing the cash printing component to the benefit of digital currency would neutralize that return.
- **Protect public from private virtual currencies (VC)** -Developing CBDC could provide the public with uses that any private VC can provide and to that extent might retain public preference for the Rupee.
 - It could also protect the public from the abnormal level of volatility some of these VCs experience.
- **Unconventional monetary policy tool** - The extremely low inflationary environment in many advanced economies has constrained their ability to reduce interest rates as negative interest rates are not effective because of the shift to cash. However, monetary transmission of negative policy rates to boost demand would be more effective if currency itself can carry a negative interest rate. Hence the argument in favour of payment of negative interest rate on CBDC as an unconventional monetary policy tool to boost spending.



Issues associated with Central Bank Digital Currency

- **Increase in cost of credit** - If banks begin to lose deposits over time, their ability for credit creation gets constrained as banks lose significant volume of low-cost transaction deposits. Thus, their interest margin might come under stress leading to an increase in cost of credit.
- **Lower returns for commercial banks** - Availability of CBDC makes it easy for depositors to withdraw balances if there is stress on any bank. Flight of deposits can be much faster compared to cash withdrawal. On the other hand, just the availability of CBDCs might reduce panic 'runs' since depositors have knowledge that they can withdraw quickly. One consequence could be that banks would be motivated to hold a larger level of liquidity which could result in lower returns for commercial banks.
- **Traceability of CBDC for surveillance** - Experts have also raised concerns related to privacy, around CBDCs. While cash transactions offer a level of anonymity to users, CBDCs are traceable, which means governments could use them as surveillance tools as well.
- **Issue of cyber-security** - CBDC ecosystems may be at similar risk for cyber-attacks as the current payment systems are exposed to. Further, in countries with lower financial literacy levels, the increase in digital payment related frauds may also spread to CBDCs.

Conclusion

CBDCs are likely to be in the arsenal of every central bank going forward. Setting this up will require careful calibration and a nuanced approach in implementation. Drawing board considerations and stakeholder consultations are important. Technological challenges have their importance as well. It would be RBI's endeavor, as we move forward in the direction of India's CBDC, to take the necessary steps which would reiterate the leadership position of India in payment systems.

Agri- exports

Syllabus: GS-3 – Agricultural marketing, growth and development, infrastructure

In news: The World Trade Organization (WTO) has released a report on the trends in World Agricultural Trade in the past 25 years.


Key Findings of the Report:

Agricultural Exports:

- **India has entered** into the top 10 list of agricultural produce exporters in 2019 with a sizable share in the export of rice, cotton, soya beans, and meat.
 - **In 2019**, India with a 3.1% share in global agri exports replaced New Zealand as the ninth largest agri exporter.
- **The US**, which was the largest Agri exporter in 1995(22%), was overtaken by the European Union in 2019(16.1%). The US's share fell to 13.8% in 2019.
- **Brazil maintained** its ranking as the third-largest exporter increasing its share from 4.8% in 1995 to 7.8% in 2019.
- **China climbed** from the sixth spot in 1995 (4%) to fourth in 2019 (5.4%).

Various Agri – Exports of India:

- **Rice:** In 2019, India (33%) was the largest exporter of rice in the world. Other top producer countries were Thailand (20%), Vietnam (12%) and USA.
- **Cotton:** India was the third-largest cotton exporter (7.6%) and the fourth-largest importer (10%) in 2019. It had not featured in the top 10 list in 1995.
- **Soya Bean:** Soya Bean is the largest traded agri product. India (0.1%) has a meager share in the Soya Bean trade but was ranked ninth in the world.
- **Meat and Edible Meat:** India has been ranked eighth in the world with a 4% share in global trade.
- **Wheat and Meslin:** While India was the seventh-largest wheat and meslin exporter in 1995, it does not feature in the top 10 list in 2019.

On the Rise 
Exports of agri & processed food products

Values in ₹ Cr

Products	Value in 2017-18	Value in 2018-19
Dairy Products	1,955	3,376
Basmati Rice	26,871	32,806
Non Basmati Rice	23,437	20,903
Wheat	624	369
Pulses	1,470	1,795
Buffalo Meat	26,035	25,091
Poultry products	552	687

Source: APEDA

Fig. Agri-exports basket

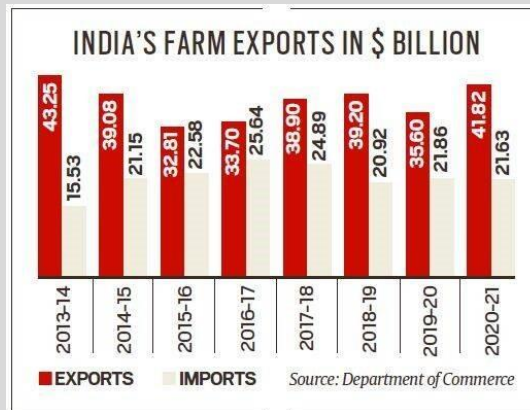


Fig. India's Farm Export

Concerns:

- **India lagged behind** as a value-added contributor to world agri exports.

India's share of foreign value-added content in its agri exports was also low at 3.8% primarily due to high tariffs on agri imports to protect the domestic market.

Challenges associated with Agricultural exports in India:

The **total agricultural export basket** accounts for **only a little over 2.15 per cent** of the world agricultural trade. This is because of various challenges associated with the exporting of agricultural commodities.

- **Yield of crops:** The **yield level of the majority of the crops** in India remains much lower than the world average. This is compounded by **fragmented landholdings**. The average farm size in India is only 1.15 hectares.
 - The majority of the Indian farmers belong to the **small and marginal category**. The agricultural products produced were used majorly for their consumption.
- **Infrastructure and Logistics Challenges**
 - The **connectivity of the land locked production areas to the ports** or a terminal is a stiff challenge. E.g., Bihar, Jharkhand, NE states and hilly regions like Himachal Pradesh, Uttarakhand and J&K.
 - **Congestion at the ports** due to high waiting periods of the shipment. Most exporters report about the congestion at JNPT. For example, for the perishable commodities availability of containers at the optimum time at the ports is critical.
 - **Dedicated warehousing/cold chain and transportation facilities absent** in India, especially for meat products and organic products. Thus, commodity specific supply chain infrastructure is inadequate.
- **Training & Skill development at farm level**
 - **Unregulated input (chemicals)** usage at the farm level leads to issue under WTO Agreements on agriculture. **For example, India allows the manufacturing of chemicals like monochrotophos** which is banned in more than 60 nations worldwide.
 - **Inadequate harvest and post-harvest management** affects quality and shelf life of the produce.
- **Training & Skill development at exporters' level**
 - **Complex documentation and procedures** – Trade procedures require exchange of data between the trader, custom authorities, other relevant ministries/agencies, border authorities and service providers such as freight forwarders. Paperwork is usually time-consuming and can result in delays and duplication of information.
 - **Lack of awareness** among exporters on existing schemes and policies related to exports.
- **Technological up-gradation issues**
 - **High cost of production** due to inefficiencies in processing technology and it makes food products in global market **uncompetitive for trade**. The industry (e.g. confectionery units, milling units, pulping units and other processing units) use **obsolete technology which hampers efficiency** and adversely affects the cost of production.

- **Pro-consumer bias:** The government's pro-consumer bias in India's farm policy has been detrimental. Indian government puts export restrictions on imported food items to prevent inflationary pressures in the domestic economy. This **hurts Agricultural exports**.
 - The policy deprives farmers of higher prices in the international market and also adds an element of income uncertainty.
 - **For example**, if the government is going to impose export restrictions when international prices are at a peak. Farmers would lose part of the incentive to cultivate exportable crops.
- **Water-related problems:** Higher export of Rice and Sugar has led to water scarcity in several parts of the country.
 - A kilogramme of sugar uses around 2,000 litres of water and irrigating a kilogramme of rice requires between 3,000 and 5,000 gallons of water, depending on terrain.
 - In 2020-21, India exported 7.5 million tonnes of sugar (sugar shipped at least 15 billion cubic metres of water). Also India exported 17.7 million tonnes of rice means India has effectively exported 35.4 billion cubic metres of water.

Initiatives to encourage Agricultural exports in India:

- **APEDA:** India encourages agricultural exports by creating a **dedicated body named the Agricultural and Processed Food Products Export Development Authority (APEDA)**. The government created APEDA under the APEDA Act 1985.
 - Under the **Export Promotion Scheme of APEDA**, the government is assisting **the exporters of agricultural products**.
 - APEDA has suggested augmenting cargo handling facilities at airports, ports, etc. This will reduce the waiting time.
- **Agriculture export policy 2018:** The policy aims to double farmers' income by 2022 by doubling agricultural exports from the country. The policy also aims to integrate Indian farmers and agricultural products into the global value chain.
- The Government has also brought out a Central Sector Scheme – '**Transport and Marketing Assistance for Specified Agriculture Products**'. The scheme aims for assisting the international component of freight handling and marketing of agricultural products.
- **FDI policy:** As per the present FDI Policy, **100% FDI is allowed in the following activities of agriculture through the automatic route**.

Way Forward

- **Agricultural strategies:** The crop must be farmed in a water-efficient and low-GHG (methane) footprint manner. Agricultural strategies such as alternate wetting drying (AWD), direct-seeded rice (DSR), and micro-irrigation will need to be prioritised.
- **Sustainably producing sugar and rice:** Officials should reconsider the entire rice and sugar system, from MSP to production, in terms of environmental sustainability. This will help to encourage better diversification of our agricultural systems, better use of our limited water resources, and lower GHG emissions.
- **Investing in agricultural research:** Savings can be utilised to double investments in agricultural research and development to increase production on a long-term basis.
- **Procurement centres at village level:** As per **NITI Aayog recommendation**, the Government can create village level procurement centres. This will benefit small and marginal farmers to improve agricultural exports.
- **Green channel clearance:** Government can create a green channel clearance for perishable agro-products in toll, air, and freight cargo stations.
- **Regional production belts:** The Government can establish regional production belts. This can be achieved by linking the Mission for Integrated Development of Horticulture and Self-Help Groups.

Marine plastic pollution

Syllabus: GS-3- plastic pollution, environmental pollution and degrading

In news: The Clean Seas movement is gaining traction as more countries join the fight against marine waste and plastic pollution. Over 60 countries have joined this global movement, both coastal and landlocked, with ambitious pledges and obligations.

Plastic waste data

- As per Central Pollution Control Board's (CPCB) Annual Report on Implementing the Plastic Garbage Rules, 2016 - The garbage created in 2018-19 was 3,360,043 tonnes per year (roughly 9,200 tonnes per day).
- Plastic garbage accounts for around 5-6 per cent of India's total solid waste.
- Only 9% of all plastic garbage has ever been recycled, according to a 2017 science breakthroughs report.
- Only around 12% of plastic garbage has been burned, with the remaining 79 per cent ending up in landfills. Plastic garbage is clogging our sewers, endangering marine life, and posing health dangers to landfill dwellers and the general public.

Causes of marine pollution

- **Disposal of urban and industrial waste matters into the coastal waters:**
 - Discharge of sewage, industrial effluents and toxic chemicals from urban areas and industrial establishments.
 - Discharge of solid waste materials mainly plastics, microbeads, etc. According to UNEP, plastic accounts for 90% of all debris floating in the oceans.
- **Oil spillage:** Leakages of an enormous quantity of mineral oil from oil wells and tankers. Ex. Ennore oil spill, Tar balls off Mumbai coast, Deep Horizon disaster, etc.
- **Ballast water discharge:** It includes plants (non-native and invasive species), animals, viruses, and bacteria which can cause considerable ecological and economic damage to aquatic environments, as well as serious human health issues, including death.
- **Deep-Sea Mining:** Increase in the concentration of heavy minerals like lead, cadmium, chromium, nickel, etc.

Consequences of marine plastic pollution

- **Impact on marine species:** Seabirds, whales, fish, and turtles mistake plastic garbage for food, and the majority of them starve to death as their bellies fill with plastic detritus.
- **Impact on food:** The invisible plastics particles has been found in tap water, and salt. When they enter into food chain and subsequently enters into human body, the body's endocrine system is disrupted, resulting in developmental, reproductive, neurological, and immunological issues in humans and wildlife.
- **Climate change:** Plastic, a petroleum-based product, contributes to global warming as well. When plastic garbage is burned, carbon dioxide is released into the atmosphere, increasing carbon emissions.
- **Tourism gets disturbed:** Plastic trash degrades the visual value of tourist attractions, resulting in lower tourism-related revenues and significant economic expenditures associated with site cleaning and upkeep.

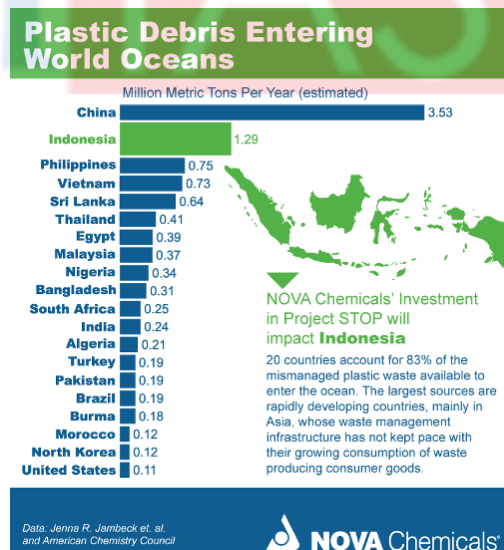


Fig. plastic debris in world oceans

Issues in controlling marine plastic pollution

- **Financial cost:** The financial costs of marine plastic pollution are significant as well.
 - According to conservative forecasts made in March 2020, the direct harm to the blue economy of the ASEAN Nations will be **\$2.1 billion per year** (considering only Shipping, fisheries and aquaculture and maritime tourism sectors)
 - According to the World Economic Forum report, 2016, under a "business-as-usual" scenario, this \$2.1 billion per year estimate is likely to rise, as plastics production is expected to triple between now and 2050.

- **Social costs:** Enormous social costs accompany these economic costs.
 - **Residents of coastal regions suffer** from the harmful health impacts of plastic pollution and waste brought in by the tides and are deeply linked to the fishing and tourism industry for their livelihoods.
 - Therefore, we must begin finding solutions to prevent plastics and other waste from polluting our oceans and clean them up.
- **Mobility:** The international character of marine resources and the right of all countries for their use, along with the high mobility of marine organisms. This creates a problem.
 - Lack of awareness among fishermen communities.
 - Lack of finance, infrastructure and capacity with Coastal Guards.
 - Absence of waste management facilities at the beaches.

Steps taken by Indian Government to reduce coastal pollution:

- **Subsidies for deep-sea fishing:** The present government has provided subsidies to the farmers of Tamil Nadu for the transition towards deep-sea fishing instead of bottom trawling fishing.
- **Blue flag certification:** The Society for Integrated Coastal Management (SICOM) under the Ministry of Environment, Forest and Climate Change is developing 13 beaches for blue flag certification under the **Unified Coastal Areas Management Program**.
- **CRZ Rules:** Indian government has come up with **Coastal Regulation Zone (CRZ) rules**.
- **Ballast water management convention:** India has become a member of the **Ballast Water Management Convention** under the International Maritime Organization.

Solutions/Measures

- **Designing a product:** Identifying plastic items that can be replaced with non-plastic, recyclable, or biodegradable materials is the first step. Find alternatives to single-use plastics and reusable design goods by working with product designers.
- **Pricing:** Plastics are inexpensive because they are made with substantially subsidized oil. There are few economic incentives to employ recycled plastics. Price structures that promote alternative materials or reused and recycled plastics are necessary.
- **Technologies and Innovation:** Developing tools and technology to assist governments and organizations in measuring and monitoring plastic garbage in cities.
 - ‘Closing the loop’ project of the **United Nations Economic and Social Commission for Asia and the Pacific** assists cities in developing more inventive policy solutions to tackle the problem.
 - A similar approach can be adopted in India.
- **Promoting a plastic-free workplace:** All catering operations should be prohibited from using single-use plastics. To encourage workers and clients to improve their habits, all single-use goods can be replaced with reusable items or more sustainable single-use alternatives.
- **Multi-stakeholder collaboration:** Government ministries at the national and local levels must collaborate in the development, implementation, and oversight of policies. This includes participation from industrial firms, non-governmental organizations, and volunteer organizations. Instead of acting in isolation, all these stakeholders must collaborate and synchronize with one another.



Fig. setting policy goals

Steps for the conservation of marine resources:

- **Food Resources:** The accurate estimation of the growth and mortality rate of marine organisms is a prerequisite condition to ensure their sustainable yield.
 - A proper survey of fishing areas by applying Echo-sounder techniques, maintaining catch statistics, etc.
 - Accurate prediction of future demand of fish for human food and animal feed.
 - Proper knowledge of the potential reserve.
 - Developing and enriching Mariculture, ornamental fishing, marine pasture, etc.
 - Investments in Deep Sea Fishing instead of Bottom Trawling fishing.

**Fig. conservation practices**

- **International initiatives:** Full implementation of the Paris Agreement (UNFCCC)
 - Blue Carbon Initiative (UNEP+IUCN+UNESCO) for the conservation and protection of marine and coastal biodiversity is in the right direction.
 - Coral Triangle Programme (WWF) around Indian coastal States.
 - India should become a member of the LONDON Convention.

Conclusion

Solving the problem of marine plastic involves a change in production and consumption habits, which would help meet the Sustainable Development Goals (SDGs). The central UN SDGs that deal with marine plastics are SDG 12 and SDG 14.

Draft drone policy

Syllabus: GS-2- Government policies and interventions, Defence technologies

In news: The Ministry of Civil Aviation has released Draft Drone Rules, 2021, for public consultation until August 5. The rules will replace the **Unmanned Aircraft System Rules, 2021**, notified on March 12, 2021.

About unmanned aerial vehicles:

- **UAVs:** An unmanned aerial vehicle (UAV) is an aircraft that carries no human pilot or passengers. UAVs, sometimes called “drones” can be fully or partially autonomous but are more often controlled remotely by a human pilot.

Threats from UAVs

- UAVs have **no restriction on the terrain** nor the condition of the environment.
- Drones **fly low** and **cannot be detected by any radar system** because they are small and do not have much radar cross-section.
- They **do not match the cost of the kill vs the cost of the target**. For example, killing the \$1000 UAV with the Million \$ sophisticated missile. So, the defender **needs soft kill systems** like LASER, Radio Frequency jamming and Electronic Jamming etc.
- UAVs can be controlled from a remote distance and **does not endanger any member of the attacking side**.
- UAVs are easy-to-procure, easy-to-operate, and have a **proven damage potential**.

Examples of UAV's Attacks

- Weaponised drones were **first used by the Islamic State in northern Iraq in 2016** and then in Syria.
- In October 2020, the Army shot down one drone along **the Line of Control in the Keran sector of J&K**.
- In January 2021, the Jammu & Kashmir Police caught two persons while they were picking up a **consignment of arms and ammunition** smuggled via drones.

Key provisions of the Draft Drone rules, 2021

- **Reduction in the number of forms:** The number of forms to be filled to seek authorisation before operating a drone has been reduced from 25 to 6.

- **Approvals abolished:** many important approval requirements have been abolished, like unique prototype identification number, certificate of maintenance, Import clearance, etc.
- **Relaxation for R&D entities:** Further, no such approvals will be required for drones used for R&D by entities and educational institutions: recognized by the Central government, State governments, or Union Territory Administrations.
- **Digital sky platform:** Manufacturers may generate their drone's unique identification number on the **digital sky platform** through the self-certification route.

About Digital sky platform:

- **It is an initiative by the Minister of Civil Aviation (MoCA)** to provide a secure and scalable platform that supports drone technology frameworks, such as NPNT (no permission, no take-off). The platform will be under India's aviation regulator, the **Directorate General of Civil Aviation (DGCA)**.
- Under draft drone rules, the **Digital Sky platform** will also be developed as a business-friendly **single-window online system** with minimal human interference and most permissions will be self-generated.
- It will also serve as a **unified platform** for users to obtain the mandatory registration number and remote pilot license. However, people will need to check the service to determine if any restrictions are in place before they fly a drone at a location.
- **Safety features:** The draft Drone Rules 2021 also have safety features such as real-time tracking beacon, and **geo-fencing**, which are expected to be notified in future, and a six-month lead time will be provided for compliance.
- **Air-space map:** An interactive airspace map with **green, yellow, and red zones** will be displayed on the digital sky platform. The zones pertain to what is known as **geofencing**, which prohibit or limit the use of drones at some places, like close to an airport or over-sensitive military and VIP locations.
- **Green zone** refers to the airspace from the ground up to a vertical distance of 400 feet (120 m) above ground level (AGL) that has not been designated as a red zone or yellow zone in the airspace map for drone operations. **No flight permission is required** up to 400 feet in green zones and up to 200 feet in the area between 8 and 12 km from the airport perimeter.
- **Yellow zone:** To fly in the yellow zone, a drone pilot will **require permission from the air traffic control authority**. The yellow zone has been reduced from 45 km to 12 km from the nearby airport perimeter.
- **Red zone:** In red zones, **drone operations shall be permitted only under exceptional circumstances** by the central government.
- **Nano drones: No pilot licence will be required** for micro drones used for non-commercial use.
- **Operations by foreign companies:** There will be no restriction on drone operations by foreign-owned companies registered in India.
- **Drone corridors:** MoCA will facilitate the development of drone corridors for cargo deliveries, and a drone promotion council will be set up to facilitate a business-friendly regulatory regime.

The key changes proposed

The government removed red tape for drone owners and users, reducing the number of forms needed among other steps meant to make processes easier

COMPLIANCE REQUIREMENTS EASED
No need for unique authorisation number, unique prototype identification number, certificate of conformance, certificate of maintenance, import clearance, operator permit, specific authorisation of research and development organisation, student remote pilot licence, remote pilot instructor authorisation, drone port authorisation

OPERATION MADE EASIER

- Yellow zone, which requires permission from ATC, reduced from 45km to 12km from airport
- No pilot licence will be required for micro drones (for non-commercial use), nano drones and for research and development organisations
- There will no longer be a ban on the use of drones by foreign-owned companies registered in India
- No security clearance will be required before any registration or licence is issued

FROM 25 TO 5
The govt proposes to cut the number of forms for approval

DIGITAL SKY PLATFORM TO BE CREATED...

- For users to register their drones, if they are legally required to
- For manufacturers and importers to seek certification
- For users to verify no-fly zones and geo-fence details

SECURITY SAFEGUARDS

- Geo-fence details to be updated regularly on Digital Sky
- Mandatory safety features to include no permission, no take-off module, real-time tracking beacon and logging and other steps that will be notified later

Fig. Changes proposed in the policy

Issues related to draft drone policy

- **Elevated Risk of Armed Attacks:** Drone operations without proper legal backing might offer a number of security risks. Drone-dropped arms have also been reported, such as the recent drone assault in Jammu.
 - They can be used for destructive purposes, including as smashing into key targets or destroying infrastructure.
- **Paramilitary Not Excluded from Norms:** According to the draft plan, the rules and regulations do not apply to the army, navy, or air force. It does, however, contain paramilitary forces. Drones flying across the lines are causing a lot of problems for the BSF.

- **Cost of the drones makes it easily procurable:** Drones are generally less expensive than conventional weapons, but they may produce significantly more damaging outcomes, which is the fundamental cause for the rise in drone assaults.
- **Deliveries of Mass Destruction Weaponry:** One of the most dangerous aspects of combat drones is the possibility of them being used to transport weapons of mass destruction. Non-state actors buying combat drones poses a severe concern.

Way Forward

- **Developing indigenous drone tech:** India is certainly lagging in UAV and drone technology although we keep hearing of the DRDO has come up with a new design etc. They need to work seriously in operationalizing their range of UAVs and drones.
- **Supplementing indigenous tech with imports:** Since R&D and manufacture of anti-drone systems are at a nascent stage in India, some numbers should be sourced through imports for certain vital areas.
- **Improving detection & engaging capabilities:** Helicopters can be used to detect and engage UAVs. Tracking drones via optical or infra-red means or multi-sensors including sound can be done.
 - Efforts need to be accelerated to ensure detection and finding innovative ways to engage them.
 - **Laser-based Directed Energy Weapons (DEWs)** is a possible defence system against drone attacks. In India, DRDO has developed two anti-drone DEW systems. They can use powerful lasers to engage aerial targets at a distance of 2 km. However, mass production of these systems is yet to take place.
- **Involving private players:** Private industry should be involved. We have plenty of young and enthusiastic IT entrepreneurs whose startups need to be supported with finance for R&D.
 - The government's **iDEX initiative** must enable multiple players as there are many sub-parts in an anti-drone architecture. Expecting one or two companies to produce the system as a whole will only delay the end-product.
- **Monitoring the proliferation of drones:** A mechanism to monitor the proliferation of drones and anti-drone technology needs to be instituted quickly. The policy needs to legitimize legal players and prevent the technology from landing up in the wrong hands.

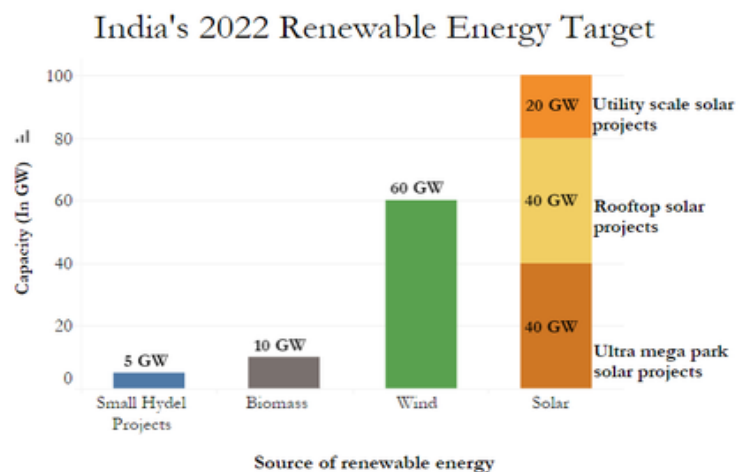
Renewable Energy – Powering the economy

Syllabus - Infrastructure: Energy, Ports, Roads, Airports, Railways etc

In News: India has an ambitious target of installing 175 GW of renewable energy capacity by 2022 and 450 GW of renewable energy by 2030. The government has announced a **basic custom duty of 25% on solar cells and 40%** on solar modules from April 1, 2022. It is expected to encourage local manufacturing of solar cells and discourage their imports.

Introduction

- **About** - Renewable energy is energy derived from **natural resources** that replenish themselves in less than a human lifetime without depleting the planet's resources. These resources - such as **sunlight, wind, rain, tides, waves, biomass and thermal energy** stored in the earth's crust - have the benefit of being available in one form or another nearly everywhere.
- **Aim** - The Government of India plans to increase renewable electricity capacity to **175 GW by 2022 and to 450 GW by 2030**.



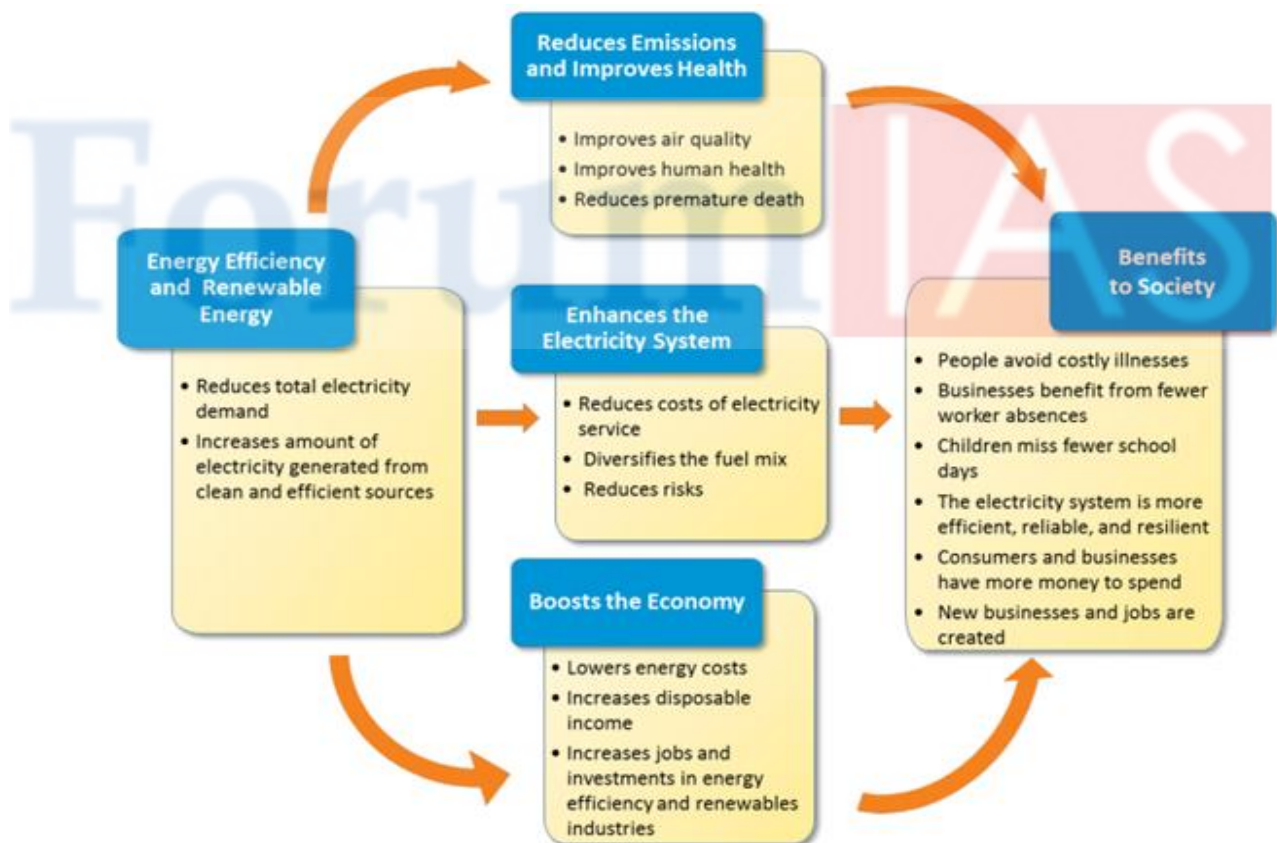
Current status

- India is the fifth largest renewable market with **an installed capacity of 94.5GW (including both on-grid and off-grid)** at the end of February 2021 and needs another **80.5GW to achieve its 2022 renewable target**.

- **Sources of Renewable energy** - Solar PV emerged as the largest renewable power source in the country in FY 2021 with an installed capacity of around **40.6 GW**, overtaking wind which has a capacity of **39 GW in FY 2021**.

Benefits

- **Reduce greenhouse gases** - Most renewable energy sources produce little to no global warming emissions. Even when including “**life cycle**” **emissions** of clean energy (ie, the emissions from each stage of a technology’s life—manufacturing, installation, operation, decommissioning), the **global warming emissions** associated with renewable energy are minimal.
- **Improved public health** -The **air and water pollution** emitted by coal and natural gas plants is linked with a host of serious health problems. Wind, solar, and hydroelectric systems generate electricity with no associated air pollution emissions. Wind and solar energy require essentially no water to operate and thus **do not pollute water resources** or strain supplies by competing with agriculture, drinking water, or other important water needs.
- **Jobs and other economic benefits** -Compared with **fossil fuel technologies**, which are typically mechanized and capital intensive, the renewable energy industry is more **labor intensive**. Solar panels need humans to install them; wind farms need technicians for maintenance. Thus, on average, **more jobs are created** for each unit of electricity generated from renewable sources than from fossil fuels.
- **Stable energy prices** - **Geopolitical strife and upheavals** often come with increasing energy prices and limited access to resources. Since renewable energy is produced locally, it is less affected by **geopolitical crisis or price spikes** or sudden disruptions in the supply chain.

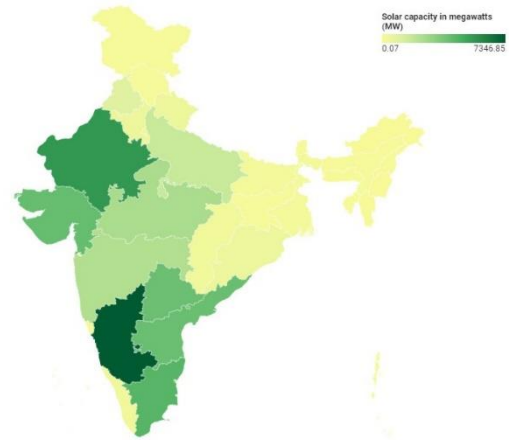


- **Continuous and sustainable access** - Renewable make urban energy infrastructures more independent from **remote sources and grids**. In many parts of the world, renewable represent the **lowest-cost source of new power** generation technology, and **costs continue to decline**. Businesses and industry invest in renewable energy to **avoid disruptions, including resilience** to weather-related impacts of climate change.

Challenges

- **Issues with transmission** - Transmission challenges include **new bottlenecks inside states and limited capacity** available across states (interstate transmission lines) as **solar and wind sites tend to be concentrated in certain regions** within states and also in certain states within India.
 - For example, many states **lack real-time solar and wind generation** data, and the accuracy of solar and wind forecasts must improve. Regulations often allow for forecast errors of $\pm 15\%$.
- **Lack of regulation** - There is a **lack of regulatory frameworks** to allow adequate remuneration of demand response and storage technologies such as batteries.
- **Integration of renewable with other systems** - Renewable integration affects the financial stability (costs and revenue streams) of the DISCOMs, which need to pay the **fixed charges of coal plants** bound by long-term PPAs even when using solar and wind, while also being bound by national renewable purchase obligations.
- **Investment affected by COVID -19** - Influenced by Covid-19, **power sector investment in India fell by USD 10 billion year-on-year to USD 39 billion in 2020**, including a decline in solar and wind investment. Improving investor confidence will be an important factor in the coming years as India will need to increase power system investment
- **Policy instability** - Companies that produce solar panels, wind turbines, electric motors and batteries using imported minerals, as their supply chains can quickly be affected **by regulatory changes, trade restrictions or political instability** in a small number of countries
- **Reliance on imports** - India's solar sector is heavily reliant on imports of solar equipment due to poor manufacturing base. The domestic manufacturing of solar PV cells/modules is behind due to reasons such as lack of manufacturing chain and skilled workforce and higher cost of production. Government has also noted instances of certain countries dumping solar cells and modules to kill the nascent domestic industry.

State-wise installed capacity of solar power as of Feb 28, 2021
India's solar power projects are largely concentrated in the western and southern regions.



Suggested solution to achieve the targets

- **Demand creation for renewable energy** - On demand creation, the ambitious targets need to be converted to **legally binding renewable portfolio standards**, at the level of not only states but also large central generators. These standards, when designed appropriately, are very effective in driving large-scale renewable deployment in an effective manner.
- **Revenue certainty for renewable energy power projects** - India needs to continue auctioning **renewable capacity at fixed (on inflation adjusted) price long-term power purchase agreements (PPAs)**. This revenue certainty, ideally over the lifetime of renewable energy power plants, **allows low-cost financing of capital-intensive assets** where the auctions, in turn, enable provision of lowest cost renewable power to consumers.
- **Risk reduction for development, construction, and operation of these projects** - There is continued need to keep operational and project development risks low, to ensure there is **adequate supply of low-cost capital** available for renewable energy projects. While these projects are in operation, India needs to ensure that these **PPAs are paid on a regular basis**.
- **System integration of variable and intermittent renewable energy supply** - On system integration, India needs to make sure that the renewable energy is appropriately supported by **increased transmission**

Value (million USD) of solar PV cells/modules imported in India



China accounts for over 80% of India's import bill for solar PV cells/modules.

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INDIA

capacity, agriculture load shift, and battery storage deployment. At the same time, India does not need to develop any significant new coal plant capacity beyond 2022.

- For example, **Hybrid energy systems (HES)** can help integrate renewable power into the grid by **overcoming intermittency and making it reliable and dispatchable** when combined with utility-scale battery storage.

Conclusion

The rapid rise of renewable energy (RE) to meet growing demand and displace fossil fuel sources is a keystone element of our **transition to a low carbon economy**. At the same time, a renewable energy system has the potential to expand **access to affordable, clean energy for all, create jobs and help economies and societies** to thrive in the long term. Collaboration with private players and international platforms will pave way for **creating sustainable energy** for the people of the nation.

EU's Carbon Border Tax

Syllabus: Conservation, Environmental Pollution and Degradation

In News: In March 2021, the EU Parliament had adopted a resolution to **implement a 'Carbon Border Adjusted Mechanism' (CBAM)**, which proposed that goods entering the EU would be taxed at the borders. The E.U. proposal still needs to be negotiated among the 27 member countries and the European Parliament before becoming law. If the E.U. tax is well-received, it could set the standard for similar border adjustments. If not, it could inflame global tensions over international commerce.

About EU's carbon border tax

- Under the new scheme, European Union (EU) from 2026 onwards shall impose a **border tax on imports of carbon-intensive goods** such as steel, aluminum, cement, fertilizers and electricity via **carbon border adjustment mechanism (CBAM)**.
- The aim is to help slash the EU's overall greenhouse gas emissions 55% below 1990 levels by 2030.
- The tax plan, yet to be legally formalized, will come into force from 2026.

How will the carbon border tax work?

Present System:

- Under the Emission Trading System, large polluters **must procure permits** for every ton of carbon dioxide they emit. The number of permits changes over time, driving up the price. Currently, the price of those permits is nearly \$60 per ton, giving European companies a financial incentive to cut emissions.

Proposed System:

- The E.U. is now proposing to tighten that cap further, while **phasing out the number of free allowances** it has long given to industries exposed to trade competition, like steel.
- Companies abroad that want to sell cement, iron, steel, aluminum, fertilizer or electricity to the E.U. would also be required to pay that price for each ton of carbon dioxide they emit in making their products. The idea is to level the carbon playing field.
- The border tax would not take effect until 2026.

Rationale Behind the Tax

- To **protect European industries from outside competitors** who can manufacture products at a lower cost as they are not charged for their carbon emission during the manufacturing processes. So, the carbon border tax is an indirect **attempt to force emerging economies, including India, to adopt cleaner (non-fossil fuel-based) practices** to manufacture goods.
- To **'incentivize' greener manufacturing** around the world.
- **Preventing carbon leakage:** The 27 EU member states have much stricter laws to control GHG emissions. **It has an 'Emissions Trading System'** that limits how much GHG individual industrial units can emit; those that fail to cap their emissions can buy 'allowances' from those who have made deeper cuts. This makes operating within the EU expensive for certain businesses, which, the EU authorities fear, might prefer to relocate to countries that have more relaxed or no emission limits. This is known as **'carbon leakage'** and it increases the total emissions in the world.

Why is India opposing it?

As per data from the commerce ministry, India is the third-largest trading partner of the EU. (the EU accounts for 11.1% of India's total global trade).

- **Indian goods will be costlier:** By increasing the prices of Indian-made goods in the EU, this tax would make Indian goods less attractive for buyers and could shrink demand.
- **Challenges for companies with large GHG footprint:** The tax would create serious near-term challenges for companies with a large greenhouse gas footprint—and a new source of disruption to a global trading system already impacted by tariff wars, renegotiated treaties, and rising protectionism.
 - A levy of \$30 per metric ton of CO2 emissions could reduce the profit for foreign producers by about 20% if the price for crude oil remained at \$30-40 per barrel.

Issues/concerns/challenges

- **Disguised protectionism:** The carbon tax may end up being protectionist, and will hit emerging economies like India hard.
- **Fundamental change** in how companies all over the world manufacture products can't be forced by tariffs.
- **Retaliatory tariffs:** Countries such as the United States, China and Russia have all objected to the border carbon tax, raising the prospect of retaliatory tariffs and trade wars.
- **Bypassing CBDR principle:** The EU is essentially bypassing the principle of 'Common but Differentiated Responsibilities' and Respective capabilities (CBDR – RC) that should guide international climate action.
- A carbon border tax will be hugely **disruptive for global trade**, already suffering due to Covid and rising protectionist practices.
- **Challenges in emission assessment:** It is currently unclear how the EU would assess emissions of an imported product. Would it be from the entire value chain, upstream and downstream. There are many small businesses that will face difficulty in quantifying their emissions and additional costs will be passed on to the consumers, eventually.
- **Challenges at WTO:** Countries may also try to challenge the border adjustment at the World Trade Organization, although European officials say they are working to ensure the rules will withstand legal objections.

About EU's "Fit for 55" proposal:

The European Union has unveiled **world's most ambitious proposals**, titled **"Fit for 55"**, to reduce carbon emissions and wean its 27 members off fossil fuels. The plan aims to **cut their output of greenhouse gases by 55% by 2030**, compared with 1990 levels.

The commission's proposals **require endorsement by the European Parliament and leaders of European national governments** before they become law, a process that is expected to take around two years.

The roadmap of EU's "Fit for 55" proposal:

The European Union's plan to cut its greenhouse gas emissions by more than half by the end of the decade **will touch almost every industry in the trade bloc**.

Road Transport:

- Cars with internal combustion engines will disappear from European showrooms by 2035.
- To boost electric car sales, **Public funds will be used to help build charging stations every 60 kilometers**, or 36 miles, on major highways
- The commission will also help finance a network of hydrogen fueling stations (fuel cells that convert hydrogen to electricity).

Water and air transport:

- Commercial airliners will be required to fill up with synthetic fuel produced with green energy.
- Cargo ships were not able to dock in ports like Rotterdam, Netherlands, or Hamburg, Germany, unless they run on cleaner fuels.

Heavy industry:

- Steel producers and cement makers will pay for every ton of carbon dioxide their factories emit.

Energy:

- Renewables already account for 20% of the electricity produced in Europe. The goal is to raise the figure to 40% by 2030
- Electricity producers will be pushed to speed up the switch to wind, solar and hydropower from coal.

How EU “Fit for 55” proposal compares at the global level?

The European Union’s target is **more aggressive than that of the United States**, which committed to reducing emissions by 40% to 43% over the same period, but **behind Britain**, which pledged a 68% reduction. China, the world’s largest emitter, has only said it aims for emissions to peak by 2030.

Criticism of the EU’s “Fit for 55” proposal:

- **Automakers:** The European Union should “focus on innovation rather than mandating, or effectively banning petrol and diesel-powered cars.
- **The shipping industry is unclear** how the plan would be applied and which shipping routes would be affected
- **Heavy industries** have complained that the **proposals could further erode their competitive advantage over producers in China** and **discourage the investment** needed to shift to lower emissions.
- **Companies that make products destined for obsolescence**, like parts for internal combustion engines, **must adapt or go out of business.**

Way Forward

- **Need to be complemented with newer tech and finance:** A mechanism to charge imported goods at borders may spur the adoption of cleaner technologies. But if it happens without adequate assistance for newer technologies and finance, it would amount to levying taxes on developing countries.
- **Fixed duty or tax on imports:** To counter problems faced in emission assessment, a fixed duty or tax on imports can be imposed. The design of such a levy also matters. If it discourages sectors and industries that are already adopting cleaner technologies and becomes another procedural and compliance hassle, it could prove counterproductive.

Rich countries of the global north bear historical responsibility for greenhouse gas emissions but a report by Oxfam says that rich nations have only mobilized \$22.5 billion of the targeted \$100 billion for climate funding. Hence, instead of imposing a carbon border tax, richer countries should fulfill their promises of technological and financial assistance to enable developing countries to make the transition to low-carbon pathways for growth.

Lessons from India’s Food Security response

Syllabus: Issues of buffer stocks and food security

In news: Food insecurity has risen among the most vulnerable populations due to 2nd wave of the pandemic. Hence, the government needs to take some precautionary steps to save millions from hunger and food insecurity.

State of Food insecurity in India (Before Pandemic)

- **Global Hunger Index 2019:** Even before the pandemic, India’s efforts to tackle the food security crisis was below par. For example, India ranks 102 among 117 countries in the Global Hunger Index 2019.
- **The state of food security and nutrition in the world (SOFI) report:** The report provides a **three-year average estimate of the number of food-insecure people for South Asia as a whole and South Asia (excluding India)**. By taking a difference between the two, one can derive the estimates for India.
 - The number of food-insecure **people grew from 42.65 crores in 2014-16 to 48.86 crore in 2017-19.**
 - The per capita dietary energy supply in India increased by 3.8% between 2011-13 and 2015-17.
 - The consumption survey data that became available through a media leak showed that **the average consumption expenditure (covering food and other expenses) fell by 3.7% between 2011-12 and 2017-18.**

Food insecurity during pandemic

- **Nutrition intake:** There has been a **reduction in nutrition intake**. The poor and the socially marginalized people are **forced to cut down on food intake** (especially nutritious food) during the lockdown period. For example,
 - **Households reported nearly 80% cut down** on nutritious food such as milk, vegetables, pulses, and oil. These reductions in nutritious intake will hamper India's effort to provide adequate nutrition to children as per the **National Family Health Survey (2019-20)** and the **Global Food Policy Report, 2021**.
- **Vulnerability of the migrant community:** The food and financial insecurity of the migrant's community increased due to **lack of universal access to government welfare schemes**.
 - Among the poorest, households with migrants were more likely to seek work than those without (43% versus 32%). But only half were employed under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). This has reduced the income of the migrant workers to purchase food.
- **Absence of nutrition component in the public distribution system:** Nutritional items of diet like milk, eggs, dal, vegetables, fruit, meat are being foregone.
 - Only cereal-based diets (rice and roti) are being consumed.
- **Halting midday meal schemes** due to school closures is depriving nutrition to children. Further, child labour is rising, to meet the income and food needs of households.
- **Impact of poverty on food security:** The Rapid Rural Community Response data suggests that food insecurity is rising among poor households. Reasons for that are **job losses, lack of income, lack of access to government welfare schemes, etc.**
 - According to **Pew Research Center**, the middle-class population in India has shrunk by over 32 million households.
- **Transportation challenges:**
 - **Interstate transport of goods has** faced many problems. At many places, local police and administration have prohibited the movement of trucks and carts carrying essential food items.
 - Truck drivers are being frisked at lockdown checkpoints and casual laborers for loading and unloading are in short supply. As a result, perishables are not reaching mandis, processing units and households.

Steps taken to address food insecurity during the pandemic

- **Increased entitlements to National Food Safety Act (NFSA) beneficiaries:** Under Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY), 81.3 crore NFSA beneficiaries received an additional 5 kg of food grains per person per month and 1 kg of pulses per family per month, free of cost, for eight months from April to November 2020.
- **State-wide initiatives:**
 - **Kerala:** Kerala announced that everyone in need – whether the below poverty line (BPL) or not – will get free rice. As anganwadis shut down, the state government ensured home delivery of mid-day meals.
 - **Haryana:** The Haryana Government decided to provide all BPL families their monthly ration for April free of cost. All government school children and those enrolled in anganwadis were to be given dry rations.
 - **The Chhattisgarh Government** issued an order to provide dry ration instead of hot-cooked meals to children aged between three and six years and who were registered with anganwadi centres.
- The **Indian Council of Agricultural Research (ICAR)** issued state-wise guidelines for farmers to be followed during the lockdown period. The advisory mentioned specific practices during harvest and threshing of various rabi (winter sown) crops as well as post-harvest, storage and marketing of the farm produce.
- **Food Grain Security:**
 - Robust Targeted Public Distribution System (TPDS) buffered vulnerable and marginalised families against food crisis.
 - Pandemic optimisation: States were allowed to lift their allocations for six months in one go in anticipation of a surge in demand for food grains through a public distribution system.
 - There was an unprecedented spike in uptake of subsidised and free food grains during lockdown.
- **Under the Atmanirbhar Bharat package**, eight crore migrants were provided 5 kg of food grains per month.

- **Leveraging stock with the Food Corporation of India (FCI)** allowed NGOs/civil society organisations to buy rice and wheat at subsidised prices directly from nearby FCI warehouses.
- **'Leave No One Behind' approach has** ensured that food support focuses on at-risk groups, including persons with disabilities, elderly, single women-led households, transgender persons, HIV-affected persons, displaced persons, refugees and orphan children.

The Way forward

- **Assessing the impact of a pandemic:** India must conduct a national survey on food insecurity to assess the impact of the COVID-19 pandemic on the food security of different sections of the population.
- **Implement One Nation One Ration Card (ONORC) scheme:** Scheme takes massive digitisation of supply chain, distribution and access to the next step, ensuring anyone benefits from anywhere in India.
- **Building climate change resilient agriculture:** Introduction of newer varieties of crops, efficient irrigation systems, and promotion of crops as per agro-climate zones need to be taken as a priority.
- **Focus on preventing losses:** A third of all food produced is wasted. Lost or wasted energy used for food production accounts for 10% of the world's total energy consumption, and annual greenhouse gas emissions associated with food losses and food waste reaches around 3.5 gigatonnes of CO2 equivalent.

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Cabinet approves BharatNet implementation through Public Private Partnership Model

What is the News?

Union Cabinet has accorded approval for the revised implementation strategy of BharatNet through Public-Private Partnership (PPP) mode in 16 States of the country.

BharatNet Project:

- BharatNet Project was originally launched in 2011 as the National Optical Fibre Network (NOFN) and renamed as Bharat-Net in 2015.

What is the revised implementation strategy of BharatNet?

The revised BharatNet Project will be implemented through Public-Private Partnership(PPP) model with a total cost of ₹29,430 crores. Of this, the Government will provide the viability gap fund of ₹19,041 crores.

- **Viability Gap Fund** means a grant to support projects that are economically justified but not financially viable.

Aim: The project which initially aims to connect all the gram panchayats of the country through optic fiber for providing broadband services; it will now have two new components:

- **First**, BharatNet will now extend up to all inhabited villages beyond the gram panchayats (GPs) in the 16 states.
- **Second**, the project will also now include the creation, upgradation, operation, maintenance, and utilization of BharatNet by the private sector partner who will be selected by a competitive international bidding process.

Coverage: The 16 States covered under the project are: Kerala, Karnataka, Rajasthan, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, West Bengal, Assam, Meghalaya, Manipur, Mizoram, Tripura, Nagaland, and Arunachal Pradesh.

Moreover, the project will be divided into nine packages, each corresponding to one or more telecom circles, and no private investor will be awarded more than four packages to avoid monopoly.

Expected Benefits of the Project:

- **Use of innovative technology** by the Private Sector Provider for the consumers;
- **Competitive tariffs** for services;
- **Bridge the rural-urban divide** of digital access and accelerate the achievement of Digital India.
- **Expected to increase** direct and indirect employment and income generation.

Accredited investors: All you need to know about this new category

What is the News?

Securities and Exchange Board of India (SEBI) has come up with a framework for creating so-called accredited investors.

What are Accredited Investors?

Accredited Investors are those investors who may be considered to be well-informed or well-advised about investment products.

Eligibility to become Accredited Investor: Anyone is eligible to become an accredited investor provided the person satisfies at least one of three conditions:

- One, the investor has a net worth of ₹7.5crore, with at least half of it in financial assets.
- Two, the investor has an annual income greater than ₹2 crores.
- Three, the individual has an annual income greater than ₹1 crore and net worth greater than ₹5 crores, with at least half this amount in financial assets.

Note: For trusts and body corporates, the net worth threshold is ₹50 crore.

Benefits of becoming an accredited investor:

- Accredited investors get relaxation in the minimum amount to be invested in the Alternative Investment Funds (AIF) Regulations and Portfolio Managers (PMS) Regulations.
- Investment advisory fees can be set mutually without any regulatory caps.

Why SEBI is strengthening Independent Directors

What is the News?

Securities and Exchange Board of India (SEBI) has tightened the rules for appointing and removing independent directors. This move aims at strengthening the corporate governance framework.

Who is an Independent Director?

- **An independent director** is a non-executive director who does not have any kind of stake in the firm.
- **Purpose:** They are expected to help strengthen corporate governance. Further, they bring an element of objectivity and safeguard the interests of shareholders, especially minority shareholders.
- **Under the Companies Act, 2013**, all listed companies are required to have at least a third of their board made of independent experts from varying fields.
- **Section 149(1)** of the Act mandates that out of all independent directors, at least one independent director must be a woman.

Role of Independent Directors: The independent directors bring in transparency and accountability in corporate governance by:

- **Ensuring a balance of conflicting interests** of all stakeholders and bring in an objective view in the evaluation of management and board performance.
- **Playing the role of a watchdog** by bringing in independent judgment regarding strategy, risk management, resources, key appointments and standards of conduct.
- **By chairing the audit and compensation committee** to ensure transparency in fixing compensation and perks for top executives and in preparing independent reports.

Are the new norms of independent directors applicable to PSUs?

- **Yes, the rules for** Public Sector Undertakings (PSUs) are the same as for private listed firms.
- **At PSUs**, the administrative ministry recommends the nominee/ independent director. These recommendations are cleared by the appointments committee chaired by the prime minister.

G-secs: RBI unveils Retail Direct Scheme

What is the News?

The Reserve Bank of India (RBI) has announced the launch of the RBI Retail Direct scheme.

About RBI Retail Direct Scheme:

- **RBI Retail Direct Scheme** is a one-stop solution to facilitate investment in government securities (G-secs) by individual investors.
- **Under the scheme**, retail investors (individuals) will have the facility to open and maintain the 'Retail Direct Gilt Account' (RDG Account) with the RBI.
 - **Gilt Account** means an account opened and maintained for holding Government securities.
- **This RDG account** can be opened through an online portal provided for the purpose of the scheme.
- **The online portal** will then allow the registered users access to primary issuance of G-secs and access to NDS-OM (Negotiated Dealing System – Order Matching (NDS-OM)).

What are NDS (Negotiated Dealing System)?

- **The Negotiated Dealing System or NDS** is an electronic trading platform operated by the RBI to facilitate the issuing and exchange of government securities and other types of money market instruments.
- **The goal was to reduce** inefficiencies stemming from telephone orders and manual paperwork while increasing transparency for all market participants

NTPC to build India's largest solar park in Rann of Kutch

What is the News?

NTPC Renewable Energy Ltd (NTPC REL), a 100% subsidiary of NTPC, will set up the country's single largest solar park at Rann of Kutch in Gujarat.

About the Solar Park in Gujarat:

- **The 4,750-megawatt (MW) Solar Park** at Rann of Kutch in Gujarat will be set up by NTPC Renewable Energy Ltd.
- **The project has been approved under** Mode 8 (Ultra Mega Renewable Energy Power Park) of Solar Park Scheme.
- **This will be India's largest solar park** to be built by the largest power producer of the country.

Other Projects of NTPC:

- **NTPC** has commissioned India's largest Floating Solar of 10 MW on the reservoir of Simhadri Thermal Power Plant, Andhra Pradesh.
- **Further**, a 100 MW Floating Solar Project on the reservoir of Ramagundam Thermal Power Plant, Telangana is in the advanced stage of implementation.

Note:

- **Floating solar** refers to a solar power production installation mounted on a structure that floats on a body of water, typically an artificial basin or a lake.
- **Ultra-Mega Solar Power Projects** are a series of solar power projects planned by the Ministry of New and Renewable Energy. Each power project has a minimum capacity of 500 MW.

About Development of Solar Parks and Ultra Mega Solar Power Projects Scheme:

- **The Solar Park Scheme** was launched by the Ministry of New & Renewable Energy in 2014.
- **Under this scheme**, it was proposed to set up at least 25 Solar Parks and Ultra Mega Solar Power Projects. It aimed at over 20,000 MW of solar power installed capacity within a span of 5 years starting from 2014-15.
- **The capacity of the Scheme** has now been enhanced from 20,000 MW to 40,000 MW in 2017. The parks are also proposed to be set up by 2021-22.
- **There are eight modes** under which the scheme is being implemented.

Constitution of an Expert Committee on Longevity Finance

What is the News?

International Financial Services Centers Authority (IFSCA) has set up an expert committee. It will recommend an approach towards the development of the Longevity Finance Hub in the Gift-City in Gujarat and provide a road map for the same.

Aim of Longevity Finance Hub:

- Longevity Finance Hub aims to cater to the investment and wealth management needs of the 'silver generation', which consists of individuals aged 60 years and older.

What is the need for the Longevity Finance Hub?

- **Global estimates** suggest that there are one billion people in the silver generation (a global cohort of individuals aged 60 and older). They have a combined spending power of \$15 trillion and the size is ever-expanding.
- **Development in medicinal science and technology** will support extending the lifespan and longevity of this silver generation.
- **It is estimated** that by 2040, there will be more members of the silver generation than people under 20.
- **This demographic change** will throw open new challenges and opportunities especially in the areas of wealth management, health, insurance, and other investment products.
- **Hence**, the International Financial Services Centre Authority has set up an expert committee to develop Longevity Finance Hub.

International Financial Services Centres(IFSC):

- **An IFSC caters** to customers outside the jurisdiction of the domestic economy. Such centers deal with flows of finance, financial products, and services across borders.
- **GIFT (Gujarat International Finance Tec-City)** located in Gandhinagar is India's first International Financial Services Centre.

India emerges as 5th largest forex reserves holder in the world**What is the News?**

The Minister of State for Finance has informed Lok Sabha about the state of India's Forex Reserves.

State of India's Forex Reserves:

- **India's forex reserves** currently stand at \$608.99 billion as on June 25, 2021.
- **India has emerged** as the fifth largest foreign exchange reserves holder in the world after China, Japan, Switzerland and Russia.
- **Further, India's foreign exchange reserves position** is comfortable in terms of import cover of more than 18 months and provides a cushion against unforeseen external shocks.

Steps taken by RBI: RBI takes regular steps for diversification of forex reserves by:

- Scaling up operations in forex swap and repo markets
- Acquisition of gold
- Exploring new markets/products

Reasons for Variation in Forex Reserves: Variation in India's forex reserves is primarily due to:

- RBI's intervention in the foreign exchange market to smoothen exchange rate volatility
- Valuation changes due to the movement of the US dollar against other international currencies in the reserve basket
- Movement in gold prices
- Interest earnings from the deployment of foreign currency assets and
- The inflow of aid receipts.

Factors on which External Sector Stability Depends: The overall stability of the external sector depends on the following components of the balance of payments:

- Exports and imports of goods and services
- Remittances (transfers)
- Income in the current account,
- The size of net capital flows and
- External debt.

Note: India is comfortable in most of these external sector vulnerability indicators.

NITI Aayog and IEA launch 'Renewables Integration in India 2021'**What is the News?**

The International Energy Agency (IEA) in association with NITI Aayog has released a report titled "Renewables Integration in India 2021".

About Renewables Integration in India 2021 Report:**India's Demand For Energy:**

- **India is the third largest** energy-consuming country in the world.
- **Also, India has made significant progress** towards its universal electrification target for residential users. 100 million people gained electricity access in 2018 alone.
- **Per capita electricity consumption** across the 28 Indian states and eight union territories is still around a third of the world average and is expected to continue increasing.

Renewable Energy Penetration in India:

- **Renewable energy** penetration is highly variable by the state in India.

- **The share of solar and wind** in India's ten renewables-rich states (Tamil Nadu, Karnataka, Gujarat, Rajasthan, Andhra Pradesh, Maharashtra, Madhya Pradesh, Telangana, Punjab, and Kerala) is significantly higher than the national average of 8.2%.
- **Solar and wind account** for around 29% of annual electricity generation in Karnataka, 20% in Rajasthan, 18% in Tamil Nadu, and 14% in Gujarat.

Future Prospects of Renewable Energy:

- **The report highlights** that India's power system can efficiently integrate renewables (175 GW by 2022 and 450 GW by 2030).
- **But this would require** identification of resources, proper planning, policy and institutional support, energy storage, and advanced technology initiatives.

What the Indian States should do?

Indian states need to employ a wide range of flexible options, such as: a) Demand response, b) More flexible operation of coal-based power plants, c) Grid improvements to transition to cleaner electricity systems, d) Larger shares of renewables can be better managed by shifting the time of use in agriculture, e) Time of Use (ToU) tariffs will be an effective tool to incentivise demand-side management and encourage flexible consumption.

Pointly

Centre includes retail and wholesale under MSMEs: Minister of MSME and Road Transport and Highways announced revised guidelines for MSMEs with the inclusion of Retail and Wholesale trades as MSMEs. The Ministry also confirmed that the revised guidelines will benefit 2.5 Crore Retail and Wholesale Traders.

Fund for Industrial Research Engagement (FIRE) Initiative: Science and Engineering Research Board (SERB) in collaboration with Intel India has launched the Fund for Industrial Research Engagement (FIRE) Program. **The FIRE program is a joint government and industry initiative** with an aim to promote innovative technology solutions and strengthen academic research through collaboration with key research and development (R&D) organizations in India.

POLITY AND NATION

In Leh and Kargil, different reasons to oppose Ladakh's current status

Synopsis- Leh had made demand for 6th schedule for Ladakh, while Kargil had asked for the reinstatement of special status under Article 35 and 370.

Introduction-

- The Ladakhis were relieved that the Centre had granted their long-held desire to become a UT, but they were concerned about their future.
- The UT status arrived without a legislature. Thereby, it rendered the democratically elected LAHDC ineffective and powerless to make important regional decisions.
- Both Ladakh districts are concerned that land alienation, loss of identity, culture, language, and change in demography, would occur as a result of their political disempowerment.

Different demand from Ladakh districts -

The Union Ministry of Home Affairs (MHA) has formed a ten-member committee headed by MoS (Home) G Kishan Reddy to look into the demand from the Ladakh [Leh and Kargil]

LEH demand for Sixth Schedule status

- Political parties and religious organizations in Leh, have called for an independent hill council to be established under the Sixth Schedule, similar to the **Bodoland Territorial Council in Assam**.
 - **The Sixth Schedule** of the Constitution (Article 244 (2) and 275 (1)) safeguard tribal populations and offer considerable autonomy to vulnerable communities through the creation of Autonomous Development Councils (ADCs). It covers parts of Assam, Tripura, Meghalaya and Mizoram.

- Leaders of all Leh-based political parties had issued a call for boycott of the LAHDC elections soon after they were announced. However, they decided to change their decision after the MHA promised Sixth Schedule like protections.

Later, the demand for a legislature has been raised by the Leh political parties because the Centre has failed to offer 6th schedule like protection

Kargil demand for restoration of special status under Article 35 and 370

- However, the leaders in the Shia Muslim-dominated Kargil district are against the LEH's demand for the 6th Schedule for Ladakh.
- Political parties and leaders in Kargil are opposed to the partition of J&K and have called for the restoration of special status under Article 35 and 370 of the Constitution, allowing the Kargil area to rejoin the Kashmir Valley.

However, it has been more than 6 months since such a committee was formed, and nothing has been done yet.

Way forward-

The Centre should engage with the political leadership of both Ladakh districts all together, allowing Leh and Kargil leaders to form a single negotiation front.

Judges should not act like emperors, says SC

What is the news?

Supreme Court has reiterated that public officers should not be called to the court unnecessarily.

- The bench observed this while considering an appeal against Allahabad High Court judgment as it noticed that the High Court summoned the Secretary, Medical Health in court.

SC's observations

- **On separation of powers:** The legislature, the executive and the judiciary all have their own broad spheres of operation. It is not proper for any of these three organs of the state to encroach upon the domain of another, otherwise the delicate balance in the Constitution will be upset, and there will be a reaction.
- A court can always set aside a decision which does not meet the test of judicial review, but summoning officers frequently "is liable to be condemned in the strongest words."

Rationale

Court said that the presence of public officers comes at the cost of other official duties demanding their attention. It may eventually take a toll on the tasks they are supposed to do for the public.

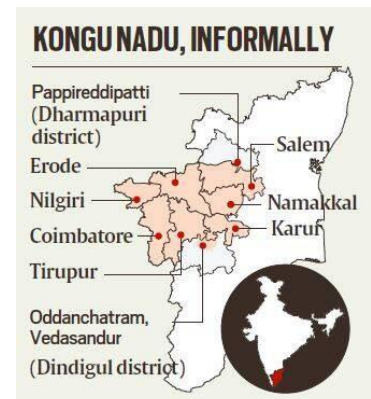
What is Kongu nadu?

What is the news?

A list of new Union Cabinet ministers issued in Tamil Nadu has triggered a debate in political circles, by referring to 'Kongu Nadu', the informal name for a region in the western part of the state.

Kongu Nadu

- 'Kongu Nadu' is neither a place with a PIN code nor a name given formally to any region. It is a commonly used name for **part of western Tamil Nadu**.
- In Tamil literature, it was referred to as one of the five regions of ancient Tamil Nadu. There were mentions of 'Kongu Nadu' in Sangam literature as a separate territory.
- In the present state of Tamil Nadu, the term is informally used to refer to a region that includes the districts of Nilgiris, Coimbatore, Tirupur, Erode, Karur, Namakkal and Salem, as well as Oddanchatram and Vedsandur in Dindigul district, and Pappireddipatti in Dharmapuri district.
- The name derives from **Kongu Vellala Gounder**, an OBC community with a significant presence in these districts.



- Unlike Telangana or Uttarakhand, there has never been a demand or discussions about a separate Kongu Nadu in the modern political history of Tamil Nadu.

Dismissal of J&K govt employees: What the Constitution says?

What is the News?

The Lt Governor of Jammu and Kashmir(J&K) has dismissed 11 J&K government employees for alleged terror links under provisions of Article 311(2)(c) of the Constitution.

About Article 311 of the Indian Constitution:

- **Article 311** of the Constitution deals with 'Dismissal, removal or reduction in rank of persons employed in civil capacities under the Union or a State'.

Subsections under Article 311:

- **Article 311(1)**: It says that no government employee either of an all-India service or a state government shall be dismissed or removed by an authority subordinate to the own that appointed him/her.
- **Article 311(2)**: It says that no civil servant shall be dismissed or removed or reduced in rank except after an inquiry in which s/he has been informed of the charges and given a reasonable opportunity of being heard in respect of those charges.

Exceptions to Article 311(2):

- **2(a)**: It says that if a government employee is convicted in a criminal case, he can be dismissed without a Departmental Enquiry (DE).
- **2(b)** - It says that the government employee can be dismissed if the authority empowered to dismiss or remove a person or to reduce him in rank is satisfied that for some reason, it is not reasonably practicable to hold inquiry or
- **2(c)**: It says that the government employee can be dismissed when the President or the Governor is satisfied that in the interest of the security of the state. It is not required to hold such an inquiry.

Can the dismissal under section 311(2) be challenged by the government employee?

- Yes, the government employee dismissed under these provisions can approach either tribunal or courts.

Note: Section 126 of the constitution of the erstwhile state of Jammu and Kashmir too, laid down exceptions under which a person could be dismissed without holding an inquiry.

Govt launches Artificial Intelligence powered grievance management application

What is the News?

The Union Defence Minister has launched an Artificial Intelligence (AI)-powered grievance management application.

About the AI-powered grievance management application:

- It has been developed by the Ministry of Defence with the help of IIT-Kanpur.
- **Purpose:** It is the first Artificial Intelligence (AI)-powered application developed to improve grievance redressal in the Government.

Key Features:

- **The application has the capability** to understand the content of the complaint. As a result, it can identify repeat complaints or spam automatically.
- **Based on the meaning of the complaint**, it can categorize complaints of different categories even when keywords normally used for such search are not present in the complaint.
- **It also enables** geographical analysis of complaints in a category, including analysis of whether the complaint was adequately addressed or not by the concerned office.

What is a dying declaration, and when can it be set aside?

What is the News?

A special CBI court convicted two policemen and awarded them life sentences for the custodial death of a murder accused who was burnt alive inside a police station. The judgment relied heavily on the 'dying declaration' made by the victim prior to his death.

What is the Dying Declaration?

- **The Dying Declaration** is the statement of a person who had died explaining the circumstances of his death.
- **A dying declaration is considered** credible and trustworthy evidence, based upon the general belief that most people who know that they are about to die, do not lie.
- **Section 32** of the Indian Evidence Act deals with the cases related to that person who is dead or who cannot be found.

Who can record dying declarations?

- **Anyone can record the dying declaration** of the deceased as per law. The law does not compulsorily require the presence of a Judicial or Executive Magistrate to record a dying declaration.

Do dying declarations always need corroboration?

- **A dying declaration can form** the sole basis of conviction. The rule requiring corroboration is merely a rule of prudence.
- **Several judgments have noted** that it is neither rule of law nor prudence that a dying declaration cannot be acted upon without corroboration.
- **If the court is satisfied** that the dying declaration is true and voluntary, it can base conviction on it, without corroboration.
- **But the court has to scrutinise** the dying declaration carefully and must ensure that the declaration is not the result of tutoring, prompting, or imagination.

Pointly

FASTER Scheme: The Chief Justice of India (CJI) announced the rollout of a new scheme called FASTER. It will ensure the timely release of prisoners from jail and uphold their dignity. It stands for 'Fast and Secure Transmission of Electronic Records'. It would enable the Supreme Court (SC) to instantly, directly, securely, and electronically transmit bail and other orders to jail authorities, district courts, and High Courts.

ENVIRONMENT

Black Carbon could lead to premature mortality: Study

What is the News?

According to a study, Black Carbon has a significant adverse effect on human health and leads to premature mortality.

Key Findings of the Study:

- **The Indo-Gangetic plain** has a high burden of black carbon with serious implications for regional climate and human health.
- **A 10-point increase** in air pollution from black carbon led to an average 5% increase in mortality.
- **On the other hand**, a similar rise in PM 2.5 led to an average 1% increase in mortality. Nitrogen dioxide (NO₂) and Sulphur Dioxide (SO₂) were both associated with a 2.3% and 1.3% increase in mortality.

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 (CO₂).
- **Black carbon is formed** through the incomplete combustion of fossil fuels, biofuel, and biomass.
- **Primary sources include** emissions from diesel engines, cookstoves, wood burning and forest fires.

- **Black carbon can have significant** direct and indirect impacts on the climate, as it influences cloud formation and atmospheric heat absorption processes.

Other types of Carbon:

- **Blue Carbon:** It refers to coastal, aquatic and marine carbon sinks held by vegetation, marine organisms, and sediments.
- **Green Carbon:** It is the carbon that is stored in terrestrial ecosystems such as forests, pastures, and soils.
- **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.

What is the Arctic's 'Last Ice Area' that is now showing signs of melting

What is the News?

A part of the Arctic's ice called "Last Ice Area" has started showing signs of melting earlier than what the scientists had expected.

About Last Ice Area:

- **The Last Ice Area** is located north of Greenland and in Ellesmere Island in the Canadian territory of Nunavut.
- **Scientists had believed** this area was strong enough to withstand global warming.
- **In 2015, National Geographic** had forecasted the total disappearance of summer ice in the Arctic by the year 2040. The only place that would be able to withstand a warming climate would be the "Last Ice Area".

Why is Ice Last Area important?

- **The Last Ice area** is important because it was thought to be able to help ice-dependent species as ice in the surrounding areas melted away.
- **This area** is used by polar bears to hunt for seals, who use ice to build dens for their offspring. Walrus too use the surface of the ice for foraging.

Reasons for Melting of Last Ice Area: The first sign of change in the Last Ice area was observed in 2018. The reasons for the change include:

- **About 80% of thinning** can be attributed to weather-related factors, such as winds that break up and move the ice around.
- **The remaining 20%** can be attributed to the longer-term thinning of the ice due to global warming.

Human-wildlife conflict among greatest threats to animal species: WWF and UNEP report

What is the news?

World Wide Fund for Nature (WWF) and the UN Environment Programme (UNEP), have released a new report titled - **A future for all - the need for human-wildlife coexistence.**

Key findings

Conflict between humans and animals is one of the main threats to the long-term survival of some of the world's most iconic species.

- Human-wildlife conflict, in combination with other threats, has driven the **significant decline of species** that were once abundant and species that are naturally less abundant, have been pushed to the brink of extinction. Global wildlife populations have fallen an average of 68% since 1970
- Such **impact not limited just to wildlife.** It would also affect humans who lived alongside wild animals, especially in developing countries rich in biodiversity. It could cause injury, death or loss of livelihood
- **Completely eradicating human-wildlife conflict was not possible.** But well-planned, integrated approaches to managing it can reduce conflicts and lead to a form of coexistence between people and animals.

Findings about India

- **India will be most-affected by human-wildlife conflict,** the report said. This was because it had the world's second-largest human population as well as large populations of tigers, Asian elephants, one-horned rhinos, Asiatic lions and other species.

- **Human-Elephant conflict:** India's elephants probably reflect the scale of the problem the best. The animals are restricted to just 3-4% of their original habitat. Their remaining range is plagued by deforestation, invasive species and climate change.
 - The animals are thus pushed to find food outside of protected areas where they clash with humans. This, in turn, causes the deaths of humans as well as loss of livelihoods for their families. The report gave the example of **Sonitpur district in Assam**. Here, destruction of forests had forced elephants to raid crops, in turn causing deaths of both, elephants and humans.
- In response, WWF India had developed the '**Sonitpur Model**' during 2003-2004 by which community members were connected with the state forest department. They were given training on how to work with them to drive elephants away from crop fields safely.
- WWF India had also developed a **low-cost, single strand, non-lethal electric fence** to ease the guarding of crops from elephants.
- Such initiatives had brought dividends and helped in reducing crop losses to zero for four years running. Human and elephant deaths also reduced significantly.

Terms to know:

WWF

- It is an international **non-governmental organization** founded in 1961 to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.
- **HQ:** Gland, Switzerland.
- Its **mission is to conserve nature** and reduce the most pressing threats to the diversity of life on Earth.
- The **Living Planet Report** is published every 2 years by the World Wide Fund for Nature.

The genome of a Salt-secreting Mangrove Species Decoded by DBT-ILS

What is the News?

Scientists have completed the genome sequencing of one of the highly salt-tolerant mangrove species, named *Avicennia marina*.

Note: Genome sequencing is a process of determining the complete DNA sequence of an organism's genome.

About *Avicennia marina*:

- It is also called **Banhi** in Odia. It is one of the most prominent mangroves species found in all mangrove formations in India.
- **Features:** It is a salt-secreting and extraordinarily salt-tolerant mangrove species that grows optimally in 75% seawater and tolerates >250% seawater.
- **Significance:** It is among the rare plant species which can excrete 40% of the salt through the salt glands in the leaves, besides its extraordinary capacity to exclude salt entry to the roots.

Significance of Genome Sequencing of this mangrove species:

- The genomic sequencing of **Avicennia marina** will help researchers in developing drought and salinity tolerant crop varieties of the coastal region of the country.

What are Mangroves?

- **Mangroves** are a unique group of species found in marshy intertidal estuaries regions and survive a high degree of salinity through several adaptive mechanisms.
- **Mangroves** are important resources for the coastal region and are of great ecological and economic value.
- **They form a link** between marine and terrestrial ecosystems, protect shorelines and provide habitat for a diverse array of terrestrial organisms.

NTPC renewable arm to set up India's first green hydrogen mobility project in Leh

What is the News?

NTPC Renewable Energy Ltd has signed a MoU with the Union Territory of Ladakh to set up India's First Green Hydrogen Mobility Project in Ladakh Region.

Note: Green Hydrogen is clean hydrogen generated by using renewable energy such as solar power and wind energy. The by-products are water and water vapor.

About India's First Green Hydrogen Mobility Project:

- **The Green Hydrogen Mobility Project will enable** NTPC to help Ladakh in developing a carbon-free economy based on renewable sources and green hydrogen.
- **Features:** As part of the project, NTPC has planned to ply 5 hydrogen buses in the Ladakh region. The company will also be setting up a solar plant and a green hydrogen generation unit in Leh.
- **Significance:** This project will put Leh as the first city in the country to implement a green hydrogen-based mobility project.

India's first cryptogamic garden opens in Dehradun

What is the News?

India's first cryptogamic garden housing nearly 50 species of lichens, ferns, and fungi was inaugurated in the Chakran Town of Uttarakhand's Dehradun district.

Why was this Chakran Town chosen?

- **The Cryptogamic Garden** is located at Deoban in Chakrata at a height of 9,000 ft.
- **This site was chosen** because of its low pollution levels and moist conditions which are conducive for the growth of these species.
- **Further, Deoban** has pristine majestic forests of Deodar and Oak which create a natural habitat for cryptogamic species.

What is Cryptogam?

- A **cryptogam** is a plant or a plant-like organism that reproduces by spores without flowers or seeds.
- **The term Cryptogamae** means "hidden reproduction", referring to the fact that no seed is produced. Thus, cryptogams represent the non-seed-bearing plants.
- **Cryptogamic plants** include Algae, mosses, liverworts, lichens, ferns, and fungi

Groups: The three major groups of Cryptogams are:

- **Thallophyta:** It is a division of the plant kingdom including primitive forms of plant life showing a simple plant body. They lack roots, stems, or leaves and are predominantly aquatic, both in marine and freshwater habitats.
 - **Examples:** It includes algae-like Cladophora, Ulothrix, Spirogyra.
- **Bryophyta:** It include the various mosses and liverworts that are found commonly growing in moist, shaded areas in the hills. Bryophytes are also called amphibians of the plant kingdom because these plants can live in soil but are dependent on water for sexual reproduction. They play an important role in plant succession on bare rocks/soil.
- **Pteridophyta:** It includes horsetails and ferns. Pteridophytes are used for medicinal purposes and as soil binders. They are also frequently grown as ornamentals. Evolutionarily, they are the first terrestrial plants to possess vascular tissues – xylem and phloem. The pteridophytes are found in cool, damp, shady places, though some may flourish well in sandy-soil conditions.

Other Types of Cryptogams:

- **Lichens:** They are a complex life form that is a symbiotic partnership of two separate organisms, a fungus, and algae.
- **Fungi:** It is a kingdom of usually multicellular eukaryotic organisms that are heterotrophs.

Rajasthan to develop corridor connecting 3 tiger reserves

What is the News?

The Rajasthan government will develop a tiger corridor connecting the newly proposed 'Ramgarh Tiger Reserve', Ranthambore Tiger Reserve, and Mukundra Hills Tiger Reserve.

About the Proposed Tiger Corridor

- **The corridor is being developed** to deal with the issue of overpopulation of tigers, which Ranthambore tiger reserve is facing currently.
- **Ranthambore Tiger Reserve** has a population of around 65 tigers currently. On the other hand, Mukundra reserve is left with just one Tiger.
- **Thus, this tiger corridor** is proposed to balance the population distribution.

What is the Tiger Corridor?

- **A tiger corridor** is a stretch of land which links 2 or more tiger habitats, allowing the movement of tigers, prey, and other wildlife.
- **Without corridors**, tiger habitat can become fragmented, and tiger populations isolated.

Note: Ramgarh Vishdhari wildlife sanctuary has recently received a nod from the National Tiger Conservation Authority's (NTCA) technical committee to become the 4th Tiger reserve of Rajasthan.

About Mukundra Hills Tiger Reserve (TR):

- **Mukundra Tiger Reserve (TR)** is located near Kota, Rajasthan. The Mukundra Hills was declared a Wildlife Sanctuary in 1955 and a National Park (Mukundra Hills (Darah) National Park) in 2004.
- **River:** The reserve is located on the eastern bank of the Chambal River and is drained by its tributaries.
- **Mountains:** The Park is situated in a valley formed by two parallel mountains viz. Mukundra and Gargola.
- **The Tiger Reserve** constitutes 3 Wildlife Sanctuaries viz; Darrah, Jawahar Sagar, and Chambal.

About Ranthambore Tiger Reserve:

- **Ranthambore National Park and Tiger Reserve** is located in Rajasthan. It is located at the junction of the Aravali and Vindhya hill ranges.
- **River:** The Park is bounded to the north by the Banas River and to the south by the Chambal River.
- **Named after:** The Park is named after the historic Ranthambore Fort, which lies within the park.
- **Comprises:** Two protected areas namely Kailadevi Wildlife Sanctuary and Sawai Mansingh Wildlife Sanctuary are linked by narrow corridors to the core of Ranthambore NP and all these together comprise the Tiger Reserve.

Explained: The 're-wilding' of wild animals, and the challenges it involves**What is the News?**

The Periyar Tiger Reserve (PTR) is trying to reintroduce an abandoned nine-month-old cub into the wild, after rearing it in 'captivity' for two years. This issue has once again brought the controversial concept of 're-wilding' of abandoned or injured animals under the lens.

What is 'Re-wilding'?

- The Standard Operating Guidelines laid down by the National Tiger Conservation Authority (NTCA) under Section 38(O) of Wildlife Protection Act, 1972 provide three ways to deal with orphaned or abandoned tiger cubs:
 - **The first** is to make an effort to reunite the abandoned cubs with their mother.
 - **Second**, if a reunion of the cub with its mother is not possible, then shift the cub to a suitable zoo.
 - **Third**, reintroduction of the cub into the wild after a certain time when it appears that the cub is capable of surviving in the wild independently. This is what is known as 'Re-wilding'.

Challenges with re-wilding:

- **The process of re-wilding** of a wild animal after rearing it in captivity is very complicated and fraught with risks.
 - **For example**, there have been cases of captivity-reared animals, especially carnivores, attacking human beings after being introduced in the wild.
- **Huge funds are needed** for constructing large, well-fenced enclosures, for the equipment required for technical surveillance of the animal.
- **The authorities have to keep tabs** on the overall movement of a released animal till the end, which needs a lot of resources and manpower.

Is the concept of re-wilding limited to big cats like tigers and leopards?

- **Rewilding** is not limited to cats. There have been efforts to reintroduce other endangered species into the wild after rearing them in captivity.
- **For Example:** Bombay Natural History Society (BNHS) in collaboration with the Haryana Forest and Wildlife Department has been running a vulture conservation centre named '**Jatayu**'.
 - **Under this**, several pairs of endangered gyps species, including the white-backed, the long-billed, and the slender-billed have been successfully introduced into the wild.

Odisha rolls out conservation plan for Ganjam Slender Gecko

What is the News?

Odisha's forest officials have announced measures to preserve the newly discovered tiny gecko species named Ganjam Slender Gecko.

About Ganjam Slender Gecko

- **Ganjam Slender Gecko** is a tiny gecko species of the genus *Hemiphyllodactylus*.
- The species was first spotted within the premises of a temple at **Humma in Ganjam district** in 2014.
- **Features:** They grow 6 cm in length. They feed on ants, termites, small roaches, spiders, and beetles.
- **Habitat:** The only habitat of the species is **Jhadeshawar** sacred grove. Moreover, they are only found in mango trees surrounding the temple. They were never found on concrete walls or below rock boulders, unlike other members of the genus.
- **Significance:** This new species is the 7th Indian species of the genus, the second from the northern Eastern Ghats and 41st globally. It is also the **first non-island species of the genus** which is distributed in lowland habitats.

About Geckos

- **Geckos are reptiles.** They are found on all the continents **except Antarctica**. These colorful lizards have adapted to habitats from rainforests to deserts to cold mountain slopes.
- Most geckos are **nocturnal**, which means they are active at night but day geckos are active during the day and nibble on insects, fruits and flower nectar.

Important Gecko Species of India in news

- **Indian golden gecko:** It is a species of gecko known only from the Eastern Ghats of India. It was rediscovered from the hills near present-day Tirupati.
 - **IUCN Status:** Least Concern (LC).
 - **Schedule 1** of WPA (Wildlife Protection Act).
- **Common House Gecko:** It is a gecko species native to South and Southeast Asia. It is also known as the Asian house gecko, Pacific house gecko, wall gecko, house lizard, Tayoto, or moon lizard.
 - **IUCN Status:** Least Concern (LC).
- **Tokay gecko or Gekko gecko:** They are found from northeast India to the Indo-Australian Archipelago and tropical rain forests.
 - **Schedule III** of the Indian Wildlife Protection Act.
 - **IUCN Status:** Least Concern (LC)
- **Dwarf gecko (Cnemaspis avasabinae):** a **New** species of lizard, the smallest known Indian gekkonid, was discovered in 2020 in the Eastern Ghats. The first species was reported from the **Velikonda Range** in Andhra Pradesh.

Maharashtra Govt to join Climate Group's EV100 drive

What is the News?

Maharashtra government has announced its decision to become the first state in the country to join hands with Climate Group's EV100 campaign.

About EV100 campaign:

- **The EV100 campaign** is an initiative of Climate Group, an international non-profit organization.

- **The campaign** aims to make electric transport the new normal by 2030. For that, it will encourage companies to switch from vehicles running on fossil fuels to EVs and install charging infrastructure.

How will the EV100 campaign help the Maharashtra Government?

- **Maharashtra's Electric Vehicles (EV) policy** aims to achieve 25% electrification of last-mile delivery vehicles by 2025.
- **Climate Group through its EV100 campaign** will act as a bridge between private companies and the State government to ease the process of shifting their fleets to Electric Vehicles (EVs).

INTERNATIONAL RELATIONS

7th edition of Indian Ocean Naval Symposium (IONS)

What is the News?

The 7th edition of Indian Ocean Naval Symposium (IONS) was hosted by the French Navy at La Réunion.

About Indian Ocean Naval Symposium(IONS):

- **Indian Ocean Naval Symposium (IONS)** is a biennial forum conceived by the Indian Navy in 2008.
- **Purpose:** It is a voluntary initiative that seeks to increase maritime cooperation among navies of the littoral states of the Indian Ocean Region. It provides an open and inclusive forum for discussion of regionally relevant maritime issues.
- **Chairmanship:** The chairmanship of IONS has been held by India (2008-10), UAE (2010-12), South Africa (2012-14), Australia (2014-16), Bangladesh (2016-18), and the Islamic Republic of Iran (2018-21).
 - **Currently**, France has assumed Chairmanship for a two-year tenure.

Members of IONS: IONS includes 24 nations that hold territory within the Indian Ocean and 8 observer nations:

- **South Asian Littorals:** Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka, and United Kingdom (British Indian Ocean Territory)
- **West Asian Littorals:** Iran, Oman, Saudi Arabia, and the United Arab Emirates
- **East African Littorals:** France (Reunion), Kenya, Mauritius, Mozambique, South Africa, and Tanzania.
- **southeast Asian and Australian Littorals:** Australia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, and Timor-Leste.
- **Observers:** China, Germany, Italy, Japan, Madagascar, the Netherlands, Russia, and Spain.

OPEC's output pact proposal stalled

What is the News?

The meetings among the OPEC+ group of oil-exporting countries have stalled. Because the UAE has pushed back proposals, making an increase in crude oil supply conditional on an extension to an output agreement.

Background:

- **In April 2020**, the OPEC+ countries had signed a two-year agreement. It included steep cuts in crude production to deal with a sharp fall in the price of oil as a result of the Covid-19 pandemic.
- **Due to this agreement**, the price of crude oil started rising consistently and has now reached \$76.5 per barrel. Despite this, OPEC+ maintained lower levels of crude oil production.
- **However**, the group ran into sharp criticism from developing economies, including India, for deliberately maintaining low supply levels to raise prices.

What is the issue now?

- **The current issue is between the UAE and Saudi Arabia.** UAE has accepted a proposal from Saudi Arabia to raise output of crude oil in phases.
- **However**, UAE has rejected extending the remaining cuts to the end of 2022 from the current end date of April 2021 without adjusting its current baseline production.

How will it impact India?

- **If the OPEC+ countries** do not reach an agreement to increase production of crude oil, then expected relief in the form of lower crude oil prices could be delayed.
- **India is currently** facing record-high prices of petrol and diesel, with prices of petrol exceeding Rs 100 per litre in 13 states and Union Territories.

Deaths by exposure to hazardous chemicals increased 29% between 2016 and 2019: WHO**What is the News?**

The World Health Organization (WHO) has released estimates on the Impact of hazardous chemicals on Public Health.

Key Findings:**Deaths due to Hazardous Chemicals Exposure:**

- **Deaths** due to exposure to hazardous chemicals worldwide have increased by 29% in 2019 from what they were in 2016.
 - **Two million people** died due to exposure to hazardous chemicals in 2019, compared to 1.56 million in 2016.
- **Around 4,270 and 5,400 people** died every day due to unintentional exposure to chemicals.
- **Children and young adults** are particularly affected by unintentional poisoning from hazardous chemicals.
- **Lead** is primarily used in paints for various reasons, including enhancing the color, reducing corrosion and decreasing the drying time.
- **Lead exposure** causes cardiovascular diseases (CVD), chronic kidney diseases, and idiopathic intellectual disability.
- **Further, Lead** is responsible for nearly 45% or close to half of deaths caused due to hazardous chemicals in 2019.
- **Over 0.9 million people** died from exposure to lead. Of these, close to 9 out of every 10 persons died from CVD due to lead exposure.
 - **The deaths** due to lead exposure have increased by a disturbing 67% since 2016.

Note: In 2020, UNICEF in its report “**The Toxic Truth**” had raised concerns on the impact of lead pollution on the health of children. According to the report, at least 1 in 3 children – up to approximately 800 million globally – have blood lead levels at or above 5 micrograms per decilitre ($\mu\text{g}/\text{dL}$).

Deaths due to other Hazardous Chemicals:

- **Chronic obstructive pulmonary disease (COPD)** from exposure to occupational particulates including dust, fumes, and gas has claimed over 0.5 million lives.
- **Over 3.5 million died from cancers** due to occupational exposure to carcinogenic chemicals like arsenic, asbestos, and benzene.

Disability-adjusted life-years lost too

- **In 2019, 53 million disability-adjusted life-years** were lost due to Hazardous chemicals' exposure. This is an increase of over 19% since 2016.
 - **The disability-adjusted life year (DALY)** is a measure of overall disease burden expressed as the number of years lost due to ill-health, disability, or early death.
- **In 2019, 21.6 million disability-adjusted life-years** were lost due to lead exposure. This is an increase by over 56% since 2016.

Steps to be taken by World and India:

- **India must bring a comprehensive law** to regulate chemical use, production, and safety. However, India's national chemical policy has been pending since 2012.
- **Moreover, the world is lagging behind** in controlling lead use. Just 41% of countries including India have legally binding controls on the production, import, sale, and use of lead paints.

UNESCO strips Liverpool of its world heritage status

What is the News?

The English city of Liverpool has been removed from UNESCO's list of World Heritage Sites.

When was Liverpool added to UNESCO World Heritage Site?

- **Liverpool was named** as a UNESCO World Heritage Site in 2004, joining cultural landmarks such as the Great Wall of China, the Taj Mahal and the Leaning Tower of Pisa.

Why has it been removed from the World Heritage Site list ?

- **Liverpool has been removed** from UNESCO's list of World Heritage Sites because of developments in the city center and on its historic River Mersey waterfront.
- **These developments have** caused irreversible damage to Liverpool's authenticity.

Impact of this move on Liverpool:

- **The World Heritage Site label** gives historic sites access to UN conservation funding, as well as featuring in tourist guidebooks across the world. This will not be available for Liverpool now.

Significance of this move:

- **Liverpool city** is only the third place to be removed from the UNESCO World Heritage list.
- **The only other sites** stripped previously of the title are a wildlife sanctuary in Oman in 2007 after poaching and habitat loss. Another one is the Dresden Elbe Valley in Germany in 2009 when a four-lane motorway bridge was built over the river.

SCIENCE AND TECHNOLOGY

Is Non-fungible Token (NFT) what Digital Art needs?

What is the News?

Non-fungible tokens (NFT) have made digital art a worthy collectible by solving the problems of provenance and duplication.

What are Fungible and Non-Fungible assets?

- **A fungible asset** is something that can be readily interchanged like money. With money, you can swap a £10 note for two £5 notes, and it will have the same value.
- **On the other hand**, a non-fungible asset means it has unique properties which cannot be interchanged with something else. **Example:** It could be a painting that is one of a kind. You can take a photo of the painting or buy a print, but there will only ever be one original painting.

What are Non-Fungible Tokens(NFTs)?

- **Non-Fungible Tokens (NFTs)** are unique cryptographic tokens that exist on a blockchain and cannot be replicated.
- **They are one-of-a-kind assets** in the digital world that can be bought and sold like any other piece of property, but they have no tangible form of their own.
- **The digital tokens** can be thought of as certificates of ownership for virtual or physical assets.

How do NFTs work?

- **Traditional works of art** such as paintings are valuable because they are one of a kind. But digital files can be easily and endlessly duplicated.
- **With NFTs**, artwork can be "tokenized" to create a digital certificate of ownership that can be bought and sold.
- **As with crypto-currency**, a record of who owns what is stored on a shared ledger known as the blockchain.
- **The records cannot be forged** because the ledger is maintained by thousands of computers around the world.

- **Similarly, NFTs can also contain** smart contracts that can solve the problems of provenance and duplication of the art.

African swine fever: Ripple effect across the world

What is the News?

The African Swine Fever (ASF) continues to impact livestock in Mizoram, affecting all 11 districts and killing 10,621 pigs since March 2021.

About African Swine Fever:

- **African swine fever (ASF)** is a highly contagious hemorrhagic viral disease of domestic and wild pigs which is responsible for serious economic and production losses.
- **Caused by:** It is caused by a large DNA virus of the Asfarviridae family, which also infects ticks of the genus Ornithodoros.

Transmission: It is transmitted among pigs through:

- direct contact with infected domestic or wild swines
- indirect contact through ingestion of contaminated substances or
- contaminated material such as food waste, feed, or garbage or through biological vectors such as ticks.

Human Transmission:

- **ASF is not a threat** to human beings, since it only spreads from animals to other animals.
- **ASF** is a disease listed in the World Organisation for Animal Health (OIE) Terrestrial Animal Health Code and must be reported to the OIE.

Treatment:

- The **mortality is close to 100%** and since the fever has no cure, the only way to stop its spread is by culling the pigs.

Planetary conjunction of Mars, Venus

What is the News?

Earth's two immediate neighbors Mars and Venus will come closest to each other. This event is called planetary conjunction.

What is Conjunction?

- **The conjunction** is the name given to any event where planets or asteroids appear to be very close together in the sky when viewed from the Earth.

What is Planetary Conjunction?

- **Planetary conjunction** takes place when two planets appear to have come closer, while in reality, they remain far away.

What is Great Conjunction?

- **Astronomers use the term great conjunction** to describe meetings of the two biggest planets in the solar system, Jupiter and Saturn.
- **The Great Conjunction happens** once in about 20 years, because of the time each of the planets takes to orbit around the Sun.

Moon 'wobble'

What is the news?

Scientists are estimating that moon wobble would bring high tides in some coastlines of the world in the next decade. This may cause severe flooding, threaten coastal communities and lead to submergence of the coastal landscape.

About Moon wobble:

- It is a regular oscillation that humans have known about for centuries.

- It is one of many factors that can **either exacerbate rising sea levels or counteract them**, alongside other variables like weather and geography.

Why does the moon wobble?

- The moon revolves around the Earth about once a month, and that orbit is a little tilted. To be more precise, **the moon's orbital plane around the Earth** is at an approximate 5-degree incline to the Earth's orbital plane around the sun.
- Because of that, **the path of the moon's orbit seems to fluctuate over time**, completing a full cycle – sometimes referred to as **a nodal cycle** – every 18.6 years.

Effect of moon wobble:

- High tides on this planet are caused mostly by the pull of the moon's gravity on a spinning Earth. On most beaches, you would see two high tides every 24 hours.
- **At certain points along the cycle, the moon's gravitational pull comes from such an angle that one of the day's two high tides is a little higher**, at the expense of the other.
- During its most rapid upward phase, it acts to enhance the effective sea level, and during **its most rapid downward phase, like we're in now**, it acts to suppress the effective sea level.
- As per the study, the wobble could cause high tide levels at a beach to oscillate by 1 or 2 inches over the course of its long cycle, thereby raising the baseline.
 - The more your baseline is raised, the smaller the weather event you need to cause a flooding event.

NEA Scout

What is the News?

NASA has announced that its new spacecraft named NEA Scout has completed all required tests and has been safely tucked inside the Space Launch System (SLS) rocket.

NEA Scout is one of several payloads that will launch on Artemis I which is expected to be launched in November 2021.

Artemis I: It is a planned uncrewed test flight for NASA's Artemis program. Under the Artemis program, NASA has aimed to land the **first woman on the Moon in 2024** and also establish **sustainable lunar exploration** programs by 2030.

About NEA Scout Spacecraft:

- **Near-Earth Asteroid Scout or NEA Scout** is a small spacecraft developed under NASA's Advanced Exploration Systems Program.
- **Aim:** Its main mission is to fly by and collect data from a near-Earth asteroid.
 - It will take about two years to cruise to the asteroid and will be about 93 million miles away from Earth during the asteroid encounter.
- **Significance:** It will also be the USA's first interplanetary mission using special solar sail propulsion.
 - **A solar sail**, simply put, is a spacecraft propelled by sunlight. Whereas conventional rockets are propelled by the combustion of rocket fuel, a solar sail is pushed forward by light from the Sun.

Why should we study Near-Earth Asteroids?

- **Despite their small size**, some of these near-earth asteroids could pose a threat to Earth.
- **Hence**, understanding their properties could help us develop strategies for reducing the potential damage caused in the event of an impact.
- **Moreover**, scientists will use this data to determine what is required to reduce risk, increase effectiveness and improve the design and operations of robotic and human space exploration.

What are Near Earth Objects(NEO)?

- **These are** comets and asteroids pushed by the gravitational attraction of nearby planets into orbits which allow them to enter the Earth's neighbourhood.
- **They are composed** mostly of water ice with embedded dust particles.

Rare Diseases Policy

What is the News?

Union Minister of State for Health and Family Welfare has informed Lok Sabha that the National Policy for Rare Diseases, 2021 has been finalized and put in the public domain.

About National Policy for Rare Diseases, 2021: The policy aims at lowering the incidence and prevalence of rare diseases based on an integrated and comprehensive preventive strategy comprising:

- awareness generation
- premarital, post-marital, pre-conception, and post-conception screening
- counseling programmes to prevent births of children with rare diseases
- enable access to affordable health care to patients of rare diseases.

Categorisation: The policy divides Rare Diseases into three groups, namely:

- **Group 1:** Disorders amenable to one-time curative treatment.
- **Group 2:** Diseases requiring long-term / lifelong treatment with a relatively lower cost of treatment.
- **Group 3:** Diseases for which definitive treatment is available, but challenges are to make optimal patient selection for benefit, very high cost, and lifelong therapy.

About Rare Diseases:

- WHO defines rare disease as often debilitating lifelong disease or disorder with a prevalence of 1 or less, per 1000 population. However, different countries have their own definitions to suit their specific requirements and in context of their own population, health care system and resources.

Pointly

- **Suborbital Flights:** It occurs when a spacecraft reaches space, but its velocity is such that it cannot orbit the Earth once they reach there. **When an object** travels at a horizontal speed of about 28,000 km/hr or more, it goes into orbit. **Satellites need to reach** that threshold speed in order to orbit Earth. Such a satellite would be accelerating towards the Earth due to gravity, but its horizontal movement is fast enough to offset the downward motion so that it moves along a circular path. **This is because any object** traveling slower than 28,000 km/hr must eventually return to Earth. **However**, Unity spacecraft traveled far enough to reach the “edge of space”. These are suborbital flights because they will not be traveling fast enough to orbit Earth once they reach there. **Such a trip** allows space travelers to experience a few minutes of “weightlessness”.
- **UV-C radiation** (wavelength around 254 nm) has been used for decades to disinfect the air in hospitals, laboratories, and also in water treatment. **A paper published in June 2020** in Scientific Reports noted that UV-C radiation can destroy the outer protein coating of the SARS-Coronavirus. **Moreover**, few studies have shown that far-UVC light does not harm human skin. This is because UV-C light has a very limited range and cannot penetrate through the outer dead-cell layer of human skin or the tear layer in the eye, so it's not a human health hazard. But because viruses and bacteria are much smaller than human cells, far-UVC light can reach their DNA and kill them.
- **AMLEX:** Indian Institute of Technology (IIT), Ropar has developed a first-of-its-kind Oxygen Rationing Device called **AMLEX**. **AMLEX** is an Oxygen Rationing Device that increases the life of medical oxygen cylinders threefold. **The device** can be easily connected between the oxygen supply line and the mask worn by the patient. **It uses a sensor** that senses and successfully supplies a required volume of oxygen to the patients (while inhaling) and trips when the patient is exhaling Carbon dioxide (CO₂). **This process** would help save oxygen, which gets unnecessarily wasted otherwise.
- **SAMVEDAN 2021** aims to inspire citizens to use the Internet of Things (IoT) Sensor Board in order to solve India-specific problems of societal interest. **The grand challenge competition** is open to all the Indian nationals.
- **NASA's VIPER Mission:** NASA has announced the launch of the Volatiles Investigating Polar Exploration Rover (VIPER) Mission in 2023. **VIPER Mission** is a mobile robot to be launched by NASA in the year 2023. **It will be the first** resource mapping mission on any other celestial body. **Celestial Body** is any natural body outside the Earth's atmosphere. Easy examples are the Moon, Sun, and the other planets of our solar system.
- **dbGENVOC** is a browsable online database of GENomic Variants of Oral Cancer. The database is publicly available and is a free resource. **The database will contain** somatic and germline variants derived from oral

cancer patients and also peer-reviewed published publications. **The database** also has a built-in search engine. This allows researchers to carry out analysis of identifying variants in associated altered pathways in oral cancer.

- **ZyCov-D:** ZyCov-D is a plasmid DNA vaccine, which means it uses a genetically engineered, non-replicating version of a type of DNA molecule known as a 'plasmid'. **Developed by:** ZyCov-D has been developed by Zydus Cadila with the support of the Department of Biotechnology and the Indian Council of Medical Research (ICMR).
- **OxyJani:** A team from Jawaharlal Nehru Centre for Advanced Scientific Research, an autonomous institute under the Department of Science & Technology, has developed a device named 'OxyJani'. **OxyJani** is a mobile group oxygen concentrator that can be used in rural settings and also be rapidly deployed in emergencies in any location. **Technology:** It is based on the principles of Pressure Swing Adsorption (PSA) technology. **Significance:** The team replaced lithium zeolites (LiX) which is usually used in oxygen concentrators with sodium zeolites which do not generate toxic solid waste and can be manufactured in India.

SECURITY

DRDO successfully flight-tests surface-to-air missile Akash-NG

What is the News?

Defence Research & Development Organisation (DRDO) has successfully flight-tested the New Generation Akash Missile (Akash-NG).

About Akash-NG:

- **Akash-NG** is a **New Generation Surface-to-Air Missile**. It is developed by Defence Research & Development Laboratory (DRDL), Hyderabad in collaboration with other DRDO laboratories.
- **Purpose:** The Missile is capable of intercepting high manoeuvring low radar cross-section aerial targets.

Key Features of Akash NG Missile:

- **Rocket Motor:** Akash-NG uses a two-pulse solid rocket motor that replaces the old ramjet on the legacy Akash missile.
 - **The new motor** not just reaches out to 30 kilometres (km), but also generates a high terminal velocity to strike even the fastest and most agile enemy fighters.
- **Lighter Weight:** The weight of the rocket has been brought down from 700 kg to 350 kg. This not just increases range, but also lets the vehicle carry more missiles.
- **New Seeker Head:** Akash-NG has a new seeker head. The seeker locks onto the enemy aircraft and continuously guides the missile to impact the target.
 - **Akash-NG** detects enemy fighters at ranges out to 80 km and initiates the launch sequence.
 - **By the time** the enemy aircraft is 50 km away, the Akash-NG's computers have calculated the launch trajectory and impact point and launched the missile.
 - **In just over a minute**, the missile blazes its way to the impact point 30 km away and destroys the target.

Indian Navy exercise with UK's Royal Navy carrier strike group

What is the News?

The Indian Navy took part in a bilateral Passage Exercise (PASSEX) with the UK Royal Navy Carrier Strike Group (CSG)-21 in the Bay of Bengal.

Passage Exercise(PASSEX):

- **Passage Exercise** will take place between the two navies to ensure that the navies are able to communicate and cooperate in times of war or humanitarian relief.
- **The Indian Navy** had conducted similar passing exercises with the Japan Maritime Self-Defence Force, French Navy, and US Navy among others.

India-UK PASSEX Exercise:

- **This is the maiden** PASSEX exercise between the Indian Navy and the UK Royal Navy.
- **The exercise was designed** to hone the two navies' ability to operate together in the maritime domain.

Other Exercises between India and UK:

- **Exercise Indradhanush:** It is a joint bilateral air exercise between India and the UK started in 2006.
- **Exercise Konkan:** It is an annual maritime bilateral exercise between the Indian Navy and the Royal Navy of Britain.
- **Exercise Ajeya Warrior:** It is a joint military exercise between India and the UK. It was held for the first time in 2013.

SCHEMES AND PROGRAMS

Reform Based and Result linked, Revamped Power Distribution Scheme:

Aim: To improve the operational efficiencies and financial sustainability of DISCOMs/ Power Departments (excluding Private Sector DISCOMs) by providing conditional financial assistance for strengthening of supply infrastructure.

Objectives of the Scheme:

- Reduction of AT&C losses to pan-India levels of 12-15% by 2024-25.
- Reduction of ACS-ARR gap to zero by 2024-25.
- Developing Institutional Capabilities for Modern DISCOMs
- Improvement in the quality, reliability, and affordability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector.

Duration and Implementation of the Scheme:

- **Nodal Agencies:** Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) have been nominated as the nodal agencies for the implementation of the scheme.
- **Duration:** The Scheme would be available till the year 2025-26.

Other Features of the Scheme:

- **Assistance:** The financial assistance under the Scheme will be based on meeting pre-qualifying criteria as well as upon achievement of basic minimum benchmarks by the DISCOM.
- **Approach:** Implementation of the Scheme would be based on the action plan worked out for each state rather than a "one-size-fits-all" approach.
- **Merging of Scheme:** The central schemes, **Integrated Power Development Scheme (IPDS), Deen Dayal Upadhyaya Gram Jyoti Yojana and Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya)** will be merged under this scheme.
- **Focus:** The Scheme has a major focus on improving electricity supply for the farmers and for providing daytime electricity to them through solarization of agricultural feeders.
- **Consumer Empowerment:** The scheme also enables consumer empowerment by way of prepaid **Smart metering** to be implemented in Public-Private-Partnership (PPP) mode.
- **Technology:** Artificial Intelligence would be used to analyze data generated to enable DISCOMs to make informed decisions.

'Freight Smart Cities'**What is the News?**

The Logistics Division under the Ministry of Commerce & Industry has released the roadmap for the 'Freight Smart Cities Initiative'.

About 'Freight Smart Cities Initiative':

- **Freight Smart Cities Initiative** aims to improve the efficiency of urban freight and create an opportunity for a reduction in logistics costs.

- **Under the initiative**, State Governments will identify ten cities, initially, to be developed as Freight Smart Cities.
- **In these ten cities**, city-level logistics committees would be formed. These committees would have members from the government as well as from the private sector.
- **These committees** would co-create City Logistics Plans like developing peri-urban freight centres, night-time deliveries, developing truck routes, Promoting electrification of urban freight among others.
- **Further**, the initiative will be expanded to 75 cities in the next phase before scaling up throughout the country. It will include all state capitals and cities that have more than one million population.

Govt unveils NIPUN to improve learning

What is the News?

The Ministry of Education has launched the **National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat) Mission**.

About NIPUN Bharat Mission:

- It aims to improve foundational literacy and numeracy of children in the age group of **three to nine years**.

Key Features of the Mission:

- **Implementation:** The mission will be implemented by the Union Education Ministry in collaboration with states through the flagship school education program Samagra Shiksha.
- **Target:** The mission has set a target that by 2026-27, every Class 3 child should be able to read with understanding at the rate of at least 60 words per minute. Further, the child should be able to read and write numbers up to 9,999 and solve simple multiplication problems.
- **Survey:** A National Achievement Survey of Class 3 students will be conducted to set a baseline to track the future progress of the mission.
- **Mother Tongue:** The mission also emphasizes the importance of using a child's mother tongue in teaching, a principle of the National Education Policy 2020.

What was the need for this mission?

- **Foundational learning** has been poor in Indian schools. Annual State of Educational Report (ASER) findings released by education non-profit Pratham have shown that for successive years.
- **According to ASER findings**, at least 25% of school children in the four-eight age group do not have age-appropriate cognitive and numeracy skills. It is leading to a massive learning deficit at an early stage.
- **Just 37.4% of children** below six were able to recognize at least letters, and only 25.6% could do additions.
- **Similarly**, only 34.8% of children in Class II could read a text meant for Class I. **In Class III**, only 50.8% could read texts meant for their juniors two levels below.

Eco Circuit is one of the 15 thematic circuits under Swadesh Darshan Scheme

What is the news?

Ministry of Tourism has said that it is developing **Eco Tourism** as one of the Niche Tourism areas for development in the country.

Eco Tourism

As per The International Eco Tourism society (TIES), it is defined as “*responsible travel to natural areas that conserves the environment, sustains the well-being of the local people and involves interpretation and education*” (TIES, 2015).

Note: Education is meant to be inclusive of both staff and guests.

Relevant points

- Recognizing the potential for the development of Eco Tourism in the country, the Ministry of Tourism has identified “Eco Circuit” as one of the **15 thematic circuits** under the Swadesh Darshan Scheme.
- Eco Tourism, is the primary responsibility of the State Governments/UT Administrations. However, the Ministry of Tourism provides financial assistance under Swadesh Darshan Scheme for the development of tourism-related infrastructure and facilities in the country.

- The Ministry of Tourism has evolved **Sustainable Tourism Criteria for India (STCI)** for major segments of the tourism industry, namely accommodation, tour operators, beaches, backwaters, lakes and river sectors, etc., applicable for the entire country.
- Ministry of Tourism has also made it mandatory for the approved tourism service providers such as tour operators, adventure tour operators, etc., to follow the **Code of Conduct for safe and sustainable Tourism**.

SMILE - Support for Marginalized Individuals for Livelihood and Enterprise formulated

What is the news?

The **Ministry of Social Justice and Empowerment** has formulated a scheme “SMILE - Support for Marginalized Individuals for Livelihood and Enterprise”.

About SMILE

- Two Central Sector Schemes namely **Comprehensive Rehabilitation of persons engaged in the Act of begging** and **Comprehensive Rehabilitation for Welfare of Transgender Persons** have been merged in a single scheme named SMILE.
- **Focus areas:** Rehabilitation, provision of medical facilities, counselling, basic documentation, education, skill development, economic linkages and so on.
- The scheme would be implemented with the support of State/UT Governments/Local Urban Bodies, Voluntary Organizations, Community Based Organizations (CBOs), institutions and others.

Adarsh Smarak Scheme

What is the news?

Recently, the fort at Gandikota was identified for development under the Centrally-sponsored ‘**Adopt a Heritage**’ programme. Further, 3 monuments – Nagarjuna Konda in Guntur district, the Buddhist remains at Salihundam in Srikakulam district and the Veerabhadra temple at Lepakshi in Anantapur district have been identified for development under ‘**Adarsh Smarak**’ scheme.

About Adarsh Smarak scheme

- **Ministry:** Ministry of Culture
- The scheme was launched in 2014 for providing improved visitor amenities, especially for the physically challenged, besides cleanliness, drinking water, and interpretation centres, cafeteria, souvenir shop, wi-fi, garbage disposal etc.
- **Objectives:**
 - To make the monument **accessible** to differently-abled.
 - To make monument **visitor friendly**.
 - Furthermore, to implement **Swachh Bharat Abhiyan**.
 - Also, to upgrade/provide washrooms, drinking water, signages, cafeteria, and wi-fi facilities.
 - To provide **interpretation and audio-video centers**.
 - To streamline **wastewater and garbage disposal** and a rainwater harvesting system.
 - Lastly, to provide **safety and protection**

About Adopt a Heritage scheme

- An initiative of the **Ministry of Tourism** in collaboration with the **Ministry of Culture** and the **Archaeological Survey of India (ASI)**
- Under this scheme, the government invites entities, including public sector companies, private sector firms and individuals, to **develop** selected monuments and heritage and tourist sites.
- Basic amenities like drinking water, ease of access for the differently-abled and senior citizens, standardised signage, cleanliness, public convenience, surveillance system and night-viewing facilities are provided and maintained under the scheme.

Pointly

- **Matsya Setu** is an online course app. It aims to provide the latest freshwater aquaculture technologies to the aqua farmers of the country. **Developed by:** The app was developed by the ICAR-Central Institute of

Freshwater Aquaculture (ICAR-CIFA), Bhubaneswar. The National Fisheries Development Board (NFDB), Hyderabad is providing the funding support.

- **SPARSH** is an integrated system for automation of sanction and disbursement of defence pension. **The portal processes** pension claims and credits pension directly into the bank accounts of defence pensioners without relying on any external intermediary. **The portal** is also available for pensioners to view their pension related information, access services and register complaints for redressal of grievances.
- **AIM-iLEAP** (Innovative Leadership for Entrepreneurial Agility and Profitability) initiative was organised by Atal Innovation Mission (AIM) in partnership with Startup Réseau and Visa. **The objective of the initiative** is to invite technology start-ups across a broad range of functions and have them present their solutions to the corporate leadership and innovation team for enabling market access and industry partnerships. **On the other hand**, individual and institutional investors participating in this program shall consider investing in the curated set of AIM supported start-ups.

MISCELLANEOUS

KVIC Secures Trademark Registrations in Bhutan, UAE & Mexico

What is the News?

Khadi and Village Industries Commission (KVIC) has recently secured trademark registrations in three countries – Bhutan, UAE and Mexico.

How many countries has KVIC obtained Trademark Registration?

- **So far**, KVIC has Trademark registrations for the word mark “KHADI” in 6 countries namely Germany, UK, Australia, Russia, China and EU.
- **However**, with trademark registrations in Bhutan, UAE and Mexico, the number of such countries has gone up to nine.
- **In these countries**, KVIC has got registrations in various classes such as Khadi fabric, Khadi readymade garments and village industry products like Khadi soaps, Khadi cosmetics, Khadi incense sticks among others.

What is a Trademark?

- **A Trademark** is a sign capable of distinguishing the goods or services of one enterprise from those of other enterprises.
- **A Trademark Registration** will confer an exclusive right to the use of the registered trademark. This implies that the trademark can be exclusively used by its owner or licensed to another party for use in return for payment.
- **The term of trademark registration** can vary, but is usually ten years. It can be renewed indefinitely on payment of additional fees.

About KVIC:

- **The Khadi and Village Industries Commission (KVIC)** is a statutory body formed in 1957 under Khadi and Village Industries Commission Act, 1956.
- **Nodal Ministry:** It is an apex organisation under the Ministry of Micro, Small, and Medium Enterprises.
- **Mandate:** The KVIC is charged with the planning, promotion, organisation and implementation of programs for the development of Khadi and other village industries in the rural areas in coordination with other agencies.