



www.iasgateway.com

PIB

OCTOBER - 2020

INDEX

1. INDIAN SOCIETY & POLITY

| | |
|---|----|
| 1. Section 29 of POCSO Act applicable only after trial begins | 04 |
| 2. Postal Ballot | 05 |
| 3. Kamdhenu Deepawali Abhiyan | 06 |
| 4. Protection of Women from Domestic Violence Act 2005 | 08 |
| 5. Withdrawal of General Consent | 10 |

2. GOVERNANCE

| | |
|---|----|
| 1. Crime in India report 2019 | 13 |
| 2. Data Governance Quality Index (DGQI) | 14 |
| 3. Natural Gas Marketing Reforms | 15 |
| 4. Gyan Circle Ventures | 18 |
| 5. Supreme Court questions NCPCR on children 'repatriation' | 18 |
| 6. Inauguration of 21st All India Conference of Directors | 20 |
| 7. Regional Raw Drug Repositories | 22 |
| 8. Thalassemia Bal Sewa Yojna | 23 |
| 9. Survey of Villages Abadi and Mapping with Improved Technology in Village Areas | 26 |
| 10. IRDAI unveils standard term life insurance cover | 27 |
| 11. New Rules for Digital News Media | 29 |
| 12. Adopt an Animal Scheme | 30 |
| 13. National Deworming Day | 31 |
| 14. DRDO Procurement Manual 2020 | 32 |
| 15. Preparation framework for Block and District development plans | 33 |
| 16. Affordability of nutritious diets in rural India | 35 |
| 17. Regional Raw Drug Repository (RRDR) | 36 |
| 18. OCI and PIO Card Holders | 38 |
| 19. Model Code of Conduct in elections | 39 |
| 20. 32% genetic variants unique in Indian sequences | 41 |
| 21. Annual State of Education Report (ASER) Survey | 44 |

3. SCIENCE & TECHNOLOGY

| | |
|--|----|
| 1. BrahMos surface-to-surface supersonic cruise missile | 46 |
| 2. ICGS Kanaklata Barua | 47 |
| 3. Nanofiber yarns | 48 |
| 4. Xoo Infection | 49 |
| 5. Diffie-Hellman key exchange | 50 |
| 6. Water Purification system by High Flow Rate Fluoride & Iron Removal | 52 |
| 7. Biological plant-virus arms race uncovered | 53 |
| 8. Anti-ulcer drug shows promise in suppressing coronavirus | 54 |
| 9. Anti-Tank Guided Missiles | 54 |
| 10. Indigenous software solution for vessel traffic services | 56 |

4. ECONOMY

| | |
|---|----|
| 1. Purchasing Managers' Index (PMI) | 58 |
| 2. Phased manufacturing programme (PMP) | 59 |
| 3. School closure may cost India | 60 |
| 4. Comparison of India and Bangladesh's GDP | 62 |
| 5. Base Year of CPI- Industrial Workers revised to 2016 | 65 |

5. GEOGRAPHY & ENVIRONMENT

| | |
|---|----|
| 1. Eco disaster unfolding on Kamchatka beach | 67 |
| 2. Methane emissions | 68 |
| 3. Zombie Fire (TH) | 69 |
| 4. Ratification of 7 Persistent Organic Pollutants under Stockholm Convention | 70 |
| 5. Pusa decomposer | 72 |
| 6. Graded Response Action Plan (GRAP) | 74 |
| 7. Microbes to fight oil spillage in oceans | 75 |
| 8. National Authority for Recycling of Ships | 77 |
| 9. Flash Flood Warning System for South Asian Countries | 78 |
| 10. Habitat decline for Himalayan brown bear by 2050 | 79 |

6. INTERNATIONAL RELATIONS

| | |
|--|----|
| 1. TRIPS Agreement | 81 |
| 2. World Food Programme | 82 |
| 3. India – Japan | 83 |
| 4. Organisation for Economic Co-operation and Development (OECD) | 84 |
| 5. Yellow dust from China could spread COVID: North Korea | 85 |
| 6. Global Centre for Nuclear Energy Partnership (GCNEP) | 85 |
| 7. India-Central Asia Dialogue | 87 |

7. INTERNAL SECURITY & DISASTER MANAGEMENT

| | |
|--|----|
| 1. Atal Tunnel | 88 |
| 2. Assam-Mizoram, and the other boundary issues in the Northeast | 89 |
| 3. Integrated theatre commands | 92 |



1. INDIAN SOCIETY & POLITY

1. Section 29 of POCSO Act applicable only after trial begins

Why in News?

- The Delhi High Court has ruled that the presumption of guilt engrafted in Section 29 of the Protection of Children from Sexual Offences (POCSO) Act gets triggered and applies only once trial begins, that is after charges are framed against the accused.

Section 29 of POCSO Act:

- Section 29 of the POCSO Act says that when a person is prosecuted for committing an offence of sexual assault against a minor, the special court trying the case shall presume the accused to be guilty.

What is the Ruling?

- The reverse burden on the accused to prove his innocence was incorporated in the POCSO Act keeping in view the low conviction rate of sexual offences against children.
- The question of whether the presumption of guilt applies only at the stage of trial and also apply when a bail plea is being considered.
- It was ruled that if a bail plea is being considered before charges have been framed, Section 29 has no application.
- Trial commences when charges are framed against an accused and not before that. Only at the stage when charges are framed does the court apply its judicial mind to whether there is enough evidence on record to frame a precise allegation, which the accused must answer.

Protection of Children from Sexual Offences Act (POCSO Act), 2012:

- In order to effectively address the heinous crimes of sexual abuse and sexual exploitation of children through less ambiguous and more stringent legal provisions, the Ministry of Women and Child Development championed the introduction of the Protection of Children from Sexual Offences (POCSO) Act, 2012.
- The act was enacted by the Government of India to protect children from offences of sexual assault, sexual harassment and pornography, while safeguarding the interest of the child at every stage of the judicial process.
- The National Commission for Protection of Child Rights (NCPCR) is mandated to monitor the implementation of POCSO Act, 2012.

Salient Features:

- The Act defines a child as any person below 18 years of age, and regards the best interests and well-being of the child as being of paramount importance at every stage, to ensure the healthy physical, emotional, intellectual and social development of the child.
- The act defines different forms of sexual abuse, including penetrative and non-penetrative assault, as well as sexual harassment and pornography.
- It deems a sexual assault to be “aggravated” under certain circumstances, such as when the abused child is mentally ill or when the abuse is committed by a person in a position of trust or authority.
- People who traffic children for sexual purposes are also punishable under the provisions relating to abetment in the Act.
- The Act prescribes stringent punishment graded as per the gravity of the offence, with a maximum term of rigorous imprisonment for life, and fine.

Provisions related to Conduct of trial of Reported Offences:

- Establishment of Special Courts for trial of offences under the Act, keeping the best interest of the child as of paramount importance at every stage of the judicial process.
- The Act incorporates child friendly procedures for reporting, recording of evidence, investigation and trial of offences.
- The Intent to commit an offence, even when unsuccessful for whatever reason, needs to be penalized.
- To prevent misuse of the law, punishment has been provided for making false complaint or proving false information with malicious intent.
- The POCSO Act is only applicable to child survivors and adult offenders.
- In case two children have sexual relations with each other, or in case a child perpetrates a sexual offence on an adult, the Juvenile Justice (Care and Protection of Children) Act, 2000, will apply.

2. Postal Ballot

Why in News?

- Seeking to make the procedure to opt for postal ballot more convenient for those above 80 years of age and people with disabilities, the Election Commission (EC) has come out with a set of New Instructions.

New Instructions:

- The form required to opt for the postal ballot would be delivered at the residence of all those above 80 years of age and people with disabilities by the booth level officer under his polling station. It would be up to these two categories of voters to opt for postal ballot
- If he/she opts for postal ballot, then the booth level officer will collect the filled-in form 12-D from the house of the elector within five days of the notification and deposit it with the returning officer forthwith
- These instructions have been issued based on the feedback the poll panel received from civil society and media during its visit to poll-bound Bihar last week.
- The EC said the fresh instructions would be applicable to all elections and by-elections, including the bypolls announced last week to 56 assembly and one Lok Sabha seat.
- As per the instructions, the returning officer would deploy polling teams, who will deliver and collect the postal ballot on pre-informed dates and thereafter deposit it with the RO.
- This postal ballot facility is different from the one extended to service voters. Here, those willing to use the facility have to fill up a form. Officials then carry the ballot to the residence of such voters and videograph the voting to Ensure Transparency.

3. Kamdhenu Deepawali Abhiyan

Why in News?

- Rashtriya Kamdhenu Aayog (RKA) has started a nation-wide campaign to celebrate Kamdhenu Deepawali Abhiyan this year on the occasion of Deepawali festival.
- It is encouraged by the response to Gaumaya Ganesha Campaign which encouraged usage of eco-friendly material in manufacture of idols for the Ganesha Festival.

Highlights:

- Through this campaign, the RKA is promoting extensive use of cow-dung/ Panchgavya products during this Diwali Festival.
- Manufacture of Cow dung based Diyas, Candles, Dhoop, Agarbatti, Shubh-Labh, Swastik, Samrani, Hardboard, Wall-piece, Paper-weight, Havan samagri, Idols of Lord Ganesha and Goddess Lakshmi for this year's Diwali festival has already started.
- RKA aims reaching 11 crore families to ignite 33 crore Diyas made of cow-dung during this year's Deepawali festival.

- Apart from generating business opportunities to thousands of cow-based entrepreneurs / farmers/ women entrepreneurs, the use of cow-dung products will lead to cleaner and healthier environment.
- It will help in making Gaushalas 'Atma Nirbhar' too.
- By providing an environment friendly alternative to Chinese made Diyas, the campaign will boost up Make in India vision and also promote 'Swadeshi' movement while reducing environmental damage.
- Various segments of stakeholders like farmers, manufacturers, entrepreneurs, Gaushalas and other concerned are being involved at large to make the campaign of Kamdhenu Deepawali a grand success.

Rashtriya Kamdhenu Aayog (RKA):

- Rashtriya Kamdhenu Aayog (RKA) has been constituted in 2019 for the conservation, protection and development of cows and their progeny and for giving direction to the cattle development programmes.
- RKA is high powered permanent body to formulate policy and to provide direction to the implementation of schemes related to cattle so as to give more emphasis on livelihood generation.
- Rashtriya Kamdhenu Aayog functions as an integral part of Rashtriya Gokul Mission.
- The Aayog reviews existing laws, policies as well as suggest measures for optimum economic utilization of cow wealth for enhanced production and productivity, leading to higher farm income and better quality of life for the dairy farmers.
- Livestock economy sustains nearly 73 million households in rural areas. Even though, the country is largest producer of milk, the average milk yield in India is only 50% of the world average.
- The low productivity is largely due to deterioration in genetic stock, poor nutrition and unscientific management.
- RKA is trying to implement the vision of Prime Minister for 'Atma Nirbhar Bharat'. The Cow-centric economy can also help in achieving this goal by making its own humble contribution.
- For this purpose, RKA has been consistently endeavouring to increase the use of various cow- panchgavya products to raise the income of farmers, gaupalaks, youth, women, self-help groups and other stakeholders.

4. Protection of Women from Domestic Violence Act 2005

Why in News?

- Though the judgment called a 2005 law against domestic harassment as a “milestone”, the Bench said domestic violence continued to be the least reported form of violence towards women.

Background:

- The observations came in a judgment that held that the relief granting right to residence to a married woman under the domestic violence law by a criminal court was relevant and could be considered even in civil proceedings seeking her eviction from the matrimonial home.

Key Observations made by the Court:

- According to the Supreme Court crimes against women continued in a “never-ending cycle” in India.
- Women in India faced violence and discrimination in one form or the other in their various roles as daughter, sister, wife, mother, partner or single woman. Though the judgment called a 2005 law against domestic harassment as a “milestone”, the Bench said domestic violence continued to be the least reported form of violence towards women.
- Women continue to be vulnerable to these crimes because of non-retaliation, coupled with absence of laws addressing their rights and ignorance of the existing statutes. Societal attitude, stigma and conditioning also made women vulnerable to domestic violence
- Also, relationships outside marriage were not recognised. This set of circumstances ensured that a majority of women preferred to suffer in silence, not out of choice but of compulsion
- According to Judgement the progress of any society depended on its ability to protect and promote the rights of women.

Protection of Women from Domestic Violence Act 2005:

- The Protection of Women from Domestic Violence Act 2005 is an Act of the Parliament of India enacted to protect women from domestic violence. It was brought into force by the Indian government from 26 October 2006
- The Act provides for the first time in Indian law a definition of “domestic violence”, with this definition being broad and including not only physical violence, but also other forms of violence such as emotional/verbal, sexual, and Economic Abuse.

- It is a civil law meant primarily for protection orders and not for meant to be enforced criminally.
- The definition of “aggrieved person” includes any woman who is or has been in a domestic relationship with the respondent and who alleges to have been subjected to domestic violence by them. (See Section 2(a) of the PWDVA)
- The definition of “respondent” includes any adult male who has been or is in a domestic relationship with the aggrieved woman, and against whom the woman has sought a relief or any male or female relative of the husband or male partner of a married woman or a woman in a relationship in the nature of marriage.
- The definition of “domestic relationship” is any relationship 2 persons have lived together in a shared household and these people are:
 - ✓ related by consanguinity (blood relations)
 - ✓ related by marriage.
 - ✓ Though a relationship in the nature of marriage (which would include live-in relationships)
 - ✓ Through adoption
 - ✓ Are family members living in a joint family
- **Who can file a complaint:** Any woman who alleges to have been subjected to any act of domestic violence by the offender or any person may file a complaint on her behalf. A child is also entitled to relief under the Domestic Violence Act. The mother of such a child can make an application on behalf of her minor child (whether male or female). In cases where the mother makes an application to the court for herself, the children can also be added as co-applicants.

Against whom can a complaint be filed:

- Any adult male member who has been in a domestic relationship with the woman
- Relatives of the husband or the male partner
- Includes both male and female relatives of the male partner
- Orders which a Magistrate may pass under the Act
- Direct the respondent or the aggrieved person, either singly or jointly, to undergo counseling.
- Direct that the woman shall not be evicted or excluded from the household or any part of it.
- If considered necessary, the proceedings may be directed to be conducted in camera.
- Issue Protection order, providing protection to the woman.

- Grant monetary relief to meet the expenses incurred and losses suffered by the aggrieved person and any child of the aggrieved person as a result of the domestic violence.
- Grant custody orders, i.e., temporary custody of any child or children to the aggrieved person.
- Grant compensation/damages for the injuries. Including mental torture and emotional distress caused by the acts of domestic violence committed by that respondent.
- Breach of any order of the Magistrate is an offence which is punishable under the law.
- The Act is in addition to existing laws : Aggrieved person has the right to file a complaint simultaneously under Section 498A JPC. Reliefs under the Domestic Violence Act can also be asked for in other legal proceedings e.g. petition for divorce, maintenance, Section 498A IPC, etc.

5. Withdrawal of General Consent

Why in News?

- Maharashtra has withdrawn general consent to the Central Bureau of Investigation (CBI) recently.

What is General Consent?

- General consent is the help given to CBI to investigate corruption cases against central government employees in the Concerned State.
- Without general consent, CBI would have to request the State Government on a case-by-case basis to carry out Investigations.

There are Two Types of consent:

- General: This consent is normally given to help CBI seamlessly conduct its investigation into cases of corruption against central government employees in the concerned state. Almost all states have given such consent. The state can withdraw this consent as well.
- Case-Specific: If state government do not give the “general consent”, then CBI has to approach the concerned State Government.

Overview:

- The CBI is governed by the Delhi Special Police Establishment Act, 1946 that makes consent of a state government mandatory for conducting investigation in that state and its jurisdiction is limited to Delhi and Union Territories.
- As policing is a state subject, the law permits the agency to function within its jurisdiction only with the State Government’s Approval.

- Section 5 of the Act extends the powers and jurisdiction of the CBI to states.
- But Sec 5 is restricted by Section 6 which says: the agency cannot investigate or conduct a raid in a state without the express consent of the government concerned.

Exceptions:

- CBI will still have the power to investigate old cases registered when general consent existed.
- Also, cases registered anywhere else in the country, but involving people stationed in Maharashtra, would allow CBI's jurisdiction to extend to Maharashtra.

Additional Information:

- The CBI is divided into three categories when it comes to investigation.
- **Anti-Corruption Division:**
 - ✓ Investigates cases against public servants of:
 - ✓ Central government
 - ✓ Central Public sector undertakings
 - ✓ State governments
 - ✓ Investigates cases entrusted to the CBI by the states
 - ✓ Investigates serious departmental irregularities committed by the above mentioned.
 - ✓ Economic Offences Division:
 - ✓ Investigates financial crimes, bank frauds, money laundering, illegal money market operations, graft in PSUs and banks.
- **Special Crimes Division:**
 - ✓ It handles cases of conventional nature such as offences relating to internal security, espionage, sabotage, narcotics and psychotropic substances, antiquities, murders, dacoities/robberies, and cheating among others.
 - ✓ The CBI can take over a criminal case registered by state police only in three situations:
 1. **Situation 1:** state government concerned makes a request to that effect and the Centre agrees to it pursuant to receiving comments from the CBI.
 2. **Situation 2:** state government issues notification of consent under Section 6 of the DPSE Act and the Centre also issues a similar notification.
 3. **Situation 3:** if the Supreme Court or the High Court orders the CBI to take up a case.

Key Facts:

- The National Investigation Agency (NIA) has jurisdiction across the country and does not need special permission from State Governments.

-
- The Enforcement Directorate (ED) which conducts its probe under the PMLA and FERA Act does not require and has nothing to do with the Delhi Police Special Establishment (DPSE) Act which gives power to the CBI.
 - In the past, Sikkim, Nagaland, Chhattisgarh, Karnataka, Andhra Pradesh, West Bengal and among others have withdrawn General Consent to CBI.
 - The superintendence of CBI related to investigation of offences under the Prevention of Corruption Act, 1988 lies with the Central Vigilance Commission (CVC) and in other matters with the Department of Personnel & Training (DOPT) in the Ministry of Personnel, Pension & Grievances of the Government of India.

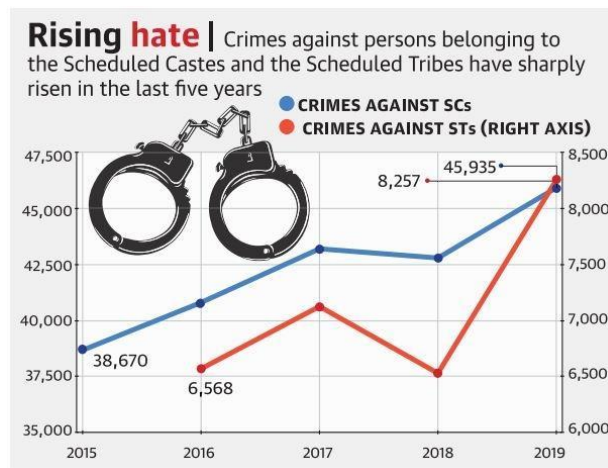


2. GOVERNANCE

1. Crime in India Report 2019

Why in News?

- According to the annual Crime in India 2019 report by the National Crime Records Bureau (NCRB), the crimes in SC, ST category saw an increase of 25.7% as compared to 2018.



Highlights of the Report:

- Crime against Scheduled Castes (SCs) and Scheduled Tribes (STs) saw an increase of over 7% and 26% respectively in year 2019 compared to 2018.
- Uttar Pradesh recorded the highest number of crimes against SCs in 2019, followed Rajasthan and Bihar.

Rape Cases:

- In the number of cases of rape of women belonging to SCs, Rajasthan topped the list with 554 cases, followed by Uttar Pradesh and Madhya Pradesh.
- Madhya Pradesh recorded the highest number of cases against STs as it recorded followed by Rajasthan and Odisha.

Cognizable Crimes:

- A total of cognizable crimes comprising Indian Penal Code (IPC) and Special and Local Laws (SLL) crimes showed an increase of 1.6% in registration of cases over 2018.
- An increase of 7.3% cases of crime against women were registered in 2019 compared to 2018.

Cybercrimes Increased by 63.5% in 2019.

- In 2019, 60.4% of cybercrime cases registered were for the motive of fraud, followed by sexual exploitation and causing disrepute with 4.2%.

CHRI Statement:

- The Commonwealth Human Rights Initiative (CHRI), a police reforms advocacy group, said few cases were being registered for specific discriminatory action against SCs and STs.

Crimes against SCs and STs Include Categories:

- Atrocities committed by non-SC/ST members under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities Act), 1989
- Indian Penal Code and the Protection of Civil Rights Act, 1955

2. Data Governance Quality Index (DGQI)

Why in News?

- Department of Fertilizers ranked 2nd amongst the 16 Economic Ministries/Departments and ranked 3rd amongst the 65 Ministries/Departments in the Survey Report on Data Governance Quality Index.

DGQI:

- The DGQI exercise was undertaken by the Development Monitoring & Evaluation Office (DMEO), NITI Aayog.
- The exercise is a 'Self-assessment-based review of data preparedness levels' to produce a DGQI scorecard.
- The survey was initiated with an objective to assess the data preparedness of Ministries or Departments on a standardized framework.
- The survey was also meant to drive healthy competition among them and promote cooperative peer learning from best practices.
- For the survey, an online questionnaire was prepared under six major themes of DGQI:
 - ✓ Data Generation
 - ✓ Data Quality
 - ✓ Use of Technology
 - ✓ Data Analysis, Use and Dissemination
 - ✓ Data Security
 - ✓ HR Capacity and Case Studies
- ✓ The ministries and departments were classified into six categories namely, administrative, economic, strategic, infrastructure, social and scientific.

Development Monitoring and Evaluation Office (DMEO):

- DMEO was constituted in 2015 by merging the erstwhile Program Evaluation Office (PEO) and the Independent Evaluation Office (IEO).
- It is an attached office under NITI Aayog, aimed at fulfilling the organization's monitoring and evaluation (M&E) mandate and building the M&E ecosystem in India.
- DMEO has been mandated to actively monitor and evaluate the implementation of the Government of India programmes and initiatives so as to strengthen their implementation and scope of delivery on an ongoing basis.
- Additionally, DMEO undertakes evaluation of selected programmes/schemes, suo-moto or on the request of the Prime Minister's Office (PMO) or programme implementing Ministries/Departments of the Government of India.

3. Natural Gas Marketing Reforms

Why in News?

- The Cabinet Committee on Economic Affairs chaired by the Prime Minister has approved 'Natural Gas Marketing Reforms' - a significant step to move towards gas-based economy.

Approved Reforms:

- The objective of the policy is to prescribe standard procedure to discover market price of gas to be sold in the market by gas producers, through a transparent and competitive process.
- It permits Affiliates to participate in bidding process for sale of gas and allow marketing freedom to certain Field Development Plans (FDPs) where Production Sharing Contracts already provide pricing freedom.
- The policy aims to provide standard procedure for sale of natural gas in a transparent and competitive manner to discover market price by issuing guidelines for sale by contractor through e-bidding. This will bring uniformity in the bidding process across the various contractual regimes and policies to avoid ambiguity and contribute towards ease of doing business.
- The policy has also permitted Affiliate companies to participate in the bidding process in view of the open, transparent and electronic bidding. This will facilitate and promote more competition in marketing of gas.
- However, rebidding will have to be done in case only affiliates participate, and there are no other bidders.

- The policy will also grant marketing freedom to the Field Development Plans (FDPs) of those Blocks in which Production Sharing Contracts already provide pricing freedom.
- These reforms will build on a series of transformative reforms rolled out by the Government in last several years.

Expected Benefits:

- These reforms in gas sector will further deepen and spur the economic activities in the following areas:
- The whole eco-system of policies relating to production, infrastructure and marketing of natural gas has been made more transparent with a focus on ease of doing business.
- These reforms will prove very significant for Atmanirbhar Bharat by encouraging investments in the domestic production of natural gas and reducing import dependence.
- These reforms will prove to be another milestone in moving towards a gas-based economy by encouraging investments. The increased gas production consumption will help in improvement of environment. These reforms will also help in creating employment opportunities in the gas consuming sectors including MSMEs. The domestic production will further help in increasing investment in the downstream industries such as City Gas Distribution and related Industries.

Natural Gas:

- Natural gas is a naturally occurring hydrocarbon gas mixture consisting primarily of methane, but commonly including varying amounts of other higher alkanes, and sometimes a small percentage of carbon dioxide, nitrogen, hydrogen sulfide, or helium.
- It is formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth over millions of years.
- The energy that the plants originally obtained from the sun is stored in the form of chemical bonds in the gas.
- Natural gas is a fossil fuel.
- Natural gas is a non-renewable Hydrocarbon.
- It is used as a source of energy for heating, cooking, and electricity generation.
- It is also used as a fuel for vehicles and as a chemical feedstock in the manufacture of plastics and other commercially important organic chemicals.

India's Natural Gas Reserves:

- As on 31 March 2018, India had estimated natural gas reserves of 1339.57 billion cubic meters (BCM).

Gas Supply Sources in India:

Domestic Gas Sources:

- The domestic gas in the country is being supplied from the oil & gas fields located at western and south eastern areas viz. Hazira basin, Mumbai offshore & KG basin as well as North East Region (Assam & Tripura).
- It is being supplied and distributed in terms of the guidelines related to pricing and utilization policies issued by the Government from time to time.
- In FY 2018-19, total domestic gas production was about 90.05 MMSCMD.

Import of Liquefied Natural Gas (LNG):

- In order to meet the gas demand, Liquefied Natural Gas (LNG) is imported through Open General License (OGL) in the country and it is imported by the gas marketer under various Long Term, Medium Term and Spot contracts.
- The price and utilization of imported LNG is mutually decided by buyers and sellers.
- At present, country is having six (6) operational LNG regasification terminals operational with capacity of about 38.8 MMTPA.
- Since 2017 more than 1.6 lakh sq.km area under 105 exploration blocks have been allocated.
- No blocks were allocated between 2010 and 2017 which has impacted the long-term viability of the domestic production.
- This will ensure sustainability of the domestic production in long run.
- Government brought a series of reforms in Gas sector and as a result investment of more than Rs. 70,000 crores are being made in the East coast. Gas production from East coast will contribute to Atmanirbhar Bharat by meeting increasing energy needs of the country.
- In February 2019, Government implemented major reforms in upstream sector and brought paradigm shift by focusing on production maximization. Acreages under OALP rounds are being allocated based on work programme only in Cat II and Cat III basins.
- The domestic gas production has complete marketing and pricing freedom.
- All discoveries and field development plans approved after 28 Feb, 2019 have complete market and pricing freedom.

4. Gyan Circle Ventures

Why in News?

- Union Education Minister virtually inaugurates Gyan Circle Ventures.

Gyan Circle Ventures:

- It is a Technology Business Incubator (TBI) of the Indian Institute of Information Technology, Sri City (Chittoor), Andhra Pradesh, funded by the Ministry of Electronics and Information Technology (MeitY).
- Gyan Circle Ventures would function as a Technology Incubation and Development of Entrepreneurs (TIDE 2.0) incubation centre as approved by the MeitY.
- The incubator would leverage the institution's entrepreneurial spirit by utilizing its intellectual capital and engage in using emerging technologies such as Artificial Intelligence (AI), Block-chain, Cyber Physical Systems (CPS), Cyber Security, Internet of Things (IoT), Robotics, etc.
- The venture will serve as a hub for innovation and start-ups by providing support, in various phases, via investments, infrastructure and mentoring.
- Notably, the TBI would have an Advisory Committee comprising leading industrialists, entrepreneurs and technical experts. It would enable incubates to leverage these expert mentors and networks from both the academia and the industry.

5. Supreme Court questions NCPCR on children 'repatriation'

Why in News?

- The Supreme Court sought a response from the National Commission for Protection of Child Rights (NCPCR), to its request to eight States to "produce" children living in care homes before the local child welfare committees for their "immediate repatriation" with their families.
- NCPCR wrote to Tamil Nadu, Andhra Pradesh, Telangana, Mizoram, Karnataka, Kerala, Maharashtra and Meghalaya in this regard.
- These States combined, have 1.84 lakh children in care homes accounting for over 70% of the children in care homes.

Background:

- The NCPCR, in a letter on September 24, explained need for a child to grow up in a familial Environment.

- In an April 6 order, the court had directed juvenile authorities to “proactively consider whether a child or children should be kept in the child care institutions considering the best interest, health and safety concerns”.

Child Care Homes:

- Child care homes are form of Group care for children who are looked after, where care is provided by teams of paid staff.
- The children being taken in child care homes, are not only those who are orphans/abandoned children, but also children hailing from downtrodden/financially unstable families.
- Therefore, if there is any child who is either being brought up by a single parent or comes from a family which is not able to bring up the child properly, then that child can avail all the facilities at a care home.
- All the children in these care homes are required to study in nearby Government Schools.

National Commission for Protection of Child Rights (NCPCR):

- National Commission for Protection of Child Rights (NCPCR) is a statutory body under the Commissions for Protection of Child Rights (CPCR) Act, 2005.
- It was set up in March 2007 under the Commissions for Protection of Child Rights (CPCR) Act, 2005.
- It comes under the administrative control of the Ministry of Women & Child Development.
- It aims to ensure that all Laws, Policies, Programmes, and Administrative Mechanisms are in consonance with the Child Rights perspective as enshrined in the Constitution of India and also the UN Convention on the Rights of the Child.
- It emphasizes the principle of universality and inviolability of child rights and recognizes the tone of urgency in all the child related policies of the country.

Composition:

- Chairperson and Six members, out of which at least two are woman appointed by the Central Government from amongst person of eminence, ability, integrity, standing and experience.
- The Child is defined as a person in the 0 to 18 years age group.

Functions and Powers of the NCPCR:

- Examine and review the safeguards provided by or under any law.
- Present the reports upon working of the safeguards.

- Inquire into violation of child rights and recommend initiation of proceedings in such cases.
- Examine all factors that inhibit the enjoyment of rights of children affected by terrorism, communal violence, riots, natural disaster, domestic violence, HIV/AIDS, trafficking, maltreatment, torture and exploitation, pornography and prostitution and recommend appropriate remedial measures.
- Inquire into complaints and take suo motu notice of matter relating to:
 - ✓ Deprivation and violation of child rights
 - ✓ Non-implementation of laws providing for protection and development of children
 - ✓ Noncompliance of policy decisions, guidelines or instructions aimed at mitigating hardships to and ensuring welfare of the children and provide relief to such children
 - ✓ Take up the issues arising out of such matters with appropriate authorities
 - ✓ Make recommendations for their effective implementation in the best interest of children.
 - ✓ Undertake and promote research in the field of child rights.
 - ✓ Spread child rights literacy among various section of society and promote awareness of the safeguards for protection of these rights.
 - ✓ Produce and disseminate information about child rights.
 - ✓ Compile and analyse data on children.
 - ✓ Promote the incorporation of child rights into the school curriculum, training of teachers or personnel dealing with children.

6. Inauguration of 21st All India Conference of Directors

Why in News?

- The 21st All India Conference of Directors, Fingerprint Bureau 2020 and the eCyber Lab set up by the National Crime Records Bureau (NCRB) were inaugurated recently.
- The month of October is observed as National Cyber Security Awareness Month and eCyber Lab will provide virtual experience in investigation of cyber-crimes.

Impacts:

- Digitization of records and fingerprint data is an important step forward in documenting and tracking crimes and criminals and expressed his confidence that the fully computerized National Automated Fingerprint Identification System (NAFIS).

- Fingerprint is an essential tool because of its uniqueness, permanency, individuality and ease in acquisition.
- NAFIS will be a game changer in investigation of crime. NAFIS will also provide aid to investigating officers in identifying criminals based on their fingerprints on real time basis.

Central Finger Print Bureau (CFPB):

- CFPB is the apex body in the country which coordinates, guides, monitors and provides technical support to the State Finger Print Bureau, as well as investigating agencies and international organizations in all matters related to the Finger Print Science.

Background:

- The World's First Finger Print Bureau was set up in Calcutta in 1897.
- A CFPB was established at Shimla in 1905, however it was closed in 1922 as a result of retrenchment proposals of the Inchcape Committee.
- The Present CFPB came into existence in 1955 under the administrative control of Intelligence Bureau at Delhi.
- It was relocated to Kolkata in 1956. The administrative control of CFPB shifted to Central Bureau of Investigation (CBI) in 1973, and since July, 1986, this has been under the Administrative Control of NCRB.

Objectives:

- To maintain Finger Print record slips of the accused person convicted in various Acts.
- To conduct search relating to unidentified Interstate arrested/suspected persons received from police stations and other investigating agencies in India.
- To maintain the fingerprints of international criminals and red corner notices sent by Interpol and to conduct search on references received from foreign countries, through Interpol.
- To undertake examination of questioned finger impressions on documents received from Central Government Departments/ Undertakings/Courts of law.
- To impart training in Fingerprint Science to State/Central Police personnel and to personnel from foreign countries under 'Technical Co- Operation Scheme' (TCS) of Colombo Plan, 'Special Commonwealth African Assistance Plan' (SCAAP) and 'International Technical and Economic Cooperation' (ITEC).
- To co-ordinate the work of the State Finger Print Bureau and give necessary guidance in all matters relating to Fingerprint Science.

- To conduct the All India Conference of Directors of Finger Print Bureau.
- To conduct All India Board Examination annually for accrediting Finger Print Experts.
- To conduct competition in Finger Print science at the All India Police Duty Meet.

National Automated Fingerprint Identification System (NAFIS):

- National Automated Fingerprint Identification System (NAFIS) is a unique “real time” criminal identification system which will collect fingerprints of over 80 lakh criminals in the country and put in place a robust web-based system to identify them.
- NAFIS will be installed at the NCRB and the Crime and Criminal Tracking Network and Systems (CCTNS) connectivity will be used to provide access to all the users.
- NAFIS will enhance the ability to discern crime patterns and modus operandi across states, and communicate with the State Police departments to assist in crime prevention.
- NCRB is hosting the system and implementing it on a turnkey basis, selecting solution providers through a bidding process.
- The NCRB will allocate separate space for each state at the NAFIS centre. Each state will have complete control over its data, while read-only permission will be given to the other states.
- Provisions will be made for the States which already have AFIS to share their data with NAFIS using a bridge software without disturbing their operations.

7. Regional Raw Drug Repositories

Why in News?

- Regional Raw Drug Repository for AYUSH Systems launched at Chennai.

Regional Raw Drug Repositories (RRDRs):

- RRDRs are important components of the Centrally Sponsored Scheme, National AYUSH Mission.
- The repositories play an important role in medicinal plants cultivation.
- As a step in this direction, the Ministry of AYUSH, through the National Medicinal Plants Board (NMPB), initiated the establishment of the National Raw Drug Repository and Regional Raw Drug Repositories.
- The collaborating institutes as identified by the NMPB are the National Institute of Siddha, with the Regional Research Institute of Unani Medicine, and the Siddha Central Research Institute, all three located in Chennai.

- The RRDR in Chennai would play a major role in the collection, documentation, and authentication of raw drugs collected from the agro-climatic region, that is, the Southern Plateau Region.
- This RRDR will not only act as collection centres of raw drugs available and used in the southern region but also as an accredited reference library for authentication of raw drugs and establish standard protocols and keys for authentication of raw drug used in the herbal industries.

Background & Significance:

- Medicinal plants form the major resource base of India's indigenous health care traditions.
- Their relevance has grown substantially in the current pandemic scenario, thanks to their disease preventive effects.
- The outreach and acceptability of AYUSH systems, both nationally as well as globally, are dependent on the uninterrupted availability of quality medicinal plants based raw material.
- Though most of the raw drugs are commonly available, there is a lack of scientific documentation that makes research on these medicines very difficult. This also reduces the chances of commercial exploitation of these medicines.
- Easy availability of authentic scientific data of the raw drugs will promote research on the medicines belonging to the AYUSH system which will lead to further propagation of these systems. Currently, India has more than 9000 manufacturing units for Ayurveda, Siddha, Unani and Homeopathy medicine. However, the quality of medicines produced by these units critically depends upon the manufacturing process followed as well as the quality of raw material. The Government has made it mandatory for all manufacturing units to adhere to the Good Manufacturing Practices as notified under Schedule T of the Drugs and Cosmetics Act 1940.

8. Thalassemia Bal Sewa Yojna

Why in News?

- The Union Minister for Health and Family Welfare launched the second phase of Thalassemia Bal Sewa Yojna for the underprivileged Thalassemic patients.

Thalassemia Bal Sewa Yojna:

- The scheme is a Coal India CSR funded Hematopoietic Stem Cell Transplantation (HSCT) program launched in 2017.

- To provide a one-time cure opportunity for Haemoglobinopathies like Thalassaemia and Sickle Cell Disease for patients who have a matched family donor.

Highlights:

- The Corporate Social Responsibility initiative was targeted to Provide Financial Assistance to a total of 200 patients by providing a package cost not exceeding Rs. 10 lakhs per HSCT.

Thalassemia Disease:

- Thalassemia is a chronic blood disorder due to which a patient cannot make enough hemoglobin found in Red Blood Cells (RBC's).
- This leads to Anaemia and patients also require blood transfusions every two to three weeks to survive.
- These Thalassemia syndromes are caused by inheritance of abnormal (beta) Thalassemia genes from both parents or abnormal beta-Thalassemia gene from one parent and abnormal variant haemoglobin gene from the other parent.

Types of Thalassemia:

1. Thalassemia Minor:

- The hemoglobin genes are inherited during conception, one from the mother and one from the father.
- People with a Thalassemia trait in one gene are known as carriers or are said to have thalassemia minor.
- Thalassemia minor is not a disease and they have only mild anaemia.

2. Thalassemia Major:

- This is the most severe form of Thalassemia.
- This occurs when a child inherits two mutated genes, one from each parent.
- Patients Children with thalassemia major develop the symptoms of severe Anaemia within the first year of life.

Prevalence:

- There are around 270 million Thalassemia patients in the world.
- India has the largest number of children with Thalassemia major in the world (about 1 to 1.5 lakhs).
- The only cure available for such children is bone marrow transplantation (BMT).
- BMT is difficult and not affordable by the parents of all these children.

- Hence, the mainstay of treatment is repeated blood transfusions, followed by regular iron chelation therapy to remove the excessive iron overload, consequent to the multiple blood transfusions.

Thalassemia Screening and Counselling Centre:

- A Thalassemia Screening and Counselling Centre inaugurated at Indian Red Cross Society's National Headquarters (IRCS NHQ) Blood Bank on August 2020.
- The new initiative of IRCS will provide adequate therapy and prevent the birth of children affected with hemoglobinopathies.
- It will be done through carrier screening, genetic counselling and prenatal diagnosis.

Haemoglobinopathies:

- Haemoglobinopathies are inherited disorders of globin, the protein component of haemoglobin (Hb).
- It is a genetic defect that results in abnormal structure of one of the globin chains of the haemoglobin molecule.
- Defects in these genes can produce abnormal Haemoglobin, Anaemia and thalassemia syndromes.

Sickle Cell Disease:

- Sickle cell disease (SCD) is an inherited blood disorder that affect red blood cells.
- SCD cause a person's normally round and flexible blood cells to become stiff and sickle shaped, stopping them and the oxygen they carry from moving freely around the body.
- This can cause episodes of severe pain, referred to as sickle cell crises.
- The cells die early, leaving a shortage of healthy RBC and can block blood flow causing pain, severe bacterial infections, and necrosis (tissue death).
- People with SCD are at a risk of complications: Stroke, acute chest syndrome, blindness, bone Damage and Priapism.

Prevalence:

- The disease in India occurs predominantly in eastern Gujarat, Maharashtra, Madhya Pradesh, Chhattisgarh, western Odisha and in pockets of the Nilgiri Hills in north Tamil Nadu and Kerala.
- In Odisha, the disease is prevalent among tribal communities.
- The disease is widespread amongst many tribals in India, posing a considerable health burden in several states.

India's first-ever saviour-sibling through ART:

- India has experimented to bring in life the first saviour sibling to save her sibling from Thalassemia.
- The baby girl was conceived by her parents through invitro fertilisation to save her brother by donating her bone marrow.
- The patient wanted a bone marrow which could match his human leukocyte antigen (HLA).
- The experiment was started using the assisted reproductive therapy, called pre-implantation genetic testing, for monogenic disorder with HLA matching.
- The couple underwent cycles of IVF and an embryo was created that perfectly matched the elder sibling's HLA and later the bone marrow was drawn and transplanted in the patient.

9. Survey of Villages Abadi and Mapping with Improvised Technology In Village Areas (SVAMITVA)

Why in News?

- PM launched the distribution of property cards under the 'SVAMITVA' (ownership) scheme via videoconference.
- The scheme uses drone and satellite technology to map physical assets in rural areas and aims at digitisation of property records, easing the way for village dwellers to access institutionalised credit against property.

SVAMITVA:

- SVAMITVA Scheme is a Central Sector scheme launched by Hon'ble Prime Minister of India on National Panchayat Day i.e 24th April 2020.
- The Ministry of Panchayati Raj (MoPR) is the Nodal Ministry for implementation of the scheme. In the States, the Revenue Department / Land Records Department will be the Nodal Department and shall carry out the scheme with support of State Panchayati Raj Department. Survey of India shall work as the technology partner for implementation.
- The scheme aims to provide an integrated property validation solution for rural India.
- The demarcation of rural abadi areas would be done using Drone Surveying technology. This would provide the 'record of rights' to village household owners possessing houses in inhabited rural areas in villages which, in turn, would enable them to use their property as a financial asset for taking loans and other financial benefits from Bank

Objectives of the Scheme:

- To bring financial stability to the citizens in rural India by enabling them to use their property as a financial asset for taking loans and other financial benefits.
- Creation of accurate land records for rural planning.
- Determination of property tax, which would accrue to the GPs directly in States where it is devolved or else, add to the State exchequer.
- Creation of survey infrastructure and GIS maps that can be leveraged by any department for their use.
- To support in preparation of better-quality Gram Panchayat Development Plan (GPDP) by making use of GIS maps.
- To reduce property related disputes and legal cases

10. IRDAI unveils Standard Term Life Insurance Cover

Why in News?

- Insurance Regulatory and Development Authority of India (IRDAI) has come up with a standard individual term life insurance product.
- These features as well as standard terms and conditions are expected to help customers make an informed choice and reduce mis-selling.

Standard Individual Term Life Insurance Product:

- The product, Saral Jeevan Bima to be offered by all life insurance companies will be a non-linked, non-participating individual pure risk premium life insurance plan.
- It will pay the sum assured in lump sum to the nominee in case of the life assured's death during the policy term.
- The regulator mandated all life insurers to offer the standard product by January 1, 2021.
- Insurers have to file the product with the regulator latest by December 1.
- The plan will be for those in the 18-65 years age group.
- The policy term will be 5-40 years, while the sum assured will be a minimum of ₹5 lakh and a maximum of ₹25 lakh.
- Insurers have the option of offering sum assured beyond ₹25 lakh with all other terms and conditions remaining the same.
- The product shall be offered to individuals without restrictions on gender, place of residence, travel, Occupation or Educational Qualifications.

- On the death benefit, for regular and limited premium payment policies, it will be the highest of 10 times of annualised premium; 105% of all the premiums paid as on the date of death; or the absolute amount assured to be paid on death.
- In case of single premium policies, it will be higher of 125% of single premium, or absolute amount assured to be paid on death.
- There will be no maturity benefit. Neither will there be any surrender value nor can any loan be taken against the product.
- The pricing (premium) by insurers will be as per the File and Use (F&U) process. There shall be no exclusions, except suicide.

Background:

- The last few years there has been an increased customer preference towards pure term life insurance products resulting in insurers launching many term products with varying terms and conditions.

IRDAI:

- The Insurance Regulatory and Development Authority of India (IRDAI) is an autonomous, statutory body tasked with regulating and promoting the insurance and re-insurance industries in India.
- It was constituted by the Insurance Regulatory and Development Authority Act, 1999, an Act of Parliament passed by the Government of India.
- The agency's headquarters are in Hyderabad, Telangana, where it moved from Delhi in 2001.
- IRDAI is a 10-member body including the chairman, five full-time and four part-time members appointed by the Government of India.

Functions of the IRDAI:

- Issuing, renewing, modifying, withdrawing, suspending or cancelling registrations
- Protecting policyholder interests
- Specifying qualifications, the code of conduct and training for intermediaries and agents
- Specifying the code of conduct for surveyors and loss assessors
- Promoting efficiency in the conduct of insurance businesses
- Promoting and regulating professional organisations connected with the insurance and re-insurance industry
- Levying fees and other charges
- Inspecting and investigating insurers, intermediaries and other relevant organisations

- Regulating rates, advantages, terms and conditions which may be offered by insurers not covered by the Tariff Advisory Committee under section 64U of the Insurance Act, 1938
- Specifying how books should be kept
- Regulating company investment of funds
- Regulating a margin of solvency
- Adjudicating disputes between insurers and intermediaries or insurance intermediaries
- Supervising the Tariff Advisory Committee
- Specifying the percentage of premium income to finance schemes for promoting and regulating professional organisations.

11. New Rules for Digital News Media

Why in News?

- The Centre Announced new Rules for News Aggregators and News Agencies.

New Rules on Digital News Media:

- News aggregators, news agencies which supply information to digital media firms uploading news and current affairs on websites will have to comply with the 26 % foreign investment cap.
- In August 2019, government approved 26 % FDI (foreign direct investment) under government route for uploading/streaming of news and current affairs through digital media, on the lines of Print Media.

Categories:

- Permitting 26% FDI through government route would apply to certain categories of Indian entities:
- Entities uploading/streaming news and current affairs on websites, apps, other platforms
- News agencies which gather, write and distribute/transmit news, directly or indirectly, to digital media entities and/or news aggregators
- News aggregators which, using software/web applications, aggregates news content from various sources, such as news websites, blogs, podcasts, video blogs, in one location.

Conditions:

- The company would also have to adhere to certain conditions
- The compliance with the FDI policy would be the responsibility of the investee company.
- Majority of directors on the board of the firm shall be Indian citizens.
- The Chief Executive Officer (CEO) shall be an Indian.

- All foreign employees working for more than 60 days would need security clearance in a year by way of appointment, contract or consultancy or in any other capacity for functioning of the entity prior to their deployment
- In the event of security clearance being denied for any reasons, the investee firm will ensure that the concerned person resigns/terminated.

Benefits:

- Address the threat of fake news and foreign influence in India`s domestic affairs.
- Provide a level playing field for domestic digital media companies.
- Help create an accountable digital news media ecosystem.

Concerns:

- There is ambiguity in language and in interpretation of who qualifies as a news aggregator or a news agency.
- Increased Government Influence on media.

Overview of FDI:

- Foreign direct investment (FDI) is an investment from a party in one country into a business or corporation in another country with the intention of establishing a lasting interest.
- There are 2 Routes through which India gets FDI: i) Automatic route: The non-resident or Indian company does not require prior approval of the RBI or government of India for FDI. II) Government route: The government`s approval is mandatory.
- FDI is an important monetary source for India`s economic development. The 1991 Economic Reforms led to a steady increase of FDI into India.

12. Adopt an Animal Scheme

Why in News?

- The Nandankanan Zoological Park (NZP) in Bhubaneswar, which suffered a huge loss following its closure due to the COVID-19 pandemic, has revived its innovative ‘Adopt-An-Animal’ programme to mobilise resources for animals.

Highlights:

- The zoo authorities came up with the scheme urging animal lovers to provide funds from ₹500 to ₹2.5 lakh. In lieu, a ‘Thank You’ in the form of an adoption certificate, a plaque in the zoo and income tax rebates are available to individuals and organisations.

- The highest of ₹2.5 lakh per annum has been fixed to adopt an elephant, while ₹1.5 lakh is required for a melanistic tiger.
- Similarly, people can adopt the Asiatic lion and the Royal Bengal Tiger for ₹1 lakh per annum.
- When one adopts an animal or a bird, the contribution goes to its care, feeding, enclosure enrichment and renovation.

Benefits:

- The adoption scheme would bring public, corporate bodies and institutions closer to the zoo and heighten their love and passion for captive animals and birds

Nandankanan Zoological Park (NZP):

- The NZP is one of the leading zoos in the country in terms of its fauna population and species diversity. It had received a record 32 lakh footfall three years ago.
- It is situated in Bhubaneswar
- With resources drying up due to the closure for more than six months, the NZP authorities revived the 'Adopt-An-Animal' programme.

13. National Deworming Day

Why in News?

- 14 states report a reduction in worm prevalence; 9 show a substantial reduction.

Highlights:

- Soil-Transmitted Helminthiases (STH), also known as parasitic intestinal worm infection, is a significant public health concern mostly in low resource settings.
- These are known to have detrimental effects on children's physical growth and well-being and can cause anaemia and under-nutrition.
- Regular deworming as advised by the World Health Organization eliminates worm infestation among children and adolescents living in areas with high STH burden, thereby contributing to achieving better nutrition and health.
- As per a WHO Report on STH published in 2012, in India, there were an estimated 64% of children in the age group (1-14 years) at risk of STH. The risk was estimated based on the hygiene and sanitation practices and limited STH prevalence data at that point of time.
- To assess the exact burden of STH in India, the Ministry of Health and Family Welfare appointed the National Centre for Disease Control (NCDC) as the nodal agency to coordinate and conduct nationwide baseline STH mapping.

- In collaboration with partners and government agencies, NCDC completed the baseline STH mapping across the country by the end of 2016.
- The data showed varied prevalence ranging from 12.5 % in Madhya Pradesh to 85% in Tamil Nadu.

National Deworming Day (NDD):

- NDD is a flagship programme of the Ministry of Health and Family Welfare and was launched in 2015.
- It is implemented as a biannual single day programme implemented through the platforms of schools and anganwadis.
- Albendazole tablet, approved by WHO, is used for the treatment of intestinal worms in children and adolescents as part of Mass Drug Administration (MDA) programmes globally.
- The NDD programme is implemented by the Health Ministry in collaboration with the Ministry of Women and Child Development, Ministry of Education and technical assistance from WHO and the technical partners.

Impact of NDD:

- To evaluate the impact of the consistently implemented high coverage NDD programme, the Health Ministry recently initiated follow-up prevalence surveys led by NCDC and partners.
- They were guided by the HighLevel Scientific Committee (HLSC) appointed by the Ministry.
- As on date, the follow-up surveys are completed in 14 states.
- All 14 states have shown a reduction in the follow-up survey compared to the baseline prevalence survey and the states of Chhattisgarh, Himachal Pradesh, Meghalaya, Sikkim, Telangana, Tripura, Rajasthan, Madhya Pradesh and Bihar have shown a substantial reduction in worm prevalence in the STH follow up prevalence survey.

14. DRDO Procurement Manual 2020

Why in News?

- Defence Minister releases DRDO Procurement Manual 2020 (PM-2020).

Highlights:

- The new DRDO Procurement Manual is expected to facilitate the indigenous defence industry by simplifying the processes and ensuring their participation in design and development activities.

- The PM-2020 will facilitate faster execution of R&D projects/programmes.
- Some salient features of PM-2020:
 - ✓ Bid security declaration option for earnest money deposit
 - ✓ Increase of threshold limit for advance payment
 - ✓ Placement of order on lowest bidder 2 (L2) in case L1 backs out
 - ✓ Exemption of bid security and performance security up to Rs 10 lakh
 - ✓ No negotiations for commercial off-the-shelf (COTS) items/services wherever price discovery is happening through market forces
 - ✓ Liquidated damage (LD) rate for development contracts has been reduced
 - ✓ The delivery period (DP) extension process has been simplified
 - ✓ The above features should assist the industry for the speedy execution of projects.
- Additionally, performance security for service contracts is linked to the payment cycle instead of the total contract value.
- Procurement of stores from development partners, safeguarding of free issue material through insurance cover instead of bank guarantee (BG) are other facilitating measures adopted to help the industry.
- Many of the internal procedures have been further simplified for faster engagement with industry. The last time the procurement manual for DRDO was modified was in 2016.

15. Preparation Framework for Block and District Development Plans

Why in News?

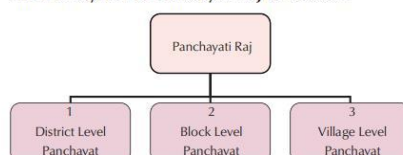
- Union Minister for Rural Development unveiled a preparation framework for Block and District Development Plans.

Highlights:

- The newly prepared framework empowers Block and District Panchayats to prepare and execute their development plans using local resources.
- The plan has been prepared by Bala Prasad Committee.
- Till, now only the Gram Panchayats (first tier of PRIs) had the power to prepare and execute their development plans (Village Development Plans).

Levels of Panchayati Raj Institutions

The 3-tier system of Panchayati Raj consists of :



What is a Panchayat?

- Panchayat is the name of the local government system in India.
- A Panchayat is a council of elders representing a village.
- Panchayat means a group of “Five Persons “.

Panchayati Raj system:

- Panchayati Raj is a form of government at the village level where each village is responsible for its own activities.
- The 73rd Amendment Act of 1992 contains provision for passing the powers and responsibilities to the panchayat for preparation of plans for economic development and social justice.

Village Level Panchayat:

- A local body working for the welfare of the village.
- Gram Panchayat are the basic units of administration.
- The village council leader is named Sarpanch in Hindi, and each of the five members is a Gram Panchayat Sadasya or Panch.
- Each villager can voice his opinion in the governance of his village.

Block Level Panchayat:

- It is also called the Panchayat Samiti.
- A local government body at the tehsil or Taluka level.
- Works for the villages of the Tehsil or Taluka that together are called a Development Block.
- Link between the Gram Panchayat and the district administration.
- The samiti is elected for 5 years and is headed by the chairman and the deputy chairman.

District Level Panchayat:

- This system is called “Zila Parishad “.
- Administration of the rural area of the district.
- The office is located at the district headquarters.
- It is headed by the “District Collector” or the “District Magistrate” or the “Deputy Commissioner”.
- The Chairman of all the Panchayat Samitis form the members of Zila Parishad.
- It is the link between the State Government and the Panchayat Samiti.
- The 15th Finance Commission grants are also being distributed to Intermediate (Panchayat samiti) and District Panchayats from 2020-21.

16. Affordability of Nutritious Diets in Rural India

Why in News?

- According to a recently published paper, titled “Affordability of nutritious diets in rural India”, by an economist of the International Food Policy Research Institute, three out of four rural Indians cannot afford a nutritious diet,

Background:

- Economic Survey’s Thalonomics provided a rosier picture of meal costs.
- According to Thalonomics average worker in India’s organised manufacturing sector, the affordability of a plate of vegetarian food — comprising rice or roti, dal and sabzi — has improved 29% since 2006-07. For non-vegetarians, affordability has risen 18%.
- The Survey found that a worker who would have spent 70% of their daily wage on two vegetarian thalis a day for a household of five in 2006-07 would only have to spend 50% of their income for the meals in 2019-20. This year, the most affordable meal was in Jharkhand, where two vegetarian thalis for a household of five required about 25% of a worker’s daily wage.

Current Study:

- Current study uses the wages of unskilled workers who make up a larger proportion of the population than industrial workers, and includes items such as dairy, fruit and dark green leafy vegetables that are essential as per India’s official dietary guidelines.
- The study used the latest available food price and wage information from the National Sample Survey’s 2011 dataset.

Key Findings:

- The National Institute for Nutrition’s guidelines for a nutritionally adequate diet call for adult women to eat 330 gm of cereals and 75 gm of pulses a day, along with 300 gm of dairy, 100 gm of fruit, and 300 gm of vegetables, which should include at least 100 gm of dark green leafy vegetables. Selecting the cheapest options from actual Indian diets — wheat, rice, bajra, milk, curd, onions, radish, spinach, bananas — the study calculated that a day’s meals would cost ₹45 (or ₹51 for an adult man).
- Three out of four rural Indians cannot afford a nutritious diet. Even if they spent their entire income on food, almost two out of three of them would not have the money to pay for the cheapest possible diet that meets the requirements set by the government’s premier nutrition body.

- Even if they spent all their income on food, 63.3% of the rural population or more than 52 crore Indians would not be able to afford that nutritious meal.
- If they set aside just a third of their income for non-food expenses, 76% of rural Indians would not be able to afford the recommended diet. This does not even account for the meals of non-earning members of a household, such as children or older adults.

Importance of the Findings:

- The findings are significant in the light of the fact that India performs abysmally on many nutrition indicators even while the country claims to have achieved food security. Global Hunger Index showed that India has the world's highest prevalence of child wasting, reflecting acute undernutrition. On indicators that simply measure calorie intake, India performs relatively better, but they do not account for the nutrition value of those calories.
- The observations made in the study go against the observations made in the recent Economic Survey. This year's Economic Survey's 'Thalinomics', had noted that the affordability of meals had increased in India.

17. Regional Raw Drug Repository (RRDR)

Why in News?

- Inauguration of Regional Raw Drug Repository of National Medicinal Plants Board at AIIA, New Delhi.

Highlights:

- The Minister of State for AYUSH inaugurated the Regional Raw Drug Repository (RRDR) at the All India Institute of Ayurveda in New Delhi.
- This RRDR is the second in the series of repositories proposed by the National Medicinal Plants Board (NMPB), Ministry of AYUSH and will be dedicated to the Trans-Ganga Plain Region.

What is Regional Raw Drug Repository (RRDR)?

- The National Medicinal Plants Board (NMPB), in 2016, took up the initiative of developing a National Raw Drug Repository (NRDR) and Regional Raw Drug Repositories (RRDR) in respect of raw drugs being used in the ASU&H systems of medicine.
- RRDRs is a centrally sponsored scheme of the National AYUSH Mission.
- Three RRDRs are already ready.
- The newly inaugurated RRDR for the Trans-Ganga Plain Region covers four states - Haryana, Chandigarh, Delhi and Punjab.

Objectives of RRDRs:

- Act as a collection centre of raw drugs available and used in each region.
- Act as an accredited reference library for the authentication of raw drugs.
- Establish standard protocols and keys for the authentication of raw drugs used in the herbal industries.
- Act as an educational centre for disseminating general awareness about the usefulness of raw drugs.

Activities and Tasks of RRDRs:

- Collection, compilation, cataloguing of raw drugs and documentation (including digitization) on the information of raw drugs that are used in the traditional systems of medicine.
- Collection of plants and raw drug samples and preserving those specimens.
- Having a digital database of plants.
- Providing standard, genuine and authenticated reference samples of raw drugs to the needy.
- Development of appropriate manuals of identification keys to delineate the features for easy understanding and field identification.
- Testing of raw drugs for pesticide residues, aflatoxins, heavy metals and microbial load, etc. to international standard or any other as per requirement.

National Medicinal Plants Board (NMPB):

- NMPB was formed in 2004 and functions under the Ministry AYUSH.
- The Board has been established by the Government of India to coordinate with all matters relating to medicinal plants and support policies and programs for the growth of trade, export, conservation and cultivation.
- The main objective of NMPB is to encourage the cultivation of medicinal plants and its sustainable management across the country and to reduce pressure on the collection from wild habitat in forests.
- To meet the increasing demand for medicinal plants, NMBP focuses on in-situ & ex-situ conservation and augmenting local medicinal plants and aromatic species of medical significance.
- The NMPB also promotes research & development, capacity building through training, raising awareness through promotional activities like the creation of Home/School Herbal Gardens.

- NMPB also seeks to support programs for quality assurance and standardization through the development of Good Agricultural and Collection Practices (GACPs), development of monographs laying down standards of quality, safety and efficacy; development of agro-techniques and credible institution a mechanism for certification of quality of raw drugs, seeds and Planting Material.

18. OCI and PIO Card Holders

Why in News?

- Initially Indian citizens living out of the country had the option of either applying for a Person of Indian Origin (PIO) Card or an Overseas Citizenship of India (OCI) card.
- These acted as a long-term traveling and identifying document in lieu of a visa. Eventually these were merged and the Indian government advised everyone to apply for an OCI.
- Starting September 30, 2019, all PIOs will be deemed invalid and only OCIs will be acceptable as a valid traveling document for all travelers of Indian origin living abroad.
- PIO card (Person of Indian Origin) card and OCI cards (Overseas Citizen of India) give different benefits.

Benefits of a PIO card:

- A PIO card holder doesn't need a visa to visit India. The holder also doesn't require a student or employment visa to acquire employment or academic opportunities in India.
- The holder was exempted from registering at the foreigner regional registration office (FRRO) during the duration of stay in India.
- The holder also enjoys parity with NRIs in concern to economic, financial and educational matters. These may include matters related to property transfer or acquisition, holding, disposal, investment, admission of children in educational institutions under general category quota for NRIs.
- Separate immigration counters are provided at all International airports in India for PIO card holders.

Drawbacks of PIO Card:

- It does not provide voting rights to the holder. Prior permission is needed to undertake mountaineering expeditions or any such related research work in protected areas.
- Meanwhile, the PM promoted the idea of converting their PIO cards with OCI cards. The OCI cards also provided several benefits.

- OCI is essentially a lifetime visa status offered by India to an Indian person who has given up his citizenship.
- The benefits of OCI cards are substantial.
- OCI cards give you lifetime multiple entry visa to India. Also, you never have to register with the FRRO no matter how long your stay is.
- If you remain an OCI for 5 years, you can attain Indian citizenship and then live in India for a period of one year including short breaks.
- Special immigration counters are provided at all international airports in India for OCI card holders.
- An OCI cards holder can open special bank accounts in India just like NRIs and make investments. OCI holders can also buy non-farm property and exercise ownership rights.
- An OCI card allows you to apply for a driver's license, PAN card or open a bank account in India. You get same economic, financial and educational benefits like NRIs and you can also adopt children.

Restrictions for OCI Card Holders:

- An OCI card holder cannot vote, hold a government job or purchase agricultural or farm land. The person can also not run for public office or travel to restricted areas without permission.

19. Model Code of Conduct in elections

Why in News?

- The Election Commission found the former Madhya Pradesh Chief Minister's remark on women politician violative of the Model Code of Conduct.

Model Code of Conduct:

- The Model Code of Conduct (MCC) is a document from the Election Commission of India that lays down the minimum standards of behaviour for political parties and their candidates contesting elections.
- The guidelines are issued mainly with respect to speeches, polling day, polling booths, election manifestos, processions and general conduct.
- The Model Code of Conduct comes into force immediately on announcement of the election schedule by the commission.
- The Code remains in force till the end of the Electoral Process.

Background:

- The MCC was first mooted by Kerala in its 1960 assembly elections.
- It was later adopted by the Election Commission (EC) during mid-term elections in 1968 and 1969.
- EC issued MCC for the first time in 1971 (5th general elections) and revised it from time to time.
- General Conduct for all Political Parties and Candidates:
- No political party or candidate can secure votes on the basis of caste and religion. Temples, mosques, churches and other religious places shall not be used for election propaganda/campaigning.
- No political party or candidate shall be involved in any such activity spreading atmosphere of hatred and tension among the people of different castes and religions.
- Political Parties and candidates have the right to criticize the policies and programs, past records and work of their opposition parties but refrain from commenting on the personal life or family of any candidate.
- Threatening voters, giving bribe, campaigning in the periphery of 100 meters from polling booths, organizing a public meeting within 48 hours of polling, and arranging transport to and from the polling booths is also prohibited.
- Political parties or candidates shall ensure that their supporters neither obstruct the meeting and rally of the opposition parties or candidates nor distribute pamphlets in the meeting organised by the opposition parties.
- They have to seek prior permission from the police or concerned authorities of the area before organizing the meeting at any place so that traffic and other necessary arrangements can be made.
- The party or candidate has to inform about details of the procession, before organizing, to the concerned authorities.
- The identity slip given to the voters on the day of polling shall be printed on the plain (white) paper and shall not have a name/symbol of any political party or the candidate.
- The Voters should not be served alcohol, etc. on the day of polling and 24 hours prior polling. The ruling party's ministers shall not use government machinery like government employees, vehicles, government buildings during elections campaigning.
- No advertisement will be published or displayed at the cost of public exchequer through newspapers & other media during the election.

- The ministers and other authorities shall not sanction grants/payments out of discretionary funds from the date elections are announced by the commission.
- Since the elections dates are announced by the Election Commission, the ministers and other officials shall not do the following tasks
- Announce any financial grant or any new scheme or promise thereof.
- Make any promise of construction of roads, provision of drinking water facilities etc.
- Lay foundation stones etc. of project or scheme of any kind (except civil servants).
- Make any ad-hoc appointments in government, public undertakings etc.
- Is MCC legally binding?
- MCC does not have any statutory backing but it gained strength in the past decade because of its strict enforcement by the EC.
- The provisions of the MCC may be enforced through invoking statutes such as the Indian Penal Code 1860, Code of Criminal Procedure 1973, and Representation of the People Act 1951.
- It was recommended in 2013 by the Standing Committee on Personnel, Public Grievances, Law and Justice to make MCC legally binding and a part of the RPA 1951.
- The EC is against making it legally binding as per it the elections must be completed within a relatively short time or close to 45 days and judicial proceedings take longer time making the enforcement unfeasible.

20. 32% Genetic Variants Unique in Indian sequences

Why in News?

- As per a recent study by the Council for Scientific and Industrial Research (CSIR), Thirty-two genetic variants are unique in Indian Sequences as Compared to Global Genomes.

Highlights:

- The Institute of Genomics and Integrative Biology (IGIB) and Centre for Cellular and Molecular Biology (CCMB) did an extensive computation analysis of the 1,029 sequenced genomes from India.
- The analysis led to the identification of 55,898,122 single nucleotide (an organic molecule that is the building block of DNA and RNA) variants in the India genome data set.
- Comparisons with the global genome data sets revealed that 32.23% variants (18,016,257) were unique and found only in the samples sequenced from India.

Significance:

- India is the second largest country in terms of population density with more than 1.3 billion individuals encompassing 17% of the world population.
- Despite having this rich genetic diversity, India has been under-represented in global genome studies.
- The findings of the study emphasises the need for an India-centric population genomic initiative.

About IndiGen Initiative:

- IndiGen initiative was undertaken by Council of Scientific and Industrial Research (CSIR) in 2019.
- **Aim:**
 - ✓ To undertake whole genome sequencing of thousands of individuals representing diverse ethnic groups from India.
 - ✓ To fill the gap of whole genome sequences from different populations in India.

Details:

- Under this programme, the whole genome sequencing of 1,029 self-declared healthy Indians drawn from across the country has been completed.
- It was implemented by the CSIR-Institute of Genomics and Integrative Biology (IGIB), Delhi and CSIR-Centre for Cellular and Molecular Biology (CCMB), Hyderabad.
- This project is a supplement to India's first human genome mapping project to sequence at least 10,000 Indian genomes.
- Benefits:
 - The whole genome data will be important for:
 - ✓ Building indigenous capacity in the area of Precision Medicine.
 - ✓ Understanding genetic diversity of the Indian population.
 - ✓ Developing predictive and preventive medicine.
 - ✓ Faster and efficient diagnosis of rare genetic diseases.

Human Genome Mapping Project:

- The Indian genome project will be executed in two phases.
 1. **1st phase:** It involves sequencing the complete genomes of nearly 10,000 Indians from across the country and capture the biological diversity of India.
 2. **2nd Phase:** About 10,000 diseased individuals would have their Genomes Sequenced.

- Then the vast data would be compared using machine learning (ML) techniques to identify genes that can predict cancer risk, as well as other diseases that could be significantly influenced by genetic anomalies.
- The data generated can be accessed through a proposed National Biological Data Centre envisaged by Biological Data Storage, Access and Sharing Policy.

What is Genome or DNA Sequencing?

- Genome sequencing is figuring out or determining the order (order of As, Cs, Gs, and Ts that make up an organism's DNA) of DNA nucleotides or bases, in a genome.
- Adenine (A) always pairs with thymine (T); cytosine (C) always pairs with guanine (G).
- The human genome is made up of over 3 billion of these genetic letters.
- The sequence tells scientists the kind of genetic information that is carried in a particular DNA segment.
- For example, scientists can use sequence information to determine which stretches of DNA contain genes and which stretches carry regulatory instructions, turning genes on or off.
- The sequence data can highlight changes in a gene that may cause disease.

What is DNA?

- DNA (deoxyribonucleic acid) is a material that contains an encoded version of all the information necessary to build and maintain an organism.
- All living organisms have DNA within their cells.
- DNA is a nucleic acid - a large biological molecule composed of building units called nucleotides (guanine, adenine, thymine and cytosine).
- Most DNA molecules consist of two biopolymer strands, coiled around each other to form a double helix.
- When organisms reproduce, biological information is replicated as the two strands separate and a portion of their DNA is passed along to their offspring.
- A gene is a segment of DNA that is passed down from parents to children and confers a trait to the offspring.
- Genes are organized in units named chromosomes - humans have 23 pairs of them, one from the mother and one from the father.
- An entire set of genes, 46 chromosomes in total, is a genome.
- Nearly every cell in a human being contains a full set of DNA.

21. Annual State of Education Report (ASER) Survey

Why in News?

- About 20% of rural children have no textbooks at home, according to the Annual State of Education Report (ASER) survey conducted in September, the sixth month of school closures due to COVID-19 across the country. In Andhra Pradesh, less than 35% of children had textbooks, and only 60% had textbooks in Rajasthan. More than 98% had textbooks in West Bengal, Nagaland and Assam.

ASER Survey:

- ASER is a nationwide survey of rural education and learning outcomes in terms of reading and arithmetic skills that has been conducted by the NGO Pratham for the last 15 years.
- This year, the survey was conducted via phone calls, reaching 52,227 rural households with school age children in 30 States and Union Territories.

Key Findings of the Survey:

- About 20% of rural children have no textbooks at home. In Andhra Pradesh, less than 35% of children had textbooks, and only 60% had textbooks in Rajasthan. More than 98% had textbooks in West Bengal, Nagaland and Assam.
- In the week of the survey, about one in three rural children had done no learning activity at all.
- About two in three had no learning materials or activity given by their school that week
- Only one in ten had access to live online classes. It's not always about technology; in fact, levels of smartphone ownership have almost doubled from 2018, but a third of children with smartphone access still did not receive any learning materials.
- It found that 5.3% of rural children aged 6-10 years had not yet enrolled in school this year, in comparison to just 1.8% in 2018. This seems to indicate that due to the disruptions caused by the pandemic, families are waiting for the physical opening of schools to enrol their youngest children, with about 10% of six-year-olds not in school.
- Among 15-16-year-olds, however, enrolment levels are actually slightly higher than in 2018. Enrolment patterns also show a slight shift toward government schools, with private schools seeing a drop in enrolment in all age groups.
- In 2018, ASER surveyors found that about 36% of rural households with school-going children had smartphones. By 2020, that figure had spiked to 62%. About 11% of families bought a new phone after the lockdown, of which 80% were smartphones.

- WhatsApp was by far the most popular mode of transmitting learning materials to students, with 75% of students who got some input receiving it via the messaging app. About a quarter of those who got input had personal contact with a teacher.
- However, two thirds of rural children nationwide reported that they had not received any learning materials or activities at all. In Bihar, less than 8% got such materials from their schools, along with 20% in West Bengal, Rajasthan and Uttar Pradesh. On the other hand, more than 80% of rural children in Himachal Pradesh, Punjab, Kerala and Gujarat received such input.
- Many children did learning activities on their own, with or without regular input. Of the 70% who did some activities, 11% had access to live online classes, and 21% had videos or recorded classes, with much higher levels in private schools. About 60% studied from their textbooks, and 20% watched classes broadcast on TV. In Andhra Pradesh, half of all children did no learning activity at all, while in Kerala, only 5% of children were left out.



3. SCIENCE & TECHNOLOGY

1. BrahMos surface-to-surface supersonic cruise missile

Why in News?

- India test-fired an extended-range BrahMos surface-to-surface supersonic cruise missile that can hit targets 400km away.

BrahMos Test:

- The range has been increased from the existing 290km.
- The extended-range variant was tested from the Integrated Test Range at Balasore in Odisha.
- The test has cleared the decks for India to induct a second class of supersonic, long-range tactical cruise missiles, propelled by a liquid-fuelled booster capable of hitting targets over 500km away.
- The missile featured an indigenous booster and air-frame section along with many other 'Made in India' sub-systems.
- The missile was tested for the second time.
- The missile cruised at a top speed of Mach 2.8 (nearly three times the speed of sound).
- The configuration of the existing missile – the world's fastest supersonic cruise missile – has been tweaked to enhance its range.
- Prime Minister Narendra Modi congratulated scientists for the successful launch, saying the country has achieved "yet another milestone".
- According to experts, the next class of Indian cruise missiles will be based on solid-fuelled ducted ramjet (SFDR) technology, which can be used for air-to-air missiles as well as long-range supersonic cruise missiles. The technology has been tested by the DRDO twice – on May 30, 2018, and February 8, 2019.

Significance of the Test:

- The significance of the BrahMos test from a mobile launcher was that the cruise missile reached 75% indigenisation with India now having the capability to design the airframe as well as an indigenous liquid-fuelled booster.
- BrahMos missiles are already deployed in the Ladakh theatre along with a limited number of 1,000km range Nirbhay subsonic cruise missiles to counter the missiles and rockets deployed by the Chinese army in Tibet and Xinjiang.

- The two armies are locked in a tense standoff in the Ladakh sector of the Line of Actual Control (LAC).
- The successful launch has paved the way for the serial production of the indigenous booster and other indigenous components of the powerful weapon system.

BrahMos Missile:

- The missile is an Indo-Russian joint venture.
- The first supersonic cruise missile system known to be in service.
- The BrahMos is a multi-stage missile having a solid propellant in the first stage and the ramjet liquid propellant in the second stage.
- It has land, air and naval variants.
- The missile is capable of carrying a conventional as well as nuclear warhead of 300 kilograms. It operates on 'Fire and Forget Principle' by adopting varieties of flights on its way to the target.
- It approaches the enemy target with a top speed of Mach 2.8, which is about three times faster than the US subsonic Tomahawk Cruise Missile System.
- The missile derives its name from the names of two rivers, namely the Brahmaputra of India and the Moskva of Russia.
- India is also working on a hypersonic missile, BrahMos-II (K), capable of taking out hardened targets such as underground bunkers and weapon storage facilities at seven times the speed of sound (Mach 7) or 8,575 kmph.

2. ICGS Kanaklata Barua

Why in News?

- A Fast Patrol Vessel (FPV) named ICGS Kanaklata Barua was commissioned by the Indian Coast Guard recently.

Highlights:

- The vessel was constructed by Garden Reach Shipbuilders and Engineers (GRSE) Ltd.
- These FPVs are medium-range surface vessels and can reach a speed of 34 knots.
- It is the fifth and last in a series of FPVs. Other FPVs are ICGS Priyadarshini (named after Indira Gandhi), ICGS Annie Besant, ICGS Kamala Devi (after Kamala Devi Chattopadhyay), and ICGS Amrit Kaur.
- FPVs are useful for patrolling, maritime surveillance, anti-smuggling, anti-poaching operations, search and rescue missions.

Kanaklata Barua:

- Kanaklata Barua was a teenage freedom fighter from Assam.
- She led the Mukti Bahini, a procession of freedom fighters to unfurl the Tricolour at Gohpur police station during the Quit India Movement in 1942,
- An altercation with police led to firing and killing of Kanaklata Barua.

3. Nanofiber yarns

Why in News?

- A team of researchers at IIT Madras is ready with a prototype of suture thread made of nanofiber yarns.

Sutures with Nanofiber Yarns:

- It is bio-absorbable.
- It can deliver a higher load of antibiotics and/or therapeutics at the site itself.
- The suture material uses nanofibers woven as yarn using certain specific techniques, and the strength can be varied depending on the target tissue (skin, muscle, cartilage).
- Each strand has a good tensile strength, besides degrading rapidly and mimics the collagen fibrils of body tissues.
- Several innovations globally in suture material have advanced infection control and achieved in some cases, better recovery among patients, even as other options such as staples, glues and strips have become available.
- Arti Sunil Richard, Research Scholar, Department of Biotechnology, IIT Madras, also worked on the project that won the 'SITARE-Gandhian Young Technological Innovation (GYTI) Award 2020'
- The way the nanofibers mimicked the collagen fibril sparked the idea in a lab that primarily works on scaffold-based tissue engineering to create thread like structures by twisting nanofibers together using custom-made machinery.
- Several experiments were done to prove its compatibility, mechanical strength, stem cell interaction, immune responses, and antibacterial property, and they were compatible with prescribed norms in surgical procedure.
- The team also loaded the fibers to deliver drugs at site and it might be more suitable for internal sutures and on soft tissues.
- The bio absorbability aspect makes sure that the sutures do not have to be removed.

- Initial funding has been received for the project, and the team is looking for further funding to deliver surgery-ready nanofiber yarn at reasonable costs.

Nanofiber Yarns:

- Nanofiber yarns are thread-like structures formed by twisting together hundreds of nanofibers.
- Nano-size fiber production by electrospinning has been a common application method recently.
- Generally, in this system, fibers are produced directly as a non-woven surface of fiber-web and this limits potential end-uses of these high performance fibers.

4. Xoo infection

Why in News?

- Moving towards a vaccine to reduce yield loss due to diseases in rice.

Xoo:

- Xoo is a bacterium that causes a serious bacterial leaf blight disease in rice plant.
- *Xanthomonas oryzaepv. oryzae*, or commonly known as Xoo infection, causes huge yield losses to rice cultivation throughout the world.
- Appropriate methods for inoculation of Xoo and disease scoring are necessary to investigate the nature of the disease and the mechanism of plant resistance to the pathogen.
- As the most widely grown crop in the worldwide, rice yield plays an important role in food security. Uncovering mechanisms of plant-pathogen interaction of rice and Xoo will help develop rice plants that are more resistant to disease caused by Xoo.

New Study:

- A recipient of the DST-Inspire Faculty Fellowship, along with her research team, has uncovered the mechanism by which Xoo interacts with rice plant and causes disease.
- The team is developing new disease control strategies that they can use as vaccines that activate the rice immune system and provide resistance to rice plants from subsequent infections by pathogens.
- The research group has zeroed in on a few molecules derived from the Xoo bacterium and from infected rice cell walls which they hope to develop into vaccines.
- The group is working on a cellulase protein secreted by Xoo.

- This cellulase protein has the features of a typical vaccine as it is a potent elicitor of rice immune responses.
- Pre-treatment of rice plants with this protein provides resistance to rice against subsequent Xoo infection.

5. Diffie-Hellman key exchange

Why in News?

- In recent weeks, television news channels have shared leaked WhatsApp chats of film actors in their coverage of actor Sushant Singh Rajput's passing away. This has led to questions about whether communication over platforms such as WhatsApp is secure or not. It prompted Facebook-owned WhatsApp to come out with a statement on its use of end-to-end encryption to secure user messages.

Does WhatsApp have Access to Chats?

- WhatsApp has installed an end-to-end encryption system, which ensures only you and the person you're communicating with can read what's sent, and nobody in between, not even WhatsApp
- Governments across the world see end-to-end encryption as a huge issue when it comes to law enforcement.
- While WhatsApp says it responds to requests from law enforcement agencies "based on applicable law and policy," it is not clear what kind of data it would have to share.
- News reports have mentioned that these could be in the nature of metadata such as mobile number, IP address, location, and so on.

How is WhatsApp Designed to ensure such Secure Communication?

- WhatsApp uses the encryption protocol developed by Open Whisper Systems, a project known best for its Signal app, which also uses the same open-source framework to ensure privacy.

What is the Technology Behind this?

- The technology that forms the basis for this is called the 'Diffie-Hellman key exchange'.
- In a 1976 paper titled, New Directions in Cryptography, Whitfield Diffie and Martin E. Hellman saw the futility of the old ways of sharing a key securely (say, by "sending the key in advance over some secure channel such as private courier or registered mail") in the emerging digital world. They proposed a way for secure communication via a method of a shared secret key, and that too when the communication is over a not-so-secure channel.

- One way to understand the broad concept, used by many experts, is by way of colours. In the world of imagination, a shared secret colour is the shared secret key between two communicators, who we will call A and B. (There are many versions of this example on the Internet.)
- A and B need to communicate without anyone eavesdropping. They first agree on a public colour (say, yellow). The two communicators then choose their own private colour, which is not to be shared with anyone.
- Say A chooses red and B, blue. They then individually mix their private colour with the public colour and send the mixture to each other. Note that the eavesdroppers can figure out the public colour and the mixtures. But there is one more step. B's mixture (some sort of green) at A's end is added with A's private colour (red), and A's mixture (some sort of orange) at B's end is added with B's private colour (blue). They both arrive at the same secret colour after the final step. There is now a shared secret colour key.
- The message that also needs to be understood is that while it is easy to add colours, it is difficult to figure out the original colours that contributed to a mixture. In the math world, that is called a one-way function. Imagine the difficulty in figuring out a key from complex mathematical computations. The Diffie-Hellman paper said: "A third party eavesdropping on this exchange must find it computationally infeasible to compute the key from the information overheard."

Can't those who have access to the server read messages?

- End-to-end encryption removes this vulnerability. WhatsApp also says it does not store messages on its servers once they are delivered.
- An earlier generation of encryption did not secure the entire channel, but secured the communication between a user and the server (of a messaging service).
- Once the server received a message intended for another user, it would decrypt and again encrypt it before sending it securely to the receiver. But this meant that there was a chance of security being compromised at the level of the server.

Can leaks Still Happen?

- End-to-end encryption cannot prevent leaks from happening if a third party has access to a device which contains these messages.
- Encryption also does not help in cases wherein the sender or the receiver of a message shares it with others, a member of a group shares it with others, or messages are stored in a different format on a different application or platform open to others.

Are there other vulnerabilities?

- Bugs that lead others to control a user's phone are an example of such vulnerabilities. For instance, last year, WhatsApp revealed that surveillance technology developed by Israel's NSO Group had been used to spy on about 1,400 people across the world, including civil rights activists and journalists in India.

6. Water Purification system by High Flow Rate Fluoride & Iron Removal

Why in News?

- The CSIR-CMERI transferred its High Flow Rate Fluoride & Iron Removal technology to M/s Capricans Aqua Private Limited, West Bengal.

Purification system:

- CSIR-CMERI for the very first time has come up with a dual solution (excess F⁻ and Fe³⁺ mitigation from ground water).
- The invention reveals about proper design and subsequent development of an integrated, low-cost, commonly available multi-adsorbent water purification system.
- This Community Level Water Purification System has a Flow-Rate capacity of 10,000 Ltr/hr and uses commonly available raw materials such as sand, gravel and adsorbent materials.
- It comprises a three-stage purification process which purifies water within permissible limits (1.5 ppm & 0.3 ppm for Fluoride and Iron respectively).
- Three FRP (Fibre Reinforced Plastic) made vessels of specific dimensions are:
 - ✓ Chamber-I (oxidation chamber)
 - ✓ Chamber-II (Iron removing filter)
 - ✓ Chamber-III (Fluoride removing filter)
- The technology uses a combination of Oxidation, Gravitational Settling and Chemisorption process in an Affordable Package.
- The integrated backwashing profile of the technology will help in improving the shelf-life of the filtration media in a resource rationalised manner.
- The developed plant is successfully able to mitigate iron from an initial concentration of ~9 ppm to less than 0.3 ppm (safe limit of Fe as per WHO guideline) and fluoride from initial ~12 ppm to <1.5 ppm (safe limit of F⁻ as per WHO guideline).

Uniqueness of the Present Plant:

- An initiative towards solving dual contaminants problem in ground water (F⁻ as well as Fe³⁺).
- An integrated adsorbent based water purification system for effective removal of fluoride as well as iron in an efficient manner from contaminated water bodies.
- High flow rate (10,000 litres/h) integrated purification system.
- Sustainability towards healthy livelihood generation.
- Selective backwash without dismantling any part of the plant.

7. Biological Plant-Virus Arms Race Uncovered

Why in News?

- A recent study with researchers from National Centre of Biological Sciences (NCBS-TIFR), Bengaluru, has discovered that a virus called Synedrella Yellow Vein Clearing Virus and the plants it attacks.
- The virus was isolated by the researchers from a plant named Synedrella nodiflora, and it was able to infect tobacco and tomato plant in their studies.

Synedrella Yellow Vein Clearing Virus:

- Synedrella Yellow Vein Clearing Virus is a representative of the Begomovirus family of viruses. Begomoviruses are a large family with about 400 members.
- They infect economically important plants and are a major reason for crop loss.
- Arms race:
- The virus first attacks the plant, and the plant has defences that are actually counter-attacks – mechanisms that seek to destroy the virus.
- In turn, the virus develops a counter-counter-attack by trying to escape being destroyed by the plant's mechanisms.
- In the case of Synedrella Yellow Vein Clearing Virus: When the virus attacks the plant, it produces vein-clearing symptoms which make the plant look beautiful.
- It actually makes it difficult for the plant to produce flowers and fruits.
- In turn, the plant develops defence mechanisms to destroy the virus. It targets the protein called BetaC1 made by the virus which helps in successful infection and intracellular movement within the plant.
- Plants degrade BetaC1 protein of virus by tagging this protein with another smaller protein called ubiquitin.

8. Anti-ulcer drug shows promise in suppressing coronavirus

Why in News?

- Researchers from Hong Kong have reported a novel antiviral strategy for treatment of Covid-19.

The Novel Antiviral Strategy:

- Researchers have found that a class of existing drugs, which are currently used in the treatment of other infectious diseases, can suppress replication of SARS-CoV-2 and relieve Covid-19 symptoms in an animal model.
- Their findings are published in Nature Microbiology.
- These are metallo drugs, which consist of metal compounds.
- Generally, metal compounds are used as anti-microbial agents, but their antiviral activities have rarely been explored, the researchers said.
- Their findings now provide a new therapeutic option for treatment of Covid-19.
- The researchers screened metallo drugs and related compounds including ranitidine bismuth citrate (RBC), a commonly used anti-ulcer drug which contains the metal bismuth.
- They identified RBC as a potent anti SARS-CoV-2 agent.
- RBC targets a protein called Nsp13, which is essential for SARS-CoV-2 to replicate.
- The experiments showed that RBC reduces viral loads by over 1,000-fold in SARS-CoV-2-infected cells.
- In a golden Syrian hamster, RBC was found to suppress SARS-CoV-2 replication and reduce viral loads by 100-fold in both the upper and lower respiratory tracts, and to mitigate virus-associated pneumonia.

9. Anti-Tank Guided Missiles

Why in News?

- Recently, a laser guided Anti-Tank Guided Missile (ATGM) was successfully launched which will undergo more validation tests.

ATGM:

- ATGM has been indigenously developed.
- It is laser-guided version of Anti-Tank Guided Missile.
- It locks and tracks the targets with the help of laser designation to ensure precision in striking the target.

- It is test fired by the Defence Research and Development Organisation (DRDO).
- It mainly differs in one aspect from other ATGMS developed i.e. it is designed to be fired from tanks.
- Range limited to 1.5 to 5 kilometers.
- The missile uses a 'tandem' High Explosive Anti-Tank (HEAT) warhead. The term tandem refers to the missiles using more than one detonation in order to effectively penetrate the protective armours.
- This missile has the capacity of piercing armoured vehicles which use specially designed armour plates to counter the impact of such projectiles.
- Currently undergoing tests to be integrated with India's Main Battle Tank (MBT), Arjun.

First use of ATGMs:

- The DRDO has been working on ATGMs that can be launched from different platforms as part of the Integrated Guided Missile Development Programme.
- The indigenously developed low weight, fire and forget Man Portable Anti-Tank Guided Missile (MPATGM) was successfully launched 2019.
- ATGM Nag was successfully tested in 2018.
- All these systems, which are mainly used by infantry units of the Army, are in their various stages of development.
- In the meantime, the government said that it has procured (in 2019) Anti-Tank Spike Missiles from Israel along with the allied systems to meet operational requirements of the Indian Army.

Importance of ATGM:

- The armoured and mechanised vehicles have the ability to go past conventional defenses.
- Tank battles are generally fought in a close range of under five kilometers to hit the enemy tank before they can take a clear shot.
- Therefore, ATGM and other armoured warfare act as a deterrent against enemy tanks from advancing.
- The missile has the capability of engaging with the target even if it is not in the line of sight enhancing its capability.

Indigenous ATGM in India:

- Dhruvastra: Made in India' anti-tank guided Nag missile. Its earlier name was HELINA.
- The Man Portable Anti-Tank Guided Missile (MPATGM) is a 3rd Gen ATGM.

10. Indigenous software solution for vessel traffic services

Why in News?

- Minister of State for Shipping launches indigenous software solutions Vessel Traffic Services (VTS) and Vessels Traffic Monitoring Systems (VTMS).

VTS and VTMS:

- VTS and VTMS is a software which determines vessel positions, position of other traffic or meteorological hazard warnings and extensive management of traffic within a port or waterway.
- Vessel Traffic Services (VTS) contribute to the safety of life at sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, worksites and offshore installations from possible adverse effects of maritime traffic.
- Vessels Traffic Management Systems are installed in some of the busiest waters in the world, and are making a valuable contribution to safer navigation, more efficient traffic flow, and protection of the environment.
- Traffic flow in busy approach routes, access channels, and harbours can be coordinated safely, in the best interest of port and its users.
- Incidents and emergency situations can be dealt with quickly.
- Data from traffic movements can be stored and used as reference information for port administration, port authorities, coastguards and search and rescue services.
- VTMS is mandatory under the IMO Convention SOLAS (Safety of Life at Sea).
- The VTMS traffic image is compiled and collected by means of advanced sensors such as radar, AIS, direction finding, CCTV and VHF or other co-operative systems and services.
- A modern VTMS integrates all of the information into a single operator working environment for ease of use and in order to allow for effective traffic organization and communication.
- Presently, India has approximately 15 VTS systems operational along the Indian Coast and there is no uniformity of VTS software as each system has its own VTS software.
- Development of the indigenous VTS software will reduce the expenditure of foreign exchange on this issue and also minimize the dependence on foreign support for VTS software. Accordingly, indigenous development of VTS software will benefit with respect to:
 - ✓ Saving of foreign exchange for various VTSs in India.

-
- ✓ VTS Software can be provided to Indian trade-friendly nations viz. Maldives, Mauritius, Myanmar, Sri Lanka, Mauritius, Bangladesh and Gulf countries.
 - ✓ Will also minimize the cost for future upgradations of software.
 - ✓ Shall be easier to interconnect with MIS/ERP software of ports.
 - ✓ The availability of Indian VTS software shall make Indian companies competitive commercially in global bids.



4. ECONOMY

1. Purchasing Managers' Index (PMI)

Why in News?

- India's manufacturing sector activity has improved for the second straight month in September and has touched a more than eight-and-a-half-year high supported by accelerated increases in new orders and production.

What does the PMI Index Mean?

- Purchasing Managers' Index (PMI) is a survey-based economic indicator designed to provide a timely insight into business conditions.
- The PMI is widely used to anticipate changing economic trends in official data such as GDP, or sometimes as an alternative gauge of economic performance and business conditions to official data, as the latter sometimes suffer from delays in publication, poor availability or data quality issues.
- The PMI is produced globally by IHS Markit although a small number of trade associations also produce local PMIs in certain markets, such as the ISM in the United States.

What does the Purchasing Managers' Index Measure?

- The Purchasing Managers' Index (PMI) is a survey-based indicator of business conditions, which includes individual measures ('sub-indices') of business output, new orders, employment, costs, selling prices, exports, purchasing activity, supplier performance, backlogs of orders and inventories of both inputs and finished goods, where applicable.
- The surveys ask respondents to report the change in each variable compared to the prior month, noting whether each has risen/improved, fallen/deteriorated or remained unchanged.
- These objective questions are accompanied by one subjective 'sentiment' question asking companies whether they forecast their output to be higher, the same or lower in a year's time.
- Originally compiled for manufacturing, IHS Markit pioneered the extension of coverage to other sectors in the 1990s, including services, construction and retail.
- The PMI and its sub-indices are widely used to anticipate changing economic trends in official data such as GDP, or sometimes as an alternative gauge of economic performance and business conditions to official data, as the latter sometimes suffer from delays in publication, poor availability or data quality issues.

Month's Index:

- The headline seasonally adjusted IHS Markit India Manufacturing Purchasing Managers' Index (PMI) increased from 52.0 in August to 56.8 in September which is the highest since January 2012.
- The Indian manufacturing industry continued to move in the right direction, with PMI data for September highlighting many positives this has been possible due to loosened COVID-19 restrictions, factories going full steam ahead for production which is supported by a surge in new work.
- The upturn in total sales was supported by a renewed expansion in new export orders which is the first since prior to the escalation of the COVID-19 outbreak.

Issues:

- Despite strong growth of order book volumes, Indian goods producers have signalled another reduction in payroll numbers. In many cases, this has been attributed to efforts to observe social distancing guidelines. Employment has now decreased for six consecutive months.
- The input costs have also increased because of which the output prices have risen.

2. Phased manufacturing programme (PMP)

Why in News?

- Mobile phone prices are expected to rise about 3% as the government has imposed 10% duty on the import of displays. The duty on display assembly and touch panel was proposed to be applied from October 1 under a phased manufacturing programme (PMP) announced in 2016 in consensus with the industry.

Phased manufacturing programme (PMP):

- In a bid to make India a mobile manufacturing hub of the world the Centre has introduced Phased Manufacturing Programme (PMP).
- The scheme would promote domestic production of mobile phones by providing tax relief and other incentives on components and accessories used for the devices.
- The Phased Manufacturing Programme has been notified with the objective of substantially increasing the domestic value addition for establishment of a robust Cellular mobile handsets manufacturing eco-system in India.
- The Budget 2015-16 introduced a differential Excise Duty for domestic mobile manufacturers. Under this, the Countervailing Duty (CVT) on imports at 12.5% and Excise

Duty at 1% without input tax credit (or 12.5% with input tax credit) were given to domestic cell phone manufacturers. This was done because earlier it was cheaper to import mobile components or finished goods after India signed the World Trade Organisation's ITA-1 pact (Information Technology Agreement). This pact exempts duties from several IT products.

- The differential duty approach has helped in increasing the local production of mobile handsets from 11 crore units valued at Rs 54,000 crore in 2015-16 to 17.5 crore units valued at Rs 90,000 crore in 2016-17, according to the official statement. It also says that the share of imported mobile handsets in total domestic demand is gradually coming down – from Rs 56,000 crore in 2015-16 to Rs 40,000 crore in 2016-17.
- The PMP aims to take this growth story to a new level and it is estimated that the value of India's domestic mobile handset manufacturing industry would grow exponentially over the next 5-10 years.

Main Aim:

- At present, India imports basic chipset for mobile handsets but there has been a spurt in the production of other mobile components.
- Over the next 10-12 years, PMP aims to make India a manufacturing hub of mobile components. With PMP, the share of locally-procured components in the manufacturing of feature phones will go up from about 15 to 37 per cent and for smart phones from about 10 to 26 per cent, leading to the setting up of a “robust indigenous mobile manufacturing ecosystem in India.
- The PMP would be rolled out over a period of time in a phase-wise manner. In the financial year (2017-18), the PMP covers domestic production of components like Mechanics, Die Cut Parts, Microphone and Receiver, Key Pad and USB Cable. In 2018-19, it would cover printed circuit board assembly, camera module and connectores, while in 2019-20, the PMP would provide incentives for local production of display assembly, touch panel/cover glass assembly and vibrator motor or ringer.

3. School closure may cost India

Why in News?

- The extended closure of schools amid the COVID-19 pandemic could dent India's future earnings, as depleted learning levels of students will translate into poorer productivity going forward.

- As many as 5.5 million students could drop out of schools across South Asia, combined with substantial learning losses for those who remain enrolled in schools, would cost South Asia as much as \$622 billion in future earnings and gross domestic product.
- World Bank said these in its latest South Asia report titled “Beaten or broken: Informality and COVID-19”.

Highlights of the report:

- Far-reaching impact: South Asian governments spend only \$400 billion a year on primary and secondary education, so the total loss in economic output would be substantially higher.
- While the regional loss is largely driven by India, all countries will lose substantial shares of their GDP.
- The average child in South Asia may lose \$4400 in lifetime earnings once having entered the labour market, equivalent to 5% of total earnings.
- Massive losses: Education came to a standstill and efforts to teach children during school closures proved challenging.
- They have kept 391 million students out of school in primary and secondary education, further complicating efforts to resolve the learning crisis.
- Remote learning tough: Being out of school for that long means that children not only stop learning new things, they also forget some of what they have learned.
- Engaging children through remote learning programmes had been difficult, despite most governments’ best efforts to mitigate the impact of school closures.
- The projected learning loss for the region is 0.5 years of learning-adjusted years of schooling at present, and this will already lead to substantial future earning losses.
- Labour productivity will also take a greater hit from COVID-19 than most previous natural disasters, not just due to the disruptions in training and education.
- The increased integration of the global economy will amplify the adverse impact of COVID-19.
- Contagion prevention and physical distancing may render some activities, for example the hospitality sector, unviable unless they are radically transformed, which will take time.
- Even in less directly affected sectors such as manufacturing, banking and business, severe capacity underutilisation lowers total factor productivity while restrictions to stem the spread of the pandemic remain in place.

- Finally, disruptions to training, schooling and other education in the event of severe income losses, even once restrictions are lifted, will also lower human capital and labour productivity over the long term.

India Related Highlights:

- In the first quarter of FY21, economic growth contracted by an unprecedented 23.9 percent (year-on-year).
- On the demand side, private consumption and investment contracted sharply. On the supply side, industrial and services output fell by 38 and 21 percent, respectively.
- During the first quarter of FY21, the current account turned to a surplus, as a large decline in imports more than offset a drop in exports.
- With significant net foreign investment inflows, foreign reserves reached USD 534.5 billion at end-July, equivalent to more than 13 months of FY20 imports.
- Following a sharp depreciation in March, the rupee has gradually regained its value against major currencies but remains slightly weaker than at the start of the year.
- The growth slowdown in FY20 and the contraction in early FY21 have impaired revenue collection.
- Thus, after increasing to 7.6 percent in FY20, the general government deficit is believed to have increased further during the first half of FY21.
- More recent household survey data indicate significant disruptions to jobs due to COVID-19 that likely boosted the poverty rate, with 2020 rates back to levels overserved in 2016.
- The labour force participation rate was 3.2 percentage points lower in the last week of August than in the months leading up to the lockdown.
- Between the last four months of 2019 and May-August 2020, the proportion of people working in urban and rural areas fell by 4.2 and 3.8 percentage points, respectively.
- Overall, the pandemic has likely raised urban poverty, creating a set of “new poor” characterized by non-farm employment and secondary or tertiary education.
- The COVID-19 shock will lead to a long-lasting inflexion in India’s fiscal trajectory.

4. Comparison of India and Bangladesh’s GDP

Why in News?

- According to the The International Monetary Fund’s World Economic Outlook estimation, in 2020, growth of India’s gross domestic product (GDP) will witness a contraction of over 10%.

- This more than doubles the level of contraction — from 4.5% — that the IMF had projected for India just a few months ago. But more than the sharp contraction, what has caught everyone’s attention is that in 2020, the per capita income of an average Bangladeshi citizen would be more than the per capita income of an average Indian citizen.

How did this Happen? Isn’t India one of the World’s Biggest Economies?

- Typically, countries are compared on the basis of GDP growth rate, or on absolute GDP. For the most part since Independence, on both these counts, India’s economy has been better than Bangladesh’s. GDP growth rates and absolute GDP — India’s economy has mostly been over 10 times the size of Bangladesh, and grown faster every year.
- However, per capita income also involves another variable — the overall population — and is arrived at by dividing the total GDP by the total population. As a result, there are three reasons why India’s per capita income has fallen below Bangladesh this year.
- Bangladesh’s economy has been clocking rapid GDP growth rates since 2004. However, this pace did not alter the relative positions of the two economies between 2004 and 2016 because India grew even faster than Bangladesh. But since 2017 onwards, India’s growth rate has decelerated sharply while Bangladesh’s has become even faster.
- Secondly, over the same 15-year period, India’s population grew faster (around 21%) than Bangladesh’s population (just under 18%). The combined effect of these two factors have closed the per capita GDP gap considerably even before Covid-19 hit. Bangladesh’s per capita GDP was merely half of India’s in 2007 — but this was just before the global financial crisis. It was roughly 70% of India’s in 2014 and this gap closed rapidly in the last few years. Lastly, the most immediate factor was the relative impact of Covid-19 on the two economies in 2020. While India’s GDP is set to reduce by 10%, Bangladesh’s is expected to grow by almost 4%. In other words, while India is one of the worst affected economies, Bangladesh is one of the bright spots.

Has this ever Happened Earlier?

- In 1991, when India was undergoing a severe crisis and grew by just above 1%, Bangladesh’s per capita GDP surged ahead of India’s. Since then, India again took the lead.

Is India Expected to Regain the Lead Again?

- The IMF’s projections show that India is likely to grow faster next year and in all likelihood again surge ahead. But, given Bangladesh’s lower population growth and faster economic growth, India and Bangladesh are likely to be neck and neck for the foreseeable future in terms of per capita income.

How has Bangladesh Managed to Grow so fast and so robustly?

- In the initial years of its independence with Pakistan, Bangladesh struggled to grow fast. However, moving away from Pakistan also gave the country a chance to start afresh on its economic and political identity.
- As such, its labour laws were not as stringent and its economy increasingly involved women in its labour force. This can be seen in higher female participation in the labour force. A key driver of growth was the garment industry where women workers gave Bangladesh the edge to corner the global export markets from which China retreated.
- It also helps that the structure of Bangladesh's economy is such that its GDP is led by the industrial sector, followed by the services sector. Both these sectors create a lot of jobs and are more remunerative than agriculture. India, on the other hand, has struggled to boost its industrial sector and has far too many people still dependent on agriculture.
- Beyond the economics, a big reason for Bangladesh's progressively faster growth rate is that, especially over the past two decades, it improved on several social and political metrics such as health, sanitation, financial inclusion, and women's political representation.
- For instance, despite a lower proportion of its population having access to basic sanitation, the mortality rate attributed to unsafe water and sanitation in Bangladesh is much lower than in India.
- On financial inclusion, according to the World Bank's Global Findex database, while a smaller proportion of its population has bank accounts, the proportion of dormant bank accounts is quite small when compared to India.
- Bangladesh is also far ahead of India in the latest gender parity rankings. This measures differences in the political and economic opportunities as well as the educational attainment and health of men and women. Out of 154 countries mapped for it, Bangladesh is in the top 50 while India languishes at 112.
- The same trend holds for the Global Hunger Index. The GHI goes beyond treating hunger in terms of calorie intake. It looks at four factors: Undernourishment (which reflects inadequate food availability), Child Wasting (which reflects acute undernutrition), Child Stunting (which reflects chronic undernutrition) and Child Mortality (which reflects both inadequate nutrition and unhealthy environment).

5. Base Year of CPI- Industrial Workers Revised to 2016

Why in News?

- The Labour and Employment Ministry has revised the base year of the Consumer Price Index (CPI) for Industrial Workers (CPI-IW) from 2001 to 2016.

Why such a Move?

- This revision reflects the changing consumption pattern, giving more weightage to spending on health, education, recreation and other miscellaneous expenses while reducing the weight of food and beverages.

What is the Consumer Price Index (CPI)?

- The CPI is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, and medical care.
- It is calculated by taking price changes for each item in the predetermined basket of goods and averaging them. Changes in the CPI are used to assess price changes associated with the cost of living.
- The CPI is one of the most frequently used statistics for identifying periods of inflation or deflation.
- Essentially it attempts to quantify the aggregate price level in an economy and thus measure the purchasing power of a country's unit of currency.

Types of CPI in India:

- CPI in India comprises multiple series classified based on different economic groups.
- There are four series, viz the CPI UNME (Urban Non-Manual Employee), CPI AL (Agricultural Labourer), CPI RL (Rural Labourer) and CPI IW (Industrial Worker).
- While the CPI UNME series is published by the Central Statistical Organisation, the others are published by the Department of Labour.
- From February 2011 the CPI (UNME) released by CSO is replaced as CPI (urban), CPI (rural) and CPI (combined).

How it is Different from WPI?

- CPI is different from WPI, or Wholesale Price Index, which measures inflation at the wholesale level.
- While WPI keeps track of the wholesale price of goods, the CPI measures the average price that households pay for a basket of different goods and services.

- WPI measures and tracks the changes in the price of goods before they reach consumers; goods that are sold in bulk and traded between entities or businesses (rather than consumers).
- Even as the WPI is used as a key measure of inflation in some economies, the RBI no longer uses it for policy purposes, including setting repo rates.
- The central bank currently uses CPI or retail inflation as a key measure of inflation to set the monetary and credit policy.

Major Components of WPI:

- Primary articles are a major component of WPI, further subdivided into Food Articles and Non-Food Articles.
- Food Articles include items such as Cereals, Paddy, Wheat, Pulses, Vegetables, Fruits, Milk, Eggs, Meat & Fish, etc.
- Non-Food Articles include Oil Seeds, Minerals and Crude Petroleum
- The next major basket in WPI is Fuel & Power, which tracks price movements in Petrol, Diesel and LPG
- The biggest basket is Manufactured Goods. It spans across a variety of manufactured products such as Textiles, Apparels, Paper, Chemicals, Plastic, Cement, Metals, and more.
- Manufactured Goods basket also includes manufactured food products such as Sugar, Tobacco Products, Vegetable and Animal Oils, and Fats.

5. GEOGRAPHY & ENVIRONMENT

1. Eco Disaster Unfolding on Kamchatka Beach

Why in News?

- According to a report, an ‘ecological disaster’ of sorts is unfolding on a black volcanic beach of the Kamchatka Peninsula in the Russian Far East.

What is the Matter?

- Three weeks ago, surfers on the Khalaktyrsky beach outside Petropavlovsk-Kamchatsky, the largest town in Kamchatka, had reported of burning eyes, throat ache, headache, fever and a fear of losing eyesight on emerging from the water.
- Then, sea animals begin to die in large numbers, their bodies littering the beach.
- These included octopuses, seals, sea urchins, stars, crabs and fish.
- Examination of the sea water by the administration has shown that levels of phenols and oil compounds have spiked.
- The river displayed a yellow colour.
- There is a training camp of the Russian military upstream. Another theory being speculated is that ships carrying oil in the vicinity had leaked it into the sea water.
- Kamchatka is a UNESCO world Heritage Site.

Temperatures in Antarctic Peninsula Highest in 30 Years:

- Temperatures in 2020 on the Antarctic Peninsula, the northernmost tip of the Antarctic continent, have been the highest in nearly three decades, a study by researchers from the University of Santiago de Chile has found.
- Temperatures reached between two and three degrees Celsius on the peninsula between January and August, according to a report on science and environment website.
- That is “more than two degrees Celsius over typical values”, according to researchers.
- This was an alarming development since it could indicate that the ocean in the area was once again warming, according to scientists. The Moderate Resolution Imaging Spectroradiometer on NASA’s Terra satellite has photographed the enormous amount of Andes mountain sediment deposited by the Amazon river into the Atlantic Ocean. Most of the sediment that the Amazon carried to the Atlantic came from three rivers flowing in the western part of the basin, namely the Marañón, the Ucayali and Mamoré.
- Some 1.3 million tonnes of rock, soil and clay are deposited by the Amazon into the Atlantic every year.

Kamchatka Peninsula:

- Kamchatka is 900 miles long and it is closer to Alaska than it is to Moscow.
- Kamchatka contains the highest concentration of active volcanoes in the world, as well as freezing winters that are braved by nomadic reindeer herders.
- The volcanoes have been incorporated into an extensive UNESCO World Heritage Site that is home to a wide variety of wildlife, including brown bears, sea otters and sea eagles.
- This peninsula has over 150 volcanoes and 29 out of them are active.
- It has a group of 19 volcanoes known as Volcanoes of Kamchatka which is UNESCO World Heritage Site.
- It has many volcanoes, geysers, hot springs and even a lake of acid.
- The region's extensive network of rivers and proximity to the Sea of Okhotsk and Pacific Ocean allows it to play host to the largest variety of salmonid species on earth, including the sockeye salmon.

2. Methane Emissions

Why in News?

- Methane is responsible for a quarter of global warming that occurred since the 1850s, according to Climate Scientists.

Highlights:

- Raising livestock, increase in coal mining, landfills, and oil and gas production were the specific activities linked to the greatest increases, according Global Carbon Project.
- Wetlands contributed the most of the emissions, at 30 per cent, while oil, gas and coal activities accounted for 20 per cent of the emissions. Agriculture made up 24 per cent of the emissions, while landfills were responsible for 11 per cent.
- Tropical regions in three continents Africa, Asia and South America were responsible for 64 per cent of the entire planet's emissions, while temperate regions and the Arctic contributed to 32 per cent and four per cent respectively.
- Water-logged soil once it begins to thaw creates conditions ideal for methane production.
- Emissions increased nine per cent compared to the last decade.
- While methane emissions briefly stabilized between 2000 and 2006, concentrations of the gas in the atmosphere now exceed 1,875 parts per billion or about 2.5 times that from the 1850s.

Global Carbon Project:

- The GCP is a Global Research Project of Future Earth and a research partner of the World Climate Research Programme.
- Established in 2001, its projects include global budgets for three dominant greenhouse gases CO₂, methane, and nitrous oxide and complementary efforts in urban, regional, cumulative, and negative emissions.
- The main object of the group has been to fully understand the carbon cycle.
- It collaborates with many groups to gather, analyze, and publish data on greenhouse gas emissions in an open and transparent fashion, making datasets available on its website and through its publications.
- It releases the Global Carbon Atlas (established in 2013) a tool for visualising data related to the global carbon cycle.

3. Zombie Fire (TH)

Why in News?

- According to a new study, the fire regimes in the Arctic are changing rapidly, with ‘zombie fires’ becoming more frequent in addition to fires occurring in the once-frozen tundra.

Zombie Fire:

- It is a fire from a previous growing season that can smoulder under the ground which is made up of carbon-rich peat. When the weather warms, the fire can reignite. These are also known as holdover fires.
- The fires in the Arctic spreading to areas which were formerly fire-resistant is a more worrying feature.
- The tundra is drying up and vegetation there like moss, grass, dwarf shrubs, etc are starting to catch fire.
- In 2019 and 2020, burning occurred well above the Arctic Circle, a region not normally known to support large wildfires. Wildfires on permafrost in Siberia south of the Arctic are not uncommon.

Reasons:

- The reason for this anomaly is that temperatures in winter and spring were warmer than usual during 2019-20.
- Temperature in Siberia in 2020 had gone through the roof, with the region recording a severe heatwave.

- Nearly all of this year's fires inside the Arctic Circle occurred on continuous permafrost, with over half of these burning on ancient carbon-rich peat soils.

Impact:

- The fires and record temperatures had the potential of turning the carbon sink into a carbon source and increasing global warming.
- The Arctic region has a cold body of water and permafrost, it naturally acts as a carbon sink. On average it absorbs 58 megatons of CO₂ a year in its cold water.
- Soils in areas of permafrost contain twice as much carbon as there is currently in the atmosphere.
- As the climate and permafrost soils have warmed, microbes have started to break down this organic carbon, which has been frozen and fixed in the permafrost. That has led to a rise in land emissions of CO₂ and methane.
- Also there will be less absorption of carbon by water with rising temperature.
- It will be a feedback loop: As peatlands release more carbon, global warming increases, which thaws more peat and causes more wildfires.
- Arctic fires will affect the global climate over the long term depending on what they burnt. That's because peatlands, unlike boreal forest, do not regrow quickly after a fire, so the carbon released is permanently lost to the atmosphere.

4. Ratification of 7 Persistent Organic Pollutants under Stockholm Convention

Why in News?

- The Union Cabinet has approved the Ratification of seven chemicals listed under Stockholm Convention on Persistent Organic Pollutants (POPs).

Highlights:

- The Cabinet further delegated its powers to ratify chemicals under the Stockholm Convention to Union Ministers of External Affairs (MEA) and Environment, Forest and Climate Change (MEFCC) in respect of POPs.
- The ratification process would enable India to access Global Environment Facility (GEF) financial resources in updating the National Implementation Plan (NIP).

Chemicals listed as POPs under Stockholm Convention:

- Chlordecone

- Hexabromobiphenyl
- Hexabromodiphenyl ether and Heptabromodiphenylether (Commercial octa-BDE)
- Tetrabromodiphenyl ether and Pentabromodiphenyl ether (Commercial penta-BDE)
- Pentachlorobenzene
- Hexabromocyclododecane
- Hexachlorobutadiene
- The regulation inter alia prohibited the manufacture, trade, use, import and export.

Background:

- India had ratified the Stockholm Convention on January 13, 2006 as per Article 25(4).
- This enabled to keep itself in a default “opt-out” position such that amendments in various Annexes of the convention cannot be enforced on it unless an instrument of ratification/ acceptance/ approval or accession is explicitly deposited with UN depositary.
- Considering its commitment, the Ministry of Environment, Forest and Climate Change (MoEFCC) had notified the Regulation of Persistent Organic Pollutants Rules, on March 5, 2018 under the provisions of Environment (Protection) Act, 1986.

Stockholm Convention:

- The Stockholm Convention is a global treaty to protect human health and the environment from a class of chemicals known as Persistent Organic Pollutants (POPs).
- Persistent Organic Pollutants are identified chemical substances that persist in the environment, bio-accumulate in living organisms, adversely affect human health/ environment and have the property of long-range environmental transport (LRET).
- Exposure to POPs can lead to cancer, damage to central & peripheral nervous systems, diseases of immune system, reproductive disorders and interference with normal infant and child development.
- **Annexure:**
 - ✓ Under the Convention, the chemicals can be listed as:
 - ✓ Annex-A: for complete elimination from production, use, export and import
 - ✓ Annex-B: Restriction in use and production for specific purpose only
 - ✓ Annex-C: Unintentional production
 - ✓ The implementation of the Convention requires the parties to take measures to eliminate or reduce the release of these POPs into the environment.
 - ✓ Till date, 26 chemicals are listed as POPs under the Stockholm Convention. In addition to the new 7 chemicals, India has now ratified 19 POPs.

- ✓ The Convention was adopted on May 22, 2001 and entered into force on May 17, 2004. India ratified the Convention on January 13, 2006.

5. Pusa decomposer

Why in News?

- Paddy stubble-burning season is here, and satellite remote sensing data from the Indian Agriculture Research Institute (IARI) show a five-fold increase in the number of farm fires in Punjab, Haryana, and Uttar Pradesh during the first six days of October compared to the corresponding dates in 2019.
- While this initial spike might flatten in the coming days, the SAFAR-India short-range forecast on Thursday (October 8) said the overall AQI in Delhi was in the “higher end moderate category”, and was forecast “at the higher end of moderate to the poor category” for October 9.

Stubble Burning:

- The burning of paddy stubble left in the fields after harvest has been a cause of concern for the past several years as it contributes to air pollution in the northern Gangetic plains and its already polluted cities like Delhi.
- It is a common practice in October and November across North West India, but primarily in Punjab, Haryana, and Uttar Pradesh to quickly clear crop residue from their fields before planting the rabi wheat crop.
- Several solutions have been proposed over the years to tackle the issue. The most recent one, which has been billed as a game-changer if found successful, is the ‘Pusa Decomposer’ capsule developed by IARI.

What is the ‘Pusa Decomposer’?

- It is essentially a fungi-based liquid solution that can soften hard stubble to the extent that it can be easily mixed with soil in the field to act as compost.
- This would then rule out the need to burn the stubble, and also help in retaining the essential microbes and nutrients in soil that are otherwise damaged when the residue is burned.

Impact on Delhi's Air:

- Farmers in Punjab and Haryana burn paddy stubble around this time before they prepare the soil for the rabi crop. Smoke from burning crop stubble contributes to air pollution over the national capital and large parts of the Indo-Gangetic plain every winter.

How long does it take for the Decomposer to Work?

- The window of time required for the solution to work, which is currently the main concern of farmers, is around 20 to 25 days, as per the IARI.
- Farmers argue that this window is too long for them, as they ideally wait about a week or 10 days after harvesting the non-basmati variety of rice — which leaves hard stubble — to sow the wheat crop.
- IARI scientists, however, say that farmers do not necessarily have to plant the next crop in a rush — and that 20-25 days is enough waiting time.

How is the Decomposer to be used by Farmers?

- There are seven strains of fungi that IARI has identified after research which help in rapid breakdown of hard stubble.
- These seven strains of fungi are packed into four capsules, which cost about Rs 20 per pack of four. But there is a process for developing the liquid solution from these capsules which can take about four to five days.
- It starts with boiling 25 litres of water mixed with 150 grams of jaggery, which scientists say has properties that help in multiplication of fungi.
- After this mix has cooled, 50 grams of besan (or gram flour) is added to it along with four 'Pusa Decomposer' capsules.
- This solution is then covered with a thin piece of cloth and left in a dark room for four days. On the fourth day, a thick growth of fungi will be seen on top of the solution. This has to be mixed well, and thereafter the solution is ready for use.

What is the 'dose' of Decomposer that has to be used?

- IARI scientists explained that the decomposer will work even in fields where stubble has not been finely chopped with a Super Straw Management System (Super SMS) machine.
- The Super SMS is attached with a combine harvester machine to cut paddy stubble into small pieces and spread it uniformly in the field.
- This in itself is a stubble management process, as chopped stubble can be removed from the field or wheat can be sowed in the field even without removing the chopped stubble, however, not all farmers currently have this machine, which is offered on 50% subsidy to individual farmers.
- About the decomposer, IARI scientists have also said that farmers do not necessarily have to wait for the entire 20-25 day window before getting to work on the field. They can start ploughing and preparing the land 10-15 days after spraying the decomposer.

How is this Technology being Used?

- Decomposer will be used on a trial basis this year in Punjab, Haryana, Uttar Pradesh and Delhi.
- Ministry officials said the technology would be used over 100 hectares of land in Punjab and Haryana, 800 hectares in Delhi and 10,000 hectares in Uttar Pradesh, which they said has been experimenting with a similar technology for the last three years.
- IARI has been conducting experiments for a year-and-a-half on the decomposer. The technology was licensed for commercial use to four companies in 2019, and to two other companies in 2020. Delhi has started preparing the solution with help from IARI and would begin spraying it over fields October 11 onwards.
- The technology is inexpensive, as the whole process — from development, transport and spraying of decomposer — is costing the government only Rs 20 lakh.
- The results from trials this year would give an answer to the effectiveness of the technology and decide whether its use would be scaled up in the Future.

6. Graded Response Action Plan (GRAP)

Why in News?

- A Supreme Court-appointed pollution monitoring body has directed Delhi and neighbouring States to implement air pollution control measures under “very poor” and “severe” category air quality of the Graded Response Action Plan (GRAP) from October 15, including a ban on the use of diesel generators, except for emergency activities.

GRAP:

- GRAP is a plan that institutionalised measures to be taken when air quality deteriorates.
- It was approved by the Supreme Court in 2016, the plan was formulated after several meetings that the Environment Pollution (Prevention and Control) Authority (EPCA) held with state government representatives and experts.
- GRAP works only as an emergency measure. If air quality reaches the severe+ stage, GRAP talks about shutting down schools and implementing the odd-even road-space rationing scheme.
- GRAP was notified in 2017 by the Centre and draws its authority from this notification. Before the imposition of any measures, EPCA holds a meeting with representatives from all NCR states, and a call is taken on which actions has to be made applicable in which town.

Implementation under different Air Quality Index (AQI):

- Severe+ or Emergency (PM 2.5 over 300 µg/cubic metre or PM10 over 500 µg/cu. m. for 48+ hours)
 - ✓ Stop entry of trucks into Delhi (except essential commodities)
 - ✓ Stop construction work
 - ✓ Introduce odd/even scheme for private vehicles and minimise exemptions
 - ✓ Task Force to decide any additional steps including shutting of schools
- **Severe (PM 2.5 over 250 µg/cu. m. or PM10 over 430 µg/cu. m.)**
 - ✓ Close brick kilns, hot mix plants, stone crushers
 - ✓ Maximise power generation from natural gas to reduce generation from coal
 - ✓ Encourage public transport, with differential rates
 - ✓ More frequent mechanised cleaning of road and sprinkling of water
- **Very Poor (PM2.5 121-250 µg/cu. m. or PM10 351-430 µg/cu. m.)**
 - ✓ Stop use of diesel generator sets
 - ✓ Enhance parking fee by 3-4 times
 - ✓ Increase bus and Metro services
 - ✓ Apartment owners to discourage burning fires in winter by providing electric heaters during winter
 - ✓ Advisories to people with respiratory and cardiac conditions to restrict outdoor movement
- **Moderate to Poor (PM2.5 61-120 µg/cu. m. or PM10 101-350 µg/cu. m.)**
 - ✓ Heavy fines for garbage burning
 - ✓ Close/enforce pollution control regulations in brick kilns and industries
 - ✓ Mechanised sweeping on roads with heavy traffic and water sprinkling
 - ✓ Strictly enforce ban on firecrackers

7. Microbes to fight oil spillage in oceans

Why in News?

- The scientists of National Institute of Ocean Technology (NIOT) have developed an eco-friendly crude oil bioremediation mechanism technology.
- The technology uses a consortium of marine microbes wheat bran (WB) immobilized on agro-residue bacterial cells.

Bioremediation:

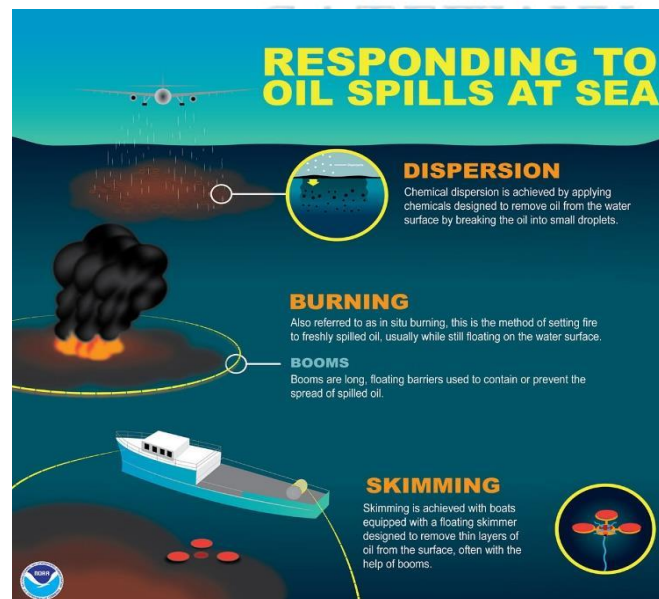
- Bioremediation can be defined as any process that uses microorganisms or their enzymes to remove and or neutralize contaminants within the environment (i.e., within soil and water) to their original condition.

Oil Spills:

- An oil spill is the release of a liquid petroleum hydrocarbon into the environment, especially the marine ecosystem, due to human activity.
- It is a form of pollution.
- Oil spills can occur on land also.

Recent Oil Spill Events:

- Deepwater Horizon drilling accident was the largest accidental oil spill disaster in history that took place on April 20, 2010, releasing 779 million litres of crude oil into the Gulf of Mexico.
- The Ennore oil spill occurred outside the Kamarajar Port in Ennore near Chennai in Tamil Nadu on 28 January 2017, when an outbound empty tanker BW Maple collided with an inbound loaded oil tanker Dawn Kanchipuram releasing at 9.9 million gallons (37,000 m³) of oils into the Bay of Bengal.
- The recent MV Wakashio spill off Mauritius — about 1,000 tonnes of oil spilled into a sanctuary for rare wildlife after the Japanese ship struck a coral reef on 25 July 2020.



Consequences:

- The costs of oil spills are considerable in both economic and ecological terms

- Affect commercial and subsistence fishing.
- Oil on ocean surfaces is harmful to many forms of aquatic life because it prevents sufficient amounts of sunlight from penetrating the surface, and it also reduces the level of dissolved oxygen.
- Crude oil ruins the insulating and waterproofing properties of feathers and fur, and thus oil-coated birds and marine mammals may die from hypothermia.
- Ingested oil can be toxic to affected animals and there is a high risk of biomagnification.
- Damage to shore-based coastal ecosystems such as saltwater marshes and mangroves.
- Affect tourism and commerce associated with beaches.

Remedial Suggestions:

- Floating booms can be placed around the source of the spill or at entrances to channels and harbours.
- Use various sorbents (e.g., straw, volcanic ash, and shavings of polyester-derived plastic) that absorb the oil from the water.
- The floating oil is set to fire by igniting it safely. It is the most proficient method of oil clean-up, as it can efficiently remove 98% of the total spilt oil.
- Using dispersal chemicals which are spread over the spilt oil to initiate the disintegration of oil.
- Other methods employed are hot water washing or washing with high-pressure water; manual labour; and bioremediation and natural recovery.

8. National Authority for Recycling of Ships

Why in News?

- Central Government has notified the Directorate General of Shipping as National Authority for Recycling of Ships under the section 3 of the Recycling of Ships Act, 2019.

National Authority for Recycling of Ships:

- As an apex body, DG Shipping is authorized to administer, supervise and monitor all activities relating to Ship Recycling.
- DG Shipping will look after the sustainable development of the Ship Recycling industry, monitoring the compliance to environment-friendly norms and safety and health measures for the stakeholders working in the ship recycling industry.
- DG Shipping will be the final authority for the various approvals required by the Ship-Recycling yard owners and State Governments.

- Under Ship Recycling Act, 2019, India has acceded to Hong Kong Convention for Ship Recycling under International Maritime Organization (IMO).
- DG Shipping is a representative of India in IMO and all the conventions of IMO are being enforced by DG Shipping.
- National Authority of Ship Recycling will be set up in Gandhinagar, Gujarat. The location of the office will benefit the Ship Recycling yard owners situated in Alang, Gujarat which is home of Asia's largest ship breaking and ship recycling industry in the world.

9. Flash Flood Warning System for South Asian Countries

Why in News?

- India has launched first of its kind Flash Flood Guidance services for India and other South Asian countries- Bangladesh, Bhutan, Nepal, and Sri Lanka.

Aim:

- To issue impact-based forecasting at the watershed and city level of floods which are very sudden.

Needs:

- There is a general lack of flash flood warning capabilities and capacities of the nations across the world.
- For taking necessary mitigation measures to reduce the loss of life and property in the South Asian Region countries.

Flash Flood Guidance System (FFGS):

- It is a robust system designed by the India Meteorological Department (IMD).
- It has been developed by the World Meteorological Organization (WMO) Commission for Hydrology in collaboration with:
 - ✓ US National Weather Service,
 - ✓ US Hydrologic Research Centre (HRC).
 - ✓ Member nations will be provided guidance for flash floods in the form of Threats (6 hours in advance) and Risks (24 hours in advance) by:
 - ✓ Regional Centre to National Meteorological & Hydrological Services,
 - ✓ National and State Disaster Management Authorities.

Features:

- It will provide alerts for flash floods at the watershed level with a resolution of 4kmx4km.

- The system has in-depth science, dynamics, and diagnostics to provide guidance for the possible occurrences of flash floods at the local level.
- **Why WMO has entrusted India?**
- WMO had approved the implementation of FFGS project because IMD has highly advanced capabilities with respect to:
 - ✓ Computing power,
 - ✓ Numerical weather prediction,
 - ✓ Vast observational network (ground, air, and space-based) and
 - ✓ Internationally acclaimed Weather Forecasting System.
- **What are Flash Floods?**
 - ✓ Flash Floods are highly localized events of short duration with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood.

10. Habitat decline for Himalayan brown bear by 2050

Why in News?

- A recent study on the Himalayan brown bear has predicted a massive decline of 73% of the bear's habitat by 2050 due to climate change.



Outcome of the Study:

- These losses in habitat will result in loss of habitat from 13 protected areas (PAs). 8 of 13 will become completely uninhabitable by the year 2050.
- What should be done? There is a need to adopt spatial planning of PAs in the western Himalayan region for the long-term viability of the species.
- Adaptive spatial planning refers to conserving the existing landscape and augmenting the fragmented areas of the habitat of the species.

Himalayan Brown Bear:

- India has four species of bears: Asiatic Black, Sloth, Sun and Himalayan Brown Bear.
- All Indian Bear species are listed under Appendix I in CITES and Schedule I of the Wildlife (Protection) Act, 1972.
- The Himalayan brown bear, also known as the Himalayan red bear, isabelline bear or Dzu-Teh, is a subspecies of the brown bear.
- It is world's largest terrestrial carnivore.
- It is a top carnivore of the high-altitude Himalayan region as well India's largest land carnivore. Appearance: It is smaller than Grizzly bears and the Kodiak bears. It has thick reddish brown coat with no clear chest markings.
- Behavior: It is the least arboreal bear and is largely terrestrial. It hibernates in winter. They are diurnal and are generally solitary.
- Habitat: North-western and central Himalaya (higher reaches, of Himalaya) including Pakistan, India, Nepal, Tibetan Autonomous Region of China and Bhutan.
- It is found in small and isolated populations and sometimes extremely rare in many of its ranges. Populations are present in the Great Himalayan National Park (Himachal Pradesh) and the Deosai National Park, Pakistan.
- May also be present in south and western Ladakh, in the upper Suru and Zaskar valleys.

Conservation Status:

- **IUCN:**
 - ✓ Endangered in Himalaya Mountains (in Nepal, India and Pakistan)
 - ✓ Critically Endangered in Hindu Kush Mountain range (Pakistan)
 - ✓ Note: IUCN status of Brown bear (not Himalayan brown bear), found across Eurasia and North America, is Least concerned.
 - ✓ Wildlife (Protection) Act of 1972: Schedule 1
 - ✓ CITES: Appendix I
- **Threats:**
 - ✓ Global warming: The elevation gradient in which the brown bear is distributed in Himalayas is most vulnerable to global warming as this elevation belt is getting warmer faster than other elevation zones of Himalayas.
 - ✓ Habitat loss, killing by livestock herders, and poaching for fur and for the illegal body parts trade. In Pakistan there are the additional threat of habitat insularisation (creation of islands of habitats/ fragmented habitats).

6. INTERNATIONAL RELATIONS

1. TRIPS Agreement

Why in News?

- India and South Africa, in a formal submission to the World Trade Organization (WTO), have sought a waiver on Sections 1, 4, 5, and 7 of Part II of the TRIPS Agreement that regulate intellectual property rights to speed up efforts to prevent, treat and contain the COVID-19 pandemic.

Issues raised by India and South Africa through Submission:

- There were several reports about intellectual property rights hindering or potentially hindering timely provisioning of affordable medical products to COVID-19 patients and that a particular concern for countries with insufficient or no manufacturing capacity were the requirements of cumbersome and lengthy process of the import and export of pharmaceutical products. Many countries, especially the developing ones, may face institutional and legal difficulties when using flexibilities available in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement).
- Beyond patents, other intellectual property rights may also pose a barrier, with limited options to overcome those barriers, noted the submission.
- The medical products companies especially medicine and vaccine manufacturers want to profit from pandemic by keeping the monopoly rights through intellectual protection.

Importance of the Submission:

- In the present context of global emergency, it is important for WTO to ensure that intellectual property rights do not create barriers to timely access to affordable medical products, or to scaling up research, development, manufacturing and supply of medical products essential to combat COVID-19.
- The waiver of TRIPS Obligation is a major initiative to ensure availability and affordability of medical products.

Sections 1, 4, 5, and 7 of Part II of the TRIPS Agreement:

- PART II of the TRIPS Agreement relates to Standards Concerning the Availability, Scope and Use of Intellectual Property Rights
 - ✓ **Sections 1:** Copyright and Related Rights
 - ✓ **Sections 4:** Industrial Designs
 - ✓ **Sections 5:** Patents
 - ✓ **Sections 7:** Protection of Undisclosed Information

2. World Food Programme

Why in News?

- The 2020 Nobel Peace Prize has been awarded to the UN agency World Food Programme (WFP).
- It was given for its efforts to combat hunger, contribution to bettering conditions for peace in conflict-affected areas and acting as a driving force to prevent the use of hunger as a weapon of war and conflict.

World Food Programme:

- World Food Programme was established in 1961.
- It is headquartered in Rome, Italy.
- It is governed by an Executive Board, which consists of 36 member states.
- WFP is headed by an Executive Director, who is appointed jointly by the UN Secretary-General and the Director-General of the Food and Agriculture Organization of the United Nations.
- WFP is the world's largest humanitarian agency combating hunger.
- In 2019, it assisted 97 million people – the largest number since 2012 – in 88 countries. It delivered about 4.4 million tonnes of food, purchased \$1.7 billion worth of food from 91 countries, and \$762 million worth of goods and services from 156 countries.

What is WFP's role in India?

- The WFP has been working in India since 1963.
- Apart from focusing on reforms in the Targeted Public Distribution System, it provides policy inputs, advocacy and technical assistance for improving access to food.
- The WFP has proposed some unique initiatives like Automatic Grain Dispensing Machine (Annapurta) and Mobile Storage Units for the effective implementation of TPDS.
- Annapurta allows beneficiaries to withdraw their food grain quota accurately and at a time of their choice.
- It can dispense two commodities at a speed of 25 kg per 1.3 minutes. It has a storage capacity of 200 kg to 500 kg.

3. India – Japan

Why in News?

- India and Japan agreed on the text of an agreement for robust and resilient digital and cybersecurity systems.

Highlights:

- The agreement promotes cooperation in capacity building, research and development, security and resilience in the areas of Critical Information Infrastructure, 5G, Internet of Things (IoT), Artificial Intelligence (AI), among others,” the statement said.
- The firming up of the deal comes in the midst of growing concerns in India over cyber attacks from China, particularly after India banned over 100 mobile apps with Chinese links following the bitter border standoff between the two countries in eastern Ladakh.
- A statement issued after the Cabinet meeting said the cyber-security pact will also provide for sharing strategies and best practices to promote the integrity of the supply chain of information and communication technology (ICT) products.

Indo Pacific Strategy:

- On the Indo-Pacific strategy, the statement said that the two ministers concurred that the region had acquired greater salience in recent times and underscored the need for India and Japan to work together for the benefit of the region.
- **“Reaffirming the similarities in their respective Indo-Pacific visions, that are based on rule of law and respect for sovereignty and territorial integrity, the Japanese side agreed to be the lead partner in the connectivity pillar of the Indo-Pacific Oceans’ Initiative (IPOI) and jointly take both countries’ respective visions for the Indo-Pacific forward,”** the statement said.

IPOI:

- The IPOI was launched by Prime Minister Narendra Modi in Bangkok last year, when the East Asia summit was held in early November.
- The IPOI is an India-backed framework aimed at making meaningful efforts to create a safe and secure maritime domain in the Indo-Pacific, a region where China has been expanding its military assertiveness triggering global concerns.
- As an open global initiative, the IPOI draws on existing regional cooperation architecture and mechanisms to focus on seven central pillars conceived around Maritime Security; Maritime Ecology; Maritime Resources; Capacity Building and Resource Sharing; Disaster

Risk Reduction and Management; Science, Technology and Academic Cooperation; and Trade Connectivity and Maritime Transport.

4. Organisation for Economic Co-operation and Development (OECD)

Why in News?

- India designated Vice-Chair of OECD Working Group on GLP.

India and Good Laboratory Practice (GLP):

- India has been designated the 'Vice-Chair' of Good Laboratory Practice (GLP) Working Group of the Organisation for Economic Co-operation and Development (OECD), recognising the contribution of the Indian GLP programme.
- Good Laboratory Practice (GLP) is a quality system, which has been evolved by OECD to ensure that safety data generated on various chemicals like industrial chemicals, pharmaceuticals (human and veterinary), agrochemicals, cosmetic products, food/feed additives, and medical devices, etc., can be relied upon by regulatory authorities.
- The Department of Science and Technology (DST), Government of India, established the National GLP Compliance Monitoring Authority (NGCMA) in 2002.
- The non-hazardous nature of chemicals needs to be established through studies and data, which is examined by the regulators of the concerned countries to certify that the use of these chemicals does not pose any hazards to human health and the environment.
- In 2011, India became fully adherent to the Mutual Acceptance of Data (MAD) in the OECD.
- The MAD status has given global recognition to India's non-clinical safety data by tremendously augmenting its credibility and acceptability across the globe.
- This has not only boosted the confidence of Indian GLP TFs but also led to the removal of technical barriers to trade.
- The dedicated training of the inspectors and continued capacity building of Indian TFs (test facilities) in emerging areas by the ground team of NGCMA has resulted in upgrading Indian TFs to meet international standards.
- The spectrum of activities of Indian GLP TFs is wide, involving eight types of chemicals/test items and nine areas of expertise.
- The National GLP program has not only helped to build a network of GLP TFs in the country but also created a huge quantum of highly competent human resources.

NGCMA:

- The National GLP Compliance Monitoring Authority (NGCMA) is the national body that grants GLP certification to TFs conducting safety studies on new chemicals of the above-mentioned categories in accordance with OECD Principles of GLP and OECD Council norms.

5. Yellow dust from China could spread COVID: North Korea

Why in News?

- North Korean authorities have urged its citizens to remain indoors to avoid contact with a mysterious cloud of yellow dust blowing in from China.

Highlights:

- They fear that a new type of coronavirus can be introduced into the Korean territory together with the particles of yellow dust.

What is Yellow Dust?

- Yellow dust is sand from deserts in China and Mongolia carried by high speed surface winds into both North and South Korea during specific periods every year.
- The sand particles tend to mix with other toxic substances such as industrial pollutants, as a result of which the yellow dust is known to cause a number of respiratory ailments.
- Usually when the dust reaches unhealthy levels (crosses around 800 micrograms/cubic meter) in the atmosphere schools are shut and outdoor events cancelled in the affected areas.

Can Covid-19 be transmitted through dust clouds?

- As per the US Centres for Disease Control the virus can remain airborne for hours, but it is highly unlikely for the COVID-19 infection to spread through the dust clouds.

6. Global Centre for Nuclear Energy Partnership (GCNEP)

Why in News?

- India and US signed an agreement to extend duration of the MoU regarding the Global Center for Nuclear Energy Partnership.

GCNEP:

- Government of India has approved the establishment of Global Centre for Nuclear Energy Partnership (GCNEP) at village Jasaur Kheri & Kheri Jasaur, near Bahadurgarh, District Jhajjar, Haryana, in September 2010.

- GCNEP is the sixth R&D unit under the aegis of Department of Atomic Energy (DAE).

Mission:

- To conduct research, design and development of nuclear systems that are intrinsically safe, secure, proliferation resistant and sustainable.
- To organize training, seminars, lectures and workshops on topical issues by Indian and International experts, in order to develop a pool of trained human resource.
- To promote global nuclear energy partnership through collaborative research and training programs.
- To establish five schools specializing in the areas of :
 - ✓ Advanced Nuclear Energy System Studies
 - ✓ Nuclear Security Studies
 - ✓ Radiation Safety Studies
 - ✓ Nuclear Material Characterization Studies
 - ✓ Application of Radioisotopes and Radiation Technology in healthcare, agriculture and food

Objectives:

- GCNEP will help in capacity building, in association with the interested countries and the IAEA, involving technology, human resource development, education & training and giving a momentum to R&D in enlisted areas. The main objectives of the centre include
- Development of enhanced nuclear safeguards to effectively and efficiently monitor nuclear materials and facilities. Promoting the development of advanced, more proliferation resistant nuclear power reactors. Training manpower in the field of Nuclear Security and Radiological Safety. Educating in the field of Advanced Nuclear Energy Systems, Isotopes and Radiation Technologies, nuclear forensic.
- Establishing accreditation facilities for radiation monitoring.
- The centre will house following 5 schools to carry out its objectives:
 - ✓ School of Advanced Nuclear Energy System Studies (SANESS)
 - ✓ School of Nuclear Security Studies (SNSS)
 - ✓ School on Radiological Safety Studies (SRSS)
 - ✓ School of Nuclear Material Characterization Studies (SNMCS)
 - ✓ School for Studies on Applications of Radioisotopes and Radiation Technologies (SARRT)

7. India-Central Asia Dialogue

Why in News?

- The 2nd meeting of the India-Central Asia Dialogue was hosted recently virtually via video conferencing.
- Countries like Kazakhstan, Tajikistan, Kyrgyz Republic, Turkmenistan and Uzbekistan joined the dialogue.

Highlights:

- India extended a \$1-billion line of credit to Central Asian countries for priority projects in connectivity, energy, IT and health care.
- The meeting jointly expressed support for the peace negotiations in Afghanistan agreeing on the principle of an Afghan-led, Afghan-owned and Afghan-controlled peace process.
- The countries also condemned terrorism and reaffirmed their determination to destroy terrorist safe havens, networks, and funding channels.

India-Central Asia Dialogue:

- India's Connect Central Asia Policy is a broad-based approach, including political, security, economic and cultural connections.
- The dialogue included representatives from five Central Asian countries- Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan as well as that of Afghanistan.
- The dialogue focused on varied issues including trade, connectivity and security as well as bringing stability by restoring peace in Afghanistan.
- The first India-Central Asia Dialogue was held in Samarkand (Uzbekistan) in January 2019.

Significance of Central Asia for India:

- Region is a land bridge between East Asia and Europe, between South Asia and Europe and between West Asia and East Asia/Europe.
- The region has economic interests like energy security and opening avenues for consumer market for India.

7. INTERNAL SECURITY & DISASTER MANAGEMENT

1. Atal Tunnel

Why in News?

- Prime Minister Shri Narendra Modi shall inaugurate Atal Tunnel, Rohtang on 3rd October 2020.

Atal Tunnel:

- Atal Tunnel is the longest highway tunnel in the World.
- The 9.02 Km long tunnel connects Manali to Lahaul-Spiti valley throughout the year. Earlier the valley was cut off for about 6 months each year owing to heavy snowfall.
- The Tunnel is built with ultra-modern specifications in the Pir Panjal range of Himalayas at an altitude of 3000 Mtrs (10,000 Feet) from the Mean Sea Level (MSL).
- The tunnel reduces the road distance by 46 Kms between Manali and Leh and the time by about 4 to 5 hours.
- The South Portal (SP) of Atal Tunnel is located at a distance of 25 Km from Manali at an altitude of 3060 Mtrs, while the North Portal (NP) of the tunnel is located near village Teling, Sissu, in Lahaul Valley at an altitude of 3071 Mtrs.
- It is horse shoe shaped, single tube double lane tunnel with a roadway of 8 Mtrs. It has an overhead clearance of 5.525 Mtrs.
- It is 10.5-metre wide and has a 3.6 x 2.25 Mtrs fire proof emergency egress tunnel built into the main tunnel itself.
- Atal Tunnel has been designed for traffic density of 3000 cars per day and 1500 trucks per day with max speed of 80 km/hr.
- It has the state-of-the-art electromechanical system including semi transverse ventilation system, SCADA controlled firefighting, illumination and monitoring system.

Background:

- The historic decision to construct a strategic tunnel below the Rohtang Pass was taken on June 03, 2000 when late Shri Atal Bihari Vajpayee was the Prime Minister.
- The foundation stone for the Access Road to the South Portal of the tunnel was laid on May 26, 2002. The Border Roads Organisation (BRO) worked relentlessly to overcome major geological, terrain and weather challenges that included the most difficult stretch of the 587-metre Seri Nalah Fault Zone. The breakthrough from both ends was achieved on October 15, 2017.

- The Union Cabinet met under the chairmanship of Prime Minister Shri Narendra Modi on 24th December 2019 and decided to name the Rohtang Tunnel as Atal Tunnel to honour the contribution made by the former Prime Minister Shri Atal Bihari Vajpayee.

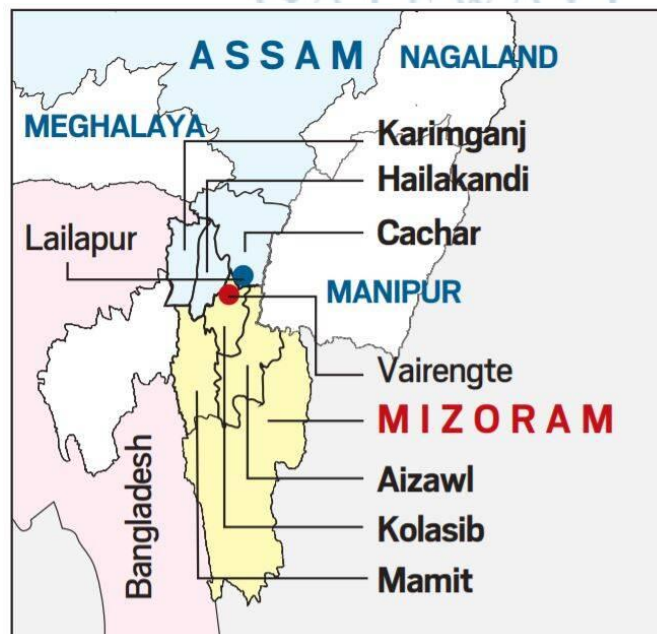
Key safety features of the Tunnel:

- ✓ Tunnel entry barriers at both portals.
- ✓ Telephone connections at every 150 Mtrs for emergency communication.
- ✓ Fire hydrant mechanisms at every 60 Mtrs.
- ✓ Auto incident detection system with CCTV cameras at every 250 Mtrs.
- ✓ Air quality monitoring at every 1 Km.
- ✓ Evacuation lighting / exit signs at every 25 Mtrs.
- ✓ Broadcasting system throughout the tunnel.
- ✓ Fire rated Dampers at every 50 Mtrs.
- ✓ Cameras at every 60 Mtrs.

2. Assam-Mizoram, and the other boundary issues in the Northeast

Why in News?

- Over the last one week, residents of Assam and Mizoram have clashed twice over territory, injuring at least eight people and torching a few huts and small shops. It spotlights the long-standing inter-state boundary issues in the Northeast, particularly between Assam and the states that were carved out of it.



Background:

- The boundary dispute between the two states has been simmering since the formation of Mizoram as a separate state in the 1980s.
- According to an agreement between governments of Assam and Mizoram some years ago, status quo should be maintained in no-man's land in the border area. However, clashes have erupted from time to time Over the Issue.

What were the Recent Clashes about?

- On Saturday, residents of Lailapur village in Assam's Cachar district clashed with residents of localities near Vairengte in Mizoram's Kolasib district. On October 9, a similar clash took place on the border of Karimganj (Assam) and Mamit (Mizoram) districts.
- On October 9, a farm hut and a betel nut plantation belonging to two Mizoram residents were set on fire. On Saturday, some people from Lailapur started pelting stones at Mizoram police personnel and Mizoram residents. "In turn, Mizoram residents mobilised and went after them," Kolasib Deputy Commissioner H Lalthangliana said.

What led to this?

- According to an agreement between governments of Assam and Mizoram some years ago, status quo should be maintained in no man's land in the border area. However, people from Lailapur broke the status quo and allegedly constructed some temporary huts. People from Mizoram side went and set fire on them," Lalthangliana said. On the other hand, Keerthi Jalli, the DC of Cachar, told that the contested land belongs to Assam as per state's records.
- According to Mizoram officials, the land claimed by Assam is being cultivated for a long time by residents of Mizoram. The DC of Mamit, Lalrozama, has urged that status quo be maintained. The Karimganj DC, Anbamuthan MP, said that although the contested land was historically cultivated by Mizoram residents, on paper it fell within the Singla Forest Reserve that is under Karimganj's jurisdiction. Anbamuthan told The Indian Express that the issue was being resolved.
- assam mizoram, assam mizoram border, assam mizoram border dispute, assam mizoram border clash, assam mizoram news, assam mizoram border news, assam mizoram border issue, assam mizoram border clash, assam mizoram border issue news, assam mizoram border tension.

How Complex is the Boundary Dispute?

- In the Northeast's complex boundary equations, showdowns between Assam and Mizoram residents are less frequent than they are between, say, Assam and Nagaland residents. Nevertheless, the boundary between present-day Assam and Mizoram, 165 km long today, dates back to the colonial era, when Mizoram was known as Lushai Hills, a district of Assam.
- The dispute stems from a notification of 1875 that differentiated Lushai Hills from the plains of Cachar, and another of 1933 that demarcates a boundary between Lushai Hills and Manipur.
- Mizoram believes the boundary should be demarcated on the basis of the 1875 notification, which is derived from the Bengal Eastern Frontier Regulation (BEFR) Act, 1873. Mizo leaders have argued in the past argued against the demarcation notified in 1933 because Mizo society was not consulted. Assam government follows the 1933 demarcation, and that seems to be the point of conflict.
- The last time the boundary saw violence was in February 2018. The MZP had built a wooden rest house in a forest, its stated purpose being to serve as a resting for farmers. Assam police and forest department officials demolished it saying this was in Assam territory. MZP members clashed with Assam personnel, who also thrashed a group of Mizoram journalists who had gone to cover the incident.

What are the other boundary issues in the Northeast?

- During British rule, Assam included present-day Nagaland, Arunachal Pradesh and Meghalaya besides Mizoram, which became separate state one by one. Today, Assam has boundary problems with each of them.
- Nagaland shares a 500-km boundary with Assam. According to a 2008 research paper from the Manohar Parrikar Institute for Defence Studies and Analyses, violent clashes and armed conflicts, marked by killings, have occurred on the Assam-Nagaland border since 1965. In two major incidents of violence in 1979 and 1985, at least 100 persons were killed, The Indian Express has reported earlier. The boundary dispute is now in the Supreme Court
- On the Assam-Arunachal Pradesh boundary (over 800 km), clashes were first reported in 1992, according to the same research paper. Since then, there have been several accusations of illegal encroachment from both sides, and intermittent clashes. This boundary issue too is being heard by the Supreme Court.

- The 884-km Assam-Meghalaya boundary, too, witnesses flare-ups frequently. As per Meghalaya government statements, today there are 12 areas of dispute between the two states. In February this year, the Chief Ministers of the two states spoke to each other about the need to maintain status quo and peace

3. Integrated Theatre Commands

Why in News?

- The next step in defence reforms after the appointment of the Chief of Defence Staff (CDS) would be the formation of integrated theatre commands, Army Chief Gen. Manoj Naravane said on Wednesday. This process would be “deliberate, thoughtful and well considered.”

Integrated Theatre Command:

- An Integrated theatre command is one that enables the pooling of resources of all three services under a single commander, towards securing a particular geographical area.
- A military commander in charge of a joint command will have the resources of the Army, the Navy and the Air Force at his/her disposal in the face of a national security threat. The commander can also carry out joint training while benefitting from the logistics of all three services.

India's Service Commands:

- Currently, India only has two tri-service commands.
- The first of these, known as the Andaman and Nicobar Command (ANC), was created in 2001 and is led by service chiefs on a rotational basis.
- The second is a functional command (not overseeing a particular geographical location) called the Strategic Forces Command established in 2006.
- The current structure of the armed forces includes 17 different commands, seven each belonging to the Army and the Air Force, and three headed by the Navy. Under the Army, the commands are the Northern, Southern, Eastern, Western, Central, Southwestern, Central and Maintenance and Training. The Navy is divided into Western, Eastern and Southern commands.
- However, defence analysts have called for the elimination of this separation through the establishment of integrated theatre commands that enable all three services to prosecute operations collectively.