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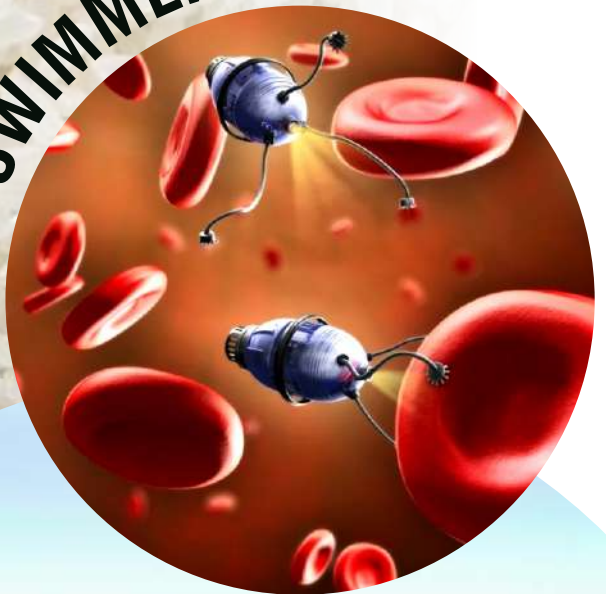
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GENERAL STUDIES - I

RONGALI BIHU

GS-I CULTURE & HERITAGE

Context

- The President of India, Shri Ram Nath Kovind has sent his greetings to fellow citizens on the eve of Vaisakhi, Vishu, Rongali Bihu, Naba Barsha, Vaisakhadi and Puthandu-Pirappu.

Bohag Bihu

- Bohag Bihu or Rongali Bihu also called **Xaat Bihu** is a traditional aboriginal ethnic festival celebrated in the Northeastern Indian state of Assam and other parts of northeastern India by the indigenous ethnic groups of Assam, and marks the beginning of the Assamese New Year.
- In Assam locally the onset of 'Bohag' (Assamese Calendar) marks the starting of Rongali Bihu.
- The three primary types of Bihu are **Bohag Bihu or Rongali Bihu, Kati Bihu or Kongali Bihu, and Magh Bihu or Bhogali Bihu.**
- Each festival historically recognizes a different agricultural cycle of the paddy crops.
- During Rongali Bihu there are 7 pinnacle phases: 'Sot', 'Raati', 'Goru', 'Manuh', 'Kutum', 'Mela' and 'Sera'.

Other local festivals in India

Ugadi

- Ugadi/Yugadi** also known as **Samvatsaradi**, is the **New Year's Day for the States of Telangana, Andhra Pradesh, Karnataka** in India.
- It is festively observed in these regions on the **first day of the Hindu lunisolar calendar month of Chaitra.**
- This typically falls in April month of the Gregorian calendar.
- The same day is observed as a New Year by Hindus in many other parts of India. For example, it is called **Gudi Padwa in Maharashtra.**

Gudi Padwa

- Gudi Padwa is a spring-time festival that marks the **traditional new year for Marathi and Konkani Hindus along with other fellow Hindus.**
- It is celebrated in and near **Maharashtra and Goa** on the first day of the Chaitra month to mark the beginning of the New year according to the lunisolar Hindu calendar.
- It signifies the arrival of spring and to the **reaping of Rabi crops.**

Baishakhi

- It is observed by Hindus and Sikhs.
- It also marks the beginning of Hindu solar New year.
- Usually celebrated on 13 or 14 April every year and is a historical and religious festival in Hinduism.
- For Sikhs, Vaisakhi observes as a major Sikh festival **marking the birth of Sikh order** started after the **persecution and execution of Guru Tegh Bahadur** for refusing to convert to Islam under the orders of the Mughal Emperor Aurangzeb.

Navreh

- This Kashmiri New Year is the **celebration of the first day of the Kashmiri new year by Kashmiri Hindus.**
- Kashmiri Pandits dedicate Navreh festival to their **Goddess Sharika** and pay homage to her during the festival.
- It takes place on the first day of the bright half on the month of Chaitra (March-April) of the Kashmiri Hindu calendar.

Sajibu Cheiraoba

- It is also called Meetei Cheiraoba or Sajibu Cheiraoba, is the lunar new year festival of the people who follow the religion of **Sanamahism** in the Indian state of **Manipur.**

Cheti Chand

- It is a festival that marks the beginning of the Lunar Hindu **New Year for Sindhi Hindus.**
- The date of the festival is based on the lunar cycle of the lunisolar Hindu calendar, falling on the first day of the year, in the Sindhi month of Chet (Chaitra).

Vishu

- Vishu is a Hindu festival celebrated in the Indian state of **Kerala, Tulu Nadu region in Karnataka, Mahé district of Union Territory of Pondicherry**, neighbouring areas of Tamil Nadu and their diaspora communities.
- The festival marks the first day of Medam, the ninth month in the solar calendar followed in Kerala.
- The Vishu arrangement typically includes an image of Krishna.

Puthandu

- It is also known as **Puthuvarudam** or **Tamil New Year**, is the first day of year on the Tamil calendar and traditionally celebrated as a festival.
- The festival date is set with the solar cycle of the lunisolar Hindu calendar, as the first day of the Tamil month Chithirai. It falls on or about 14 April every year on the Gregorian calendar.
- The same day is observed by some Hindus elsewhere as the traditional new year, but is known by other names such as **Vishu in Kerala**, and **Vaisakhi** or **Baisakhi** in central and northern India.

MahaBishuba Pana Sankranti

- Pana Sankranti, also known as Maha Bishuba Sankranti is the traditional new year day festival of Odias in Odisha, India.
- The festival occurs in the solar Odia calendar on the first day of the traditional solar month of Meṣa, hence equivalent lunar month Baisakha.
- The festival is celebrated with **visits to Shiva, Shakti or Hanuman temples**.
- People take baths in rivers or major pilgrimage centers. Communities participate in mela (fairs), participate in traditional dance or acrobatic performances.
- A notable climax of the social celebrations is **fire-walk**, where volunteers sprint over a bed of burning coal while being cheered with music and songs.

Nuakhai Juhar

- Nuakhai Juhar is harvesting festival of Odisha.
- Nuakhai is a combination of two words, 'nua' meaning new and 'khai' means eat, it thus signifies "**eating of new rice**".
- People worship food grain on this auspicious day.
- The farmers offer the first produce from their lands to Goddess Samaleswari, the famous mother goddess of Sambalpur district of the state.

Wanchuwa festival

- This festival is celebrated by Tiwa tribesmen to mark their good harvest.
- It comes with songs, dances, a bunch of rituals and people clad in their native attires.

CHENNAKESHAHA TEMPLE

GS-I CULTURE & HERITAGE

Context

- Moulvi reads excerpts from the Quran (Koran) to mark the beginning of the rathotsava (chariot or car festival) at the historic Chennakeshava temple in Belur.

Kesava temple in Belur

- Chennakeshava Temple, also referred to as Keshava, Kesava or Vijayanarayana Temple of Belur, is a **12th-century** Hindu temple in **Karnataka state**, India.
- It was commissioned by **King Vishnuvardhana** in **1117 CE**, on the **banks of the Yagachi River in Belur** also called Velapura, an early Hoysala Empire capital.
- It was repeatedly damaged and plundered during wars, repeatedly rebuilt and repaired over its history.
- It is **dedicated to Vishnu**.

Hoysala style of architecture

- It is often referred to as an **amalgamation between the Dravidian and Indo-Aryan forms**.

Main features of Hoysala architecture

- Mandapa** is a common feature of Hoysala architecture. It is the prayer hall that is entered through an intricately designed lintel known as the '**makaratorana**.'
- This open space is supported by **several pillars**.
- The **stone latticework** is also a recurrent feature of Hoysala sculptures.
- The pillars of the Hoysala temples have four brackets at the top and are further decorated with ornamented carvings.
- The **vimanams** are the place where the principal deity resides. The shapes of these vimanams are either stellate (star shaped) or staggered square.
- The **Salabhanjika** is a common feature of Hoysala sculpture.
- The pillar images known as 'sthamba buttalikas' show the influence of the Chola art and architecture.
- The temple walls of the Hoysala Empire are speckled with events from Hindu epics, Ramayana and Mahabharata.
- The **Hoysala sculpture is erotica**. The nooks and niches of the temple walls have been filled with erotic themes.

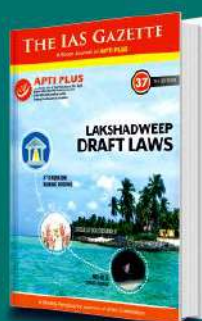
What are World Heritage Sites?

- It is a **landmark or area with legal protection** by an international convention administered by the **United Nations Educational, Scientific and Cultural Organisation (UNESCO)**.
- World Heritage Sites are designated by **UNESCO** for having **cultural, historical, scientific or other forms of significance**.
- As per the '**Convention concerning the Protection of the World Cultural and Natural Heritage' 1972**, UNESCO seeks to **encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity**.
- As of July 2021, a total of 1,154 World Heritage Sites (897 cultural, 218 natural, and 39 mixed properties) exist across 167 countries. With **58 selected areas, Italy is the country with the most sites on the list**.
- **Categories:** A World Heritage Site can be either **cultural or natural areas or objects** which are inscribed on UNESCO's World Heritage List for having "**outstanding universal value**".
- These sites are usually considered to have cultural significance to all the people in the world, including future generations.

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SLOWING DOWN OF SEA FLOOR SPREADING

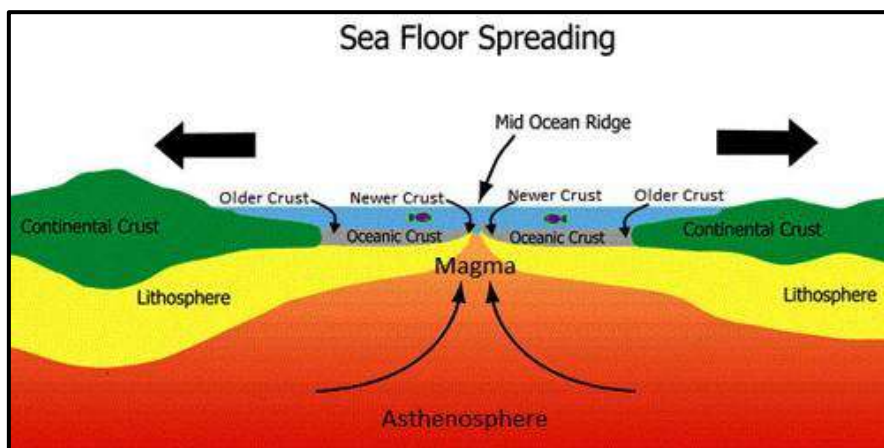
GS-I GEOGRAPHY

Context

- Seafloor spreading rates have slowed down by roughly 35 per cent globally, according to a study that analyzed data from last 19 million years.

Sea-Floor Spreading

- Seafloor spreading is a geological process that creates crusts, the outermost shell of Earth.
- In this at the mid-oceanic ridge a divergent boundary causes two plates to move away from one another resulting in spreading of the sea floor.
- As the tectonic plates move apart, magma from the earth's interior wells up and cools onto the edge of the plates to fill the gap.
- The magma cools to form a new oceanic crust. Thus, large mountain ranges rise from the ocean floor.



The recent Study

- Basalt rocks on the oceanic crust contain magnetic properties. Their magnetism is influenced by the Earth's magnetic field when the magma reaches the surface and begins cooling to form the crust.
- Researchers selected 18 of the world's largest spreading ridges for this study. By studying magnetic records in the rocks on the oceanic crust, Researchers calculated how much oceanic crust had formed over the last 19 million years.

Findings

Slowed rate of seafloor spreading

- Their analysis of the preserved magnetic records showed that the seafloor is spreading at rates of around 140 millimeters per year, down from around 200 millimeters per year just 15 million years ago in some places.

Un-uniform Speed

- Some sped up while others almost slowed down. The effects were particularly pronounced at ridges along the eastern Pacific.
- Some ridges in the region were roughly 100 millimeters per year slower compared to 19 million years ago, lowering the world's average.
- The researchers suspect that the factor driving the slowdown could be located in subduction zones rather than the ridges.
- For example, as the Andes — where the Nazca oceanic plate is sinking beneath the South American continental plate — grows, it causes the Earth's crust to shorten and thicken. Mountain building has contributed to a slowdown in spreading at the ridges.

Implications

- Determining the rate is crucial because seafloor spreading influences sea level and carbon cycle. For example, faster rates mean more volcanic activity, which injects greenhouse gases into the atmosphere.

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GENERAL STUDIES - II

WOMEN'S REPRESENTATION ON BENCHES

GS-II POLITY

Context

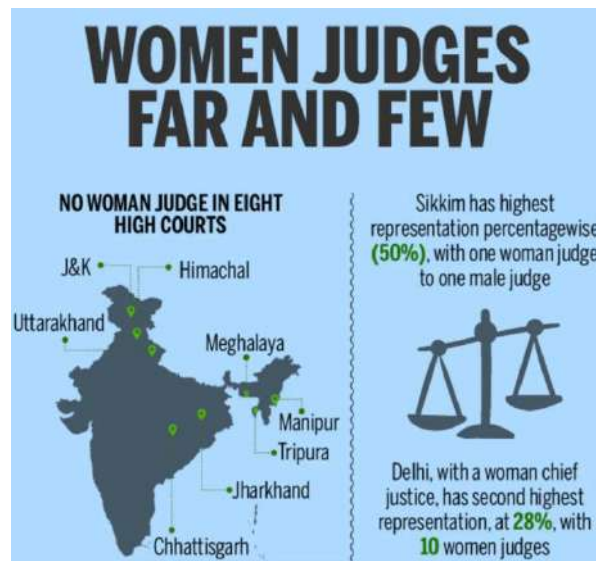
- In the Lok Sabha, The Union Minister of Law and Justice presented the status report on the Representation of Women in Judiciary.

Details

- The Judges of the Supreme Court and High Courts are appointed as per the provisions mentioned under Articles 124, 217 and 224 of the Indian Constitution.**
 - Under these Articles of the Constitution, there is no provision to provide any class or caste-based reservation in the appointment of judges to the Constitutional Courts (Supreme Court and High Court).

Collegium System

- Under Collegium System, appointments/elevation of judges/lawyers to the Supreme Court and transfers of judges of High Courts and Apex Court are **decided by a panel of the Chief Justice of India and the four senior-most judges of the Supreme Court.**
- The word 'Collegium' is nowhere mentioned in the Indian Constitution**, it has come into force as per Judicial Pronouncement.



Evolution of Collegium System

- Under the Constitution, The Judges of the Supreme Court are appointed by the president. The chief justice is appointed by the president after consultation with such judges of the Supreme Court and high courts as he deems necessary.
 - The other judges are appointed by the president after consultation with the chief justice and other judges of the Supreme Court and the high court as he deems necessary.
 - The consultation with the chief justice is obligatory in the case of the appointment of a judge other than the Chief justice
- First judges case (1982):** The Supreme court held that consultation does not mean agreement and it only means an exchange of views.
- Second judges case (1993):** The court changed its earlier ruling and changed the meaning of the word consultation to consensus.
 - It ruled that the advice tendered by the CJI is binding on the President in matters of appointment of SC judges. But any such advice would be tendered after CJI consults with two of his most senior judges.
- Third judges case (1998):** The consultation process should be based on the plurality of judges.
 - CJI should consult a Collegium of four senior-most judges before making a recommendation to the President and even if two judges give an unfavourable opinion, he should not send the proposal to the President.**

Qualifications for Supreme Court Judges

- A person shall not be qualified for appointment as a Judge of the Supreme Court unless he/she
 - Is a citizen of India, and
 - Has been for at least five years a judge of a High Court or a two such Courts in succession; or
 - Has been for at least ten years an advocate of a High Court or of two or more such Courts in succession or is, in the opinion of the President, a distinguished jurist.
- Every person appointed to be a Judge of the Supreme Court shall, before he/she enters upon his/ her office, make and subscribe before the President an oath or affirmation according to the form set out in the Third Schedule of the Constitution.
- The Constitution does not prescribe a minimum age limit for a judge to occupy his/her office.**
- A Judge of the Supreme Court continues to hold the office till he/she attains the age of 65 yrs.**
- A Judge of the Supreme Court may tender his/her resignation to the President even before he/she reaches the age of 65 years.
- A Judge of the Supreme Court, after retirement, shall not do legal practice in any court in the territory of India and shall not plead before any authority under the Government.

Present Status of Women in Judiciary

- Only 4 out of the 33 judges in the Supreme Court are women, and it is the highest number of women judges in the history of the Supreme Court.
- According to data from the Department of Justice website, Out of 627 judges in all High Courts, only 66 are women, just about 10% of the total working strength.
- The Madras High Court has the maximum number of women judges '13 out of the working strength of 55'.
- Statistics show that women's representation in the judiciary has been extremely low.

Concern

- According to experts, there are hardly any women in the legal profession, and their low numbers are the reason why there are fewer women judges compared to men.
- Data regarding women lawyers point out that of 17 lakh advocates, only 15% are women.
- Elected disciplinary bodies for lawyers, such as the State Bar councils, have only 2% women members.
- The apex body of lawyers, the Bar Council of India (BCI), has no woman member.
- Gender disparity in the judiciary can also result in the absence of women in the collegiums of HCs as well as the top court.

Way Forward

- The presence of women as judges and lawyers will further improve the justice delivery system.
- The presence of women on the Bench and in the Bar has more than symbolic importance. They bring to the law a different perspective, one that is built upon their experience.
- They also have a more understanding of the different impacts that certain laws may have on men and women.
- The representation of women in the judicial system is significant for many reasons which ensure that the legal system is developed with society in mind. It also inspires the next generation of women judges and advocates to achieve their goals.

THE CHANDIGARH QUESTION

GS-II POLITY

Context

- The newly elected Punjab Legislative Assembly has passed a resolution to completely transfer Chandigarh to Punjab State.

About Chandigarh

- Chandigarh is described as the 1st planned city in India.
- It is a Greenfield city, which was recognised by the Indian government to replace Lahore (earlier capital of Punjab), which went to Pakistan after Partition.
- It was designed by Le Corbusier in alliance with Pierre Jeanneret.
- Chandigarh is located in the foothills of the Shivalik Himalayas.
- From its inauguration in 1953 till 1966, it was the capital of the undivided Punjab.
- Under the Punjab Reorganisation Act of 1966, Haryana was carved out of the Hindi-speaking regions as a separate State.
 - Chandigarh was made a Union Territories and has remained the joint capital of Haryana and Punjab with State assets divided between Punjab and Haryana in a ratio of 60:40.
- At the time of the 1966 Act, the Union government indicated that the UT status to Chandigarh was temporary and that it would be transferred to Punjab.
 - This decision was formalised in 1970 with the Union government announced Haryana funds for building its own capital.



Chandigarh Issue

- Since 1966, the absence of full rights to its capital has remained an unsettled issue in Punjab politics.
 - State governments and most political parties of Punjab have regularly raised the demand for Chandigarh.
- Recently, the Union government has amended the rules governing the functioning of the Bhakra Beas Management Board (BBMB), constituted under the 1966 Act, changing the eligibility criteria for the two full-time members of the Board, now officers from the Punjab and Haryana may not be able to meet the new eligibility criteria given the technical qualifications specified.
- In March 2022, The Union government issued a notification bringing Chandigarh Union Territories (UT) administration employees under the Central Services Rules by replacing the Punjab Services Rules.

Administration of UTs

- Articles 239 to 241 in Part VIII of the Constitution deal with the Union Territories.
- There is no uniformity in their administrative system.
- Every Union territory is administered by the President acting through an administrator appointed by him.
 - An administrator of a UTs is an agent of the President and not the head of state like a governor.
- The President can specify the designation of an administrator;
 - It may be Lieutenant Governor or Chief Commissioner or Administrator.
 - At present, it is Lieutenant Governor in the case of Delhi, Puducherry, Andaman and Nicobar Islands, Jammu and Kashmir and Ladakh.
 - Administrator in the case of Chandigarh, Dadra and Nagar Haveli, Daman and Diu and Lakshadweep.
- The President can also appoint the governor of a state as the administrator of a bordering union territory.
- The Union Territories of Puducherry (in 1963), Delhi (in 1992) and Jammu and Kashmir (in 2019) are provided with a legislative assembly and a council of ministers headed by a chief minister.
 - The remaining 6 union territories do not have such popular political institutions.
 - But, the establishment of such institutions in the union territories does not diminish the supreme control of the president and Parliament over them.
- The Parliament can make laws on any subject of the three lists (including the State List) for the union territories.
 - This power of Parliament also extends to Puducherry, Delhi and Jammu and Kashmir, which have their own local legislatures.
- The Parliament can establish a High court for a UT or put it under the jurisdiction of the high court of a neighbouring state.
 - Delhi is the only UT that has a high court of its own.
 - Bombay High Court has jurisdiction over Dadra and Nagar Haveli, and Daman and Diu.
 - Andaman and Nicobar Islands under Calcutta High Court.
 - Chandigarh under Punjab High Court.
 - Lakshadweep and Puducherry are placed under Kerala and Madras High Courts respectively.
 - The Jammu and Kashmir High Court is the common high court for the two union territories of Jammu and Kashmir and Ladakh.



VANNIYAR QUOTA

GS-II POLITY

Context

- The Supreme Court strikes down the Vanniyars quota in Tamil Nadu.

Details

- The Supreme Court stated that the grant of 10.5% reservation to the Vanniyars community by the Tamil Nadu State Government has violated the fundamental rights of equality, non-discrimination and equal opportunity.
- In 2021, the Tamil Nadu government in consultation with the state Backward Classes Commission enacted 'The Special Reservation Act'.
 - The State Government announced 10.5% of the **Most Backward Communities (MBC)** quota for Vanniyars, quoting them as "extreme backwardness".
- The Supreme Court upheld Madras High Court's judgment that the quota for the Vanniyars community under the 2021 Act was based on "Obsolete data".
- The judgment highlights the need for a caste survey in the State to estimate backwardness.

Vanniyars community

- The Vanniyars community is found in the northern part of Tamil Nadu.
- They are mostly engaged in agricultural activities and are generally classified under the Shudra caste.
- There are several mythical claims that their ancestors were born from a fire sacrifice.
- Vanniyars were shifted from the Backward Class category to Most Backward Caste after mass agitations by them during the 1980s.

- Vanniyars are considered a lower caste; they have been using the process of Sanskritisation to move upward in the social structure.
- **Vanniyars constituted around 10% of the population of Tamil Nadu, in some northern districts of Tamil Nadu they formed around 25% of the population.**
- **Most of them are either marginal farmers cultivating small areas of land or landless labourers.**

Reservation System in India

- The Reservation system is an arrangement of affirmative action where a certain percentage of seats are reserved in Public employment and educational institutions.
- **In India, the Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs) and socially and economically backward communities who were earlier poorly represented in the Public sector and educational institutions are now covered under the reservation facility.**
- In India, about 60% of seats are reserved for various sections like ST, SC, OBC, and EWS in Government jobs and Higher Education Institutions.
 - 3% of seats are also reserved for differently-abled persons across all categories.
- **The reservation policy is also enforced for the Scheduled Castes and Scheduled Tribes for representation in the Indian Parliament.**
- The reservation issue has also remained a cause of conflict between the reserved and the non-reserved sections of society.

Arguments in the favour of Reservation System

- It ensures equality, by providing opportunities to people from backward classes.
- It promotes justice and human rights.
- Decreasing inequality by promoting economic opportunities for the lower section of Society.
- Correcting historical injustice
- **Reservation provides a level playing field as it is challenging for people from backward sections that were historically deprived of education, skills, and wealth to all of a sudden start competing with those who had access to those resources for years.**

Arguments against Reservation System

- **It Promotes Casteism and creates division in our society, and also encourages caste-based Politics.**
- Beneficiaries of reservation are mostly from the dominant class in backward castes. Thus, the marginalized section still remains marginalized.
- Affects the productivity of an organisation if unfit candidates get the opportunities.
- A reservation only provides a limited and short-term solution to historical injustice issues.
- Many deserving people from the upper castes are also affected by poverty and illiteracy.
- Reservation demands by various groups may cause social turmoil, such as during the Mandal Commission (1990).

ASSAM -MEGHALAYA BORDER DISPUTE RESOLUTION

GS-II POLITY

Context

- Recently the State government of Assam and Meghalaya signed a historic agreement for the settlement of an inter-state border dispute.

Details

- In presence of the Union Home Minister Shri Amit Shah, **a historic agreement was signed in New Delhi by the Chief Minister of Assam and the Chief Minister of Meghalaya for the settlement of the interstate boundary between the States of Assam and Meghalaya, in respect of 6 out of 12 areas of difference.**

Background of the Assam-Meghalaya conflict

- Meghalaya was carved out of Assam as a separate state in 1972 but the new state had challenged the Assam Reorganisation Act, 1971, leading to disputes in 12 locations in the border areas.

The major point of dispute

- **Meghalaya's Langpih district, bordering the Kamrup district of Assam, in West Garo Hills, is a major point of contention between the two neighbouring states.**
 - Langpih was part of the Kamrup district of Assam during the British colonial period but after India's Independence in 1947; it became part of the Garo Hills and Meghalaya.

- Another point of contention is the Mikir Hills, which Assam considers to be its part.
 - Meghalaya has questioned Blocks I and II of the Mikir Hills, now Karbi Anglong region, being part of Assam.
 - Meghalaya says these were parts of erstwhile United Khasi and Jaintia Hills districts.

Earlier efforts made to resolve the border issue

- The two states have formed border dispute settlement committees.
- Recently, the Chief Minister of both states had decided to set up two regional panels to resolve the border disputes in a phased manner.
- The panel recommended 5 aspects were to be considered in resolving the border dispute;
 - Historical facts
 - Ethnicity
 - Administrative convenience
 - Mood and Sentiments of the people concerned.
 - The closeness of the land.

Key points of the Border Agreement

- Out of the 12 points of dispute between Assam and Meghalaya, the six areas with relatively less critical differences were taken up in the first phase.
- **Assam and Meghalaya have partially resolved a 50-year-old border dispute in 6 of the 12 sectors along their 885-km boundary.**
 - The 6 disputed sectors are Tarabari, Gizang, Hahim, Boklapara, Khanapara-Pillangkata and Ratacherra under the Kamrup, Kamrup (Metro) and Cachar districts of Assam and the West Khasi Hills, Ri-Bhoi and East Jaintia Hills districts of Meghalaya.
- The two States had in June 2021 adopted a “give-and-take” policy to start the process of resolving the boundary dispute by constituting three regional committees each.
 - The draft resolution, prepared on the basis of the recommendations of the regional panels, proposed dividing the disputed 36.79 sq. km of land into the six areas of difference between the two States.
 - **While Assam will get 18.51 sq. km of the disputed areas, Meghalaya will get the remaining 18.28 sq. km.**

Other Major Agreements of the Northeast

NLFT Tripura Agreement

- The agreement was signed on 10 August 2019 in the presence of the Home Minister.
- **As per the MoU, for the overall development of the tribes of Tripura, the Government of Tripura will be provided with a Special Economic Development Package (SEDP) of Rs. 100 crores by the Government of India during a period of five years.**
 - Out of this amount of Rs. 100 crores, an amount of Rs. 40 crore has already been released to Tripura during the financial year 2020-21.

Bru Agreement

- A historic agreement was signed in the presence of the Home Minister on 16.01.2020 by the Government of India, Government of Tripura, and Government of Mizoram along with representatives of Bru migrants for the permanent settlement of 6959 Bru families in Tripura with a financial package of about Rs. 661 crore.
- **As per the agreement, each resettled Bru family would be given financial assistance in the form of a fixed deposit of Rs.4 lakh, free ration, five thousand rupees per month for two years, housing assistance at the rate of Rs.1.5 lakh, and a land plot of 30x40 square feet.**

Bodo Peace Accord

- In the presence of Home Minister Shri Amit Shah, a Memorandum of Understanding (MoU) was signed on 27.01.2020 by the Government of India, the Government of Assam, and representatives of Bodo groups to resolve the long-pending Bodo issue.
- Most of the demands of the Bodo groups have been met and the remaining demands would be met when as per the MoU, the committees constituted for this purpose would give their recommendations.
- **As per the agreement, a special development package of Rs 1,500 crore (750 crores by the Central Government and 750 crores by the Assam government) will be provided over a period of three years for the all-around development of the Bodo region in Assam.**

Karbi Anglong Agreement

- To end the decades-old crisis in the Karbi Anglong region of Assam, a Memorandum of Understanding (MoU) was signed on 04.09.2021 in the presence of the Home Minister between the Government of India, the Government of Assam and representatives of Karbi groups.
- As a result of this historic agreement, more than 1000 armed cadres renounced violence and joined the mainstream of society.
- **As per the agreement, a special development package of Rs 1,000 crore will be given over five years by the central**

government and the Assam government to take up special development projects in the Karbi areas.

- This agreement will ensure the protection of the culture, identity, language, etc. of the Karbi people and the all-round development of the region.

OFFICIAL LANGUAGE

GS-II POLITY

Context

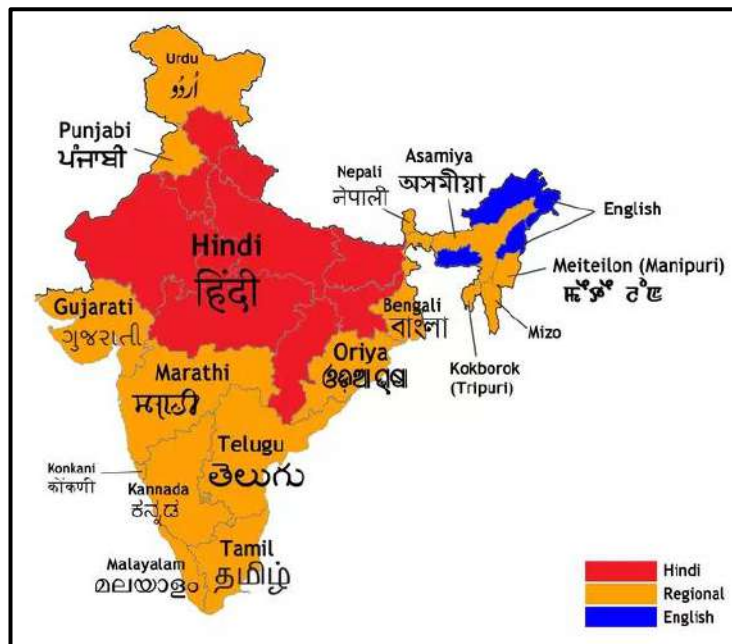
- Recently the Union Home Minister Stated that citizens should accept the Hindi language as an alternative to English.

Details

- The Union Home Minister stated that citizens should communicate in the Hindi language as an alternative to English.
- The Home Minister as the chairman of the Parliamentary Official Language Committee disclosed to members that 70% of the agenda of the Union government is now drafted in Hindi.

Indian Constitution about Official Language

- Part XVII of the Indian Constitution deals with the official language in Articles 343 to 351.
- The provisions related to official language are divided into;
 - Language of the Union
 - Regional languages
 - Language of the judiciary
 - Texts of laws and Special directives



Language of the Union

- According to the Indian Constitution, the Hindi language written in the Devanagari script is to be the official language of the Union. But, the form of numerals to be used for the official purposes of the Union has to be the international form and not the Devanagari form of numerals.
- The Constitution Assembly stated that for a period of 15 years from the inception of the Constitution (1950 to 1965), the English language would continue to be used for all the official purposes of the Union.
 - Even after 15 years, the Parliament may provide for the continued use of the English language for specific purposes.
- In 1955, the President of India appointed an Official Language Commission under the chairmanship of B.G. Kher.
 - In 1956, the commission submitted its report to the President.
 - The Commission's report was examined by a Parliamentary committee under the chairmanship of Gobind Ballabh Pant.
- The Parliament enacted the Official Languages Act in 1963.
 - The act provides for the continued use of English (even after 1965), in addition to Hindi, for all official purposes of the Union and also for the transaction of business in Parliament.
 - This act enables the use of English indefinitely (without any time limit).
 - This act was amended in 1967 to make the use of English, in addition to Hindi, compulsory in certain cases.

Regional Language

- The Indian Constitution does not specify the official language of different states.
- The Constitution makes the following provisions:
 - The State legislature may adopt any one or more of the languages in use in the state or Hindi as the official language of that state. Until that is done, English is to continue as the official language of that state.
- Most of the states have adopted the major regional language as their official language.
 - Andhra Pradesh has adopted Telugu.
 - Kerala adopted Malayalam.
 - Assam adopted Assamese.
 - West Bengal adopted Bengali.
 - Odisha adopted Odia.
 - 9 Northern states; Himachal Pradesh, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand,

Haryana and Rajasthan have adopted Hindi.

- Gujarat has adopted Hindi in addition to Gujarati.
- Goa has adopted Marathi in addition to Konkani.
- Jammu and Kashmir have adopted Urdu.
- Certain north-eastern States like Meghalaya, Arunachal Pradesh and Nagaland have adopted English.
- **The choice of the state to adopt a state official language is not limited to the languages listed in the 8th Schedule of the Indian Constitution.**
- The Official Languages Act (1963) states that English should be used for purposes of communication between the Union and the non-Hindi states.
- When the **President** (on a demand being made) is satisfied that a significant proportion of the population of a state prefers the use of any language spoken by them to be recognised by that state, then he **may direct that such language shall also be officially recognised in that state.**
 - This provision aims at protecting the linguistic interests of minorities in the states.

Language of the Judiciary and legislation

- The Indian constitution Stated that **Until the Parliament provides otherwise,** the following should be in the **English language only:**
 - All proceedings in the Supreme Court and in every high court.
 - The authoritative texts of all bills, acts, ordinances, orders, rules, regulations and bye-laws at the Central and state levels.
- The Parliament has not made any provision for the use of Hindi in the Supreme Court. Therefore, the **Supreme Court hears only those who petition or appeal in English.**
- The governor of a state, with the previous consent of the president, can authorise the use of Hindi or any other official language of the state, in the proceedings in the high court of the state, but not with respect to the judgments and orders passed by it.
- A state legislature can specify the use of any language (other than English) with respect to bills, acts, ordinances, orders, rules, regulations or bye-laws, but a translation of the same in the English language is to be published.

Development of Hindi Language

- **Under Article 351,** The Indian Constitution imposes a **duty upon the Centre to promote the spread and development of the Hindi language.**
- **The 8th Schedule of the Constitution specifies 22 languages (originally 14 languages).** These are Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Marathi, Nepali, Odia, Punjabi, Sanskrit, Santali, Sindhi, Tamil, Telugu and Urdu.
 - Sindhi was added by the 21st Amendment Act of 1967.
 - Konkani, Manipuri and Nepali were added by the 71st Amendment Act of 1992.
 - Bodo, Dongri, Maithili and Santhali were added by the 92nd Amendment Act of 2003.

Way Forward

- The debate over Hindi as India's "National Language" has been going on since the time of the Constitution Assembly.
- **The number of native Hindi speakers in India is only around 44%,** which includes speakers of Mixed-Hindi languages such as Awadhi, Maithili, Bhojpuri, etc.
- Imposing the Hindi language;
 - Can affect the learning ability of non-Hindi speakers thereby affecting their self-confidence.
 - Can also threaten other languages and reduce diversity.
- Imposing a Particular language and Culture could also threaten the diversity and federalism of India.
- **National integration must not come at the cost of people's linguistic identities.**
- Language is an integral part of People's culture and therefore privileging Hindi over all other languages spoken in India takes away from its diversity.

QUOTA IN PROMOTIONS

GS-II POLITY

Context

- The Union Government has initiated the process of collecting data about the Scheduled Caste (SC) and Scheduled Tribe (ST) employees at all levels of government.

Details

- According to the past judgement of the Supreme Court, the Collection of quantifiable data on the inadequacy of representation

of social groups is a prerequisite condition for providing quotas in the promotion.

Reservation System in India

- The Reservation system is an arrangement of affirmative action where a certain percentage of seats are reserved in Public employment and educational institutions.
- In India, the Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs) and socially and economically backward communities who were earlier poorly represented in the Public sector and educational institutions are now covered under the reservation facility.
- In India, about 60% of seats are reserved for various sections like ST, SC, OBC, and EWS in Government jobs and Higher Education Institutions.
 - 3% of seats are also reserved for differently-abled persons across all categories.
- The reservation policy is also enforced for the Scheduled Castes and Scheduled Tribes for representation in the Indian Parliament.
- The reservation issue has also remained a cause of conflict between the reserved and the non-reserved sections of society.

Reservation Category	Reservation Quota (%)
ST	7.5
SC	15
OBC	27
EWS	10
Total	59.50%

Reservation quota in India for Government Jobs and Higher Educational Institutions

Arguments in the favour of Reservation System

- It ensures equality, by providing opportunities to people from backward classes.
- It promotes justice and human rights.
- Decreasing inequality by promoting economic opportunities for the lower section of Society.
- Correcting historical injustice
- Reservation provides a level playing field as it is challenging for people from backward sections that were historically deprived of education, skills, and wealth to all of a sudden start competing with those who had access to those resources for years.

Arguments against Reservation System

- It Promotes Casteism and creates division in our society, and also encourages caste-based Politics.
- Beneficiaries of reservation are mostly from the dominant class in backward castes. Thus, the marginalised section still remains marginalised.
- Affects the productivity of an organisation if unfit candidates get the opportunities.
- A reservation only provides a limited and short-term solution to historical injustice issues.
- Many deserving people from the upper castes are also affected by poverty and illiteracy.
- Reservation demands by various groups may cause social turmoil, such as during the Mandal Commission (1990).

Advantages	Disadvantages
Equal representation from the different sections of society.	It encourages casteism.
Equal opportunities are given to deserving candidates.	Chances of creating more castes in the society instead of eliminating it.
Encourages implementation of justice and human rights.	The dominant class or the creamy layer gets the entire benefit.
Maintains an economic balance in the society.	It opposes meritocracy.
Acts as compensation for the injustice and mistreatment done to the backward classes for centuries.	It provides short-term relief but, in reality, harms the society in the long run.
Levelling of the society for the candidates from every section of the society to compete.	The privileged gets more privileged.
Equality is essential to implement meritocracy.	It acts as a barrier between ethnicities.

Way Forward

- The representation of reserved castes declines from 40% to 25% at the lowest levels. This is because dominant castes in positions of authority discriminate against and publish negative reports about poor castes.
 - As a result, they face discrimination in high-level positions and promotions.
- Reservation in Promotion is important to ensure equality of opportunity, but at the same time, we must remember that merely Gaining employment and a position does not ensure the end of social discrimination.
- The argument given against the reservation in promotion is that it could affect the efficiency of the organisational set-up is

misleading as it is hard to quantify overall efficiency in Government organisations.

- Judgement in the **Nagraj Case mandates that the government Cannot introduce Reservation in promotion for ST/SC persons in public employment unless they prove that:**
 - The particular Community is backward, is inadequately represented and such a reservation in promotion could not affect the overall efficiency of public administration.
- The Supreme Court stated that the Government Could provide reservations in promotions to SCs and STs, but would have to show the existence of Certain reasons:
 - Backwardness
 - Inadequacy of representation
 - Administrative efficiency
- In another judgement, the Supreme Court held that there is no need to collect social and educational data to provide reservations in promotions in government jobs for SCs and STs.

SUTLEJ YAMUNA LINK (SYL) CANAL

GS-II POLITY

Context

- The Haryana Assembly has recently passed a resolution aiming for completion of the Sutlej Yamuna Link (SYL) Canal.

Details

- The Haryana Chief Minister said that “It is the right of Haryana to share waters from Ravi and Beas rivers by the construction of the SYL Canal.
 - It was the 7st time that the Haryana assembly has passed a resolution urging the early completion of the SYL canal.

Sutlej Yamuna Link (SYL) Canal

- The canal will resolve the water dispute of the rivers Ravi and Beas between Punjab and Haryana.
- The water dispute emerged in 1966 at the time of reorganisation of Punjab and formation of Haryana.
 - The Punjab assembly has opposed the proposal of Water sharing of the two rivers with Haryana.
- In 1982, the Prime Minister initiated the construction of the SYL Canal, but the political parties in Punjab were against the construction of the canal.
 - Incidence of Violence pressured the government to stop the construction of Canal.
- **Arguments of Punjab**
 - Many areas in Punjab may go dry after 2029.
 - The groundwater level is declining.
 - Punjab need water for irrigation purposes and for ensuring food security
 - As per the study, water in about 79% of the state’s area is over-exploited.
- **Arguments of Haryana**
 - The Haryana government stated that providing water for irrigation is getting tough for the state.
 - Declining groundwater level.
 - Problem of drinking water.

Sutlej River

- Sutlej River is the easternmost tributary of the Indus River.
- **It rises in the Kailash Mountain** near Mansarovar Lake from Rakas Lake in Tibet.
- The Bhakra Nangal Dam is built on the river Sutlej.
 - It provides irrigation and other facilities to the states of Punjab, Rajasthan and Haryana.
- The Sutlej water is allocated to India under the Indus Waters Treaty between India and Pakistan.
- The drainage basin in India includes the states and union territories of Himachal Pradesh, Punjab, Ladakh and Haryana.

Yamuna River

- **The Yamuna is the 2nd-largest tributary river of the Ganges** by discharge and the longest tributary in India.
- Yamuna River **originates from the Yamunotri Glacier** at the Bandarpunch peaks of the Lower Himalaya in Uttarakhand.
- It merges with the Ganges at Triveni Sangam, Prayagraj, which is also a site of the Kumbh Mela.
- It flows through several states: Haryana and Uttar Pradesh, passing by Uttarakhand and later Delhi.
- The important tributaries of the Yamuna River are Tons, Chambal, Hindon, Betwa and Ken.

Constitutional Provisions and Water

- **Entry 17 of State List** deals with water; water supply, irrigation, canal, drainage, dams, water storage and water power.
- **Entry 56 of Union List** empowers the Union Government for the regulation and development of inter-state rivers and river valleys.

Inter-State Water Dispute in India

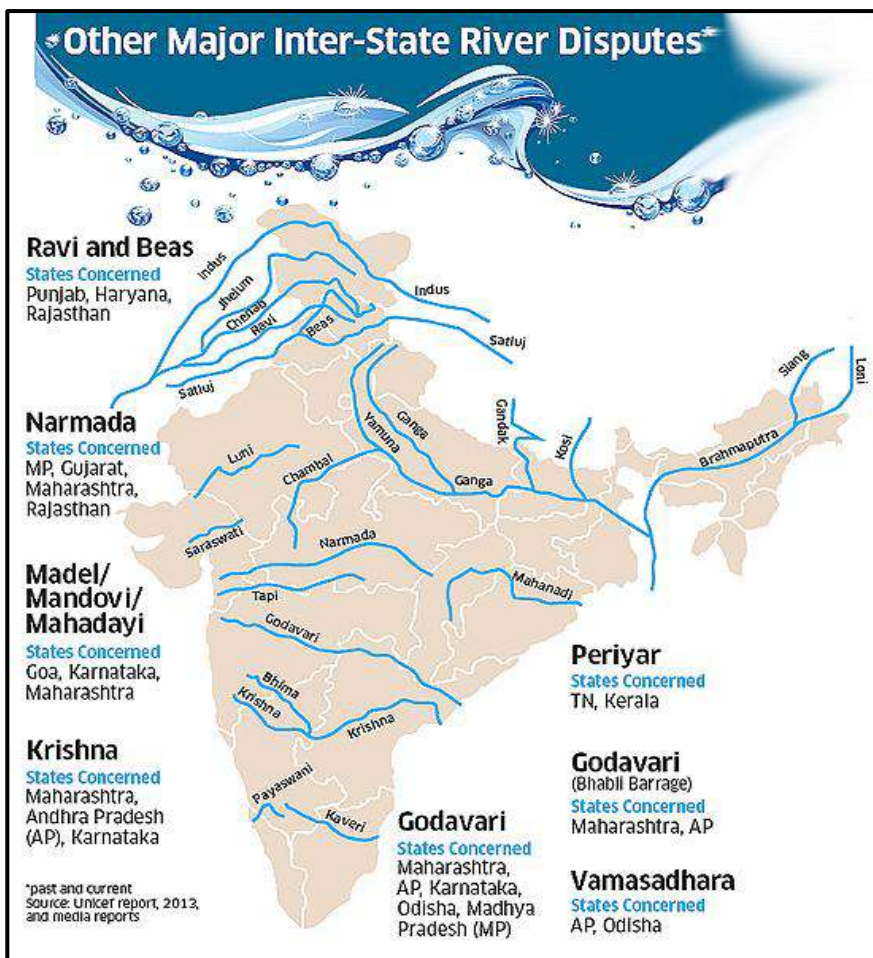
- **Article 262 of the Indian Constitution provides for the adjudication of interstate water disputes.**

- Parliament may by the law provide for the adjudication of any dispute with respect to the use, distribution and control of waters of any inter-state river and river valley.
- Parliament may also provide that neither the Supreme Court nor any other court is to exercise jurisdiction in respect of any inter-state water dispute.

- The Parliament has enacted two laws;
 - The River Boards Act (1956)
 - The Inter-State Water Disputes Act (1956).
- Under the River Boards Act, **a river board is established by the Central government**

for the regulation and development of Inter-state River and river valleys.

- **The Inter-State Water Disputes Act 1956 authorises the Central government to set up an ad hoc tribunal for the adjudication of a dispute** between two or more states in relation to inter-state water dispute.
 - The judgement of the tribunal would be final and binding on the parties to the dispute.



BAIL PROVISIONS

GS-II POLITY

Context

- Recently the Supreme Court stated that the Judges must write down the reasons for bail decisions.

Details

- The Supreme Court has recently mentioned that the **Judges are duty-bound to give reasons for granting or denying bail**, particularly in cases involving serious offences and hardened criminals.
- The Chief Justice of India has also highlighted that **judges must explain the basis on which they have concluded**, as **Reasoning is the lifeblood of the judicial system**, and every order must be backed by reasoning.
- He also mentioned that an **unreasoned order undermines the value of the Judiciary**. Therefore there is a need to indicate reasons to explain why bail was being granted particularly when the accused is charged with having committed a serious offence.

Bail Provisions under the Indian Law

- Bail is the **temporary release of the accused** in a criminal case in which the court has a trial pending and is yet to announce the judgement.
- Bail is granted to the convicted person **after submitting a personal bond** or assurance to follow the conditions imposed by the court.
- A person can apply for bail, at the moment he/she is arrested.
- The accused can get bail for a non-bailable offence.
 - **Bail can be obtained from Sessions Court or High Court**, depending upon the seriousness of the offence the accused is charged with and the discretion of the court.

- **For a bailable offence:** A person doesn't need to go to court, as it is given by the Police Officer.

Types of Bails in India

- **Regular Bail** is granted to the person who has been arrested or is in police custody.
- **Interim Bail** is a short-term bail granted for a short period.
 - It is granted before the hearing for the grant of anticipatory bail.
- **Anticipatory Bail;** A person can apply for anticipatory bail when he/she finds out that he could be arrested for a non-bailable offence.
 - At the time of granting anticipatory bail the Court imposes certain terms and conditions which if violated, the Court may cancel the anticipatory bail.

BAILABLE	NON-BAILABLE
Right to get bail while the trial is pending.	Serious offence-Bail can be obtained only by court's discretion.
COGNIZABLE	NON-COGNIZABLE
Serious offence- accused can be arrested without warrant.	Police has to wait for warrant from court.
COMPOUNDABLE	NON-COMPOUNDABLE
Accused can come to an arrangement with the state prosecution. E.g. Caught travelling without ticket on a bus/train.	Serious offences- convicts of crime such as murderers, thieves, frauds, etc... cannot compound their crimes.

Significance of Bail Provisions

- Bail is an **essential element** of any criminal justice system, as it **guarantees the right to a fair trial** for the accused.
- It is needed **to safeguard the fundamental right to liberty**, as mentioned under Article 21 "No person shall be deprived of their liberty unless prescribed so by a reasonable, fair, and just procedure".
- According to the Supreme Court of India, Bail is a measure to **balance the personal freedom of the accused and the public interest**. Therefore the release is conditional.

Basis for comparison	BAIL	PAROLE	PROBATION
Meaning	The term bail refers to paying a certain amount to the government in return of freedom before the date of the trial. A parole is really different from a bail.	A parole is when a person gets some time off from their jail sentence in order to fulfill some requirements	Probation is the suspension of sentence of an offender and allowing them to stay in the community while inculcating good behavior, under the supervision of an officer.
What is it	Conditional Release from jail	Conditional release from jail	It is an alternative to jail
Act Applicable	Criminal Procedure Code, 1973	Prison Act, 1894 Prisoner Act, 1900 The Prisons (Bombay Furlough and Parole) Rules, 1959	The Probation Offenders Act, 1958. Criminal Procedure Code, 1973
Awarded by	Judge	A Parole Board	Judge
When granted	at the beginning of the trial before going to jail or while serving a prison sentence	Parole is granted to the accused after serving a specific period of imprisonment	Probation is granted to the offender before going to jail
Grant to Whom	It is granted to the Accused before trial of the matter or accused already serving the jail term	It is granted to convicts that are already serving the jail term	It is granted to first time offenders and crimes that do not involve violence.
Payment/Cost	Required to Pay Bail Amount before the Court	Not required	Court May be imposed cost at the time of release or may release the offender after giving instruction.
Supervision	Requires no supervision, but the Accused is expected to show up at the trial.	supervision is required,	supervision is required,

Way Forward

- The Indian Constitution under **Article 21 guarantees the right to life and personal liberty to every individual**. A person is assumed to be innocent unless proved guilty. Therefore he/she shall not be deprived of personal liberty unless specified by a fair and just procedure.
- Bail is a mechanism that **secures liberty to the accused without providing any unjustified benefit to them**. However, it has been scrutinised that the practice of granting bail is quite irregular and unclear.
- There are several judgments where the Supreme Court has observed that **each case needs to be examined for its facts and circumstance before granting bail**.
- The rationality behind granting or refusing bail petitions must be to **establish a balance between individual rights and the interest of society**.

RECUSAL OF JUDGES

GS-II POLITY

Context

- In the last week, two Supreme Court judges have recused themselves from hearing cases relating to West Bengal.

Details

- The 2 Supreme Court **judges have recused from cases relating to West Bengal**. The cases they have recused from relating to post-poll violence in the state and the Narada scam, which have become political battles between the state and Centre in court.

Recusal of Judges

- A judge can withdraw from hearing a case **when there is a conflict of interest**.
 - A judge **voluntarily decides to withdraw** from the hearing to avoid a perception that they carried a biased view while

deciding the case.

- The decision to recuse commonly comes from the judge herself as **it depends on the conscience and discretion of the judge** to disclose any potential conflict of interest.
 - In some cases, lawyers or parties in the case bring it up before the judge.
- Once a request is made for recusal, the decision to recuse or not rests with the judge.
- There are some instances where judges have recused even if they do not see a conflict.
 - In the Ayodhya-Ramjanmabhoomi case, a Supreme Court judge has recused himself from the Constitution Bench as he had appeared as a lawyer in a criminal case relating to the case.
- There have also been several cases where judges have refused to withdraw from a case.
 - In 2019, a Supreme Court judge had controversially refused to recuse himself from a Constitution Bench set up to re-examine a judgement he had delivered previously, despite several requests from the parties.
- If a judge recuses, the case is listed before the Chief Justice for allotment to a fresh Bench.**
- There are **no formal rules governing recusals**, although Supreme Court has made several judgments related to the issue.
 - In Ranjit Thakur v/s Union of India (1987), the Supreme Court held that "A Judge shall not hear and decide a matter in a company in which he holds shares... unless he has disclosed his interest and no objection to his hearing and deciding the matter is raised".
- As there are no formal rules governing the process, it is usually left to individual judges to record reasons for recusal. Some judges declare the reasons in open court; in some cases, the reasons are clear.

Concerns

- It allows litigants to cherry-pick a bench of their choice, which **undermines judicial fairness**.
- It damages both independence and raises questions about the objectivity of the judges.
- It may cause unnecessary obstruction and **delay the proceedings of the Courts**.

Way Forward

- The principle of judicial independence is developed to protect the rule of law as well as to maintain public trust in the Judiciary.
- Impartiality is an important aspect of judicial independence where Judges are supposed to take decisions only based on law and fact and without any fear or favour.
- Judicial impartiality is an important element of the judicial system. Judges should decide legal disputes free of any personal bias or prejudice.
- Due to conflict of interest, a Judge may be unable to maintain impartiality in a case and thus recusal is necessary.

AUTONOMOUS DISTRICT COUNCIL

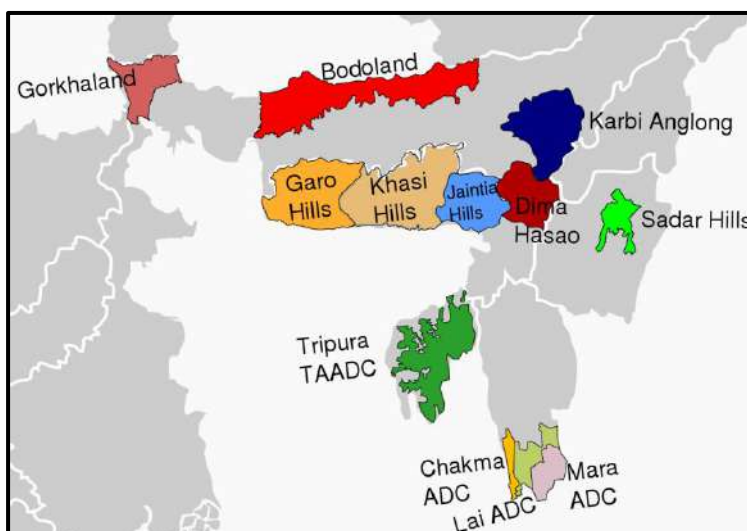
GS-II POLITY

Context

- The Khasi Hills Autonomous District Council has opposed some provisions of the Assam-Meghalaya border dispute resolution.

Details

- The Khasi Hills Autonomous District Council has opposed the Meghalaya government's deal with Assam** to settle a 50-year-old boundary dispute.
- The Khasi Hills Autonomous District Council stated that "the disputed areas belong to private parties and the Meghalaya government has neither the authority nor the right to hand them over to Assam".
 - The government needs to take the council's consent according to the Right to Fair Compensation and Land Acquisition and Rehabilitation and Resettlement Act, 2013, before any handover.
 - The Khasi Hills Autonomous District Council** is one of three tribal councils **in Meghalaya created under the 6th Schedule** of the Constitution.
- The state government of Meghalaya has said that the agreement was based on a list of disputed sectors submitted to Assam in 2011, and cannot be reviewed.



- The deal remains to be ratified by Parliament and the Assemblies of the two States concerned before the boundary is redrawn.
- The residents of border villages have said that they will not give up without a fight.
 - They fear they will lose their tribal rights if they are separated from Meghalaya.

Autonomous District Councils

- **The 6th Schedule** of the Indian Constitution **deals with the administration of the tribal areas in the 4 northeastern states of Assam, Meghalaya, Tripura and Mizoram as per Article 244.**
- The 6th Schedule of the Indian Constitution allows for the **formation of autonomous administrative divisions** which have been given autonomy within their respective states.
- The **State Governor is authorised to increase or decrease the areas or change the names of the autonomous districts.**
- Executive powers of the State extend to 6th Scheduled areas concerning their administration.
- The **acts of the Parliament or the state legislature do not apply to these autonomous districts and autonomous regions** or apply with specified modifications and exceptions.
- These **Autonomous Councils have been granted wide civil and criminal judicial powers**, such as establishing village courts etc.
 - The jurisdiction of these councils is **under the jurisdiction of the concerned High Court.**

Background of the Assam-Meghalaya conflict

- Meghalaya was carved out of Assam as a separate state in 1972 but the new state had challenged the Assam Reorganisation Act, 1971, leading to disputes in 12 locations in the border areas.

The major point of dispute

- Meghalaya's Lunglei district, bordering the Kamrup district of Assam, in West Garo Hills, is a major point of contention between the two neighbouring states.
 - Lunglei was part of the Kamrup district of Assam during the British colonial period but after India's Independence in 1947; it became part of the Garo Hills and Meghalaya.
- Another point of contention is the Mikir Hills, which Assam considers to be its part.
 - Meghalaya has questioned Blocks I and II of the Mikir Hills, now Karbi Anglong region, being part of Assam.
 - Meghalaya says these were parts of erstwhile United Khasi and Jaintia Hills districts.

Earlier efforts made to resolve the border issue

- The two states have formed border dispute settlement committees.
- Recently, the Chief Minister of both states had decided to set up two regional panels to resolve the border disputes in a phased manner.
- The panel recommended **5 aspects were to be considered in resolving the border dispute:**
 - Historical facts
 - Ethnicity
 - Administrative convenience
 - Mood and Sentiments of the people concerned
 - The closeness of the land

Key points of the Border Agreement

- Out of the 12 points of dispute between Assam and Meghalaya, the six areas with relatively less critical differences were taken up in the first phase.
- **Assam and Meghalaya have partially resolved a 50-year-old border dispute** in 6 of the 12 sectors along their 885-km boundary.
 - The 6 disputed sectors are Tarabari, Gizang, Hahim, Boklapara, Khanapara-Pillangkata and Ratacherra under the Kamrup, Kamrup (Metro) and Cachar districts of Assam and the West Khasi Hills, Ri-Bhoi and East Jaintia Hills districts of Meghalaya.
- The two States had in June 2021 adopted a “give-and-take” policy to start the process of resolving the boundary dispute by constituting three regional committees each.
 - The draft resolution prepared based on the recommendations of the regional panels, proposed dividing the disputed 36.79 sq. km of land into the six areas of difference between the two States.
 - While Assam will get 18.51 sq. km of the disputed areas, Meghalaya will get the remaining 18.28 sq. km.

SCRUTINISING DEATH PENALTY

GS-II POLITY

Context

- The Supreme Court of India highlighted the need for a **holistic view of prisoners facing the death sentence**.

Details

- The Supreme Court stated that for decades, conviction hearings have covered only primary details like the convict's family structure, educational qualifications and work.
 - The Supreme Court also mentioned that "No effort was made to consider information like unfavourable childhood experiences, history of physical and mental health issues, exposure to traumatic events and other social and cultural factors".
- Though the death sentence is seen only in the rarest of rare cases, even in these cases the **courts should be well-informed about the convict**.

About Capital Punishment or Death Penalty in India

- Capital punishment or the death penalty is a legal penalty for some crimes under the Indian Penal Code or other laws.
- In the Code of Criminal Procedure (CrPC), 1898 death was the default punishment for murder** and mandated the judges to give reasons in their judgment if they desired to give life imprisonment instead of the death penalty.
 - The CrPC was created for the first time in 1882 and then amended in 1898.
- By an amendment to the CrPC in 1955, the requirement of written explanations for not imposing the death penalty was terminated.
- With the amendment of CrPC in 1973, life imprisonment became the norm and the **death penalty was to be imposed only in extraordinary cases and required 'special reasons'**.
 - The amendment also divided a criminal trial into two stages; one for conviction and another for sentencing.
 - The Code of Criminal Procedure, 1973, also contains a provision that the court must write "Special reasons" justifying the sentence and mention why an alternative sentence would not meet the ends of justice.

Process of Death Penalty

- Trial Court**
 - After the proceedings as specified by the Code of Criminal Procedure, the judge pronounces the judgement.
- High Court**
 - After the decision by the Session Court, a high court needs to confirm the death sentence.
 - The high court may confirm the death sentence or pass any other sentence or annul the conviction.
 - The High Court also has the power to withdraw a case pending before a subordinate court and conducts the trial and may award the sentence of death.
- Special leave petition**
 - After the death sentence is confirmed by the High Court, an appeal by Special Leave Petition under **Article 136 of the Constitution may be filed with the Supreme Court**.
 - Under Article 136, the Supreme Court decides whether the special leave petition deserves to be heard as an appeal or not.
- Curative petition**
 - The Supreme Court may allow a curative petition to reconsider its judgement or order if it is established that there was a violation of principles of natural justice or suspicion of bias in the role of a judge.
 - The curative **petition would be circulated before the same bench which decided on the review petition**.
- Mercy Petition**
 - Articles 72 and 161 of the Constitution** give power to the President of India and the Governor to grant pardons and to suspend, remit or commute sentences in certain cases.
 - The president or the governor may consider the case of the convict and may pardon the death sentence.
- Death warrant**
 - In cases where the death sentence is awarded, the convict should be allowed to use all the legal remedies available such as appeal, review and mercy petitions.
 - The Supreme Court guidelines are needed to be followed before issuing the death warrant.
- Execution**
 - Death sentence or death penalty is a punishment approved for committing the offence.
 - The act of carrying out a death sentence is known as an execution.

Arguments in support of Capital punishment

- All Guilty people deserve to be penalised in proportion to the severity of their crime.
- **Real justice requires people to suffer in a way suited for the crime. Every criminal must get what their crime deserves and in the case of murder they deserve death.**

Arguments against capital punishment

- Capital punishment is revenge rather than punishment and is a morally doubtful concept.
- Against Real or Proportional justice, as the criminal suffers for many years before execution, it makes the punishment more severe.
- There is always a risk of executing the innocent due to mistakes or defects in the justice system.
- **The death penalty doesn't seem to deter people from committing serious crimes.**
- **The Law Commission of India recommended abolishing the death penalty, except in terror cases.**

Way Forward

- In India, the current position regarding death sentences is quite a balanced one. But the broad judicial discretion given to the court has resulted in an extremely uneven judgment in similar cases; this does not represent a good picture of the Indian Judiciary.
- **The principle laid down in cases like Bachan Singh or Machhi Singh has to be strictly followed** so that the person convicted for an offence of identical nature is awarded a punishment of an identical degree.

CITIZENSHIP AMENDMENT ACT (CAA)

GS-II POLITY

Context

- The Ministry of Home Affairs has once again cleared that the Citizen Amendment Act does not deprive any Indian of citizenship rights.

Details

- The Ministry of Home Affairs stated that **"The CAA does not apply to Indian citizens, and it does affect the rights of any Indian citizen"**.
- The Ministry highlighted that the present legal process of acquiring Indian citizenship by any foreigner of any category as provided in the Citizenship Act-1955 is still functional and the CAA does not amend or alter this legal position.
- The Ministry has stated that **the legal migrants of any religion from any country will continue to get Indian citizenship once they fulfil the eligibility conditions** under the law for registration or naturalisation.
- The CAA, which aims to give citizenship to migrants belonging to Hindu, Sikh, Buddhist, Jain, Parsi or Christian communities from Afghanistan, Bangladesh or Pakistan, was notified in December 2019.
- **The details guidelines of its rules**, without which the law cannot be implemented, **continue to be pending**.

Citizenship (Amendment) Act, 2019

- The Citizenship (Amendment) Act, 2019 **amended the Citizenship Act of 1955**.
- The Citizenship Act of 1955 provides **different ways in which citizenship may be acquired**. It provides for; Citizenship by birth, descent, registration, naturalisation and by incorporation of the territory into India.
 - It also regulates the registration of Overseas Citizens of India Cardholders (OCIs) and their rights.
 - The Act prohibits illegal migrants from acquiring Indian citizenship.
 - It defines an illegal migrant as a foreigner: Who enters India without a valid passport or travel documents, or Stays beyond the permitted time.
- The CAA of 2019, provides that the Hindus, Sikhs, Buddhists, Jains, Parsis and Christians from Afghanistan, Bangladesh and Pakistan, who entered India on or before December 31, 2014, will not be treated as illegal migrants.
 - To get this benefit, they must have also been exempted from the Foreigners Act, of 1946 and the Passport (Entry into India) Act, of 1920 by the central government.
 - **The Act of 1920 mandates foreigners to carry passports**, while the 1946 Act regulates the entry and departure of foreigners in India.
- To obtain citizenship by naturalisation, one of the qualifications is that the person **must have resided in India for at least 11 years before applying for citizenship**.
 - The CAA of 2019 created an exception for Hindus, Sikhs, Buddhists, Jains, Parsis and Christians from Afghanistan, Bangladesh and Pakistan, for them, the 11 years requirement was reduced to five years.
- The provisions on citizenship under CAA OF 2019 **will not apply to the tribal areas** of Assam, Meghalaya, Mizoram, and Tripura, included in the 6th Schedule to the Constitution.
- The Provisions also **do not apply to the "Inner Line" areas** notified under the Bengal Eastern Frontier Regulation, 1873.
 - In these areas, visits by Indians are regulated through the Inner Line Permit.
 - Currently, this permit system applies to Arunachal Pradesh, Mizoram, and Nagaland.

- The Act provides that **the central government may cancel the registration of OCIs on certain grounds**. These include:
 - If the OCI has registered through fraud.
 - If within five years of registration, the OCI has been sentenced to imprisonment for two years or more.
 - If it becomes necessary in the interest of sovereignty and security of India.
 - The CAA of 2019 also added one more ground for cancelling registration; if the OCI has violated the provisions of the Act or any other law as notified by the central government. The orders for cancellation should not be passed till the OCI cardholder is allowed to be heard.

Citizenship Act, 1955

- The Citizenship Act of 1955 provides for the **acquisition and loss of citizenship after the implementation of the Constitution**.
- The Citizenship Act (1955) also provided for the Commonwealth Citizenship. But, this provision was abolished by the Citizenship (Amendment) Act, 2003.
- The Citizenship Act of 1955 specifies **five ways of acquiring citizenship**:
 - Birth
 - Descent
 - Registration
 - Naturalisation
 - Incorporation of territory
- **By Birth**
 - A person born in India on or after January 26, 1950, but before July 1, 1987, is a citizen of India by birth irrespective of the nationality of his parents.
 - A person born in India on or after July 1, 1987, is considered a citizen of India only if either of his parents is a citizen of India at the time of his birth.
 - A person born in India on or after December 3, 2004, is considered citizens of India only if both of their parents are citizens of India or one of whose parents is a citizen of India and the other is not an illegal migrant at the time of their birth.
 - **The children of foreign diplomats posted in India and enemy aliens cannot acquire Indian citizenship by birth.**
- **By Descent**
 - A person born outside India on or after January 26, 1950, but before December 10, 1992, is a citizen of India by descent if his father was a citizen of India at the time of his birth.
 - A person born outside India on or after December 10, 1992, is considered a citizen of India if either of his parents is a citizen of India at the time of his birth.
 - December 3, 2004, onwards, a person born outside India shall not be a citizen of India by descent, unless his birth is registered at an Indian consulate within one year of the date of birth.
 - A minor who is a citizen of India by descent and is also a citizen of any other country shall cease to be a citizen of India if he does not renounce the citizenship or nationality of another country within 6 months of his attaining full age.
- **By Registration**: The Central Government may register any person as a citizen of India, if he belongs to any of the following categories, namely:
 - A Person of Indian origin that is ordinarily resident in India for 7 years before making an application for registration.
 - A person of Indian origin who is ordinarily resident in any country or place outside undivided India.
 - A person who is married to a citizen of India and is ordinarily resident in India for 7 years before making an application for registration.
 - Minor children of persons who are citizens of India.
 - A person of full age and capacity whose parents are registered as citizens of India.
 - A person shall be deemed to be of Indian origin if he, or either of his parents, was born in undivided India or in such other territory which became part of India after August 15, 1947.
 - All the above categories of persons **must take an oath of allegiance before they are registered as citizens of India.**
- **By Naturalisation**: The Central Government may, on an application, grant a certificate of naturalisation to any person if he possesses the following qualifications:
 - He is not a citizen of any country where citizens of India are prevented from becoming subjects or citizens of that country by naturalisation.
 - If he is a citizen of any country, he undertakes to renounce the citizenship of that country in the event of his application for Indian citizenship being accepted.
 - If he has either resided in India or been in the service of a Government in India for periods amounting in the sum to **not less than 11 years**.
 - If he has adequate knowledge of a language specified in the **8th Schedule to the Constitution**.
 - Every naturalised citizen must take an oath of allegiance to the Constitution of India.
- **By Incorporation of Territory**
 - If any foreign territory becomes a part of India, the Government of India specifies the persons who among the people of the territory shall be the citizens of India.
 - Such persons become the citizens of India from the notified date.

ALTERNATIVE DISPUTE RESOLUTION MECHANISM

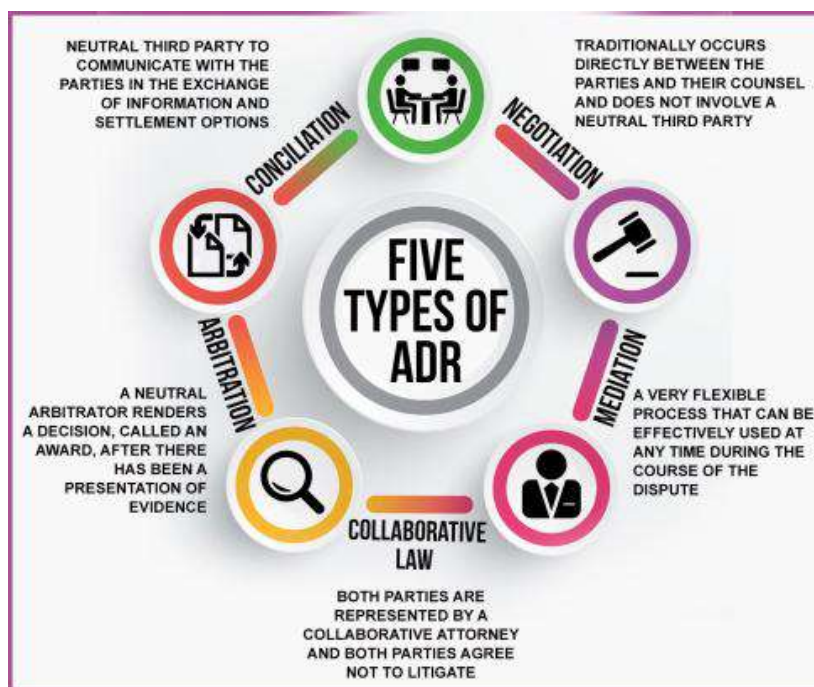
GS-II GOVERNANCE

Context

- The Chief Justice of India emphasised the need for increasing the use of alternative dispute resolution (ADR) mechanisms.

Details

- The Chief Justice of India N.V. Ramana highlighted the need for increasing the use of alternative dispute resolution (ADR) mechanisms to change the judicial process, ensuring justice to millions and settling grievances without indulging in lengthy legal proceedings.
- The Chief Justice advised that an “active effort must be taken by courts to make negotiations and mediation mandatory as part of case management.”
- He stated that “the concept of ADR, through LokAdalats, Gram Nyayalayas, mediation and arbitration centres, has the potential to transform the legal landscape of India by providing millions of people a platform to settle their grievances,”.

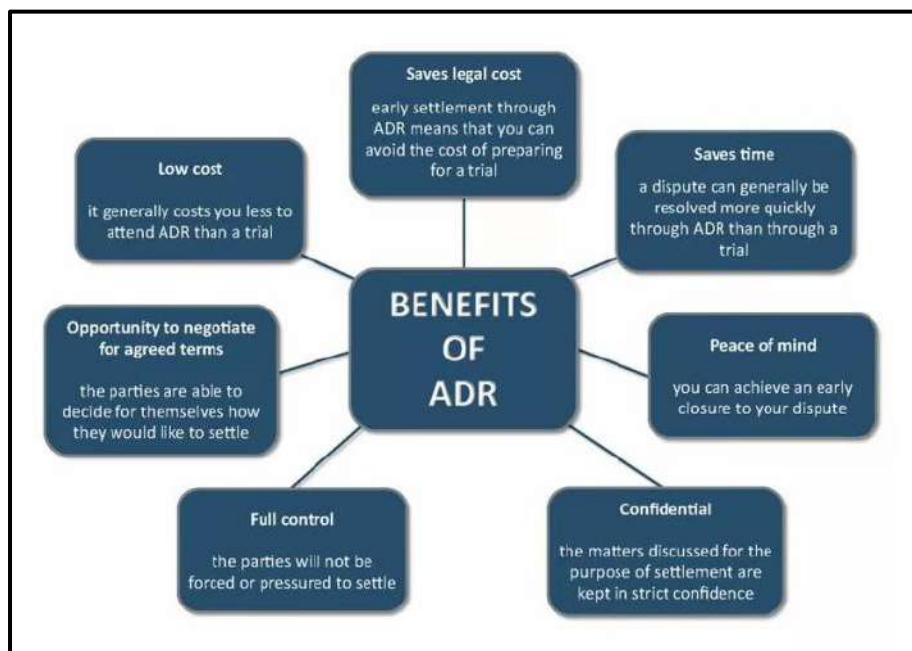


Alternative Dispute Resolution (ADR)

- Alternative dispute resolution (ADR) refers to the different routes people can take to resolve disputes without a courtroom trial.
- The Common ADR processes include arbitration, mediation, and LokAdalats.
 - These processes are normally personal, less formal, and less stressful than traditional court proceedings.

Arbitration

- Arbitration is a method of settling disputes without either party having to go to court.
- This involves a neutral third party who receives evidence, hears the arguments and then passes an order known as an award. The award is final.
- Mandatory arbitration is also becoming popular now where contracts state that jurisdiction over disputes would only be settled by an arbitrator and not by a court.
- In India, arbitration is backed by the Arbitration and Conciliation Act, 1996 which was amended by the Arbitration and Conciliation (Amendment) Act, 2015.
 - The Act provides for a fair chance for both parties to be heard and to settle disputes.
 - The award has to be enforced under the Code of Civil Procedure, 1908.
 - The Act mandates that arbitration proceedings have to be completed within a 12 months period, however, if both the parties agree, and then the period can be extended by 6 months.
- Significance of arbitration



- Litigating a dispute in court is an expensive process. **Arbitration is a much more cost-effective way of settling disputes.**
- There are well defined time limits to pass awards, resulting in quick disposal of the matter.
- Arbitrators are usually appointed by both the parties to the agreement resulting in a fair selection of the arbitrator.
- **Awards passed are final in nature.**
- They are **not bound by any procedural laws of the land**. They are free to take on their own procedure to hear arguments, receive evidence and pass awards.
- Arbitration proceedings are confidential, there is no public record preserved of the dispute. This makes whatever trade secrets or confidential details of the business remain between the parties themselves.
- Parties can choose an arbitrator skilled in the law they are facing disputes over, for example, patent law.

Mediation

- Mediation is the method of resolving business disputes.
- Mediation usually involves the disputing parties, their legal counsel and a neutral third party who facilitates the discussions.
- **Mediation is the step before litigation.** Instead of going for expensive courtroom visits, it is better to discuss the problem before an impartial third party and consider the options that are available and agreeable to both parties.
- **Significance of mediation**
 - The goal of mediation is to come up with options that are beneficial to both parties.
 - **Mediation involves only discussions between parties and a third party.** Costs are much lower since parties do not need to engage legal counsel over a long period.
 - Discussions take place in a private room only between the parties and their mediator. It protects trade secrets and other confidential documents that would otherwise be open to the public as a case in litigation.
 - Parties are allowed to frame the discussions in a way most suitable to them.

CATEGORY	JUDICIAL PROCESS	ARBITRATION	MEDIATION
Speed	Slower/ long-drawn process.	Relatively faster, Time-bound process.	Speedy resolution.
Costs	Increased litigation costs for longer durations in addition to Court fees.	Reduced costs as time bound.	Relatively inexpensive
Control over Costs	Limited as Court fees determined by Rules.	Fees of arbitrators can be pre-determined by parties.	Court-fee returnable, parties can decide fees of mediator.
Appointment of decision-making authority.	No control of parties-only judicial officers.	Experts from specific field can be appointed by the parties, with pre-determination of fees..	Parties can appoint mediator of choice.
Procedure for conduct of proceedings	Settled as per law.	Parties have authority to decide.	As per parties' convenience, not settled.
Evidence and Submissions	As per the law of evidence and CPC.	Parties can determine their own procedure.	Not bound by rules of evidence-flexible.
Forum Selection	Beyond control of parties.	Parties can exclude/ limit or confer jurisdiction on forum of choice.	Mediator is appointed on selection by the parties.
Privacy	Public proceedings.	Proceedings held in private.	Proceedings in private.
Appeal	Decision is appealable, as a matter of right.	Very limited grounds for appeal.	Settlement acceptable to both the parties is final and is not appealable.

LokAdalat

- **The LokAdalat is a platform where the disputes** which are pending in a court or which are at the pre-litigation stage **are compromised or resolved through a mutual agreement.**
- The word 'LokAdalat' means 'People's Court'. This system is based on Gandhian principles.
- The LokAdalat has been given **statutory status under the Legal Services Authorities Act, 1987.**
- The State Legal Services Authority or the District Legal Services Authority or the Supreme Court Legal Services Committee or the High Court Legal Services Committee may organise LokAdalats for such areas as it thinks fit.
- Every LokAdalat organised for an area shall consist of serving or retired judicial officers and other persons of the area as may be specified by the agency organising such LokAdalat.
- The LokAdalat shall have jurisdiction to decide and arrive at a compromise or settlement between the parties to a dispute.
- **Matters being taken up in the LokAdalats:**
 - Matrimonial disputes
 - Family disputes.

- Criminal (Compoundable Offences) cases.
- Land Acquisition cases.
- Labour disputes.
- Workmen's compensation cases.
- Bank Recovery cases.
- Pension cases.
- Consumer Grievance cases.
- Municipal matters including House Tax cases
- **The offences which are non-compoundable under any law fall outside the purview of the LokAdalat.**
- Every award made by a LokAdalat shall be final and binding on all the parties to the dispute.
 - No appeal shall lie to any court against the award of the LokAdalat.
- **Significance of LokAdalat**
 - No court fee and if the court fee is already paid the amount will be refunded if the dispute is settled at LokAdalat.
 - Procedural flexibility and speedy trial of the disputes.
 - **No strict application of laws** like the Civil Procedure Code and the Evidence Act in LokAdalat. It follows the **principle of Natural justice.**
 - The dispute parties can directly interact with the judge which is not possible in regular courts of law.
 - It is less expensive.
 - It is less time-consuming.

Significance of ADR Mechanism

- Promoting ADR Process can be helpful in reducing the burden of litigation on courts.
- Dispute Parties have the feeling that there is no losing or winning side between them but at the same time their grievance is redressed and their relationship is restored.
- The dispute resolution takes place usually in private; it protects the privacy of the parties.
- ADR mechanism is more feasible, economic, and efficient.
- Procedural flexibility **saves valuable time and money.**
- It offers **greater direct control over the outcome.**
- ADR can reduce pendency, and save judicial resources and time.

QS WORLD UNIVERSITY RANKINGS

GS-II GOVERNANCE

Context

- **According to the QS World University Rankings "35 programmes offered by Indian institutes make it to the top-100 list".**

Details

- According to the 12th edition of the Quacquarelli Symonds (QS) World University Rankings "Five IITs, two IIMs, Jawaharlal Nehru University and Delhi University are among the 16 higher education institutes in India that collectively offer 35 programmes that globally rank among the top 100 in their respective subject categories".
 - The previous edition of the QS rankings by subject featured 25 programmes offered by 12 educational institutes in India.
- The report stated that "Seven out of 11 Institutes of Eminence (IoE), which have been identified by the government for the upgrade to world-class status, offer some of the programmes that are ranked top 100".
- **The researchers of the QS ranked the institutions on the basis of scores in academic reputation, employer reputation and research citations per paper, among others.**
- About other Asian countries;
 - Chinese education institutes with 215 programmes offered are at the top of the list
 - South Korea (142)
 - Japan (122)
 - Hong Kong (118)
 - Singapore (78)

Institutions of Eminence

- The Government of India launched the World Class Institutions Scheme in the year 2017.
- The objective was to **promote 10 institutions each from the public and private categories** to have world-class academic and research facilities **and grant them the status of Institution of Eminence (IoE).**
 - Public institutions to receive Rs 1,000 Cr over 5 years.
 - **No financial support for Private institutions,** but they get Significant freedom from government regulations and

institutional autonomy.

- They can admit foreign students up to 30% of total seats.
- They can recruit foreign faculty up to 25% of faculty Strength.
- They can offer online Courses for up to 20% of their Programmes.

Challenges in Indian Education System

- India has achieved universal enrolment at the elementary level. This is a great achievement, but getting Students to School is only the beginning of human Capital formation.
- Poor quality of facilities, **Shortage of qualified faculty.**
- **Out of date Curriculum,** Limited university-industry Partnership.
- Indian origin Scientists have won the Nobel Prize, but post-independence work done in India has not led to a Science novel. If Indians Studying and working abroad can have a great impact, then obviously the problem has to do with our Systems of education and research.
- Broken governance System. **There are few rewards for being a good teacher and few Punishments for being a Careless one.** Need more effective and accountable governance Systems.
- The greed of Private Colleges to earn the maximum from every Student puts traumatic Pressure on Students which results in mental breakdown.
- **More girls than boys drop out of School.** While boys drop out to work, girls usually Stay at home and help with domestic Work. Social Conception of gender roles is an important factor.
- Learning loss due to pandemics and the digital divide.

Steps by the Government

- **The 86th Constitution Amendment provides the Fundamental right to free and compulsory education under Article 21A** includes a Common education System where the "rich and Poor are educated under one roof".
- **RashtriyaUchchatarShikshaAbhiyan** provides funding to eligible State higher educational institutions.
- Declaration of Educational Institutions as **institutions of Eminence**, to provide world-class education to Indian Students within the Country.
- Creation of **Higher Education Financing Agency**, for high-quality infrastructure in Premier educational institutions.
- **National Institution Ranking Framework** for ranking our higher education institutions.
- **GIAN Initiative** to invite distinguished academicians, entrepreneurs, scientists, and experts from premier institutions across the world to teach in higher educational institutions in India.
- **SWAYAM Portal** for online Courses.
- **SWAYAM Prabha** Provide HD educational Channels through DTH on a 24X7 basis.
- Sodhganga to develop a national repository of universities in India, digital Study material for higher education.
- **SamagraShiksha Scheme** to ensure inclusive and equitable quality education at all levels of school education.

UDAN SCHEME

GS-II GOVERNANCE

Context

- UDAN Scheme has been selected for the Prime Minister's Award for Excellence in Public Administration.

Details

- **The UDAN (UdeDeshkaAamNagrik) scheme** has been selected for the Prime Minister's Award for Excellence in Public Administration 2020 under the category "Innovation (General) – Central".
- The Government of India has initiated this award to acknowledge, recognize and reward extraordinary and innovative work done by Districts and Organisations of State/Government.
 - The award consists of a trophy, scroll and an incentive of Rs 10 lakhs.

About UDAN Scheme

- UdeDeshkaAamNaagrik or **UDAN is a regional airport development programme** of the Union Government and also a part of the Regional Connectivity Scheme (RCS).
- The main objective is to upgrade under-serviced air routes and to promote air transport infrastructure development in all regions and states of India.
- Its goal is to make air travel affordable, boost economic development, and promote job growth.

Key features of the UDAN Scheme

- The UDAN Scheme is a key element of the National Civil Aviation Policy (NCAP) which was released by the Ministry of Civil

Aviation (India) in 2016.

- It is jointly funded by the Union government and state governments.
- **Develop new airports and enhance the existing regional airports** to increase the number of operational airports with regularly scheduled flights.
- The UDAN scheme will run for 10 years and can be extended thereafter.
- **Concessions from the Union Government;**
 - Created a Viability Gap Funding (VGF) to subsidise the airfare.
 - Concession on service tax on tickets.
- **Concessions from State Governments;**
 - Reduction of GST for 10 years.
 - Coordinate with oil companies to create fuelling infrastructure on airports.
 - Provide free land for the development of the airport, with multimodal (rail, road, metro, waterways, etc.) hinterland connectivity.
 - Provide free security Systems and manpower.
 - Provision of water, electricity and other utilities at a reduced rate.
 - 20% share of Viability Gap Funding; North-Eastern states, Uttarakhand, Himachal Pradesh and Union territories to provide 10% share only.
- **Concessions from airport operators;**
 - No landing, parking or other charges.
 - No Terminal Navigation Landing Charges.
- **There is a cap of maximum fare of Rs 2,500 per hour of flight for 50% of the seats, connecting un-served and underserved regional airports, the remaining 50% of seats will be priced at market rate.**
- For helicopter services, the maximum fare is also capped at Rs 2,500 for every 30-minute leg of the flight.

About International Air Connectivity Scheme (IACS)

- The Ministry of Civil Aviation has launched the **International Air Connectivity Scheme (IACS) under the “International UdeDeshkaAamNagrik (UDAN)” initiative.**
- The main objective of the scheme is to improve air connectivity between certain Indian States with designated international destinations to promote the socio-economic growth of the Indian state.
- The scheme is also supported by the State Governments.
 - The State Government of Assam, Manipur and Tripura have specified routes connecting Guwahati, Imphal and Agartala with selected international destinations viz. Bangkok, Dhaka, Kathmandu, Yangon, Hanoi, Mandalay, Kunming and Chittagong.
- **Development and up-gradation of airports to international standards** are undertaken by concerned airport operators.

NEW COOPERATIVE POLICY

GS-II GOVERNANCE

Context

- States proposed allowing Foreign Direct Investment (FDI) and fixing the upper age limit of board members in the New Cooperative Policy.

Details

- The Union Minister of Home and Cooperation has inaugurated a 2-day national conference, it was the first such discussion on the **New Cooperative Policy, which will be soon released by the government.**
- **States proposed 2 key suggestions** during the conference on a New Cooperative Policy,
 - States are in favour of **allowing Foreign Direct Investment (FDI) in the cooperative sector**, mainly in Primary Agricultural Cooperative Societies (PACS) to improve infrastructure.
 - Another important suggestion was to **fix an upper age limit of 70 years for board members** in cooperative societies.
- According to the data released by the Union Government;
 - There are **about 8.54 lakh cooperative societies**, including 95,000 Primary Agricultural Cooperative Societies at the village level.
 - **Maharashtra has the highest number** of cooperative societies in the country.

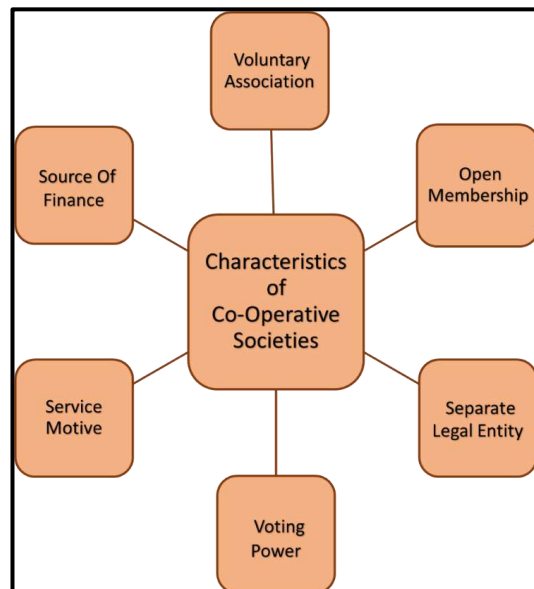
Ministry of Cooperation

- The Union Ministry of Cooperation was **formed in July 2021.**
- The ministry aims to provide a separate administrative, legal and policy framework for strengthening the cooperative movement in the country.

- The ministry works to strengthen co-operatives at the grassroots level.
- Before the creation of the Cooperation ministry, the subjects under this ministry were looked after by the Ministry of Agriculture.
- **The ministry was created with the Vision of:**
 - "Sahkar se Samriddhi" (prosperity through cooperation).
 - Promote 'Ease of doing business' for co-operatives and encourage the development of Multi-State Co-operatives.

About Cooperative Societies in India

- A Cooperative Society can be defined as **a voluntary association of individuals united voluntarily to meet their common economic, social, and cultural interests.**
 - It aims to serve the interest of society through the principle of self-help and mutual help.
- The roots of cooperative Societies in India were sown when the **first Cooperative Societies Act was passed in 1904.**
- The Government Passed the Co-operative Societies Act of 1912.
- In 1958, the National Development Council (NDC) had recommended a national policy on cooperatives and the setting up of Cooperative Marketing Societies.
- National Cooperative Development Corporation (NCDC) was set up under National Cooperative Development Corporation Act, 1962.
- The Union Government announced a **National Policy on Cooperatives in 2002.**
- **The 97th Constitutional Amendment Act of 2011 granted constitutional status and protection to cooperative societies.** This Amendment introduced 3 changes in the constitution:
 - It made the right to form cooperative societies a fundamental right (Article 19).
 - It included a new Directive Principle of State Policy on the promotion of cooperative societies (Article 43B).
 - **It added Part IX-B in the Constitution** "The Co-operative Societies" (Articles 243-ZH to 243-ZT).
- **Provisions under Indian Constitution**
 - Indian Constitution under **Part IX-B contains** various provisions related to cooperative societies.
 - The state legislature may make provisions for the incorporation, election, regulation and winding-up of cooperative societies.
- **Organisation Structure**
 - The board shall consist of some directors as may be provided by the state legislature, but, the maximum number of directors of a cooperative society shall not exceed 21.
 - The state legislature shall provide for the reservation of one seat for the Scheduled Castes or the Scheduled Tribes and two seats for women on the board of every cooperative society having members from such a category of persons.
- The functional directors of a cooperative society shall also be the members of the board and such members shall be excluded to count the total number of directors (21).
- The term of office of elected members of the board and its office bearers shall be 5 years from the date of the election.



Significance of Cooperative Societies

- The village cooperative societies provide important inputs for the agricultural sector.
- The Consumer societies meet their consumption requirements at concessional rates.
- The Marketing societies help the farmer to get remunerative prices.
- The Cooperative processing units help in value additions to the raw products.
- **They also help in building up storage, warehouse, cold storage, rural roads** and in providing facilities like irrigation, electricity, transport, education and health.
- They play the role of a balancing factor between the public and private sectors and also supplement the work of the government and its agencies.
- Many Cooperative societies have Successfully promoted rural development
 - National Cooperative Development Corporation (NCDC)
 - National Agricultural Cooperative Marketing Federation of India (NAFED)
 - AMUL and Co-operative Rural Development Trust (CORDET)
- **They play an important role in poverty reduction, promoting women empowerment,** and improving literacy rate and skill development.

Concern

- Cooperative Societies usually do not come forward to organise cooperatives of their consensus, many times it is done by government or local administration.
- The cooperatives have **limited resources**.
- They grant loans only for agricultural operations. Farmers approach the money-lenders to meet their other requirements.
- Lack of cooperation, as the people rarely understand the importance of cooperation in their lives.** The absence of willing cooperation on their part hinders the growth of the cooperative movement.
- Political interference acts as a barrier to the growth of cooperative societies.** The selection of beneficiaries is mostly done on political relations.
- The cooperative credit structure is criticised on the ground that it is mostly managed by landlords and large farmers.
- Poor performance, increasing debt and overdue, inefficient administration and management of Cooperative societies.**

Way Forward

- Need to ensure transparency in the processes and independence in the functioning of Boards.
- Good Cooperative management includes **setting up clear objectives, accountability, sound planning, and establishing performance evaluation measures.**
- The objectives of the cooperative societies must be recognized in their long-term strategy.
- Increase access to competitive and affordable external financing.**
- Better operational and financial performance through improved strategic decision-making.
- Take a comprehensive approach including working with the govt, other institutions, and the public.
- Take a practical, ground-level approach.
- Improve the decision-making process, and introduce specialists at the board meeting.
- Put the right people in the right place,** and don't let internal organisational structures be politically influenced.



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DE-NOTIFIED, NOMADIC AND SEMI-NOMADIC TRIBES

GS-II SOCIAL JUSTICE

Context

- A Standing committee of Parliament in his report has criticised the functioning of the development programme for de-notified, nomadic and semi-nomadic tribes.

Denotified, Nomadic and Semi-Nomadic Communities (DNCs)

- The term 'De-notified Tribes' (DNT) stands for all those communities which were once notified as Criminals under the Criminal Tribes Act 1871, enforced during British rule.**
- The Policies of the British government affected their lives and livelihood. As a result, they experienced forcible alienation from their traditional occupations and habitations.
- After Independence, These Acts were repealed by the Indian Government in 1952, and thereafter these communities were known as "De-Notified".**

Steps by the Government

- The **Renke Commission (2008)** was set up to look into the problems of these communities.
- The **Idate Commission (2015)** was constituted for the development of these communities.
- In 2019, the Government of India set up the **Development and Welfare Board for DNTs, SNTs & NTs (DWBDNCs)** for the welfare of these communities.
 - Set up under the Societies Registration Act, 1860 under the aegis of the Ministry of Social Justice and Empowerment for the purpose of implementing welfare programmes.

Present Status

- The Renke commission estimated their population as nearly 10.74 crores based on Census 2001.**
- The government constituted a new Commission in 2014 to prepare a state-wise list, which submitted its report in 2018
 - The Commission has identified 1,262 communities as de-notified, nomadic and semi-nomadic.
- While a number of these tribes are categorised under SC, ST and OBC, many are outside these categories.
 - The standing committee report stated that 269 DNT communities are not covered under any reserved categories.
 - These communities are often left out because they are less visible and difficult to reach.

RASHTRIYA GRAM SWARAJABHIYAAN

GS-II SOCIAL JUSTICE

Context

- The Union Government has approved the continuation of Rashtriya Gram SwarajAbhiyan (RGSA) from April 2022 to March 2026.

Details

- The Cabinet Committee on Economic Affairs chaired by the Prime Minister has approved the continuation of Rashtriya Gram SwarajAbhiyan (RGSA) from 01.04.2022 to 31.03.2026.

Rashtriya Gram SwarajAbhiyan

- Rashtriya Gram SwarajAbhiyan (RGSA) was launched on 24th April 2018 as an **umbrella scheme under the Ministry of Panchayati Raj.**
- It is a **Centrally Sponsored Scheme** to develop and strengthen the Panchayati Raj System across India in the rural areas.
- Focus area:**
 - Basic orientation training for the Elected Representatives (ERs) of Panchayats, within 6 months of their election.
 - Capacity Building of ERs with Priority to Aspirational Districts and Mission Antyodaya clusters.
 - Strengthening of the Panchayat – SHG partnership.
 - Gram Panchayat infrastructure.
 - Use of IT for distance learning & for e-Enablement of Panchayats.
 - Institutional support for innovations.
 - To promote the provision of adequate manpower at the GP level & to provide support for technical manpower.
 - To facilitate Electronic Fund Transfer (EFT), Public Finance Management System (PFMS), use and Geo-tagging of assets in Gram Panchayats.

Significance of Rashtriya Gram SwarajAbhiyan

- It will help more than 2.80 lakh Rural Local Bodies across the country **to develop governance capabilities to deliver on Sustainable Development Goals through inclusive local governance** with a focus on optimum utilisation of available resources.
- The key objectives of the Abhiyan;
 - Poverty free and enhanced livelihood in villages.
 - Healthy Village.
 - Child-Friendly Village.
 - Water Sufficient Village.
 - Clean and Green Village.
 - Self-Sufficient Infrastructure in Village.
 - Socially Secured Village.
 - Village with Good Governance.
 - Engendered Development in Village.
- **Strengthening Panchayats** will promote equity and inclusiveness, along with Social Justice and economic development of the community.
- The **use of e-governance** will help achieve improved service delivery and transparency.
- It will strengthen Gram Sabha to function as an influential institution with the social inclusion of citizens particularly the vulnerable groups.
- **Strengthen the institutional structure** for capacity building of PRIs at the national, state and district level with adequate human resources and infrastructure.

Step by the Government to promote rural development

- **DeenDayalUpadhyayaGrameenKaushalYojna**
 - It is a placement linked skill development scheme for rural poor youth.
- **Swachchh Bharat Mission**
 - To provide access to every person to sanitation facilities including toilets, solid and liquid waste disposal systems, village cleanliness and safe and adequate drinking water supply.
- **SansadAdarsh Gram Yojna**
 - Each Member of Parliament will take the responsibility for developing physical and institutional infrastructure in selected villages.
- **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**
 - Provide 'right to work' to the people falling Below Poverty Line.
 - It guarantees 100 days of employment in a year to the village people.
 - 50 workers should be women.
- **National Rural Livelihood Mission**
 - Under this scheme, the government provides loans up to 3 lakh rupees at the rate of 7% which could be lowered to 4% on the timely repayment.
- **Pradhan Mantri Gram SadakYojna**
 - To provide all-weather road connectivity to the rural areas whose population is more than 500 persons and in terms of hilly areas, it is 250 persons.
- **Antyodaya Anna Yojna (AAY)**
 - The scheme provides food grains to Below Poverty Line (BPL) families at a very subsidised rate.
 - A total of 35 kg of food grains is provided to a family. Rice is provided at the rate of Rs. 3/kg and wheat at 2 Rs.2/kg.
- **National Rural Health Mission**
 - To provide accessible, affordable and accountable quality health services even to the poorest households in the remotest rural regions.
- **AamAadmiBimaYojna**
 - Under this scheme, one member of the family is covered.
 - The premium of Rs. 200 per person per annum is shared by the state and central governments.
 - The insured person need not pay any premium if his/her age is between 18 years to 59 years.
- **SarvaShikshaAbhiyan**
 - Its main aim is to make free and compulsory education for children between the ages of 6 to 14, a fundamental right.
 - The right to education is related to the 86th Amendment to the Constitution of India.

MISSION VATSALYA**GS-II SOCIAL JUSTICE****Context**

- The Ministry of Women and Child Development Presented the implementation report on Mission Vatsalya.

Details

- The Ministry of Women and Child Development intended to provide 'integrated benefits to children and women' under Mission Vatsalya.
- Mission Vatsalya aims at **ensuring a healthy and happy childhood for every child.**
- Child Line (1098), the 24-hour toll-free helpline for children in distress, is managed by the Home Affairs Ministry under Mission Vatsalya.

Major initiatives under the Ministry of Women and Child Development

- For the effective implementation of various schemes and programmes, all major schemes under the Ministry of Women and Child Development, have been classified under 3 umbrella schemes;
 - Mission Poshan 2.0
 - Mission Vatsalya
 - Mission Shakti

Objective of Mission Vatsalya

- The objective of Mission Vatsalya is to ensure a healthy and happy childhood for every child in India.
- Focus under Mission Vatsalya;
 - Service delivery structures
 - Institutional care/services
 - Non-institutional community-based care
 - Emergency outreach services
 - Training and capacity building
 - Child Protection Services and Child Welfare Services

Mission POSHAN 2.0

- It is an Integrated Nutrition Support Programme.
- **It aims to address the challenges of malnutrition** in children, adolescent girls, pregnant women and lactating mothers.
- The objective is to **optimise the quality and delivery of the Supplementary Nutrition Program.**
- It also focuses on Maternal Nutrition, Infant and Young Child Feeding Norms, Wellness through AYUSH, etc.
- The Mission will integrate several key strategies to fulfil its objectives;
 - Corrective strategies
 - Nutrition Awareness strategies
 - Communication strategies and Creation of green eco-systems.
- **Digital infrastructure under the "Poshan Tracker"** will strengthen and bring about transparency in nutrition delivery support systems.
- **Schemes under Mission POSHAN 2.0**
 - ICDS-Anganwadi Services
 - PoshanAbhiyan
 - Scheme for Adolescent Girls
 - National Crèche Scheme

Mission Shakti

- Mission Shakti aims to **ensure a lifecycle support system for women** through integrated care, safety, protection, rehabilitation and empowerment.
- Mission Shakti has **two sub-schemes 'Sambal' and 'Samarthya'.**
 - The "Sambal" is a sub-scheme for the safety and security of women.
 - The "Samarthya" is a sub-scheme for the empowerment of women.
- **Initiatives under SAMBAL;**
 - **One-Stop Centre (OSC)** to facilitate access to an integrated range of services including medical aid, police assistance, legal aid/ case management, psychosocial counselling and temporary support services to women affected by violence.
 - **Beti Bachao Beti Padhao,** to address the declining Child Sex Ratio.

- **Mahila Police Volunteers**, to report the incidences of violence against women
- Women's Helpline.
- Nari Adalats to promote and facilitate alternative dispute resolution and gender justice within families and in society.
- **Initiatives under SAMARTHYA:**
 - **Gender Budgeting** is a tool for mainstreaming gender perspectives at various stages of planning, budgeting, implementation, impact assessment and revisiting of policy/programme objectives and allocations.
 - **SwadharGreh** to provide relief and rehabilitation to destitute women and women in distress.
 - **Working Women Hostels** for ensuring safe accommodation for women working away from their place of residence.
 - **National Crèche Scheme** to provide daycares facilities to children of the age group of 6 months to 6 years of working women who are employed.
 - **Pradhan MantriMatruVandanaYojana** (PMMVY) Provide Cash incentives for improved health and nutrition to pregnant and nursing mothers.
 - Umbrella ICDS Scheme is also subsumed in 'Samarthya'.

Present Status of these Schemes

- Poshan Abhiyaan has a total financial cost of Rs 1,81,703 crore;
 - Total cost under Mission Poshan 2.0 has been calculated on the basis of the cost-sharing ratio between the Central and States/UTs; 60:40 for States and UTs with the legislature.
 - 90:10 for North East Region and the Himalayan States and UT of Jammu & Kashmir.
 - 100% for Union Territories without legislature.
- Mission Shakti has a total financial cost of Rs 20989 Crore.
 - The sub-scheme 'Sambal' will be implemented as a Centrally Sponsored scheme with 100% central funding from the Nirbhaya Fund/ MWCD budget
 - The sub-scheme 'Samarthya' will be implemented as a Centrally Sponsored Scheme with a funding ratio of 60:40 between Centre and State Governments / UTs with the legislature, except North East & Special Category States / UTs with legislature where the fund ratio will be 90:10. For UTs without a legislature, 100% of funding will be provided by the Central Government.
- Mission Vatsalya has a total financial cost of Rs 10916 Crore.

Way Forward

- **Women and Children constitute 67.7% of India's population as per the 2011 census**, therefore the Empowerment and protection of women and children and ensuring their development are crucial for the sustainable and equitable development of the country.
- We need to create a safe and secure environment and empower women by providing them with an environment that is accessible, affordable, reliable and free from all forms of discrimination and violence.
- There is a need to **create an inclusive society where women and girls have equal access to resources and opportunities**, enabling them to participate in the social, economic and political development of India.
- When we empower the women in a family, we empower the entire household. When we help with a woman's education, we ensure that the entire family is educated. When we facilitate her good health, we help keep the entire family healthy. When we secure her future, we secure the future of the entire home.

DRAFT GUIDELINES BY NMC

GS-II SOCIAL JUSTICE

Context

- The National Medical Commission (NMC) has released draft guidelines for creating a national register of doctors after the licentiate exam.

Details

- The draft guidelines contain **guidelines about how doctors can be registered** in order to practice medicine in India.
- The guidelines aim to create **uniformity in the registration process** of medical practitioners in India.
- In the present system, Indian students do not have to attempt a licentiate exam after MBBS to get registered in their respective state medical councils.
 - Only foreign medical graduates have to pass the screening test in Medical Sciences to be registered. The exam is conducted by the National Board of Examinations
- The new guidelines provide a framework for designing a vibrant national medical register, with a **unique ID allocated to each student who qualifies for NEET**, with professional qualifications such as post-graduation and super-speciality training being added to the same ID.

Key features of the draft guidelines

- The draft guidelines provide a framework for creating a dynamic national medical register, with a unique ID assigned to each student who qualifies for NEET and other professional qualifications such as post-graduation and super-speciality training being added to the same ID.
- The registration process will be open for foreign doctors who want to come to India** to study in post-graduation courses, fellowships, clinical research, or voluntary clinical services.
- The draft stated that Indian medical graduates would be qualified for registration in the National Medical Register after they complete their MBBS degree from a recognised college, complete their mandatory internship, and pass the National Exit Test (NExT).
 - The Government expects to **conduct the NExT from 2024**.
- NExT will level the playing field for both Indians and foreigners**, it will also act as the qualifying test for post-graduate programmes instead of the NEET-PG the aspirants have to appear for presently.
- National Medical Register** contains the list of Registered Doctors with the various State Medical Councils across India.

National Medical Commission

- The Medical Council of India (MCI) was **established in 1934 under the Indian Medical Council (IMC) Act, 1933**.
- The main objective was to establish a uniform standard of higher qualifications in medicine and recognition of medical qualifications in India and abroad.
 - The Union government dissolved the MCI in 2018 and replaced it with the National Medical Commission Act which came into existence in August 2019.
 - The NMC functions as the country's top regulator of medical education.
- It has 4 autonomous boards:**
 - Undergraduate medical education.
 - Postgraduate medical education.
 - Medical assessment and rating.
 - Ethics and medical registration.
- Significance of NMC**
 - To improve the access to quality and affordable medical education.
 - To ensure the availability of high-quality medical professionals in all parts of the country.
 - To promote impartial and universal health care that promotes community health services.
 - To encourage medical professionals to adopt the latest medical research in their work.
 - Promote an effective grievance Redressal mechanism.
 - Maintain a medical register for Indian medical practitioners.
 - Enforce high ethical standards in all aspects of medical services.

INTEGRATED CHILD DEVELOPMENT SERVICES

GS-II SOCIAL JUSTICE

Context

- The Maharashtra State government has developed a portal to track the movement of migrant workers.

Details

- The **Maharashtra state government has developed an online portal based on a migration tracking system (MTS)** application to map the movement of seasonal migrant workers through individual unique identity numbers.
- The MTS project is expected to support the Integrated Child Development Services (ICDS) like nutrition supply, immunisation and health check-up etc, to migrant beneficiaries.

Integrated Child Development Services (ICDS) Scheme

- The Integrated Child Development Service (ICDS) Scheme was **launched in 1975** to provide supplementary nutrition, immunization and pre-school education to the children.
- It is **one of the world's largest programmes** to provide an integrated package of services for the overall development of the child.
- It is a **centrally sponsored scheme** and **covers all the districts** of the country.
 - All components of ICDS except the Supplementary Nutrition Programme are financed through a 60:40 ratio (central: state).
 - The Supplementary Nutrition Programme (SNP) component was funded through a 50:50 ratio.
 - The North-East states have a 90:10 ratio.
- Under SNP, **beneficiaries are given hot meals along with take-home rations**.


- For children, the quantum of rations and meals received depends on their malnutrition levels.
- SNP is provided for 300 days at the rate of Rs 8 per day for children (6-72 months) and Rs 9.50 per day for pregnant and lactating mothers.
- Severely malnourished children are allocated Rs 12 per day.
- **Beneficiaries :**
 - Children in the age group of 0-6 years.
 - Pregnant women.
 - Lactating mothers.

Significance of ICDS

- It improves the nutritional and health status of children in the age group 0-6 years.
- It promotes the psychological, physical and social development of the child.
- It reduces the incidence of mortality, morbidity, and malnutrition and school dropout.
- **Services under ICDS Scheme**
 - Supplementary Nutrition
 - Pre-school non-formal education
 - Nutrition and Health education
 - Immunisation
 - Health check-up
 - Referral services
- The services are offered at Anganwadi Centres through Anganwadi Workers and Anganwadi Helpers at the grassroots level.

Other Steps by the Government

- Promotion of Institutional deliveries through Cash incentive under **Janani Suraksha Yojana**.
- **Janani Shishu Suraksha Karyakram**: Free ante-natal Check-ups, Post-natal Care and treatment of Sick infants till one year of age.
- Providing Reproductive, Maternal, Newborn, Child and Adolescent Health Services, the establishment of Special Newborn Care Units.
- **Mission Indradhnaush**: Expanding full immunization Coverage, the introduction of new vaccines.
- **PM Swasthya Suraksha Yojana** for strengthening the tertiary health Sector.
- **POSHAN Abhiyaan** to address Malnutrition.
- **Iron and folic acid Supplementation** for the Prevention of Anaemia, home visits by ASHAs to promote breastfeeding and promote the use of ORS and Zinc for the management of diarrhoea in children.
- **Capacity building of Health Care Providers**: Training is being conducted under the National Health Mission to build and upgrade the Skills of Health Care Providers.
- **National Health Resource Repository**: Create a reliable, unified registry of the Country's healthcare resources showing the distribution pattern of health facilities and Services between Cities and rural areas. ISRO is a technology Partner for providing data Security.
- **Kayakalp initiative** to Promote Cleanliness, hygiene and infection control practices in public health facilities.





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FOOD CRISIS IN WEST AFRICA

GS-II INTERNATIONAL RELATIONS

Context

- Climate change, the COVID-19 pandemic and the war in Ukraine have left millions in urgent need of food. A new report has warned 40 million may go hungry in West Africa if nothing is done.

Key findings of report

- Between 2007 and 2022, the number of people in need of food assistance in the West African region — including Nigeria, Mali, Burkina Faso, Chad and Niger — **increased from 7 to 27 million**.
- It called on the **international community to provide the \$4 billion** that the UN is seeking in an appeal for West Africa.
- Cereal production in Sahel has dropped by about a third compared to last year. **Drought, floods, conflict, and the economic impacts of COVID-19** have forced millions of people off their land, pushing them to the brink.
- The number of young children suffering from **acute malnourishment** has also gone up across the Sahel region, from 4.9 million in 2021 to 6.3 million in 2022.
- Food prices** in the region have **increased by 20-30%** in the past five years.
- Countries in West Africa that **import their wheat from Russia or Ukraine**, are under particular strain.
- Several countries in the region have also been plagued by **Islamist insurgencies** that have fostered instability.
- The Sahel crisis is one of the **worst humanitarian crises** on a global scale and, at the same time, one of the **least funded**.

Addressing African challenge

- The African challenge is a key to **mitigate food insecurity** in the world.
- There is need to implement the existing **technical solutions such as higher-yielding and sustainable agriculture throughout Africa**.
- Social and economic measures**, along with **political will** are indispensable for bringing the Africa's green revolution.
- It is required that international donors fulfill their commitment to help African farmers and rural communities and protect them **against unfair trade, competition, and dumping of cheap agrifood products from overseas**.

INDIA TURKMENISTAN BILATERAL MEETING

GS-II INTERNATIONAL RELATIONS

Context

- India, Turkmenistan signed four agreements for cooperation.
- On his first-ever visit to independent Turkmenistan, the President of India **signed four agreements, including in financial intelligence and disaster management** and agreed to **expand bilateral trade and energy cooperation to further strengthen the multifaceted partnership**.

India - Turkmenistan Relations

Political Relations:

- Turkmenistan, one of the **Republics of the former USSR**, was proclaimed as an independent State on 27 October 1991.
- India enjoys close, friendly and historical ties with Turkmenistan. **'Turkmen Gate' built in Delhi in 1650's bears testimony to this friendship**.

Trade & Commercial Relations:

- Total trade for the year 2019-20 (upto December 2019) stood at US\$29.97 million of which exports from India stood at US\$26.40 million and Imports by India at US\$3.57 million registering a surplus of US\$22.83 million **in India's favour**.
- Major items of import from India** include electronic and electrical items, machinery and woven apparel and pharmaceuticals, frozen meat and tyres.
- Exports to India** comprises of fertilizers, cotton, raw hides and inorganic chemicals (e.g. Sulphur, Iodine).
- TAPI- Turkmenistan, Afghanistan, Pakistan and India (TAPI countries)** signed the TAPI Gas Sales & Purchase Agreement(GSPA) in May 2012.

Education and Cultural Relations:

- India provides training for Turkmen nationals under **ITEC programme**. Since the inception of the programme for Turkmenistan in 1994, over 421 Turkmen nationals have been trained in various courses.
- India provides **ICCR Scholarships** to students from Turkmenistan to pursue graduation, post-graduation and Ph. D.
- There are over 300 Students from Turkmenistan pursuing their higher education in India in various reputed universities.
- Hindi Chair:** In 2015, Hindi Chair was established in Azadi Institute of World languages, Ashgabat where Hindi is being taught to university students. **'Vishwa Hindi Diwas'** is celebrated in Turkmenistan every year.
- Indian Cinema and TV serials are popular with Turkmen people. Similarly, Indian music also holds a special place

- **Yoga and Traditional Medicine Centre:** The Yoga and Traditional Medicine Centre at Bagtyarlyk Sports Complex, Ashgabat was inaugurated by Hon'ble PM during his visit to Ashgabat in 2015.
- **Indian community in Turkmenistan:** There are presently 240 Indian nationals in Turkmenistan. Majority of them are semi-skilled workers construction sector.

BIMSTEC AND INDIA

GS-II INTERNATIONAL RELATIONS

Context

- The fifth summit of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), held virtually in Colombo.

Colombo package

Grouping's charter:

- It presents BIMSTEC as “an inter-governmental organization” with “legal personality.”
- It defines BIMSTEC's purposes and lists **11 items in the first article**. Which includes
 - acceleration of “the economic growth and social progress in the Bay of Bengal region”, and
 - promotion of “multidimensional connectivity”.

Re-constitution:

- The second element is the decision to **re-constitute and reduce the number of sectors of cooperation from the unwieldy 14 to a more manageable seven**.
- Each member-state will serve as a lead for a sector:
 - trade, investment and development (Bangladesh);
 - environment and climate change (Bhutan);
 - security, including energy (India); agriculture and
 - food security (Myanmar);
 - people-to-people contacts (Nepal);
 - science, technology and innovation (Sri Lanka), and
 - connectivity (Thailand).

Master Plan for Transport Connectivity

- Summit participants adopted the **Master Plan for Transport Connectivity applicable for 2018-2028**.
- It was devised and backed by the **Asian Development Bank (ADB)**.
- It lists 264 projects entailing a total investment of \$126 billion. Projects worth \$55 billion are under implementation.
- BIMSTEC needs to generate additional funding and push for timely implementation of the projects.

Agreements

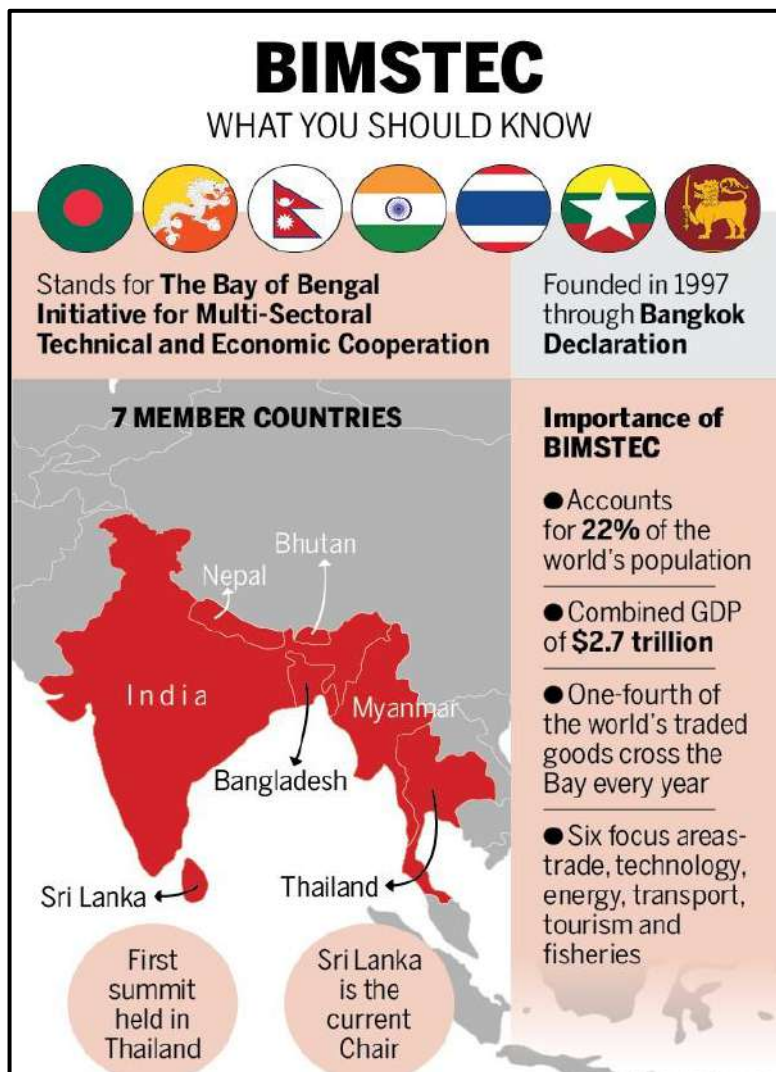
- The package also includes three new agreements, relating to **mutual legal assistance in criminal matters, cooperation between diplomatic academies, and the establishment of a technology transfer facility** in Colombo.

What need to be done to strengthen BIMSTEC?

- **Trade pillar needs support:** The pillar of trade, economic and investment cooperation needs greater strengthening and at a faster pace.
- **Bridging the bay in quest of a stronger BIMSTEC:** Despite signing a framework agreement for a comprehensive Free Trade Agreement (FTA) in 2004, BIMSTEC stands far away from this goal. Of the seven constituent agreements needed for the FTA, only two are in place as of now.
- **Need to finalise legal instruments** for coastal shipping, road transport and intra-regional energy grid connection.
- India was the only country to offer additional funding to the Secretariat and also to support the Secretary General's proposal to establish an **Eminent Persons Group (EPG) for producing a vision document**. Other countries need to emulate this sincere matching of words with action.
- BIMSTEC should focus more in the future on new areas such as the **blue economy, the digital economy, and promotion of exchanges and links among start-ups and Micro, Small and Medium Enterprises (MSMEs)**.
- **The personal touch:** personal engagement of the political leadership should be stepped up. The decision taken in Colombo to host a summit every two years is welcome if implemented. But in the medium term, an **annual summit should be the goal**.
- BIMSTEC needs **greater visibility**. India's turn to host the G20 leaders' summit in 2023 presents a golden opportunity.
- **Simplify the grouping's name:** The present name running into 12 words should be changed to four words only – the Bay of Bengal Community (BOBC). It will help the institution immensely.

About BIMSTEC

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is an international organisation of seven South Asian and Southeast Asian nations.
- The BIMSTEC provides a unique link between South and South-East Asia with 5 countries - **Bangladesh, Bhutan, India, Nepal and Sri Lanka** from South Asia and two countries - **Myanmar and Thailand** from South-East Asia coming together on one platform for cooperation in 14 key economic and social sectors of the economy.
- The BIMSTEC was **founded in 1997** with an ambition to **pursue mutual trade, connectivity and cultural, technical and economic development in the region**.
- It will celebrate its 25th anniversary this year.
- Initially, six sectors- trade, technology, energy, transport, tourism and fisheries were included for sectoral cooperation which was later expanded to 14 areas of cooperation.
- Agriculture is one of the 14 sectors.
- 22 per cent of the global population live in BIMSTEC countries, agriculture & allied activities are central to the economic and social development of the region.
- A BIMSTEC free trade agreement is under negotiation, also referred to as the mini SAARC.
- The BIMSTEC Free Trade Area Framework Agreement (BFTAFA) has been signed by all member nations to stimulate trade and investment in the parties, and attract outsiders to trade with and invest in the BIMSTEC countries at a higher level.



ECONOMIC CRISIS OF SRI LANKA

GS-II INTERNATIONAL RELATIONS

Context

- India has lent over \$2.5 billion in credit so far, in addition to \$500 million for a shipment of diesel.

Sri Lanka economic crisis

- Sri Lanka faces its worst economic crisis in decades. People are now fleeing Sri Lanka and trying to enter India.
- The Mahinda Rajapaksa government is struggling to pay for essential imports after a 70 per cent drop in foreign exchange reserves over two years triggered a **currency devaluation**.
- Fuel is in short supply, prices of food and essential goods** have increased and protests have broken out as the government preps for talks with the International Monetary Fund amid concerns over its ability to pay **\$4 billion in foreign debts this year, including a \$1 billion international sovereign bond that matures in July**.

Background

- It is an outcome of **poor public-finance management, bad policymaking and a pandemic**.
- Sri Lankan President Gotabaya Rajapaksa's government in 2019 announced a **massive tax cut that cost the country losses of more than 2 per cent of its GDP**.

What is happening in Sri Lanka?

- It is deep in debt. Its public debt is estimated to be 119 percent of the GDP.
- It means that it has borrowed more than it can produce.
- Sri Lanka runs out of diesel, faces longest-ever blackout.
- Sri Lanka has **borrowed heavily from foreign markets**. The largest slice of the borrowing has been done in **international**

sovereign bonds, which is 36.4 percent of all the foreign debt. Its second-largest lender is the Asian Development Bank (ADB), which gave 14.6 percent of the total. Then Japan and China, which gave 10.9 and 10.8 percent, respectively.

- India have lent \$1.4 billion, which is about a **third of what Japan or China has done**. Sri Lanka has asked for \$1 billion more.
- India has also extended a \$400 million currency swap and deferred payment of \$515.2 million to the Asian Clearing Union (ACU) by two months.
- In 2021, the PM promoted organic farming by banning the import and use of chemical fertilisers and pesticides. It led to **panic about shortages and food prices rocketed**. But six months later government revoked the ban and announced \$200 million in compensation to rice farmers who had to take losses because of the ban.

What does the IMF advise?

- **To protect the vulnerable and the poor through policy:** creating fiscal space for higher social safety net spending, the coverage, targeting, and per-family benefit needs to be strengthened to provide adequate protection for vulnerable groups.
- **To improve revenue generation and collection:** Fiscal consolidation should be primarily revenue-based, given Sri Lanka's very low tax-to-GDP ratio. The needed revenue should be mobilized by raising rates, minimizing exemptions, and ensuring greater contributions from high-income earners.

India's Four-pillar initiative for Sri Lanka

- It comprising lines of credit for food, medicines and fuel purchases granted by India
- A currency swap agreement to deal with Sri Lanka's balance of payment issues
- An "early" modernisation project of the Trinco oil farms that India has been pursuing for several years, and
- A Sri Lankan commitment to facilitate Indian investments in various sectors.

INDIA-NETHERLANDS RELATIONS

GS-II INTERNATIONAL RELATIONS

Context

- India and Netherlands signed four agreements on the sidelines of President of India state visit to the Netherlands. Indian President has visited the Netherlands **after 34 years**.

Details of four agreements

- First is the Extension of MoU on bilateral cooperation in the field of Ports, Maritime Transport and Logistics.
- Second is the Extension of **MoU with State Archives Department, Kerala and National Archives of Netherlands on the execution of Shared Cultural Heritage**
- Third is MoU for **Cosmos Malabaricus Project between Leiden University and Kerala Council of Historical Research and National Archives of Netherlands**.
- The fourth is the Extension of the **Programme of Cooperation between the Department of Biotechnology, Government of India and the Ministry of Economic Affairs, Agriculture and Innovation, Government of Netherlands**.

India-Netherlands Relations

Diplomatic relations:

- India-Netherland partnership is significant, in terms of the **pace and momentum generated by periodic meetings between the leadership of the two countries**.
- India and the Netherlands **established diplomatic relations in 1947**. Since then, the two countries have developed strong political, economic & commercial relations, and various sectoral co-operations.
- This year India and the Netherlands are **commemorating the 75th anniversary of the establishment of diplomatic relations**.
- To mark the occasion, a special logo was unveiled to commemorate 75 years of diplomatic relations between both nations.

Trade and Commercial Relations

- The core of bilateral connections between the two countries is **trade and business cooperation**.
- After Mauritius and Singapore, the **Netherlands was the third largest investor in India in FY 2019-20**, with USD 6.5 billion in FDI inflows.
- Between April 2000 and December 2020, **Dutch investments in India totaled USD 36.28 billion, standing at the fourth position**.
- With USD 1.23 billion in overseas direct investment (ODI) from India in FY 2019-20, the **Netherlands was the fourth highest destination for ODI from India**. The Netherlands was also the fourth largest ODI destination in FY 2020-21 (through to January 2021), with \$909.9 million in investments.
- In FY 2020-21 (April-Dec), bilateral trade stood at **US\$6.55 billion with Indian exports to the Netherlands at US\$4.33 billion and Indian imports from the Netherlands at US\$ 2.22 billion**.
- There are over **200 Dutch companies present in India**. Also, there are over 200 Indian companies present in the Netherlands,

including all the major IT companies.

- **Main items of Indian Exports to the Netherlands** are Petroleum and related products, apparel and clothing, manufactures of metals and iron & steel, textile yarn, fabrics, made-up articles, organic chemicals and medicinal and pharmaceutical products, electric machinery, telecommunication equipment, general industrial machines and road vehicles, vegetables & fruit, marine products and spices etc.

Water Management

- Dutch water expertise is amongst the best in the world. The Dutch have **mastered the art of flood control, water delivery, and treatment over many decades.**
- **Water technology, marine technology, and delta technology** are the three main emphasis areas in the water sector.
- A framework called the **Dutch Indo Water 3 Alliance Leadership Initiative (DIWALI)** has been developed to identify solutions for water-related challenges, in which both nations can collaborate to build solutions.

Diaspora

- The Netherlands has **Europe's second-biggest Indian diaspora community** (after the United Kingdom) and the largest Indian diaspora community in mainland Europe.
- Businessmen, IT and other professionals, as well as students, make up the majority of Indian nationals in the Netherlands.
- The diaspora serves as a **vital link between the two countries, facilitating cross-cultural exchanges.**
- The **e-Tourist Visa system**, the **Know India Program**, the **Tracing the Roots Program**, and the **India Corporate Internship Program**, among others, have all helped to **improve and deepen people-to-people relationships.**

UNITED NATIONS HUMAN RIGHTS COUNCIL

GS-II INTERNATIONAL RELATIONS

Context

- The United Nations General Assembly (UNGA) was scheduled to vote on a draft resolution to suspend Russia from the United Nations Human Rights Council as part of the global response to the alleged war crimes in Bucha, a town outside Kyiv.

About UNHRC

- The Human Rights Council is an **inter-governmental body** within the United Nations system responsible for strengthening the promotion and protection of human rights around the globe and for addressing situations of human rights violations and make recommendations on them.
- It has the ability to **discuss all thematic human rights issues and situations that require its attention throughout the year.**
- It meets at the **UN Office at Geneva.**
- The Council is **made up of 47 United Nations Member States** which are elected by the UN General Assembly.
- The Human Rights Council **replaced the former United Nations Commission on Human Rights.**
- **Members of the Council serve for a period of three years and are not eligible for immediate re-election after serving two consecutive terms.**

United Nations General Assembly (UNGA)

- It is **one of the six principal organs of the United Nations (UN).**
- It serves as the **main deliberative, policymaking, and representative organ of the UN.**
- Its powers, composition, functions, and procedures are set out in Chapter IV of the United Nations Charter.
- The UNGA is **responsible for the UN budget, appointing the non-permanent members to the Security Council, appointing the Secretary-General of the United Nations, receiving reports from other parts of the UN system, and making recommendations through resolutions.**
- It also establishes numerous subsidiary organs to advance or assist in its broad mandate.
- **The UNGA is the only UN organ wherein all member states have equal representation.**
- It can reconvene for **special and emergency special sessions.**
- **Voting in the General Assembly** on certain important questions – namely recommendations on peace and security; budgetary concerns; and the election, admission, suspension or expulsion of members – is by a **two-thirds majority of those present and voting.** Other questions are decided by a simple majority. Each member country has one vote.
- Apart from the approval of budgetary matters, including the adoption of a scale of assessment, **Assembly resolutions are not binding on the members.**
- **All 193 members of the United Nations are members of the General Assembly**, with the addition of Holy See and Palestine as observer states.

US-INDIA 2+2 MINISTERIAL DIALOGUE

GS-II INTERNATIONAL RELATIONS

Context

- India and the U.S. will hold their fourth annual '2+2' Defence and Foreign Ministry dialogue.

Agenda for discussion

- Focus on the "Comprehensive Global Strategic Partnership" between the two countries.
- The two sides will discuss defence, science and technology (particularly emerging technology), climate and public health (particularly cooperation on managing the COVID-19 pandemic), fortifying and building supply chains, as well as people to people ties.
- India and the U.S. will continue their "close consultations on the consequences of war against Ukraine and mitigating the impact by addressing energy and food prices".

2+2 Dialogue mechanism

- The 'two plus two dialogue' is an expression used to indicate that two appointed ministers from each country, (**ministers of defence and external affairs in India's case**) will meet up to discuss the two countries' strategic and security interests.
- Goal:** To establish a diplomatic conversation between the two countries'.
- India conduct 2+2 dialogue with **U.S., Japan and Australia.**

Other High-level dialogue mechanisms between India-U.S.

- India and the U.S. have **more than 50 bilateral inter-governmental dialogue mechanisms** for exchange of views on issues of mutual interest.
- A number of such dialogue mechanisms are held at the Ministerial level including:
 - India-U.S. Commercial Dialogue:** The India-U.S. Commercial Dialogue is led by the Minister of Commerce and Industry (CIM) and the U.S. Secretary of Commerce.
 - India - U.S. Economic and Financial Partnership:** The India - U.S. Economic and Financial Partnership is led by the Finance Minister (FM) and the U.S. Secretary of the Treasury.
 - India-U.S. Trade Policy Forum:** The India-U.S. Trade Policy Forum is led by CIM and the U.S. Trade Representative (USTR).
 - India-U.S. Strategic Energy Partnership:** The India-U.S. Strategic Energy Partnership is led by the Minister of Petroleum and Natural Gas and the U.S. Secretary of Energy.
 - India-U.S. Homeland Security Dialogue (HSD):** The India-U.S. Homeland Security Dialogue is led by the Minister of Home Affairs and the Secretary, U.S. Department of Homeland Security.

VETO POWER OF UNSC

GS-II INTERNATIONAL RELATIONS

Context

- Liechtenstein is convening the UN General Assembly to debate a draft resolution backed by the US -- **requiring the five permanent members of the UN Security Council (Russia, China, US, UK and France) to justify their use of the veto.**
- Besides the five permanent members, the UNSC also has **10 non-permanent members (including India), who do not have the right of veto.**

India and UNSC reforms

- India has been at the forefront to reform the Security Council, to **become a permanent member.**
- India has called for reforms in the UNSC, claiming that the body **had not been able to fulfill responsibilities in maintaining global peace and security due to "limited representation".**
- India -- along with the other **G4 countries (Brazil, Germany, and Japan)** -- has previously stated that if given a permanent seat on the UNSC, it would not use the veto for a period of 15 years.
- India has repeatedly said that the **issue of expanding the UNSC should not be held hostage by the debate over veto power.**

What is veto power?

- The UNSC veto power is the **power of the five permanent members of the UNSC to veto (strike down) any "substantive" resolution.**
- The veto power originates in **Article 27 of the United Nations Charter**, which states:
 - Each member of the UNSC shall **have a vote.**
 - Decisions of the UNSC on procedural matters shall be made by an **affirmative vote of nine members.**
 - Decisions of the UNSC on all other matters shall be made by an **affirmative vote of nine members, including the concurring votes of the permanent members.**
- This means that a **negative vote from any of the permanent members will block the adoption of a draft resolution.**
- A permanent member that **abstains or is absent from the vote will not block a resolution from being passed.**

- Although the "power of veto" is **not mentioned by name in the UN Charter**, Article 27 requires concurring votes from the permanent members.
- For this reason, the "power of veto" is also referred to as the **principle of "great power unanimity" and the veto itself is sometimes referred to as the "great power veto"**.
- During the negotiations for the formation of the UN at Dumbarton Oaks (August–October 1944) and Yalta (February 1945), the **USSR, US, China, UK and France made it clear that there would be no UN if they did not get veto power**.
- **Ukraine-Russia conflict:** UNSC reform has recently gained strength and support from major players after Russia's recent invasion of Ukraine. Moscow's veto power has allowed it to paralyse action in the UNSC, which is supposed to intervene in such conflicts as guarantor of global peace.

The Liechtenstein proposal

- It is co-sponsored by some 50 countries including the United States -- but none of the other four permanent UNSC members.
- It provides for a convocation of the 193 members of the General Assembly "within 10 working days of the casting of a veto by one or more permanent members of the Security Council, to hold a debate on the situation as to why the veto was cast".
- The adoption of the Liechtenstein resolution is a significant step **toward the accountability, transparency, and responsibility of all" the permanent members of the Security Council**.
- The positions of India, Brazil or South Africa, and other contenders for a potential permanent seat have not yet been revealed.

Arguments for and against the veto

- Supporters of veto power regard it as a **promoter of international stability**, and a **check against "snap" military interventions**.
- Critics, say that the **veto is the most undemocratic element of the UN**, as well as **the main cause of inaction on war crimes and crimes against humanity**, as it effectively **prevents UN action against the permanent members and their allies**. For example, the US routinely casts lone vetoes against resolutions criticising Israel.
- The permanent members **veto resolutions that criticise their own actions**. For ex. In 2014, Russia vetoed a resolution condemning its annexation of Crimea. Most recently, Russia vetoed a resolution condemning its actions in Ukraine.
- Amnesty International claimed that the **five permanent members had used their veto to "promote their political self interest or geopolitical interest above the interest of protecting civilians"**.

India at UNSC

- India has recently **taken over the presidency of the United Nations Security Council**.
- India began its **eighth term as a non-permanent member** of the UNSC on January 1 and will remain as such for a period of **two years**.
- India's bid for a permanent seat at the UN Security Council has support from four of the **five P5 nations, namely the US, UK, France and Russia**.
- **China is the only permanent member** which is yet to officially back India's bid.

Composition of UN Security Council

The UN Security Council is composed of

- **15 members, including five permanent member states - China, France, Russian Federation, the United States, and the United Kingdom - and**
- **10 non-permanent member states elected by the United Nations General Assembly (UNGA)**.
- Each non-permanent member gets the opportunity to work as UNSC president.
- Ten non-permanent members are elected to the UNSC every year for a two-year term. India's current term began on January 1 of this year and will last until December 31, 2023.
- The 10 non-permanent seats are distributed among the regions of the world: five seats for **African and Asian countries** (three are for Africa and two for Asia), one for Eastern European countries, two for Latin American and Caribbean countries, and the remaining two for Western European and other countries.
- The Africa and Asia Pacific group takes turns every two years to put up an Arab candidate.

How does presidency of UNSC rotate?

- **Each non-permanent member gets the opportunity to operate as president of the UN Security Council** during the two years it is part of the grouping.
- The **presidency of UNSC changes hands every month between its members** in the English alphabetical order of the member states' names.
- In August, the presidency was passed on from France to India. Similarly, Ireland is slated to take over the presidency from India in September.
- India will be in **line for the presidency again in December 2022**.
- The country's last term as a non-permanent member of the UNSC was in 2011-12, which was preceded by stints in **1991-92, 1984-85, 1977-78, 1972-73, 1967-68, and 1950-51**.

Powers of the UNSC President

- The presidency **derives responsibility from the Provisional Rules of Procedure of the United Nations Security Council** as well as UNSC's practice.
- The holder of the presidency is considered to be the **'face' and spokesperson of the UNSC**.

MISSION SAGAR IX

GS-II INTERNATIONAL RELATIONS

Context

- With the overarching aim of **providing critical medical aid to Sri Lanka during the ongoing crisis**, INS Gharial as part of Mission SAGAR IX arrived at Colombo and delivered over 760 kgs of 107 types of critical lifesaving medicines.
- In line with **GoI's vision of SAGAR – Security And Growth for All in the Region** – the Indian Navy undertakes several deployments titled 'Mission SAGAR' to assist friendly IOR littorals.
- Since May 2020, Indian Navy has successfully **concluded eight such missions**, deploying ten ships to 18 Friendly Foreign Countries.

Mission SAGAR

- Mission SAGAR is a major milestone in India's engagement with the countries in the Indian Ocean Region, in line with **'SAGAR – Security and Growth for All in the Region'**.
- Launched on **May 10, 2020**, Mission SAGAR is India's initiative **to deliver COVID-19 related assistance to the countries in the Indian Ocean Region**.
- Mission SAGAR is in line with India's role as the **first responder in the region and builds on the excellent relations existing between these countries to battle the COVID-19 pandemic**.
- As part of this Mission, **INS Kesari successively visited Maldives, Mauritius, Madagascar, Comoros and Seychelles** during May-June 2020 **to deliver assistance to our maritime neighbors in dealing with the COVID crisis**.
- India's humanitarian assistance included **supplies of essential food items, medicines, Ayurvedic medicines and deployment of medical assistance teams to Mauritius and Comoros**.
- As part of Mission SAGAR-II, Indian Naval Ship Airavat delivered food aid to Sudan, South Sudan, Djibouti and Eritrea.

What is SAGAR policy?

- Prime Minister Narendra Modi introduced the concept of SAGAR – **'Security and Growth for All in the Region'** during his **visit to Mauritius in March 2015**.
- It is a high-level articulation of India's vision for the Indian Ocean. SAGAR has distinct but inter-related elements and underscores India's engagement in the Indian Ocean.
- The principles enshrined in SAGAR provide **a coherent framework to address some of the challenges related to economic revival, connectivity, security, culture and identity**.
- During his address in Maldives Parliament in June 2019, Modi said SAGAR is also a blueprint for cooperation in the Indo-Pacific region.
- Under the broad vision of SAGAR, **relations have been augmented with partners in the region in defence and security, development partnership, training and capacity building**. The Indian Ocean Region received priority in COVID assistance.

Key features of SAGAR

- **Enhancing capacities to safeguard land and maritime territories** and interests.
- **Deepening economic and security cooperation** in the littoral.
- **Promoting collective action to deal with natural disasters** and maritime threats like piracy, terrorism and emergent non-state actors.
- Working towards sustainable regional development through enhanced collaboration.
- Engaging with countries beyond shores with the aim of building greater trust and promoting respect for maritime rules, norms and peaceful resolution of disputes.
- The 'Blue Economy' has emerged as a promising new pillar of prosperity in the region, with immense economic and employment potential. India is engaging with its neighbours in Blue Economy initiatives, particularly in the areas of marine bio-technology, exploration and sustainable exploitation of ocean mineral resources, sustainable fishing practices, and harnessing of ocean energy.

Challenges for SAGAR

- The main challenge is to ensure **intra-ocean trade and investment, and the sustainable harnessing of the wealth of the seas, including food, medicines and clean energy**.
- Security is fundamental to the SAGAR vision. If the revitalised maritime economy of the Indian Ocean region is to be a force for global economic growth, it is essential that the waters remain peaceful, stable and secure.
- The waters must not only be better connected but they should remain free from non-traditional and traditional threats that could impede the seamless movement of goods, people and ideas.
- The Indian Ocean is **prone to non-traditional security threats** like **piracy, smuggling, maritime terrorism, illegal fishing, and trafficking of humans and narcotics**.

GENERAL STUDIES - III

INDIA-AUSTRALIA ECTA

GS-III ECONOMY

Context

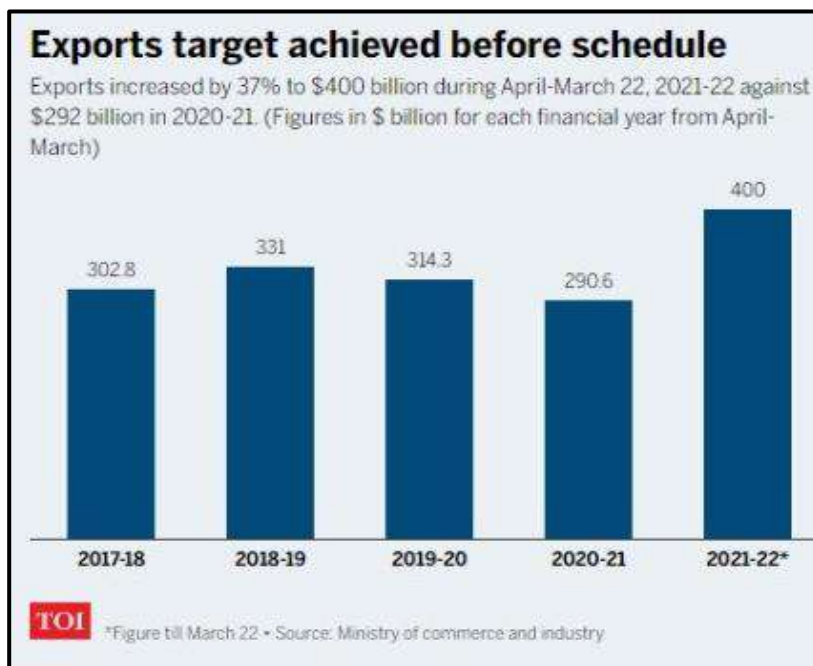
- PM Narendra Modi and his counterpart in Canberra Scott Morrison have signed an Economic Cooperation and Trade Agreement (ECTA).

Background

- The negotiations for the agreement were formally re-launched in September 2021.
- It was concluded on a fast-track basis by the end of March 2022.
- Australia is the 17th largest trading partner of India.
- India is also Australia's 9th largest trading partner.
- The bilateral relations have been excellent throughout and underwent transformative evolution in recent years.

Economic Cooperation and Trade Agreement

- It is the **first Free Trade Agreement** signed by India with a major developed country in a decade.
- The area covered under this agreement are:
 - Trade in goods, Rules of Origin
 - Trade in Services
 - Technical Barriers to Trade
 - Sanitary and Phytosanitary measures
 - Dispute settlement and Movement of Natural Persons
 - Telecom and Customs Procedures
 - Pharmaceutical products and cooperation in other areas
- The agreement provides an **institutional mechanism** which encourages and improves trade.
- It **covers the tariff lines** between the two countries.
- On all of Australia's tariff lines, India will be given **preferred market access**.
- This includes all **labor-intensive export sectors** that India is interested in, such as **gems and jewellery, leather, textiles, footwear, and furniture**.
- India, on the other hand, will give **Australia preferential access** to more than **70% of its tariff lines, including lines of export interest to Australia that are largely raw commodities and intermediaries, such as coal, mineral ores, and wines**.
- Under the deal, **Indian STEM (Science, Technology, Engineering, and Mathematics)** graduates will be given extended post-study employment visas.
- Australia will also launch a **programme to grant visas to young Indians** who want to spend their vacations working in the country.



Significance of the agreement

- 96 percent of Indian exports** to Australia will be duty-free, including shipments from vital industries like **engineering items, gems and jewellery, textiles, apparel, and leather**.
- According to the government, bilateral trade in products and services would expand to **USD 45-50 billion over the next five years, up from USD 27 billion**, and over **one million employment** will be created in India.
- Around **85 percent of Australian exports**, including coal, sheep meat, and wool, will have duty-free access to the Indian market, as well as lower-duty access to **Australian wines, almonds, lentils, and select fruits**.

Way Forward

- Deepening India-Australia ties are based on **shared values, interests, geography, and goals, and collaboration and coordination** between the two countries has gained traction in recent years.

- India and Australia share a **vision of an Indo-Pacific region** that is **free, open, inclusive, and rules-based**, with cooperative maritime use based on international law, including the **United Nations Convention on the Law of the Sea (UNCLOS)**, and peaceful dispute resolution rather than unilateral or coercive actions.
- By considerably increasing bilateral trade in **products and services**, **creating new employment opportunities**, **enhancing living standards**, and **promoting the general welfare of the two peoples**, the India-Australia ECTA will improve the two countries' already deep, close, and strategic connections.

INDIA OVERSHOOTS EXPORT TARGET

GS-III ECONOMY

Context

- India has achieved **USD 417.8 billion exports in 2021-22**.
- With this, India has achieved a key milestone in its journey towards becoming '**Aatmanirbhar**'.

Background

- This is the **first time ever** that exports have crossed the \$400 billion-mark.
- The **previous best was \$331.02 billion** that was achieved in 2018-19.
- India added around **\$25.19 billion worth exports** in the month of March so far and may finish at about **\$410 billion** by the end of this fiscal.

India's achievement path

- **Make in India blockbuster**
- Closer interaction with states and districts
- Engagement with exporters
- Faster resolution of their issues
- Actively engaging with different export promotion councils
- Industry associations and other stakeholders
- **Robust Performance**
- **Exports are one of the key factors** driving India's economic growth.
- The sector was **one of the few to revert quickly to pre-pandemic levels** once the government started relaxing Covid-related curbs.
- **Key Drivers**
- The surge in exports during April-February was fuelled by higher shipments of **engineering, petroleum and chemical goods**.
- Exports of **engineering items, petroleum, and chemicals climbed by 32 percent, 88.14 percent, and 25.38 percent** in February, according to the latest figures issued by the **commerce ministry**, to **\$9.32 billion, \$4.64 billion, and \$2.4 billion, respectively**.
- In February, however, **pharmaceutical exports fell 1.78 percent to \$1.96 billion**.
- In comparison to the previous year, **engineering goods exports climbed by 50%**.
- **Rice (other than basmati), marine products, wheat, spices, and sugar** all contributed to the biggest number of agricultural products shipped in FY22.

Reasons for the surge

- One of the key causes for the increase in exports is an **increase in pent-up demand**, which had declined as a result of the Covid epidemic, which compelled countries to remain under strict lockdown, affecting global trade.
- Exports have also increased as a result of increased local manufacturing due to **production-linked incentive (PLI) programmes** and the adoption of several interim trade agreements.
- The Centre implemented a series of steps to promote exports of both goods and services as part of its mission to promote locally made products in the global market, including the introduction of the **Refund of Duties and Taxes on Exported Products (RoDTEP)** and **Rebate of State and Central Levies and Taxes (RoSCTL) Schemes**, the launch of the **Common Digital Platform for Certificate of Origin** to facilitate trade and increase FTA utilisation by exporters, and promoting districts as export hubs.

Importance of Exports

- They are one of the **fundamental drivers of the growth of any economy**.
- It influences **country's GDP, exchange rate, level of inflation as well as interest rates**.
- A robust export data is beneficial as it leads to increase in **job opportunities, enhances foreign currency reserves, boosts manufacturing and also increases government's revenue collection**.
- It also plays a key role in strengthening the **domestic manufacturing units by scaling up their quality** to make India made products compete and stand out against global peers.

RISING COAL PRICES

GS-III ECONOMY

Context

- Input prices for **independent power producers and power distribution businesses** are expected to rise as coal prices remain high.

Background

- The **conflict between Ukraine and Russia** has caused a **disruption in Russia's coal supply**, which is unlikely to be entirely restored by other suppliers.
- The scarcity has driven up spot electricity costs on the **India Energy Exchange**, resulting in higher prices.

Reason for rising prices

- Russia – Ukraine conflict:**
 - The war has caused a **disruption in Russia's coal supply**, which is unlikely to be entirely compensated by other sources.
- Lack of domestic efficiency:**
 - ICRA also predicted a coal shortfall unless Coal India can **increase domestic coal production to 700 million tonnes in the following fiscal year, up from 601 million tonnes in FY21.**
- Increase in price at the source:**
 - The **price of Australian coal for March delivery** had hit an all-time high of about \$330 per tonne.
 - Australia and Indonesia** are key sources of coal import for Indian thermal power generation companies using imported coal.
- High Turnaround time:**
 - The **unloading of coal from railway racks at power facilities** is taking longer than expected.
 - The **longer the time it takes for power providers to dump coal, the longer the turnaround time.**

Way forward

- India should be on the lookout for **new coal power plant plans with a capacity of 27 gigawatts (GWs)**, which could be redundant by 2030.
- To satisfy demand growth by FY 2030, **India does not require additional coal capacity beyond the 33 GW** of new coal plants now under construction.
- Even assuming a **5% annual increase in power consumption**, the research shows that **coal-fired generation in FY 2030** will be lower than in FY 2020, as India meets its 450 GW renewable energy and other non-coal commitments.
- According to the analysis, **shifting investment from coal projects to renewables and battery storage** would save the Indian power system an additional Rs. 43,219 crores per year in terms of reduced power purchase costs, as well as **Capex savings**, from 2027 onwards, without jeopardising the power system's ability to meet future demand.
- The smart alternative is to **transfer these resources to renewables and storage** in order to develop a future grid that is less expensive and more resilient.

DRAFT BATTERY SWAPPING POLICY BY NITI AAYOG

GS-III ECONOMY

Context

- The Niti Aayog has released a draft battery swapping policy for developing a battery swapping network across the country.

Details

- The Niti Aayog has released a draft battery swapping policy.**
 - In the 1st phase, all metropolitan cities with a 40 lakh or more population** will be supported by the development of a battery swapping network.
 - In the 2nd Phase, all major cities with 5 lakh or more** will be covered.
- Battery swapping is an alternative which involves swapping discharged batteries with charged ones.
- Battery Swapping de-links the vehicle and Battery and **reduces the upfront cost of the vehicles.**
- Battery swapping is popularly used for smaller vehicles such as 2 and 3 wheelers which have smaller batteries that are easier to swap.
- Battery swapping saves **time, and space, and is cost-efficient.**
- The Union Finance Minister in her Budget Speech 2022-23 announced that The Government of India will introduce a Battery Swapping policy to improve efficiency in the EV Ecosystem.

Key features of the Draft Policy

- Promote swapping of batteries to reduce batteries costs of purchasing Electric vehicles (EVs).
- Promoting battery swapping as an alternative to charging facilities.
- Strengthening policy and regulations to de-risk the battery swapping ecosystem
- Encourage partnerships among battery providers, and other relevant partners such as insurance/financing.
- Encouraging the formation of ecosystems capable of delivering integrated services to end-users.
- Promote better lifecycle management of batteries, including maximizing the use of batteries during their usable lifetime, and end of life battery recycling.

Electric Vehicles

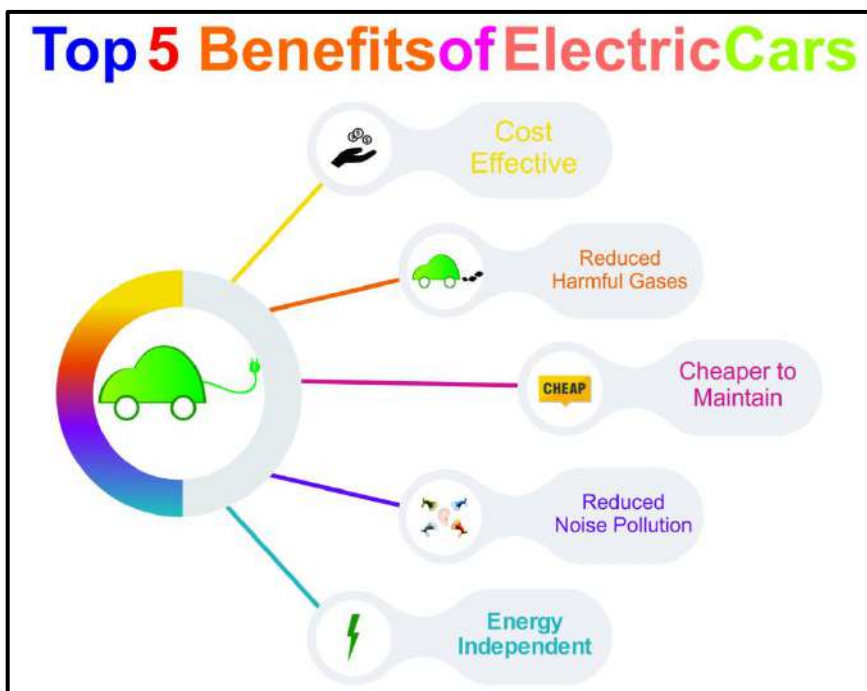
- An electric vehicle uses electricity from extravehicular sources, or it can be powered by a battery (sometimes charged by solar panels).
- Electric vehicles are vehicles that are **either partially or fully powered on electricity**.
- Electric vehicles have **low running costs** as they have fewer moving parts for maintenance and also are very **environmentally friendly as they use little or no fossil fuels** (petrol or diesel).
- Electric Vehicles are **easy and cheaper to maintain** because of their simple structure and operations.
- Another benefit that an EV can deliver is the **silent functioning capability**.
- Switching to Electric Vehicles will **improve the overall energy security** situation as the country imports over 80% of its total crude oil requirements, and also save valuable foreign reserves. This will help India in achieving the goal of 'Atmanirbhar Bharat'.
- Increasing demand for EVs is also expected **to boost the local EV manufacturing industry**; this will support the "Make in India" programme.

Present Status

- Government efforts resulted in a **2.5 times increase in charging stations in 9 megacities in the last four months**.
- These 9 cities (Surat, Pune, Ahmedabad, Bengaluru, Hyderabad, Delhi, Kolkata, Mumbai, and Chennai) account for about 940 of India's 1640 public EV chargers.
- Oil Marketing Companies to set up 22,000 EV charging stations across the country in prominent cities and highways.
- In 2020-21, around 1.59 lakh EVs were sold in India, which is 0.8% of the Internal Combustion Engine (ICE) sales in the same period (1.79 crores).

Steps by Government to promote Electric Vehicles

- The government has taken various initiatives to promote the manufacturing and adoption of electric vehicles in the country.
- Government of India to expand Public Electric Vehicle Charging Infrastructure across the nation.
- The government is working with private and public agencies to increase public EV charging infrastructure.
- **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India Scheme (FAME)** was launched in 2015 to promote the manufacturing of electric and hybrid vehicles.
- The efforts undertaken by the government through various implementing agencies have increased the number of public EV charging infrastructures.
- After ensuring adequate EV infrastructure in megacities, the government is planning to expand the coverage to other cities.
- The Department of Heavy Industry has sanctioned Public Charging Stations for 25 Highways and Expressways, EV charging stations must be located within every 25 km of range on these expressways and highways.
- Cabinet approved a Production-linked incentive scheme for the automotive sector to boost the manufacturing of electric vehicles.
- NITI Aayog Released Handbook to Guide EV Charging Infrastructure in India.



- Goods and Services Council decided on **5% GST on Electric vehicles**.
- **Government Launched 'e-AMRIT' portal:** One-stop platform for information on electric vehicles.

Electric Vehicle charging infrastructure Guidelines released by the Ministry of Power

- The Guidelines allowed electric vehicles owners to charge EVs at their residences or offices using their existing electricity infrastructure.
- **A Person is free to set up a Public Charging Station.** It must meet the prescribed standards released by the Bureau of Energy Efficiency, Ministry of Power, and Central Electricity Authority.
- A revenue-sharing model is suggested for land use to make a public charging station profitable from an operational point of view.
- **A Separate meter is to be installed for a public charging station** to record and bill consumption as per the applicable tariff for the EV charging station.
- Technical requirements for public charging stations have been expanded.

Challenges

- Many residents park their vehicles in open or uncovered parking slots as they have **no dedicated parking space**. So, how would they set up their charging infrastructure?
- In India, more than 90% of workers are engaged in the unorganised sector and even organisations in the organised sector lack dedicated parking infrastructure. **Organizations in both the Organised and unorganised sectors that don't have dedicated parking spots will face the problem.**
- Lack of charging infrastructure, disruption in power supply, **inadequate dedicated service centres**, doubts over the sustainability of Electric vehicles and charging infrastructure, **long charging hours**, etc are the key challenges, which need to be addressed.

Way forward

- The availability of **adequate charging infrastructure** is the key element for accelerating the adoption of electric vehicles in India.
- Many states have notified dedicated EV policies, while many are in process of drafting their policies. The **Central Government needs to align the policies at the central and state level and create a national-level policy for promoting EVs in the country.**
- Promote local manufacturing, Provide adequate Support to the local manufacturing ecosystem to lower the price of EV vehicles.
- Improve the research and development to promote indigenous manufacturing and reduce dependency on imports.

COUNTERCYCLICAL BUFFER

GS-III ECONOMY

Context

- The Reserve Bank of India has decided not to activate the **countercyclical capital buffer** at this point in time as it is not required.

Background

- As an expansion of another buffer, the rule was **first proposed in Basel III (called the capital conservation buffer)**.
- **Basel III is a voluntary set of policies that central banks from all over the world have agreed to.**
- These measures were drafted by the **Basel Committee on Banking Supervision of the Bank of International Settlements** in response to the **financial crisis of 2007-09**, in order to **tighten bank supervision and combat risks within the financial system.**

What is a Countercyclical Capital Buffer in Banking?

- The countercyclical capital buffer is **designed to shield the banking sector from losses that could be caused by rising cyclical systemic risks.**
- Countercyclical capital buffers **encourage banks to hold capital during periods of high credit growth** in order to **lower the buffer if the financial cycle swings down or the economic and financial environment deteriorates significantly.**
- Banks can use the **capital buffers they built up during the expansion phase of the financial cycle to offset losses** that may occur during times of crisis and keep lending to the real economy going.

CCyB framework in India

- The **structure for CCyB was established by the RBI in 2015**, in accordance with recommendations that stated that the CCyB would be activated as and when the circumstances demanded.

- The credit-to-GDP gap is the main indicator in the framework, which is used in conjunction with several supplemental indicators.
- It requires banks to **build up a capital buffer in good times** that can be utilised to keep credit flowing to the real economy in bad times.
- The buffer was also intended to **prevent the banking industry from lending indiscriminately during periods of excessive credit growth**, which have been linked to the accumulation of system-wide risk.

Significance

- **Creates a buffer**
 - It requires banks to build up a capital buffer in good times that can be utilised to keep credit flowing to the real economy in bad times.
- **Avoid indiscriminate lending**
 - It accomplishes the **broader macroprudential goal** of preventing the banking sector from lending indiscriminately during periods of excessive credit growth, which have been linked to the accumulation of system-wide risk.

MONETARY POLICY REVIEW

GS-III ECONOMY

Context

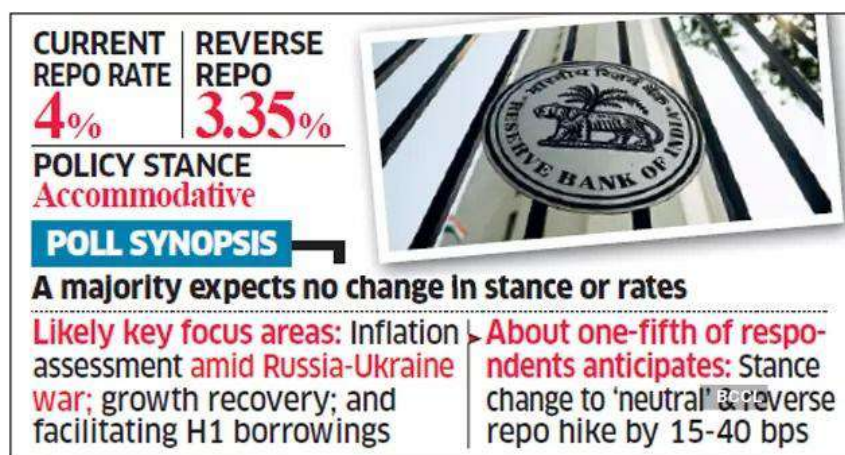
- The Reserve Bank of India (RBI) recently opted to hold the main policy rate – **Repo rate – unchanged at 4% for the eleventh time in a row in its latest Monetary Policy review.**
- It has also maintained its **accommodative approach**, but has stated that it will **reduce surplus liquidity in a steady and measured manner in order to keep inflation under control.**

Monetary Policy

- The RBI's monetary policy is a **set of financial tools and initiatives designed to protect and promote economic growth.**
- Monetary policies essentially **regulate the total amount of money available to commercial banks** and, by extension, to individual consumers and businesses.
- A monetary policy's **principal goal is to maintain price stability while still pursuing the goal of growth.**

Significance of Monetary Policy Review

- **Russia – Ukraine war impacts**
 - The economic recovery could be hampered by the Russia-Ukraine conflict due to **rising commodity prices and global spillover routes.**
- **Using the tool of Standing Deposit Facility**
- The Reserve Bank of India also announced a new policy, the Standing Deposit Facility.
- It is an extra instrument for absorbing liquidity, to remove Rs 8.5 lakh crore of excess liquidity from the financial system, which is fueling inflation.
- **Shifting priorities**
- In the following months, the RBI **may raise its key policy rate (Repo Rate).**
- In addition, the RBI has **raised its inflation prediction for 2022-23 from 4.5 percent to 5.7 percent**, which is still below the **upper band of the RBI's target of 6%.**
- **Getting back to pre-covid levels**
- The policy rate corridor under the **Liquidity Adjustment Facility (LAF)** was restored to its pre-pandemic width of 50 basis points by the RBI policy panel.



Standing Deposit Facility (SDF)

- The Reserve Bank of India (RBI) has launched the **Standing Deposit Facility (SDF) to absorb liquidity at a rate of 3.75 percent** in this review.
- In **2014**, the **Urjit Patel Monetary Policy Committee** report proposed the idea of an SDF for the first time.
- The Reserve Bank was given authority to launch the **SDF in 2018 when Section 17 of the RBI Act was changed.**
- The SDF will assist the **central bank in absorbing liquidity (deposits) from commercial banks** without requiring the banks to

exchange government securities (collateral).

- SDF's **principal goal is to manage inflation by reducing surplus liquidity.**
- In addition to its **role in liquidity management**, the SDF serves as a tool for financial stability.
- As the **floor of the liquidity adjustment facility corridor**, the SDF will replace the fixed rate reverse repo (FRRR).
- The SDF rate will be 25 basis points below the repo rate and 50 basis points below the marginal standing facility rate (MSF).
- It would keep the flexibility to **absorb longer-term liquidity as and when it is required**, with appropriate pricing.

FORTIFIED RICE

GS-III ECONOMY

Context

- The Union Cabinet authorised a strategy to distribute **fortified rice through government programmes on April 8.**
- For supply and distribution, the **Food Corporation of India and state agencies** have already purchased 88.65 LMT (lakh tonnes) of fortified rice.

Background

- Prime Minister Narendra Modi pledged the fortification of rice provided under different government schemes, including the public distribution system (PDS) and midday meals in schools, by 2024 in his Independence Day speech last year.

What is Rice Fortification?

- **Fortification is defined by the Food Safety and Standards Authority of India (FSSAI) as "deliberately enhancing the content of critical micronutrients in a food to improve nutritional quality and give public health benefit with little risk to health."**
- **Micronutrients can be added to normal rice using a variety of techniques, including coating, dusting, and 'extrusion.'**
- The final of them includes **utilising a 'extruder' machine** to make reinforced rice kernels (FRKs) from a combination.
- It is thought to be the **most suitable technology** for India.
- To make fortified rice, the **fortified rice kernels are mixed with ordinary rice.**

WHAT IS FORTIFIED RICE?

Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in food to improve its nutritional quality and provide a public health benefit with minimal risk to health

<p>➤ The fortification factor does not last for more than 45 days, so it isn't advisable to store fortified rice for long</p>	<p>➤ According to National Family Health Survey, 78.7% children and 75% in the district are anaemic and suffer from malnutrition</p>	<p>➤ In the first phase, fortified rice will be distributed in Badangi, Bobbili, Ramabhadrapuram and Terlam mandals</p>
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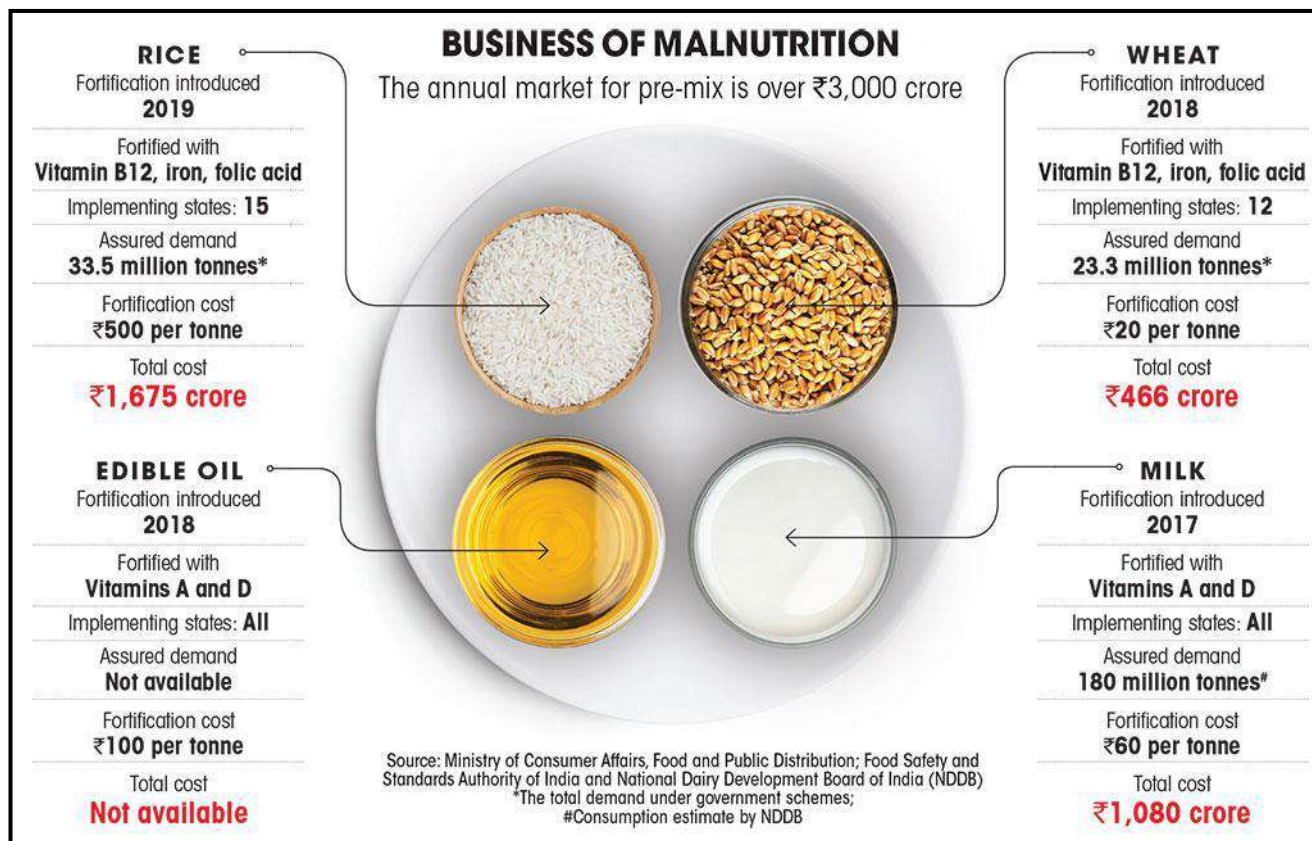
Extrusion technology

- **Dry rice flour is combined with a micronutrient premix** before being blended with water.
- The mixture is extruded through a **twin-screw extruder with heating zones**, yielding kernels that resemble rice in shape and size.
- The kernels are **dried, chilled, and packaged** in preparation for use.
- The **shelf life of FRK is at least 12 months.**
- The shape and size of the fortified rice kernel should **"resemble the standard milled rice as closely as possible,"** according to Ministry of Consumer Affairs, Food and Public Distribution rules.
- The **grain length and width should be 5 mm and 2.2 mm**, respectively, according to the specifications.

Need for fortification

- **Malnutrition among mothers and children in India is extremely high.**
- **Every second woman in the country is anaemic**, and every third child is stunted, according to the Food Ministry.
- Food fortification is thought to be **one of the most effective ways to prevent malnutrition.**
- Rice is a staple food in India, consumed by almost **two-thirds of the population.**
- **In India, per capita rice consumption is 6.8 kilogramme per month.**
- As a result, fortifying rice with vitamins is a viable alternative for supplementing the poor's diet.

Standards for fortification



- 10 g of FRK must be blended with 1 kilogramme of normal rice, according to Ministry specifications.
- Iron (28 mg-42.5 mg), folic acid (75-125 microgram), and vitamin B-12 are all present in 1 kilogramme of fortified rice, according to FSSAI standards (0.75-1.25 microgram).
- Zinc (10 mg-15 mg), vitamin A (500-750 microgram RE), vitamin B-1 (1 mg-1.5 mg), vitamin B-2 (1.25 mg-1.75 mg), vitamin B-3 (12.5 mg-20 mg), and vitamin B-6 (1.5 mg-2.5 mg) can all be added to rice per kilogramme.

ASIAN DEVELOPMENT BANK OUTLOOK REPORT

GS-III ECONOMY

Context

- Forecasts from the Asian Development Bank (ADB) have supplied some important information about India's GDP growth.

Asian Development Bank

- The ADB is a **regional development bank** headquartered in the **Philippines** that was **founded on December 19, 1966**.
- The Asian Development Bank is dedicated to establishing a **prosperous, inclusive, resilient, and sustainable Asia** and the Pacific while continuing to **fight extreme poverty**.
- Members of the **United Nations Economic and Social Commission for Asia and the Pacific** are admitted to the bank (UNESCAP).
- The ADB was **closely modelled after the World Bank**, and it uses a **weighted voting system** in which votes are awarded in **proportion to members' capital contributions**.
- The **president serves a five-year term** and is **eligible for re-election**.
- Because **Japan is one of the bank's largest shareholders**, the president has always been a **Japanese national**.
- The ADB is a **United Nations Observer**.

Major findings

- South Asian economies are expected to grow at a collective rate of 7% in 2022, according to the Asian Development Bank, with **India's largest economy rising at 7.5 percent this fiscal year before increasing to 8% the following year**.
- The ADB has taken into account the **repercussions of the Russia-Ukraine conflict for India**, which would be mostly **indirect due to rising oil costs**, and has estimated that the severity of the COVID-19 pandemic would decrease as vaccination rates increased.
- Due to a sustained recovery in domestic demand and continued expansion in exports, **developing Asia's economies are expected to rise by 5.2 percent this year and 5.3 percent in 2023**.

- By geographic group, **Developing Asia** includes 46 ADB member countries: the Caucasus and Central Asia, East Asia, South Asia, Southeast Asia, and the Pacific.

Challenges ahead

- Because of the **rise in global oil prices**, inflation will accelerate and the current account deficit will expand.
- State governments faced **special difficulties in mobilising resources**, and increasing their fiscal resources was crucial for India's long-term and inclusive prosperity.

Way forward

- Governments in the region must be **watchful and ready to take action to mitigate these threats**.
- Monetary authorities should also keep a **careful eye on their inflation position** in order to avoid falling behind.
- To restore the **health of public finances and construct a more equitable and sustainable future**, the economies of the region must **urgently mobilise fiscal resources**.
- Personal property and income taxes** can be strengthened to generate more money and make the tax systems increasingly progressive.
- There are **numerous potential to increase the use of tax and other fiscal instruments** to address environmental and health concerns while also earning income.

INDONESIA'S PALM OIL EXPORT BAN

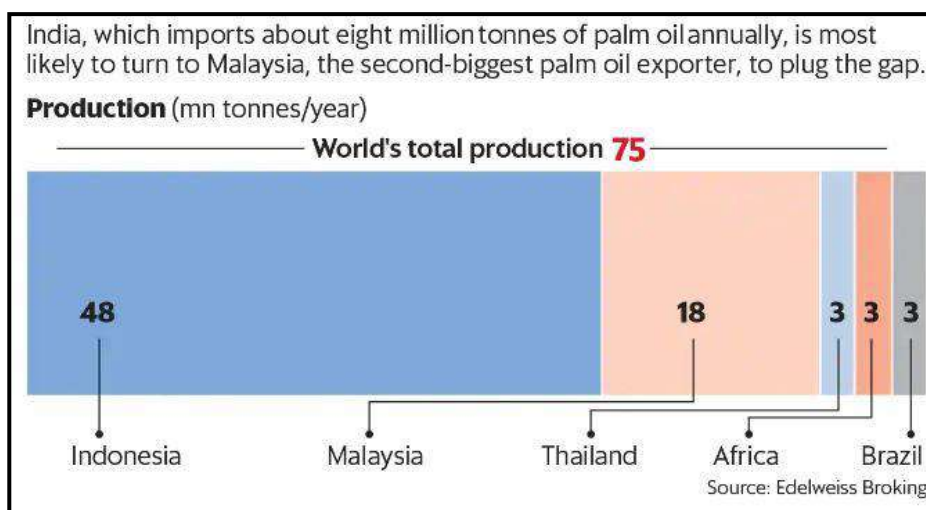
GS-III ECONOMY

Context

- Indonesia has decided to **prohibit the export of palm oil in order to alleviate internal shortages caused by rising oil prices**.

Background

- Indonesia, the world's top producer and exporter of palm oil, has decided to prohibit its exports as well as the raw materials used in their production.
- The decision was made to alleviate domestic shortages and bring down growing domestic prices.
- The embargo, together with other reasons, has begun to put increased pressure on edible oil prices throughout the world.



Reasons behind

- Both countries are big sunflower oil exporters (around 50 percent of the total exports). The war has delayed oil exports, affecting importing nations and driving up edible oil prices.
- Palm oil plantation production was badly harmed by the **epidemic and has yet to recover**.
- Due to dry weather conditions in South American countries such as Brazil and Argentina, **soybean output is expected to be lower this year, according to the US Department of Agriculture**.
- The **price level in general, as well as food inflation, has risen significantly as a result of the conflict in Europe**.
- Exports of the exporting nations' goods have been halted in order to maintain price stability in their respective countries**.

What are the impacts on India?

- Indonesia alone supplies over half of India's palm oil import requirements. As a result, the export prohibition might have a significant impact on food prices and the current account deficit.
- India is the **world's largest importer of palm oil**, accounting for 40% of its total vegetable oil consumption.
- Indonesia provides **India with half of its yearly palm oil requirement of 8.3 MT**.
- This would **increase the number of those currently experiencing record-high wholesale inflation**.
- In order to boost self-sufficiency, the Centre also launched the National Mission on Edible Oil-Oil Palm**.

What needs to be done?

- Incentivizing Indian farmers to produce more edible oils in the medium to long term to reduce reliance on imports**.

- Making the scheme's policy structure more resilient so that it may have broader benefits in terms of improving the area and productivity of oilseeds and palm oil.
- India should diversify its import portfolio and not rely solely on one country. It has the potential to enhance imports from countries in South America.
- Alternative edible oil sources such as olive, apricot, and walnut can be investigated under NMEO-OP.

Reasons behind the crisis

- 80% of global sunflower oil trade, comparable to Indonesia and Malaysia's 90% share of global palm oil trade.
- Due to the dry weather iRetail prices in Indonesia have been capped by the government.
- The price caps, on the other hand, caused the goods to vanish from the market, prompting claims of stockpiling.
- Exporters must also sell 20% of their scheduled cargo on the domestic market, according to the government.
- Ukraine and Russia jointly account for over n South America, soyabean oil is also in short supply.
- Due to supply constraints in sunflower and soyabean as a result of war and drought, respectively, palm oil has become scarce.
- As part of a goal to reduce fossil fuel imports, the Indonesian government has made 30 percent blending of diesel with palm oil mandatory from 2020.

INDIA'S IMPORTS OF PALM OIL (IN LAKH TONNES)						
Fiscal (Apr-Mar)	Crude palm oil		Refined palm oil		Total palm oil	
	Indonesia	Malaysia	Indonesia	Malaysia	Crude	Refined
2015-16	37.09	33.76	21.48	4.24	71.12	25.72
2016-17	33.37	19.61	23.15	6.27	53.56	29.43
2017-18	45.85	17.21	23.57	4.16	67.50	27.73
2018-19	41.57	17.13	16.78	7.17	64.15	25.21
2019-20	42.72	14.89	3.71	17.9	61.76	25.02
2020-21	40.95	27.99	1.13	0.05	73.92	1.32
2021-22*	21.27	28.43	6.93	2.15	59.78	11.19

*Apr-Jan. Source: Department of Commerce



About Palm Oil

- Elaeisguineensis is the scientific name for an edible vegetable oil that comes from the fruit of oil palm plants.
- Palm oil is an exceptionally efficient crop, producing more oil per acre of land than any other comparable vegetable oil crop, meeting 35% of global vegetable oil demand on just 10% of the land.
- There are two forms of oil that can be produced: crude palm oil and palm kernel oil, with crude having a higher demand.
- Palm oil is a highly flexible oil with a wide range of qualities that is found in approximately half of all packaged foods.
- Palm oil is a major contributor to deforestation in some of the world's most biodiverse forests, threatening the habitat of already endangered species such as the orangutan, pygmy elephant, and Sumatran rhino.

Impacts

- India is the world's largest importer of vegetable oils and Palm oil accounts for the majority of its yearly imports of 14-15 mt, followed by soyabean and sunflower.
- Indonesia was India's largest supplier of palm oil until 2021-22, when Malaysia overtook it.
- The Indonesian government has lifted retail price limitations on palm oil, as well as the exporters' 30 percent domestic market sale obligation. At the same time, it imposed a progressive export tax based on a CPO reference price.
- Export limits, even if in the form of a fee, take into account Indonesia's larger population and ambitious biofuel programme.

Challenges associated

- Flawed trade policies:
 - It stifled the late-eighties and early-nineties technology mission-driven increases in oilseed productivity.
 - The Indian domestic market collapsed after the government reduced tariffs on edible oil imports.
 - Because of the subsidies offered in such countries, palm oil imports from Southeast Asia became cheaper than native oilseeds.
- Infrastructural issues:
 - Small landholdings of farmers with limited resources

- **irregular monsoons** that result in water shortages
- **general lack of water flow** all have an impact on the growth of palm oil, which is a water-intensive product.
- The property of **monoculture cropping** prevents the farmer from growing anything else, resulting in a reduction in income flow.
- Other economically productive crops such as rubber, areca nut, sugarcane, banana, coconut, and others face **competition**.
- The influence on **communal ownership of tribal lands** as land used by the tribe is taken over by large farmers.
- Because of its **extended gestation period**, it is not appropriate for small farmers: Farmers' revenue is restricted for at least 4-5 years before bearing meaningful fruit.
- Oil palm is an **invasive species**, and its plantations would devastate forest cover and endangered wildlife habitat.

Steps taken by the Government

- The central government has taken steps to keep prices down, including lowering import levies on palm, soybean, and sunflower oils, as well as capping stockpiles to avoid stockpiling.
- Importing refined palm oil and selling it at a discount through its **public distribution system (PDS)** is the immediate solution.
- Domestic edible oil prices **soared last year due to an increase in global rates**, but the federal government was able to bring them down through a variety of measures, including duty reduction.
- India is developing **medium- and long-term strategies** to reduce its reliance on imported edible oils.
- India is attempting to **increase domestic manufacturing** in order to reduce its reliance on imports.

Steps ahead

- To protect itself from price increases, India should **develop an edible oil stockpile**.
- **Soybeans, sunflowers, and rapeseed crops should be grown on more area**.
- To increase oilseed yield, **the government will need to spend 50 billion rupees per year**.
- **Farmers will have to move away from products like wheat and rice, where they can count on a fixed minimum price**.

PRODUCTION LINKED INCENTIVE SCHEME FOR TEXTILE SECTOR

GS-III ECONOMY

Context

- With an authorized financial investment of **Rs 10,683 crore** over a five-year period, the government approved the PLI Scheme for Textile Products with the goal of improving India's manufacturing capacity and increasing exports.
- **Cotton import duties have been slashed to zero by the government**.
- The objective is to assist India in reclaiming its traditional dominance in the global textiles trade.

Key features of the scheme

- The incentives will **stimulate investment in new capacity in MMF garments, MMF fabrics, and 10 technical textile categories** or products.
- The initiative is expected to generate over **Rs. 19,000 crore in investments**, resulting in the creation of an **extra 7.5 lakh direct employment**.
- There will be **two investment tiers**, each with its own set of incentives.
- To be eligible for the PLI, **a person or company must invest a minimum of Rs. 300 crore in plant, machinery, and civil works** to produce the designated items.

- **Individuals or businesses in the second group must invest a minimum of Rs. 100 crore to be eligible for the rewards.**
- **Investment in aspirational districts, tier-three and tier-four municipalities, and rural regions would be prioritised.**
- **Investment in aspirational districts, tier-three and tier-four municipalities, and rural regions would be prioritised.**

Govt. approves

PRODUCTION LINKED INCENTIVE SCHEME FOR TEXTILES

- Incentives worth ₹10,683 crore over 5 years for manufacturing notified products
- Fresh Investment of more than ₹19,000 crore
- Leveraging economies of scale, additional production turnover of over 3 lakh crore

- Gujarat, Uttar Pradesh, Maharashtra, Tamil Nadu, Punjab, Andhra Pradesh, Telangana, and Odisha are likely to profit from the initiative.

What is the significance of the scheme to textile sector?

- The textile and apparel industry in India employs **45 million people** and is a **labor-intensive business**.
- In terms of employment, it is **just second to agriculture**.
- It provides **2.3 percent** to Indian GDP, **7% to Industrial Output**, **12% to India's export profits**, and employs more than **21%** of the country's workforce.
- India is the **world's sixth biggest producer of technical textiles**, with a **6% global share**, and the **world's largest producer of cotton and jute**.
- Technical textiles are high-performance fabrics used in sectors such as **automotive, civil engineering, and construction**.
- India is also the **world's second biggest producer of silk**, and it produces **95 percent** of the world's handwoven cloth.
- Cotton currently accounts for **two-thirds of India's textile exports**, whereas MMF-based and technological textiles account for **66-70 percent** of global textile and apparel commerce.



OIL BONDS

GS-III ECONOMY

Context

- The Finance Minister recently responded to criticism of high oil prices by stating that the government is **unable to reduce taxes - and consequently oil prices - because it must pay for oil bonds issued by the previous administration**.
- However, opponents argue that the government's payout for oil bonds is insignificant in comparison to the sector's income.

What portion of the fuel price is taxed?

- The domestic retail price is made up of two parts:
- The price of crude oil and
- The taxes charged on that price.
- They add up to produce the selling price and **Taxes differ depending on the goods**.
- For example, taxes now account for **50% of the total retail price of a litre of petrol** and **44% of the total retail price of a litre of diesel**.

Oil Bonds

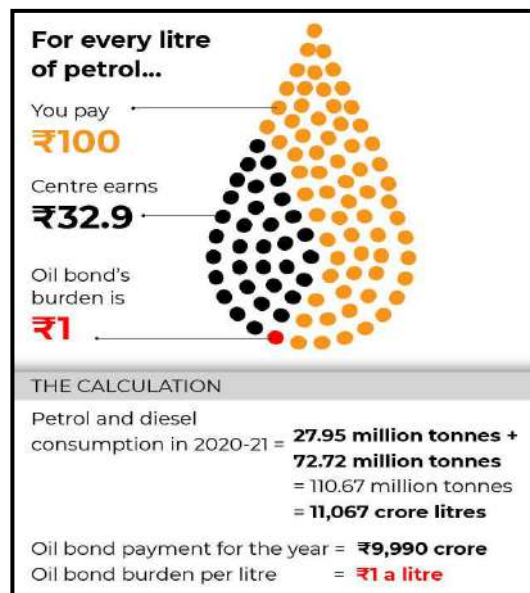
- Governments have frequently requested **Oil Marketing Companies (OMCs)** to avoid charging customers the full amount when fuel costs were too high for domestic consumers in the past.
- However, if oil corporations are not paid, they will lose money so to **compensate for this, the government said that it would pay the difference**.
- It would have been **futile if the government had paid that amount in cash**, because the government would have **had to tax the same individuals to collect the money to pay the OMCs**. Here's where oil bonds come into play.
- An oil bond is a **promissory note issued by the government to oil marketing companies (OMCs) in place of cash that the government would have paid them in order for these corporations to not charge the public the full price of gasoline**.
- An IOU is a document that recognises **the existence of a debt**. It is a phonetic abbreviation of the phrases "I owe you."



- A promissory note is a debt instrument that contains a written commitment by one party (the note's issuer or maker) to pay another party (the note's payee) a certain amount of money, either immediately or at a later date.
- According to an oil bond, the government would pay the OMC an amount of Rs 1,000 crore in ten years and, to make up for the OMC's lack of cash right away, the government would pay it an annual interest rate of 8% (or Rs 80 crore) until the bond expires.
- Oil bonds do not qualify as Securities with a Statutory Liquidity Ratio (SLR), making them less liquid than other government securities.

Significance

- By issuing such oil bonds, the current government is able to protect/subsidize customers without jeopardising the OMC's profits or running a large budget deficit.



SOVEREIGN DEBT

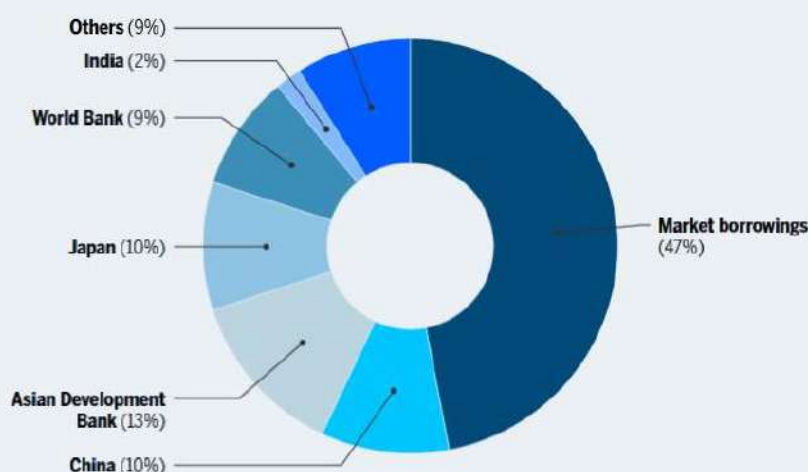
GS-III ECONOMY

Context

- Anger over Sri Lankan President Gotabaya Rajapaksa's handling of the island nation's increasing economic crisis devolved into violence, with hundreds of protestors clashing with police for several hours.
- Due to a significant lack of foreign money, Rajapaksa's administration has been unable to pay for basic imports, like as fuel, resulting in power outages lasting up to 13 hours.
- After the country depreciated its currency last month ahead of discussions with the International Monetary Fund (IMF) for a loan programme, ordinary Sri Lankans are also suffering with shortages and rising prices.

How much Sri Lanka owes

The graph depicts foreign debt stock in Sri Lanka as of 2019 (%)



What led to this?

- According to critics, the foundation of the crisis, which is the worst in decades, is economic mismanagement by successive governments, which established and maintained a dual deficit - a budget deficit as well as a current account deficit.
- "Sri Lanka is a classic twin deficits economy," according to a working paper published by the Asian Development Bank in 2019.
- "A country's national expenditure exceeds its national revenue, indicating that its output of marketable products and services is insufficient."
- However, massive tax cuts promised by Rajapaksa during his 2019 election campaign and implemented months before the COVID-19 epidemic, which wiped out swathes of Sri Lanka's economy, has worsened the present catastrophe.
- With the epidemic decimating the country's vital tourism economy and foreign workers' remittances, credit rating agencies downgraded Sri Lanka, virtually shutting it out of international capital markets.
- As a result, Sri Lanka's debt management programme, which relied on access to those markets, fell apart, and the country's foreign exchange reserves plunged by about 70% in only two years.
- The decision by the Rajapaksa administration to prohibit all chemical fertilisers in 2021, which was subsequently overturned, harmed the country's agriculture economy and resulted in a decline in the key rice production.

What happens if Sri Lanka defaults on its international debt?

- The government has just \$2.31 billion in reserves as of February, but it anticipates debt obligations of about \$4 billion in 2022,

including a \$1 billion international sovereign bond (ISB) due in July.

- **The Asian Development Bank, Japan, and China are among the other main lenders**, with ISBs accounting for the highest percentage of Sri Lanka's foreign debt at \$12.55 billion.
- **The IMF warned last month in an assessment of the country's economy that public debt had reached "unsustainable levels" and that foreign exchange reserves were insufficient to cover short-term debt obligations.**
- Citi Research stated in a note late last month that the IMF report's findings and the government's recent efforts "weren't enough to restore debt sustainability, signalling the need for debt restructuring."

Lending Hands

- Despite mounting concerns, **Rajapaksa's administration and the Central Bank of Sri Lanka (CBSL)** have rebuffed requests from experts and opposition leaders to seek IMF assistance.
- However, **with rising oil prices in the aftermath of Russia's invasion of Ukraine in late February**, the administration devised a strategy to approach the IMF in April.
- **Sri Lanka depreciated its currency sharply before going to the IMF**, fueling inflation and aggravating the suffering of the populace, many of whom are suffering from hardship and lengthy lines.
- In the meanwhile, **Rajapaksa has requested aid from China and India, notably in the area of petroleum.**
- **A fuel cargo is anticipated to arrive under a \$500 million credit line** inked with India in February.
- **Sri Lanka and India have agreed to a \$1 billion credit line for basic imports such as food and medicine**, and the Rajapaksa government has asked New Delhi for at least another \$1 billion.
- **China is contemplating granting the CBSL a \$1.5 billion credit facility and a separate loan of up to \$1 billion after supplying the government with a \$1.5 billion swap and a \$1.3 billion syndicated loan.**

DIGITAL BANKING UNITS

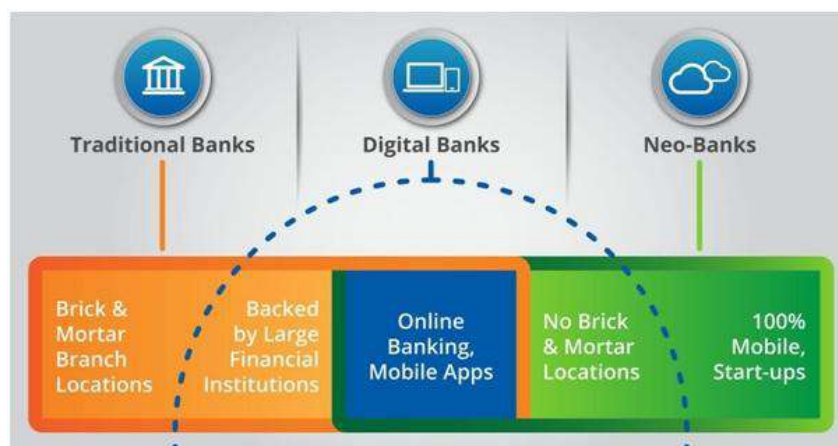
GS-III ECONOMY

Context

- Nirmala Sitharaman, the Finance Minister, repeated her Budget commitment to establish **75 digital banking facilities in 75 districts throughout the nation this year.**
- This is in order to **advance the government's digital financial inclusion objective.**

Background

- "In recent years, digital banking, digital payments, and fintech technologies have evolved at a rapid rate in the country," the Finance Minister stated in the Budget for 2022-23. The government continues to support these industries in order to guarantee that the benefits of digital banking reach every part of the country in a consumer-friendly way. To forward this goal and commemorate our 75th year of independence, it is planned that Scheduled Commercial Banks establish 75 Digital Banking Units (DBUs) in 75 districts across the country.



About Digital Banking Units

- A digital banking unit is a specialised fixed point business unit or hub that houses specific basic digital infrastructure for offering digital banking goods and services and servicing current financial products and services in self-service mode at any time.
- Unless otherwise specified, commercial banks (other than regional rural banks, payment banks, and local area banks) with prior digital banking experience are authorised to open DBUs in tier 1 to tier 6 centres without the requirement to get RBI clearance in each case.

Services included

- **Savings bank accounts under various schemes, current accounts, fixed deposits, and recurring deposit accounts, digital kit for customers, mobile banking, Internet banking, debit cards, credit cards, and mass transit system cards, digital kit for merchants, UPI QR code, BHIM Aadhaar, and point of sale systems are among the services available (PoS).**
- Making applications for and onboarding consumers for designated retail, MSME, or technical loans are among the other services offered.
- This might encompass end-to-end digital processing of such loans, from application to disbursement, as well as designated

government-sponsored programmes covered by the national site.

Highlights

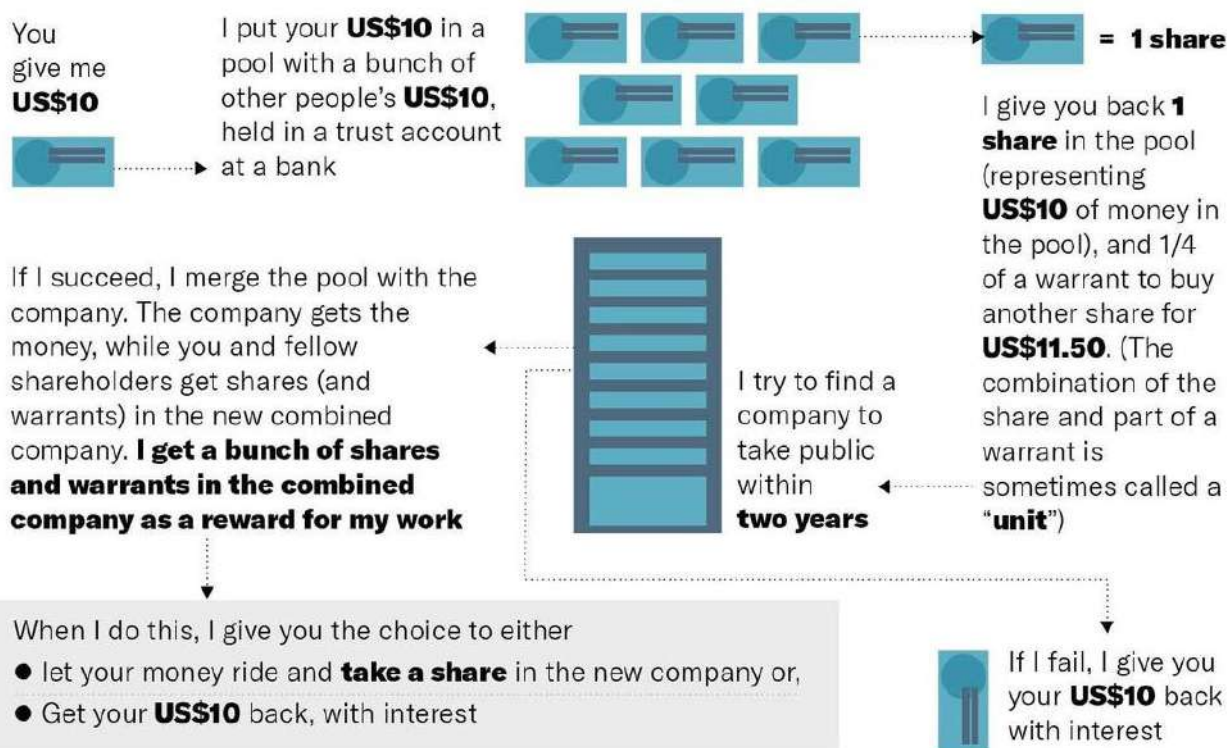
- Fintechs that operate as neobanks now provide digital banking services, but only in collaboration with non-banking financial institutions (NBFCs).
- Jupiter, Fi Money, Niyo, and Razorpay X are some of the neobanks that operate in India.
- Neobanks or digital banks thrive in product innovation and offer considerably superior digital solutions than traditional banks with online and mobile banking services.
- Some in the industry have labelled these digital banks as "glorified digital distribution firms" because of their existing partnership with NBFCs or scheduled banks to perform the real banking component.

SPECIAL PURPOSE ACQUISITION COMPANIES (SPACS)

GS-III ECONOMY

How SPAC works

SPAC is a shell company that raises money through an IPO and has to acquire an existing business within a specific time period



Context

- The government is considering enacting a **regulatory framework for Special Purpose Acquisition Companies (SPAC)** in the statutes in response to the recent recommendations of the **Company Law Committee 2022**, in order to **facilitate the possible listing of Indian companies in the country through this route**.
- In 2019, the Company Law Committee was formed to provide suggestions to improve India's ease of doing business.

What are SPACS?

- A Special Purpose Acquisition Company (SPAC) is a business founded only to raise funds through an Initial Public Offering (IPO).
- SPACs have **no established commercial activities or even announced acquisition targets when they go public**.
- This type of **business structure lets investors to contribute money to a fund**, which is subsequently utilised to purchase one or more unnamed enterprises following the IPO.
- As a result, in the popular press, this type of shell business structure is referred to as a "**blank-check corporation**."
- Once the funds have been obtained from the general public, **they are held in an escrow account that may be accessed during**

the acquisition process.

- The SPAC is delisted and the money is refunded to the investors if the purchase is not completed within two years after the IPO.

What were the Company Law Committee's 2022 Recommendations?

- It suggests creating an enabling framework under the Companies Act, 2013 to recognise SPACs and allow entrepreneurs to list SPACs established in India on domestic and international exchanges.
- In order to match SPACs with the Act's current structure, the Committee has also proposed that shareholders who disagree with the target company's choice be given an exit option.
- Furthermore, because SPACs do not have their own functioning company, regulations pertaining to striking off businesses must be appropriately modified in their application to them.

What are the benefits?

- SPACs provide investors a one-of-a-kind opportunity to participate in specialised Indian firms who want to list on global stock markets without the high expenses involved with the procedure.
- SPACs are unique in that the entire procedure takes place within the terms of a binding agreement, with minimal risk and guaranteed certainty.
- It also protects the interests of opposing SPAC shareholders by allowing them to sell their shares to the SPAC promoters if they vote against the proposed purchase.
- Despite the fact that they are effectively shell businesses, the blank-cheque firms are enticing to investors.
- SPACs also give exposure to nations and consumer bases where specialty items are in demand, allowing certain enterprises to achieve greater valuations.

What are the concerns?

- The surge of investor businesses seeking SPACs and then target companies has tipped the scales in favour of investee corporations. This might conceivably reduce returns for ordinary (individual) investors following the merger.
- Many SPACs are hurrying to locate enticing target firms since they are required to begin pursuing a target corporation after listing, and the total transaction is anticipated to be completed within a fixed schedule.
- The pressure to find a good transaction quickly — SPACs only last two years — might lead to rash judgments, causing dissident shareholders to leave and limiting total benefits for investors.
- Disappointing outcomes have prompted shareholders in the United States to file class action lawsuits and open investigations into SPAC sponsors.

Way forward

- Given that examples of lacklustre performance by SPACs have slowly begun to surface, India should proceed with caution and increased regulatory monitoring.
- To enable target firms to ride the SPACs wave and fulfil their full potential, SPACs formed in India must be allowed to list not just on domestic stock markets, but also on global platforms.
- While recognising SPACs inside the Companies Act is a positive start, it may still need a further in-depth examination of SPAC-related concerns based on current market practises, in cooperation with the Securities and Exchange Board of India (SEBI).

INDIAN GRAIN EXPORTS

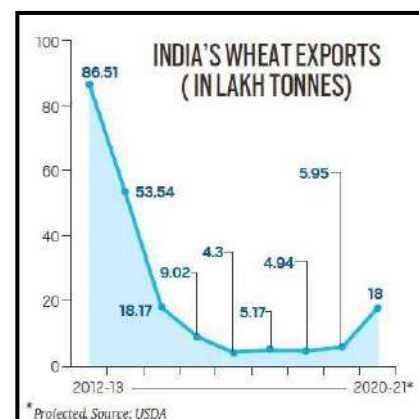
GS-III ECONOMY

Context

- The World Trade Organization is looking at fixing laws that make it harder for India to export food grains to other countries due to the Russia-Ukraine conflict.

What are the constraints?

- The WTO regulations make it difficult for a government to export grains from official inventories that were purchased at a set price (the minimum support price in India's instance) rather than market rates.
- The WTO regulation has no bearing on private traders who buy wheat from farmers at market prices.
- Wheat shipments from both nations, which account for more than a fifth of world supply, have been badly hampered by Russia's military incursion in Ukraine.
- There are still concerns that poor transportation and logistics may prevent the

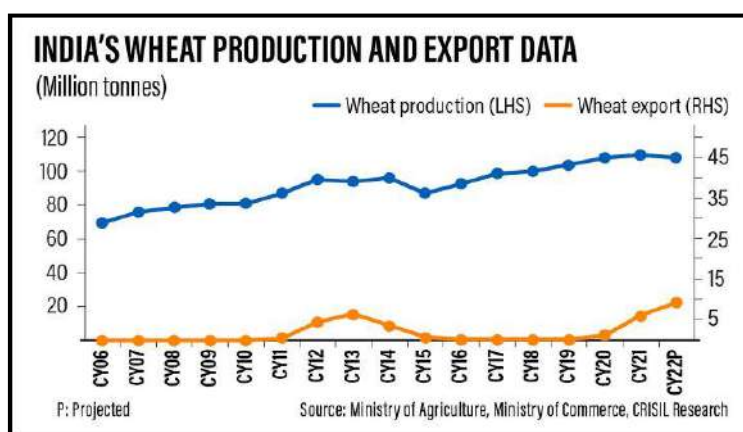


Indian economy from reaching its full market potential.

- Certain customers are **leery of buying wheat from India** because of **impurities in some of its products**. The grain's quality decides whether it can be utilised to make meals.
- In recent years, **the industry has struggled with profitability**, making it all the more important for India to seize this opportunity.
- **The ongoing supply shortage has driven global wheat prices to new highs.**
- With little to no chance of de-escalation in the short to medium term, **the supply situation is unlikely to improve anytime soon, placing wheat-importing countries in a bind.**
- **As India's inventories are depleted by exports**, grain prices may rise by 8 to 10% year over year.
- **Due to high heat and inappropriate fertiliser and pesticide application**, crop productivity has decreased and grain size has reduced in the states of Punjab, Haryana, and Uttar Pradesh.
- **Inadequate port infrastructure to meet rising demand**, as well as greater freight prices, might be stumbling blocks.

What does the statistics say?

- Agriculture provides a living for almost half of India's people, and it contributes for roughly 20% of the country's GDP.
- According to World Bank data, **Russia was the world's largest wheat exporter**, with Ukraine coming in fifth.
- Despite being the world's second-largest wheat producer, India only accounted for 0.5 percent of wheat exports in 2020.
- The country's wheat supply for the year is expected to be 147 million tonnes, with 105 million tonnes used domestically.
- If WTO rules allow it, India has offered to send grains to other nations experiencing food shortages.



How will it help India?

- The exports of food grains such as wheat, as well as the likelihood of manufactured goods being transported to places where supply had grown unstable, were **among the possibilities**.
- India has reached out to more than 20 nations about selling wheat, **with a goal of exporting a record 15 million tonnes this year.**
- Given the profitable export markets, **there are already evidence of increasing wheat purchases by individual dealers.**
- While worldwide wheat prices have risen, **India's wheat prices are still competitive.**
- **In recent years, India has mostly supplied wheat to Bangladesh**, which receives over half of India's shipments, the United Arab Emirates, and Sri Lanka.
- New export opportunities are emerging, and some countries, notably Turkey and Lebanon, have the potential to become important development markets for India.

STATE OF UNEMPLOYMENT IN INDIA

GS-III ECONOMY

Context

- According to recent statistics from the Centre for Monitoring Indian Economy (CMIE), India's labour force participation rate (LFPR) has dropped to under 40% from a low of 47 percent in 2016.

Key findings of the report

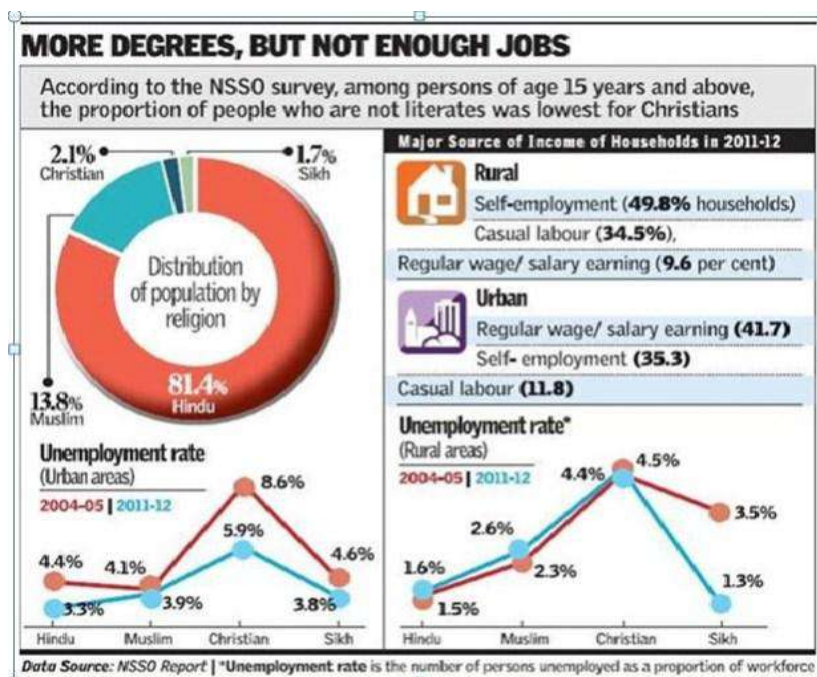
- **LFPR is approximately 60% all around the world.** It has been declining in India for the past ten years, falling from 47 percent in 2016 to barely 40 percent in December 2021.
- **More over half of India's working-age population (15 years and older) is opting out of the labour market**, although this number is growing.

What is Labour Force Participation Rate (LFPR)?

- The LFPR is the **proportion of the working-age population (15 years or older)** that is looking for employment.
- In an economy, it symbolises the demand for work.
- It encompasses both working and jobless individuals.
- The **Unemployment Rate (UER)** is the percentage of the labour force that is jobless (category 2).

What is the significance?

- The LFPR provides a more accurate representation of the country's unemployment situation. The burden of unemployment in India will be underestimated simply by looking at the UER.
- LFPR shows how individuals of working age become discouraged when they can't find work.



Why is the employment rate deteriorating?

- The steep drop in the LFPR shows that, despite India's large youth population, many have simply chosen not to work, possibly disappointed by the lack of remunerative, productive occupations.
- Women, who had a lower participation percentage to begin with, face an even more terrible position. Not only is India's female labour force participation lower than the world average, but it is also lower than nations like Bangladesh.
- Unemployment is high among individuals searching for work following the outbreak. In addition, the unemployment rate among the young and educated is greater.
- While there are hints of increased formalisation, as evidenced by EPFO data, a significant portion of the workforce remains in the informal sector, with no safety net.

What is the way forward?

- When the LFPR is declining as persistently and dramatically as it has in India, it is more useful to monitor another metric: the Employment Rate (ER).
- Not only can the labor-intensive industrial sector accommodate the millions that enter the labour market each year, but also those who leave agriculture.
- To put women on level with working male professionals, gender stereotypes in the workplace must be addressed.

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HUMAN GENOME PROJECT

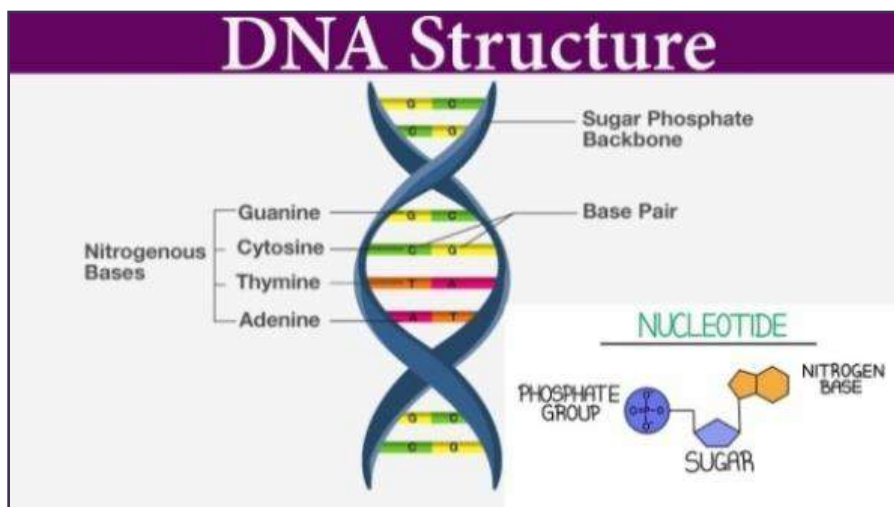
GS-III SCIENCE & TECHNOLOGY

Context

- The Human Genome Project which aimed to sequence the entire human genome could piece together only 92% of the DNA. Now scientists have finally filled in the remaining 8%.

Genome

- A genome is the **complete set of genetic information in an organism** required for its functioning. In living organisms, the **genome is stored in long molecules of DNA called chromosomes.**
- German botanist **Hans Winkler coined the word "genome" in 1920.**
- The **human genome contains more than three billion DNA base pairs** and all of the genetic information needed to make us.



Human Genome Project

- HGP **first launched in 1990** is an internationally collaborative venture to identify and mark the locations of every gene of the human species. The goal was to **determine the base pairs that make up human DNA, and of identifying, mapping and sequencing all of the genes of the human genome.**
 - HGP had completed the **first human genome in 2003.** But there were gaps: Repetitive regions that could not be pieced together. With tech. advancements scientists filled those gaps and the first end-to-end human genome was published in 2022.
- DNA sequencing is a laboratory technique used to determine the **exact sequence of bases (A, C, G, and T) in a DNA molecule.**
 - The DNA base sequence carries the information a cell needs to assemble protein and RNA molecules. DNA sequence information is important to scientists investigating the functions of genes.

Some types of sequences in DNA

Protein-Coding Genes

- Human genome contains roughly 3 billion nucleotides but just 20,000 protein-coding genes - 1% of the genome's total length.

Non-coding DNA sequences

- 99 per cent is non-coding DNA sequences that don't produce proteins. **These include:**

Regulatory Genes: Some are regulatory components that control how other genes work.

Pseudo-genes: There are pseudo-genes that have lost their ability to function.

Repetitive region in DNA/ Satellite DNA: **Over half of the human genome is repetitive, with multiple copies of near-identical sequences.** These blocks of DNA repeated over and over in tandem are called satellites. How much **satellite DNA** a given genome has **varies from person to person.** Satellite DNA **cluster toward the ends of chromosomes in regions called telomeres.**

➤ *Telomeres protect chromosomes from degrading during DNA replication. They're also found in the centromeres of chromosomes, a region that helps keep genetic information intact when cells divide.*

All the functions of satellite DNA are still unknown. But because satellite DNA forms unique patterns in each person, forensic biologists and genealogists use this genomic "fingerprint" to match crime scene samples and track ancestry. Also, over 50 genetic disorders are linked to variations in satellite DNA, including Huntington's disease.

These repetitive DNA which could not be pieced together have now been sequenced with tech. advancements.

Application of Human Genome Project

Molecular Medicine

- Genetic screening will enable rapid and specific diagnostic tests to identify the causes of genetic disorders and methods to cure them. It will provide a means to **design drugs that can target specific genes that cause disease.**

Disease

- Genomic information can indicate the future likelihood of some diseases. Disease susceptibility may be determined – examples: heart disease, cancer, Huntington Disease and diabetes.

Genetic Disorders

- Gene sequencing helps in development of gene therapy, a type of treatment designed to replace defective genes in genetic disorders.

Pharmacogenomics

- It looks how an individual's genomic variations affect their response to a drug. It will open up a path to more personalized medicine.

Forensics

- New sequences will allow forensic scientists to sequence short repeated sequences markers, resulting in an increased ability to differentiate samples in complex mixtures.

Waste Control and Environmental Cleanup

- In 1994 itself, based on HGP advances, Microbial Genome Initiative was formulated to sequence the genomes of bacteria. Further studies can be useful in the areas of energy production, environmental remediation, toxic waste reduction, and industrial processing.

Energy Sources

- Biotechnology, strengthened by the HGP, will be important in improving the use of cleaner + entirely new biomass-based energy sources. **E.g.** Having the genomic sequence of the methane-producing microorganism Methanococcusjannaschii, will allow researchers to explore the process of methanogenesis and lead to cheaper production of fuel-grade methane.

Risk Assessment

- Understanding the human genome will have an enormous impact on the ability to assess risks posed to individuals by environmental exposure to toxic agents. Example: effects of low-level exposures to radiation especially in terms of cancer risk.

Other

- Development of Clan Genomics: Family Disease Pedigrees; Indicator of Antimicrobial Resistance.
- Additional spin-offs from this research include a better understanding of biology, increased taxonomic understanding, increased development of pest-resistant and productive crops and livestock, and other commercially useful microorganisms.

Conclusion

- DNA Sequencing has the power to revolutionize public health, reducing the risks from disease outbreaks.
- DNA sequencing can be used for protecting and improving the natural environment for both humans and wildlife.

NUCLEAR POWER

GS-III SCIENCE & TECHNOLOGY

Context

- Centre has accorded 'in-principle' approval for five new sites for locating nuclear power plants in the future.

Nuclear power and its benefits

- Nuclear power is an efficient way of boiling water to create steam; this steam is used to turn turbines, which creates electricity.
- Compared to other forms of renewable energy Nuclear energy is considered beneficial, because of its smaller land footprint and the amount of waste it produces.

Nuclear Power Plants in India

- India has 23 nuclear reactors in operation in 7 nuclear power plants, with a total installed capacity of 7,380 MW.

Nuclear Power plants in Operation	Nuclear Power Plants under Construction	Planned Nuclear Power Plants
<ul style="list-style-type: none"> Rawatbhata (Rajasthan) Tarapur (Maharashtra) Kudankulam (Tamil Nadu) Kakrapar (Gujarat) Kalpakkam (Tamil Nadu) Narora (Uttar Pradesh) Kaiga (Karnataka) 	<ul style="list-style-type: none"> Kakrapar 3&4 (Gujarat) Rawatbhata (Rajasthan) Kudankulam 3&4 (Tamil Nadu) Kalpakkam PFBR (Tamil Nadu) 	<ul style="list-style-type: none"> Jaitapur (Maharashtra) Kovvada (Andhra Pradesh) Mithi Virdi (Gujarat) Haripur (West Bengal) Gorakhpur (Haryana) Bhimpur (Madhya Pradesh) Mahi Banswara (Rajasthan) Kaiga (Karnataka) Chutka (Madhya Pradesh) Tarapur (Maharashtra)

- Nuclear power produced a total of 43 TWh in 2020-21, contributing **3.11% of total power generation in India**.
- Nuclear power is the **fifth-largest source of electricity in the country after coal, gas, hydroelectricity and wind power**.
- Kudankulam Nuclear Power Plant in **Tamil Nadu** is the **highest capacity nuclear plant in India** with an installed capacity of 2000 MW.

Background

Genesis

- India's nuclear programme was **started in 1944 when HomiJehangirBhabha founded the nuclear research centre**, the Tata Institute of Fundamental Research. India was the **first country in Asia to operate a nuclear reactor**.

Nuclear Trade

- India is **outside the Nuclear Non-Proliferation Treaty**. Due to this, the country was mostly excluded from nuclear plants and material trade, and it hampered the development of civil nuclear energy till 2009.
- India was allowed access to civilian nuclear technology and fuel from other countries after a **waiver was granted by the 48-nation Nuclear Supplier Group (NSG) in 2008**.
- Since then India has signed civil nuclear agreements with many countries: Argentina, Australia, Canada, Czech Republic, France, Japan, Kazakhstan, Mongolia, Namibia, Russia, South Korea, the United Kingdom, the United States, and Vietnam.

Nuclear Fuel Reserves

- India has **vast thorium reserves and quite limited uranium reserves**. India's thorium reserves make up 25% of the global reserves.
- **Thorium** which is derived from monazite is **produced in Kerala, Jharkhand, Bihar, Tamil Nadu, and Rajasthan**. Australia has the highest thorium resources followed by the US, Turkey and India.
- **Uranium** is limited to **Singhbhum and Hazaribagh districts of Jharkhand, and Gaya District of Bihar, sedimentary rocks of Saharanpur District of Uttar Pradesh, copper and zinc mines of Udaipur (Rajasthan), Monazite sand in Kerala, Tummalapalle belt in Andhra Pradesh and in the Bhima basin in Karnataka**. Kazakhstan is the world's largest producer of uranium and the largest supplier of uranium to India. India also imports uranium fuel from Russia, Kazakhstan, Uzbekistan, France and Canada.

Nuclear Energy around the world

- The **USA is the world's largest producer of nuclear power**, accounting for more than 30% of worldwide nuclear generation of electricity.
- **Kashiwazaki-Kariwa plant in Japan** is currently the **world's largest nuclear power plant**, with a net capacity of 7,965MW.

Importance of Nuclear Energy in India

- **Energy poverty:** India is the 3rd largest producer of electricity, but 20 % of its population does not have access to electricity today.
- **Future Energy Security:** India's annual energy demand is expected to rise to 800 GW by 2032. So, it is very important to consider every source of energy in the optimum energy mix.
- **Climate Change:** Since 1990, India's GHG emissions have risen by nearly 200 percent. India's Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) has outlined goals **to reduce the carbon emissions intensity of its economy by 33-35% by 2030 as well as increase the clean energy electricity capacity to 40% of the total installed capacity** in the same period. Nuclear energy protects environment by producing massive amounts of clean carbon-free electricity and energy.
- **Economic growth:** Rapid economic growth is critical to achieve developmental objectives and poverty alleviation. A sustained economic growth of about 8 to 10% is needed over the next few decades. As electricity is a key driver for economic growth, it is necessary that **there is a massive augmentation in electricity capacity, apart from transmissions and distribution systems**.
- **Energy efficiency:** Quantities of nuclear fuel needed are considerably less than thermal power plants. For instance, **10000 MW generation by coal will need 30-35 million tons of coal, but nuclear fuel needed will be only 300-350 tons**.
- **Abundant Nuclear Fuel:** India has **vast reserves of Thorium that can fuel India's nuclear energy** provided appropriate technology.

Recent efforts

- In order to produce fuel indigenously, Fuel fabrication capacity is being augmented in Nuclear Fuel Complexes of Hyderabad and Kota.
- The requirement of uranium for domestic safeguarded nuclear reactors is being met by indigenously mined and produced uranium.
- Amending the Atomic Energy Act to allow public-sector companies to form joint ventures to build nuclear power plants.
- Resolution of issues relating to the Civil Liability for Nuclear Damage (CLND) Act and the establishment of an Indian Nuclear Insurance Pool (INIP).

Final Thoughts

- India's nuclear power could provide a reliable solution to India's power demand as against wind and solar that is not available round the clock. India's present nuclear power capacity is **planned to be increased to 22480 MW by 2031** on progressive completion of projects.
- This in turn is going to assist the country in **meeting zero energy targets** along with other clean energy sources.

SPACE JUNK

GS-III SCIENCE & TECHNOLOGY

Context

- According to NASA, an average of one piece of space debris has fallen back to Earth each day over the last 50 years. Space agencies are trying to develop technologies on a war footing to mitigate the threats posed by the debris.

Space Debris

- Space junk is any piece of machinery or debris left by humans in space—principally in Earth orbit. These include dead satellites, fragments of rocket bodies and spacecraft etc.
- There are more than 3,000 dead satellites and rocket stages currently floating in space, and up to 900,000 pieces of space junk ranging from 1 to 10 centimetres in size.

Human journey into space began in 1957, when the Soviet Union (today's Russia) launched Sputnik. Sputnik was the first ever artificial satellite. Since then, thousands of rockets have been launched, which have put into space numerous satellites, spacecraft, and space stations. Not all of them are functional today. And everything has not been brought back to Earth. Several of them, their parts, nuts and bolts are still up there as space junk. Thus, **we are not just polluting the Earth but also the space!** And they come with potential risk.

Risks associated with Space Junk

In orbit Risks

- Currently, around 20,000 objects—including satellites and space debris—are crowding low-Earth orbit. These objects **travel at speeds up to 10km/second**, fast enough to cause significant damage to active satellites, spacecrafts, or spacewalking astronauts.
- The rising number of space debris increases the potential danger to all space vehicles the - International Space Station (ISS), for instance. At orbital velocities, even the tiniest pieces of debris can disable satellite.

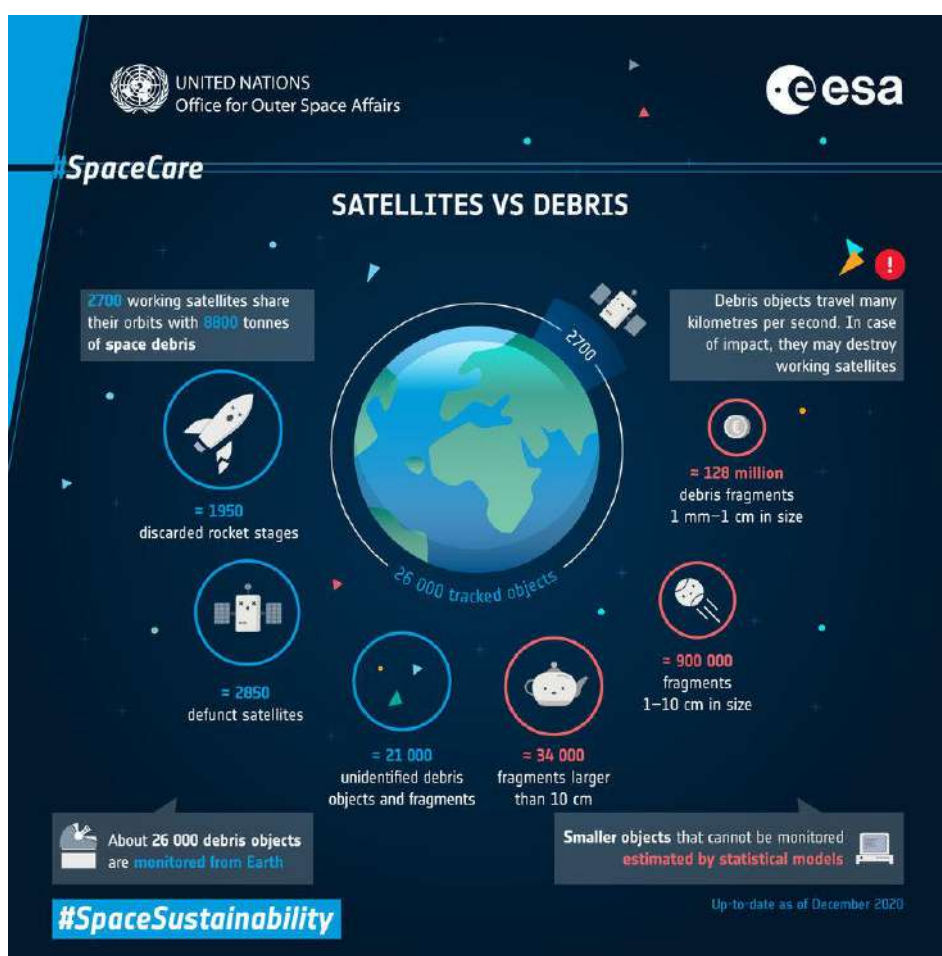
Impassable Earth Orbit

- Earth orbit could even become impassable if the risk of collision grows too high.

Inoperative Weather Satellites

- It could hinder our ability to use weather satellites, and hence to monitor weather changes.

Examples: Recently, a **Chinese satellite broke up in March 2021** after a collision. **In 2009, two satellites** - one Russian, one American - **collided** over Siberia, breaking into hundreds of pieces of debris. In 2007 China destroyed one of its older weather satellites as part of an anti-satellite test, leaving around 2,500 pieces of debris in the Earth's orbit.



Kessler syndrome

- This is an idea **proposed by NASA scientist Donald Kessler in 1978**. It says if there is too much space junk in orbit, it could result in a chain reaction where more and more objects will collide and create new space junk in the process, to the point where Earth's orbit became unusable – a Domino Effect. 12 fragmentation events have already taken place every year for the past two decades.

What is the solution?

- The solution involves steps to **clean up the mess, mitigate damage, and avoid future debris**.

Plausible Mitigation Measures

- Developing **Reusable spacecrafts**.
- **Designing and building spacecraft that can better withstand the harsh environment of space** without disintegrating.
- **Releasing stored energy and fuel** so that defunct spacecraft don't explode.
- Once a spacecraft's mission is over, **moving it to a safer orbit**. That is - A "graveyard orbit" high above the low-Earth space.
- **Bringing it down using laser into Earth's atmosphere to burn up** on re-entry as a neat disposal system.
- **Capture debris** or de-orbit old satellites.
- Charge operators **"orbital-use fees"** for every satellite put into orbit.
- Careful choice of orbits.
- Performing **'collision avoidance manoeuvres'**.
- **Orbital lifetime reduction** (accelerating the natural decay of space objects to reduce the time that they remain in orbit).
- **International cooperation** in the debris mitigation measures.
- Contributing to the efforts of the **Inter-Agency Space Debris Coordination Committee (IADC)** and **United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)**.
- People on Earth **should avoid contact with the fallen debris**, such as rocket parts, because of the possible presence of **hazardous chemicals in them**.

Initiatives taken to tackle the problem

MISSION ELSA-D

- 'The **End-of-Life Services by Astroscale demonstration mission' (Elsa-D)** is a payload, developed by a Japan. It is the **world's first commercial mission to demonstrate a space debris removal system**.
- Elsa-D consists of two spacecraft: a 175-kg "servicer" and a 17-kg "client". Client is the fake debris that the 'servicer' will have to release, grab, and repeat.
- Thus, ELSA-d will test technologies to capture an object in low-Earth orbit and move it to a lower altitude, where it will eventually burn up harmlessly in Earth's atmosphere.

Remove DEBRIS mission

- In 2018, Surrey Satellite Technology's Remove DEBRIS mission practiced grabbing a satellite with a harpoon and giant net.

Inter-Agency Space Debris Coordination Committee

- IADC is an inter-governmental forum whose aim is to co-ordinate efforts to deal with debris in orbit around the Earth founded in 1993.

NORAD

- North American Aerospace Defense Command, is an initiative of U.S. and Canada that shares selective debris data with many countries.

ClearSpace-1 Mission

- In this a "chaser" with its four robotic arms will grab the leftover of 2013 craft known as VESPA (Vega Secondary Payload Adapter) and drag it down to Earth's atmosphere where both will burn up. It will be launched in 2025 by European Space Agency.

Starship

- Space X Starship – the passenger carrying spacecraft once ready can collect and de-orbit space junk apart as well.

NEO-01'

- China launched a low Earth orbit robot prototype called 'NEO-01'. It **can scoop up space debris left behind by other spacecraft with a big net**. It will **then burn it with its electric propulsion system**. The robot will also explore future technologies capable of mining on asteroids.

Change in design of satellites

- **Example:** The UK's TechDemoSat-1 (TDS-1), launched in 2014, was designed in such a way that once its mission is over, a system, like a parachute, would drag the satellite to re-enter the atmosphere and burn up.

ISRO's Efforts

'Project NETRA'

- It is an early warning system in space to detect debris and other hazards to Indian satellites.

Other

- ISRO's GSLV employs passivation of the Cryogenic Upper Stage at the end of its useful mission. ISRO's communication satellites are designed with adequate propellant margins for reorbiting at the end of their useful life to a higher graveyard orbit. Successful e.g: INSAT-2

Future Apprehensions

- According to the United Nations Office for Outer Space Affairs (UNOOSA), with space traffic increasing, the number of in-space collisions is "expected to rise."
- Several companies like SpaceX and Amazon are planning vast new groups of satellites, called mega constellations that will beam internet down to Earth. If successful, there could be an additional 50,000 satellites in orbit. This means a lot more collision avoidance maneuvers will need to be done. The International Space Station has conducted 29 debris avoidance maneuvers since 1999, including three in 2020.

Closing Thoughts

- The need of the hour is to develop a Space Sustainability Rating to encourage transparent debris mitigation efforts in line with the guidelines produced by the United Nations Office for Outer Space Affairs (UNOOSA).
- Multilateral efforts, alongside technological innovation, can ensure that the great space cleanup is well underway.

MICROSWIMMERS

GS-III SCIENCE & TECHNOLOGY

Context

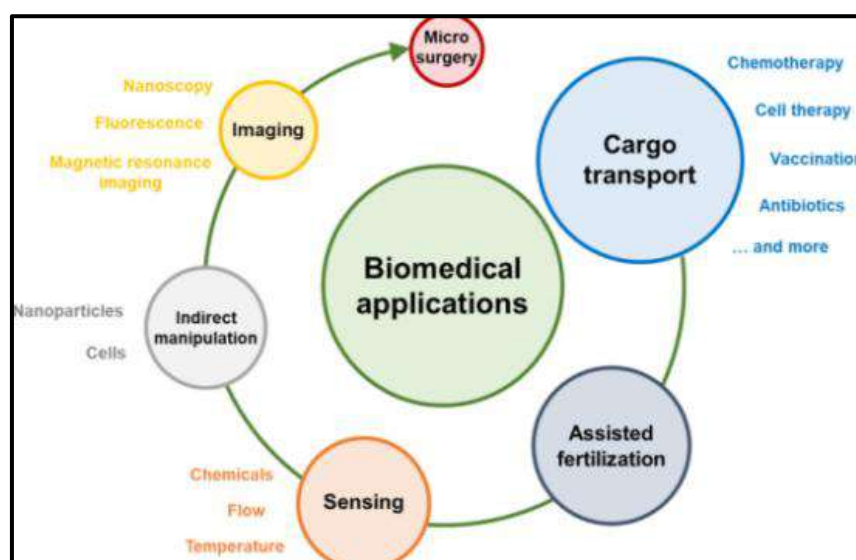
- Recently, Researchers from Germany have shown that it is possible to use light as a fuel to move micro-bots in human body. These Micro-bots have intelligent drug-delivery system that can target cancer cells selectively.

Micro-bot

- Micro-bots are simply microscopic-scale automated machines or miniature robots.
- In medicine, Micro-bots have the potential to conduct micro-scale tasks such as drug delivery, cell manipulation, micro-assembly, and bio-sensing using manual control.

Micro-bots and Drug Delivery: Background

- Getting drugs to hit the right spot rather than flooding around the entire body and blood stream is one of the major challenges.
- Treatment would be much more effective if drug molecules could be delivered precisely to only those diseased cells and tissues that need to receive them. This would also enable people to take smaller but more effective doses of medicine leading to fewer side effects.
- Keeping this in view, scientists are exploring ways to deliver medicine to specific targets in the body by using micro-bots (carrying drugs) that swim through the body fluids. Last year, researchers developed a type of "microbot" that's powered by ultrasound waves.



The recent Research by Max Planck Institute for Intelligent Systems, Germany

Microbot Characteristic

- These are made from the two-dimensional compound poly (Heptazine Imide) Carbon Nitride.
- These nearly spherical particles range from 1-10 micrometer in size, and can self-propel when energized by shining light.

How they swim through blood stream?

- The PHI carbon nitride micro-particles are **photo-catalytic in nature**. Just like in a solar cell, the **incident light is converted into electrons and holes on the surface of the micro-bots**. Now these charges (electrons and holes) react with the surrounding fluid to form ions and an electric field around the micro-bots. This reaction, combined with the electric field, makes the micro-bots swim.

How is this particular research so significant?

- As mentioned earlier the concept of micro-swimmers is not new. But there was a barrier. The body fluids and blood contain dissolved salts. All the **chemically propelled swimmers can't swim in solutions containing salts** as salt ions stop the reaction ions from moving freely as they will just bind or recombine with them and stop them.
- For example**, when dissolved in water, common salt (NaCl) breaks up into sodium (Na⁺) and chloride (Cl⁻) ions. **These ions will neutralize the ions created by the photo catalytic reaction, thereby stopping the self-propulsion.**
- To overcome this challenge, the researchers examined various materials. Finally **polyheptazine imide (PHI) carbon nitride** was found. While carbon nitride is an excellent photo-catalyst, the two-dimensional PHI has a sponge-like structure full of pores and voids and charge storage properties. The ions in the salty solution passed through the pores of PHI carbon nitride. Thus, **there is little or no resistance from the salt ions and they do not affect the propulsion.**
- In addition to transporting salt ions from the fluid, the **voids and pores on the micro-particles worked as cargo bays and could soak up large amounts of drug.**
- Example:** Doxorubicin, a drug used to treat cancer, is readily absorbed by micro-bots. By triggering it with light, drug release can be activated.

Final Thought

- Micro-bots **could help revolutionize drug delivery in the future**. These 'microrobots' are so small that they could be ingested, or inserted into human veins to deliver drug therapies directly to diseased body areas.

HELINA (HELICOPTER BASED NAG) MISSILE

GS-III SCIENCE & TECHNOLOGY

Context

- India successfully test fired **Anti-Tank Guided Missile 'HELINA'** in high altitude conditions in Ladakh.

Background: Nag Missile

- The Nag missile is an **indigenously developed Indian third-generation, all-weather, fire-and-forget, lock-on after launch, anti-tank guided missile (ATGM) with an operational range of 500 m to 20 km**. It has a top speed of **230 meter/second (or 828 km/hour)**.

Note: Anti-Tank Guided Missiles (ATGMs) are guided missiles designed primarily to destroy heavily armoured vehicles and tanks.

Variants of Nag Missile

- Nag has five variants under development:

 - Prospina (500m-4km)** - the land version meant for infantry.
 - HeliNa (7-10km)**: It is a helicopter-launched version of NAG.
 - A "man-portable" version (MPATGM)**: A lighter 14.5 kg variant. Can be launched from the shoulder. It has a **strike range of 2.5 km**.
 - Air-launched version** which will replace the current imaging infra-red (IIR) to millimetric-wave (MMW) active radar homing seeker.
 - The Nag Missile Carrier (NAMICA)** "tank buster", which is a modified BMP-2 Infantry Fighting Vehicle (IFV).

- Development of the Nag is **part of the Integrated Guided Missile Development Program (IGMDP)**, run by Defence Research and Development Organisation (DRDO). **IGMDP** also includes four other missiles – **Agni, Akash, Trishul and Prithvi**.

About HELINA

- HELINA (Helicopter based NAG-variant) is a **third generation fire and forget class anti-tank guided missile (ATGM) system**.

Note: Third-generation "fire-and-forget" missiles rely on a laser or electro-optical imager (IIR) seeker in the nose of the missile. Once the target is identified, **the missile needs no further guidance during flight; it is "fire-and-forget"**, and the missile operator is free to retreat.

- HELINA missile is one of the **most advanced anti-tank weapons in the world**. It has been **designed to launch from the Advanced Light Helicopter (ALH)**. HELINA has a **maximum range of seven kilometers**.
- The missile is **guided by an Infrared Imaging Seeker (IIR)** operating in the **lock-on-before-launch mode**.

- The system has all weather day and night capability and can defeat battle tanks with conventional armour as well as explosive reactive armour.
- HELINA can engage targets both in direct hit mode as well as top attack mode. In the top attack mode, the missile is required to climb sharply after launch and travel at a certain altitude and then plunge on the top of the target. In the direct hit mode, the missile travels at a lower altitude, directly striking the target.
- HELINA Weapon Systems is being inducted into the Indian Army (IA). A variant of HELINA Weapon System called DHRUVASTRA is being inducted into the Indian Air Force (IAF).

Note: Helina -SANT-Asmart Stand-off Anti-Tank Missile(15-20 km): This is an upgraded version of the third-generation HELINA.



Trivia: Working of Nag Missile

- The missile locks target before its release. The missile operators first locate the enemy tanks with the help of thermal imaging. After identifying the target, a thermal reference image of the target is captured and locked into the Nag's seeker system.
- The missile is launched towards the locked target with this reference image. As the missile moves towards the target at a high speed, it keeps capturing target images and cross-check it simultaneously with the reference image. Any deviations from the set path are corrected through Nag's four control fins. It all happens at a very high speed of 230 meter/second and within a range of 4-20 km, depending on the launch type.
- The missile penetrates the outer explosive reactive armour (ERA) of the tanks and also destroys the inside armour of the tank.
- There are only two other fire-and-forget missiles in the world that can be compared with Nag – the American Javelin and the Israeli Spike. While Javelin and Spike are lighter missiles that can be carried by a soldier, Nag is more powerful as its infrared seekers can't be jammed. Nag's indigenously developed imaging seeker and high-tech guidance system make it jam-proof.

W BOSON

GS-III SCIENCE & TECHNOLOGY

Context

- A new analysis of data collected at an experiment in the US before 2011 has revealed the mass of the W boson to be higher than what was predicted by the Standard Model. Thus, the new measurement disagrees with the Standard Model of particle physics.

Standard Model of Particle Physics

- The Standard Model of particle physics is the theory that describes three of the four known fundamental forces - the electromagnetic, weak, and strong interactions [while omitting gravity] in the universe and classifying all known elementary particles.
- It is a framework of rules that describes how the elementary particles of our universe look and behave.

Elementary Particles

- Elementary particles are the most fundamental components of matter and cannot be further subdivided into smaller constituents. Elementary particles include quarks (the constituents of protons and neutrons), leptons (electrons, muons, taus, and neutrinos), gauge bosons (photons, gluons, and W and Z bosons) and the Higgs boson.
- The fundamental forces that act on elementary particles are the electromagnetic force, the strong force, the weak force, and gravity.
- Characteristics of elementary particles include mass, spin, and charge. The standard model of particle physics classifies and describes the behavior of all known elementary particles.

Boson

- A boson is **a sub-atomic particle which carries a force**. It has a whole number spin. Bosons carry energy. **A photon is an example of a boson as it has a spin of 1 and carries electromagnetism**. Mesons are also bosons as they carry nuclear force. A boson is a type of particle that obeys the rules of Bose-Einstein statistics.
- Bosons are **called force particles**, because it is the **bosons that control the interaction of physical forces, such as electromagnetism**.

Fundamental Bosons

- According to the Standard Model, there are a number of fundamental bosons, which are **not made up of smaller particles**.
- Photon** - Known as the particle of light, photons carry all electromagnetic energy and act as the gauge boson that mediates the force of electromagnetic interactions.
- Gluon** - Gluons mediate the interactions of the strong nuclear force, which binds together quarks to form protons and neutrons and also holds the protons and neutrons together within an atom's nucleus.
- W Boson** - One of the two gauge bosons involved in mediating the weak nuclear force.
- Z Boson** - One of the two gauge bosons involved in mediating the weak nuclear force.

Note: Weak nuclear force is involved in nuclear fusion reactions and for radioactive decay. This force is mediated by two particles: the two W bosons and the Z boson. W and Z bosons have mass.

New measurements of W Boson

- The standard model is not accurate. It has **no explanation for gravity, dark matter and the absence of antimatter in our universe**. So physicists are constantly on the lookout for deviant measurements that could lead to new theories.
- Researchers in a new experiment in 2011 measured the boson's mass by smashing beams of protons and antiprotons together and analyzing the particles produced in the collision.
- The generally **accepted mass for the W boson was 80.379 gigaelectron volts**. New measurement puts it at **80.4335 gigaelectron volts**.

Implication

- The finding could hint at new particles or other mysteries of physics yet to be discovered.

TRAI'S RECOMMENDATIONS ON SPECTRUM

GS-III SCIENCE & TECHNOLOGY

Context

- Cellular Operators' Association of India termed the spectrum pricing suggested by Telecom Regulatory Authority of India as "too high".

What is a Telecom Spectrum?

- Spectrum refers to the **invisible radio frequencies that wireless signals travel over**. These signals enable phone calls, book an Uber etc.
- Spectrum management activities like administrative fees, spectrum usage & prices are determined by Govt. Policy & market mechanisms.

ELECTROMAGNETIC SPECTRUM

- The electromagnetic spectrum includes everything from infrared rays to radio waves, X-Rays, visible light, microwaves and more.
- The frequencies we use for wireless **are only a portion of what is called the electromagnetic spectrum**.
- Portions of electromagnetic spectrum are grouped in "bands" depending on their wavelengths – the distance over which the wave's shape repeats. The full electromagnetic spectrum **ranges from three Hz (extremely low frequency) to 300 EHz (gamma rays)**.
- Cellular technology operates upon the radio spectrum which **includes frequencies of 3 kilohertz (kHz) to 300 gigahertz (GHz)**.
- Other parts of spectrum carry broadcast radio and television or serve other everyday functions.

Spectrum Licenses in India

- Department of Telecommunications (DoT) conducts auctions of licenses for spectrum. Spectrum auctions **began for the first time in 1994**.
- A telecom company that wishes to offer services in any of the 22 telecom circles in India must purchase **a Unified Access Services (UAS) license** to operate that circle. Licenses are awarded by auctions. The UAS, introduced in 2003, is valid for a period of 20 years.

What are TRAI's recent recommendations?

- TRAI has **recommended base prices of all spectrum bands** that will be put up for auction and **a 35% cut in the base price for 5G bands.**
- It said **telecom service providers should be allowed to surrender spectrum easily by paying a spectrum surrender fee** of Rs 1 lakh per spectrum band per Licenced Service Area (LSA). Spectrum prices will be **1.5 times if airwaves are taken for 30 years instead of 20 years.**
- TRAI has suggested **easing some of the minimum roll out (MRO) obligations** for deployment of 5G by the new entrants in the sector.

Minimum Roll-out Obligations (MRO)

- When an operator gets operating license for a particular frequency band, e.g. 1800 MHz band then that operator has to comply Minimum Roll-out Obligations. Here operator has to do site roll out and provide network services in District Headquarters (DHQ), Block Head Quarters (BHQ), etc. The License owner is responsible for all infrastructures involved in rolling out of the network its installation, networking and operation of necessary equipment and systems. MRO compliance is **not accepted if done by** using technology of **Intra Circle Roaming** i.e. sharing of network of one operator with another operator.
- It suggested that interested **players may be allowed to set up private networks for enterprise use.**

Concerns raised by Telecom Industries

- **Reserve price of the airwaves is very high.** Telecom **Industry had recommended 90% lower price.** To see only 35-40% reduction recommended in prices, is deeply disappointing they said.
- COAI had earlier pointed out that 5G is **overpriced compared to international standards and auction in markets like S. Korea and the U.S**
- They said **allowing private captive network would** alter the industry's dynamics and **hurt the financial health of the telecom sector.**

Concerns raised by Satellite Industries

- The Indian Space Association, said that making all spectrum available for sale would be a "**case of oversupply to terrestrial telecom at the cost of the satellite industry**". The 24.25-27.5 GHz bands along with 3.3-3.67 GHz band would be more than sufficient for 5G. In line with the global best practices, the 28 GHz band should be allocated exclusively for satellite communications – ISA.

Note: Spectrum bands made available for telecom auction: 700, 800, 900, 1800, 2100, 2300, 2500, 600 & 3300-3670 MHz; and 24.25-28.5 GHz.

Way Ahead

- **Lowering of base price for spectrum** in the auction **will spur participation by local telecom** firms and expedite the rollout of networks.
- **Infusing liquidity and encouraging investment,** for the long-term growth and sustainability of the telecom sector.
- Telecom service providers should be allowed easy payment options including **part payment with flexibility of moratorium.**
- **APLI scheme** within the telecom sector to strengthen the 5G ecosystem.
- **True Liberalisation, Technology Neutrality and Full Competition, moving away from** existing closed system of **a small oligopoly.**
- **Direct 5G spectrum allocation** to enterprises of other verticals like healthcare, manufacturing, logistics, education & research, etc.
- Private Telcos need to be fairly compensated for **catering to rural and EWS customers.**
- The **idle USOF corpus** is huge- around Rs1 lakh crore. There should be **accountability for this** important resource being wasted.

[Universal Service Obligation Fund (USOF) is the pool of funds generated by 5% Universal Service Levy that is charged upon all the telecom fund operators on their Adjusted Gross Revenue (AGR)].

- **License unbundling and creating separate layers of core network facilities** (Access Network Providers) and Service Delivery Operators (i.e. MVNOS-Mobile Virtual Network Operator). -Suggested by TRAI but not yet accepted by Government.
- **A20-fold increase in unlicensed spectrum to spur R&D, Innovation and Affordable Hi-Speed Broadband.**
- The profitability of the Indian telecom industry is significantly below that of even its Asian peers and needs urgent attention. Thus, the **idea of seeking to maximize revenues from the sector** through various spectrum and licensing levies **must be discarded, atleast from domestic telecom companies.** The payback is achieved through the **large socio-economic benefits to the nation and its citizens.**

ROOT SERVERS

GS-III SCIENCE & TECHNOLOGY

Context

- Rajasthan has become the first State in the country to get the L-root server.

About

- The Domain Name System is a hierarchical naming system for computers, services etc in the Internet.
- Root name servers are the servers at the root of the Domain Name System (DNS) hierarchy.

Detail

- Every time we try to connect to a website or any other online service, DNS root server help our computers find and reach the desired addresses. To acquire information online, humans search through domain names like amazon.com, myntra.com; DNS involves translating this into IP addresses for the content to load.
- The DNS is the system which converts Internet domain names, such as www.netnod.se, into numeric addresses such as 192.71.80.67.
- Root servers top the hierarchy. They are responsible for the functionality of the DNS and the entire Internet. They're the first step in the name resolution of any domain name, meaning **they translate domain names into IP addresses that are used in communication between Internet hosts. Thus, they ensure universal resolvability so that all users of the Internet can find all valid addresses.**
- The mapping of domain names to IP addresses works in a hierarchical order using DNS zones. Each level of DNS contains different pieces of information. To translate www.netnod.se, a resolver -- first has to figure out where .se is, then netnod.se, and finally www.netnod.se.

The Root Zone

- The root servers contain the information that makes up the root zone, which is the global list of top level domains. The root zone contains:
 - Generic top level domains – such as .com, .net, and .org.
 - Country code top level domains – two-letter codes for each country, such as .se for sweden or .no for Norway.
 - Internationalized top level domains –equivalents of country code top level domain names written in the countries' local character sets.
- For each of those top level domains, the root zone contains all the numeric addresses of name servers, and the root servers respond with these addresses when asked about a top level domain. The root zone comes from the Internet Assigned Numbers Authority (IANA), which is part of the Internet Corporation for Assigned Names and Numbers (ICANN).

Root Servers

The root servers are operated by different organizations:

- A Root Server by VeriSign Global Registry Services
- B Root Server by University of Southern California, Information Sciences Institute
- C Root Server by Cogent Communications
- D Root Server by University of Maryland
- E Root Server by NASA Ames Research Center
- F Root Server by Internet Systems Consortium, Inc.
- G Root Server by US DoD Network Information Center
- HRoot Server by US Army Research Lab
- I Root Server by Netnod
- J Root Server by VeriSign Global Registry Services
- K Root Server by RIPE NCC
- L Root Server by ICANN (The Internet Corporation for Assigned Names and Numbers; American)**
- M Root by Server WIDE Project

Why there are 13 DNS root servers?

- It's because of the limitations of the original DNS infrastructure, which used only IPv4¹ containing 32 bytes. So, each of the IPv4 addresses is 32 bits, and 13 of them come to 416 bytes, leaving the remaining 96 bytes for protocol information.
- There is no any root server in India.

[The above info is just for understanding the concept]

Rajasthan's L Root Server and its significance

- The server has been installed at Bhamashah State Data Centre in association with Internet Corp. for Assigned Names and Nos. (ICANN).
- L-Root will ensure **uninterrupted delivery of digital services & bring transparency & efficiency in operations by enforcing e-governance.**
- The server will ensure **high-speed internet connectivity.** Also, internet operations would continue to run in Rajasthan without any interruption even if there was an obstacle in internet connectivity because of a technical glitch or a natural calamity in Asia or India.
- It will benefit the public & industry with a **better load management and lower round trip time latency between the users and servers.**

Note: There are at present three J-root servers in New Delhi, Mumbai and Gorakhpur and two L-root servers in Mumbai and Kolkata. The L-root server in Rajasthan is the first one deployed at the State level.

DIGITAL INDIA RISC-V (DIR-V) PROGRAM

GS-III SCIENCE & TECHNOLOGY

Context

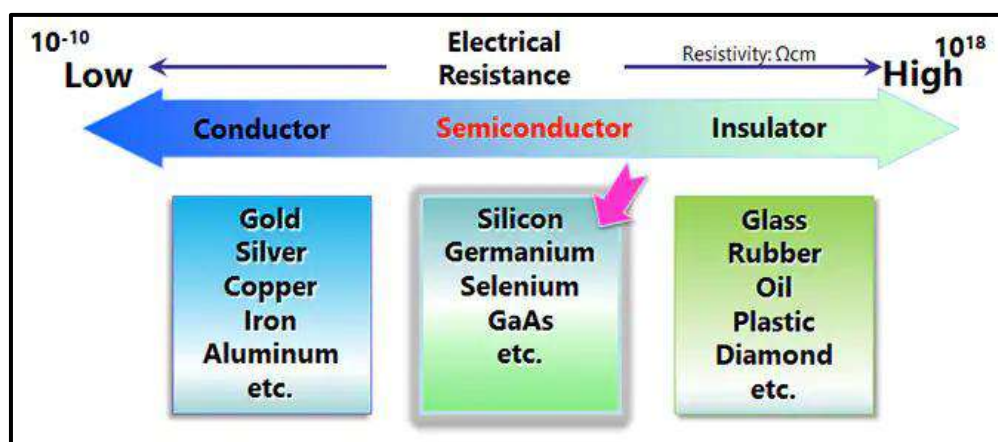
- The Minister of State for Skill Development and Entrepreneurship has launched **Digital India RISC-V (DIR-V) program for developing next-generation Microprocessors.**

Details

- Digital India RISC-V (DIR-V) program was launched for developing next-generation Microprocessors by December 2023.
- It will support and **encourage India's Semiconductor startups.**
- It will provide partnerships between startups, Academia & Global Majors, and prove to be a RISC-V Talent Hub for World.
- Recently, the government has announced to provide incentives of **Rs 76,000 crore for the development of semiconductors** and display manufacturing ecosystems over the next six years.

Semiconductors

- A semiconductor material has an electrical conductivity value falling between that of a conductor and an insulator.
- Its **resistivity falls as its temperature rises**; metals behave oppositely.
- Some examples of semiconductors are silicon, germanium, gallium arsenide, and elements near the so-called "metalloid staircase" on the periodic table.
 - After silicon, gallium arsenide is the second-most common semiconductor and is used in laser diodes, solar cells, microwave-frequency integrated circuits, and others.
 - Silicon is a critical element for fabricating most electronic circuits.
- Its conducting **properties may be altered in useful ways by introducing impurities ("doping")** and by the application of electrical fields or light, devices made from semiconductors can be used for amplification, switching, and energy conversion.
 - Apart from doping, the conductivity of a semiconductor can be improved by increasing its temperature.
- Semiconductors' role in the fabrication of electronic devices, and semiconductors is an important part of our lives.
- They are the brains of modern electronics, enabling technologies critical to economic growth, national security, and global competitiveness.
- They are used in the manufacturing of various kinds of electronic devices, including Mobiles, TVs, Computers, solar panels, etc.
- They are an essential component of electronic devices, **enabling advances in communications, computing, healthcare, military systems, transportation, clean energy, and countless other applications.**



INDIA'S MILITARY SPENDING

GS-III SECURITY & DEFENSE

Context

- As per the Stockholm International Peace Research Institute (SIPRI) annual report, **India was the third-highest military spender in the world behind the US and China** as the global defence expenditure reached an all-time high of **\$2.1 trillion in 2021**.
- SIPRI is an **independent international institute** dedicated to **research into conflict, armaments, arms control and disarmament**.

Key findings of SIPRI report

- The top five military spenders are the **United States, China, India, the United Kingdom, and Russia**, which accounted for **62 per cent of the global military expenditure**.
- India's military spending**, amounting to \$76.6 billion in 2021. The data takes into account **India's complete defence budget, a major portion of which goes into pensions and salaries**.
- The SIPRI data also shows that roughly 50 per cent of India's **defence exports from 2017 to 2021 were to its immediate neighbour Myanmar, followed by Sri Lanka at 25 per cent and Armenia at 11 per cent**.
- Amid **ongoing tensions and border disputes with China and Pakistan**, India has prioritized the modernization of its armed forces and self-reliance in arms production.
- China's military expenditure has grown for the 27th consecutive year. China's **growing assertiveness in and around the South and the East China seas** have become a major driver of military spending in countries such as Australia and Japan.

What are the steps taken by the Centre to boost defence production?

Measures announced to boost exports include

- simplified defence industrial licensing
- relaxation of export controls and grant of no-objection certificates
- specific incentives were introduced under the foreign trade policy
- Ministry of External Affairs has **facilitated Lines of Credit for countries to import defence product**.
- Defence attaches in Indian missions abroad have been empowered to promote defence exports.
- On the domestic front, to boost indigenous manufacturing, the Government had **issued two "positive indigenisation lists" consisting of 209 items that cannot be imported** and can only be procured from domestic industry.
- A percentage of the capital outlay of the defence budget has been reserved for procurement from domestic industry.

INDIAN NAVY INDIGENISATION PLAN

GS-III SECURITY & DEFENSE

Context

- Navy accelerates indigenisation efforts, focus on weapons and aviation items.

Initiative taken by Navy to accelerates indigenization:

- The Navy has taken an early lead towards indigenisation decades ago and in 2014 promulgated the Indian Navy Indigenisation Plan (INIP) 2015-2030 to enable indigenous development of equipment and systems.
- Till date, **Navy has indigenised around 3400 items under INIP**, including over 2000 machinery and electrical spares, over 1000 aviation spares and over 250 weapon spares.
- Indigenisation efforts are adopted by Government to **cut down on defence imports and boost domestic manufacturing**
- The existing **Naval Aviation Indigenisation Roadmap (NAIR) 2019-22** is also under revision. All fast moving aircraft mandatory spares and high cost indigenous repairs are being included in the revised NAIR 2022-27.
- Four in-house indigenisation committees** have been formed to handle indigenisation of spares with respect to naval aircraft.
- The **Naval Liaison Cells (NLCs)** located at various places have been nominated as '**indigenisation cells**'.
- There are currently 41 ships and submarines under construction, 39 are being built in India shipyards while in principle approval from MoD exists for 47 ships to be built in India.
- Since 2014, **78 % of Acceptance of Necessity (AoN), by value, and 68 % of contracts, by value, have been awarded to Indian vendors**.
- The Navy is working with the **DRDO and the industry** to cut down developmental timelines.
- Some of the focus areas include indigenous design and development and production of Anti-Submarine Weapons and sensors, Satcom and electronic warfare equipment, Anti-Ship Missiles and Medium Range Surface to Air Missile, combat management system, software defined radios, network encryption devices, Link II communication system, main batteries for submarines, distress sonar system, components of missiles and torpedoes etc.
- The **Naval Innovation and Indigenisation Organisation (NIIO)** provides a **flexible and accessible interface for academia and industry** with Indian Navy capability development apparatus.
- In the last two years, **36 IPR (Intellectual Property Rights) applications** have been filed by Navy personnel.
- The Navy has more than 20 Make I & Make II cases being progressed, under various domestic development routes of the procurement procedure.

DECARBONISING INDIAN AGRICULTURE

GS-III ENVIRONMENT & ECOLOGY

Context

- As per India's third **Biennial Update Report** in 2016, **agriculture and livestock emitted 407,821 Gg of CO₂e, around 14% of total emissions**. Out of this, 61.3% is linked to livestock.

India's current status

- India, with **1.75 million sq km arable land** and a **300 million cattle population** has 160 million rural households with agriculture being the main source of livelihood.
- Hence, decarbonisation has to be carefully calibrated to avoid an adverse impact to over 120 million marginal farmers who are still in the 'survival phase' of their socio-economic development.
- Apart from livestock, the major constituents of agriculture GHG emissions are **rice cultivation (17.5%), fertiliser application (19.1%), and field burning of agricultural residues (2.2%)**.

Agriculture and climate change

- India is the **third-largest emitter of greenhouse gases** after China and the United States.
- India emitted 2,299 million tonnes of carbon dioxide (CO₂) in 2018, according to a report by the International Energy Agency. This accounts for 7 per cent of global GHG emissions. **Agriculture and livestock account for 18 per cent of gross national emissions**.
- A majority of agricultural GHG emissions occur at the primary production stage and are generated through the production and use of agricultural inputs (mainly water, fertilisers, and pesticides) farm machinery, soil disturbance, residue management and irrigation.
- Climate change is threatening India's agricultural growth with **frequent dry spells, heat waves and erratic rainfall**.

Deep decarbonising pathways

- It would include **reducing biogenic methane from cattle** and rice cultivation
- inculcating resource efficiency by reducing consumption of irrigation water, chemical fertilisers, and energy for cultivation/harvesting/transport as well as farm waste processing;
- reducing waste in the food supply chain; and
- building climate resilience through deploying automation and technology.

Critical factors for both decarbonisation and sustainability

- Soil:** Fertile soil enhances farm yields and incomes apart from being a carbon sink. Healthy soil holds more moisture and soil conservation methods reduce erosion.
- Freshwater:** Agriculture consumes over 80% of freshwater in India, making conservation critical. **Micro-irrigation with automation and adoption of low water-intensive species** and farming practices is essential. Areas under water intensive crops must be reduced through crops diversification.
- Alternate cropping:** It is an emerging area in climate-smart farming. For example, seaweed cultivation as additive to cattle feed reduces biogenic methane emissions, improves feed quality, and enhances milk production.
- Agro-forestry:** Trees act as windbreaks, reduce soil erosion, enrich soil, and filter water.
- Bio-energy from farm waste:** Manure-based community biogas plants can support clean cooking and distributed power. **India's National Policy for Biofuels/ SATAT scheme** set a medium-term target of 15 million tonnes of bio-CNG. **BECCS (Bio Energy with Carbon Capture & Storage)** involves capturing CO₂ from bioenergy plants and permanent storage.

What can be done?

- India has many programmes—**National Mission on Sustainable Agriculture (NMSA) under the National Action Plan on Climate Change (NAPCC)**, **National Initiative on Climate Resilient Agriculture (NICRA)**, and **National Adaptation Fund for Climate Change (NAFCC)**. However, outcomes have not been satisfactory.
- Coordinated and action-oriented implementation** and appropriate institutional architecture from the Centre to states to districts or agro-zones is needed.
- Concepts such as **Low External Input Sustainable Agriculture (LEISA)**, which seek to optimise the use of locally available resources replacing external inputs is receiving increased attention as a sustainable alternative to chemical farming.
- The **Zero Budget Natural Farming (ZBNF) concept** introduced in Andhra Pradesh in 2015 is a low-input, climate-resilient type of farming that encourages farmers to use low-cost locally sourced inputs. It eliminates the use of chemical fertilisers and pesticides.
- Sustainable agriculture pathways will require **significant capital**, but a large portion could come from repurposing existing

subsidies. **Climate finance and patient capital** will be needed for areas having longer gestation period, viz biogenic methane mitigation, agro-forestry, etc.

- **Halting deforestation, rejuvenating degraded forests, and accelerating afforestation.**
- A two-pronged approach is required—to **generate high integrity, real-time data on forest status; and to undertake conservation, restoration, and regeneration under an integrated forest management framework.** This requires **funding and mobilising communities** and addressing their needs, especially forest fringe villages.
- There is need to back ambitious targets with a **consensual approach and robust implementation.** Each action must have a separate **micro-plan with actions and timelines.**

ANNUAL DOLPHIN CENSUS

GS-III ENVIRONMENT & ECOLOGY

Context

- The census exercise for dolphins and other cetacean species included along the coast of Odisha is conducted.

Census key findings

- The dolphin population along Odisha's coast and in its water bodies has increased but the **number of Irrawaddy dolphins in Chilika lake has fallen.**
- The number of dolphins has **overall gone up from 544 in 2021 to 726 in 2022.**
- A total of **six species of dolphins** – Irrawaddy, bottlenose, humpback, striped, finless and spinner dolphins – have been recorded.
- Chilika lake, saw the numbers of **Irrawaddy dolphins, its flagship aquatic animal drop sharply from 162 in 2021 to 151 this year. Odisha now has a total of 208 Irrawaddy dolphins.**
- There has also been a **fall in the number of bottlenose dolphins at Chilika, from 26 in 2021 to 16 in 2022.**

About South Asian river dolphin (*Platanistagangetica*)

- It is an **endangered freshwater or river dolphin** found in the region of Indian subcontinent, which is split into two subspecies,
 - the Ganges river dolphin and the Indus river dolphin
- Ganges river dolphin is primarily found in the **Ganges and Brahmaputra Rivers** and their tributaries in India, Bangladesh, and Nepal.
- Indus river dolphin is found **only in the main channel of the Indus River in Pakistan** and in the **River Beas** (a tributary of the Indus) in Punjab in India.
- The Ganges river dolphin has been recognized by the government of India as its **National Aquatic Animal** and is the **official animal of the Indian city of Guwahati.**
- The Indus river dolphin has been named as the **National Mammal of Pakistan.**
- **Synonyms**
- **Ganges subspecies:** Gangetic dolphin, Ganges susu, shushuk (Being a mammal, the Ganges river dolphin cannot breathe in the water and must surface every 30-120 seconds. Because of the sound it produces when breathing, the animal is popularly referred to as the susu.
- **Indus subspecies:** bhulan, Indus dolphin, Indus blind dolphin

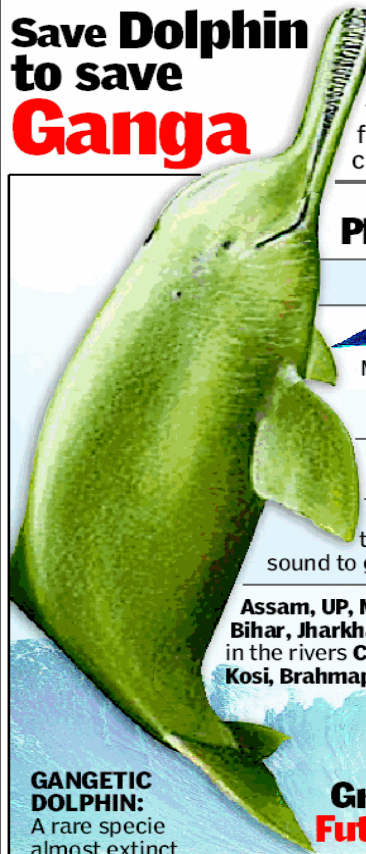
Distribution and habitat

- The South Asian river dolphins are native to the freshwater river systems located in Nepal, India, Bangladesh, and Pakistan.

Save Dolphin to save Ganga

The Centre has declared the dolphin a national aquatic animal to save the rare freshwater species from disappearing from the country's aqua map

Know about *Platanista gangetica*

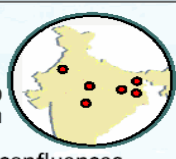
	<p>1.67m</p> <p>Males grow up to 2.12m</p> <p>Females grow up to 2.67m</p> <p>Females give birth to only one calf, once in 2-3 yrs</p> <p>Generally blind, they catch their prey by emitting ultrasonic sound to gauge distance, mass etc</p>
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Assam, UP, MP, Rajasthan, Bihar, Jharkhand & W Bengal in the rivers **Chambal, Sone, Kosi, Brahmaputra** Prefer deep waters, in & around Indian river confluences

GANGETIC DOLPHIN:
A rare specie almost extinct
Lost cousin: The Yangtze dolphin, Baiji, of China

Grim Future
Dwindling number due to killing, habitat fragmentation

Once counted in 10's of 1000's, the amount has reduced in last century to **1,500**
"Endangered" & placed in **Schedule-I of Wildlife (Protection) Act, 1972**



Ecological importance

- The Gangetic dolphin is an **indicator species**, whose status provides information on the overall condition of the ecosystem and of other species in that ecosystem, for the Ganga ecosystem and is extremely vulnerable to changes in water quality and flow.

Conservation

- International trade is prohibited by the listing of the South Asian river dolphin on **Appendix I of the Convention on International Trade in Endangered Species**.
- It is protected under the **Indian Wildlife Act**.
- Both subspecies are listed by the IUCN as **endangered** on their Red List of Threatened Species.
- The species is listed on **Appendix I and Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals**.
- The Ministry of Environment and Forest declared the Gangetic dolphin the national aquatic animal of India.
- Dolphin Awareness Program** (Phase - I) has been completed. Further strengthening of networking is being taken up in Phase-II with NGOs, schools and teachers in Ganga and Brahmaputra river basins.
- A stretch of the Ganges River between Sultanganj and Kahlgaon in Bihar has been declared a dolphin sanctuary and named **Vikramshila Gangetic Dolphin Sanctuary**, the first such protected area.
- National Mission for Clean Ganga (NMCG)** in its efforts of biodiversity conservation in Ganga River basin has been working further on the Ganges River Dolphin Conservation Action Plan and has taken up steps to coordinate with various institutions.



Major Threats

- Habitat loss / Degradation / Disturbances – Annual flood, Changing River course.
- Inland waterways / Movement of large cargo vessels.
- Various anthropogenic / religious activities.
- Excessive harvesting/hunting/food – subsistence use/ local trade.
- Directed killing/ poaching or Accidental killing – by catch/ fisheries related entanglements.
- Water pollution – Agriculture related or direct disposal of sewage – on both the banks of River/chemical.

The Irrawaddy dolphin (*Orcaellabrevirostris*)

- It is a euryhaline species of oceanic dolphin found in discontinuous subpopulations near sea coasts and in estuaries and rivers in parts of the **Bay of Bengal and Southeast Asia**.
- Although it is called the Irrawaddy river dolphin, it is not a true river dolphin, but an oceanic dolphin that lives in brackish water near coasts, river mouths, and estuaries.
- The **Chilika Lake in Odisha** has emerged as the “single largest habitat of Irrawaddy dolphins in the world”, following a fresh monitoring survey that pegs the number of individuals of the endangered species at 155.
- Irrawaddy dolphins are classified as ‘**Endangered**’ in the IUCN Red List of Threatened Species.
- Project Dolphin**
- It aims at the **conservation and protection of the Dolphins in rivers and oceans** of the country.
- It involves conservation of Dolphins and the aquatic habitat through the use of modern technology – specially in enumeration and anti-poaching activities.
- It will **engage the fishermen and other rivers and ocean dependent population** and will strive for improving the livelihood of the local communities.
- It will help in the **mitigation of pollution in rivers and the oceans**.
- It will give a boost to biodiversity, create employment opportunities and act as a centre of attraction for tourism.

OLIVE RIDLEY TURTLES

GS-III ENVIRONMENT & ECOLOGY

Context

- As a record number of 4.92 lakh Olive Ridley turtles have crawled to the Rushikulya coast in Odisha, scientists have tagged more than 6,000 turtles to gather more information about their breeding behaviour and migration.
- The metal tags affixed to turtles are **non-corrosive** and they do not harm their body. The metal can be removed later.
- The tags are **uniquely numbered containing details such as name of organisation, country-code and email address**.
- If researchers in other countries come across the tagged turtles, they could email their location in longitude and latitude.

Significance

- It would reveal the **inter-rookery movement of turtles in Odisha**.
- The **migration pattern** to other countries would be recorded in detail.
- Olive Ridley**
- The Olive Ridley (*Lepidochelys olivacea*) is listed as **vulnerable under the International Union for Conservation of Nature's Red list**.
- All five species of sea turtles found in India are included in **Schedule I of the Indian Wildlife Protection Act, 1972**, and in the **Appendix I of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES)**, which prohibits trade in turtle products by signatory countries.

Threats to Olive Ridley turtles

- Three main factors that damage Olive Ridley turtles and their eggs —
 - heavy predation of eggs by dogs and wild animals
 - indiscriminate fishing with trawlers and gill nets, and
 - beach soil erosion.
- Dense fishing activity** along the coasts of Andhra Pradesh, Odisha and West Bengal, especially ocean-going trawlers, mechanised fishing boats and gill-netters pose a severe threat to turtles.
- Nesting habits**
- The Olive Ridley has one of the most extraordinary nesting habits in the natural world, including mass nesting called **arribadas**.
- The 480-km-long Odisha coast has three arribada beaches at Gahirmatha, the mouth of the Devi river, and in Rushikulya, where about 1 lakh nests are found annually.
- More recently, a new mass nesting site has been discovered in the Andaman and Nicobar Islands, with more than 5,000 nests reported in a season.

INDIAN TENT TURTLE

GS-III ENVIRONMENT & ECOLOGY

Context

- Indian tent turtle is listed in Schedule -I of the Wild Life (Protection) Act, 1972 and is thereby provided the highest degree of protection.
- The Zoological Survey has not conducted any survey in the Narmada River on impact of illegal mining on Indian tent turtle and its effect on river ecosystem.

About Indian tent turtle

- It is a species of turtle that is **native to India, Nepal and Bangladesh** and it is **quite similar to the Indian roofed turtle**.
- The Conservation Status:**
 - IUCN: Lower Risk/ least concern
 - IWPA: Schedule I
 - CITES: Appendix II
- Characteristics, Habitat and Behaviour:**
 - It has an olive or brownish head with a red postocular spot.
 - The males are smaller than the females in size and have longer and thicker tails. The tentoria subspecies have a moderately small and pointed head that is shorter than the orbit. Their carapace is oval and elevated with a distinct vertebral keel that is spiked and the plastron is truncated anteriorly and notched posteriorly.
- Its habitats include **still water pools on river side** and slow running water near the river banks. These are active swimmers and are **mainly herbivorous**.
- Major Threats:**

- Due to the attractive appearance of the species, they are **illegally traded in the pet market**
- Distribution:**
 - Three subspecies recorded from India viz., *P. t. tentoria*, *P. t. circumdata* and *P. t. flaviventer*.
 - t. tentoria* occurs in peninsular India and is recorded from **Orissa, Maharashtra, Andhra Pradesh, Assam and Madhya Pradesh**.
 - t. circumdata* occurs in the western tributaries of Ganga and the rivers of Gujarat. It is found in **Rajasthan, Madhya Pradesh, Uttar Pradesh and Gujarat**.
 - t. flaviventer* occurs in the northern tributaries of Ganga and is recorded from **Uttar Pradesh, Bihar, West Bengal and Assam**.

The Government has taken several steps to protect the Indian tent turtle species

- Protected Areas**, viz., National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves have been created in the country covering important habitats to provide better protection
- Financial assistance** is provided to the State/Union Territory Governments under the Centrally Sponsored Scheme of 'Integrated Development of Wildlife Habitats', for providing better protection to wildlife and improvement of habitat.
- The Wild Life (Protection) Act, 1972 provides for stringent punishment for violation** of its provisions.
- The **local communities are involved in conservation measures** through eco-development activities which help the forest departments in protection of wildlife.
- The **Wildlife Crime Control Bureau (WCCB)** coordinates with State/UTs and other enforcement agencies to gather intelligence about poaching and unlawful trade in wild animals and animal articles.

6TH MASS EXTINCTION UNDERWAY

GS-III ENVIRONMENT & ECOLOGY

Context

- Earth is losing species at an unprecedented rate; this marks the **beginning of the Anthropocene Epoch**, a self-aggrandising nomenclature that highlights our disproportionate and irreversible impacts on the surroundings.

Mass extinctions

- When at least half of all species die out in a relatively short time—have occurred only a handful of times over the course of our planet's history. The largest mass extinction event happened around 250 million years ago, when perhaps 95 percent of all species went extinct.

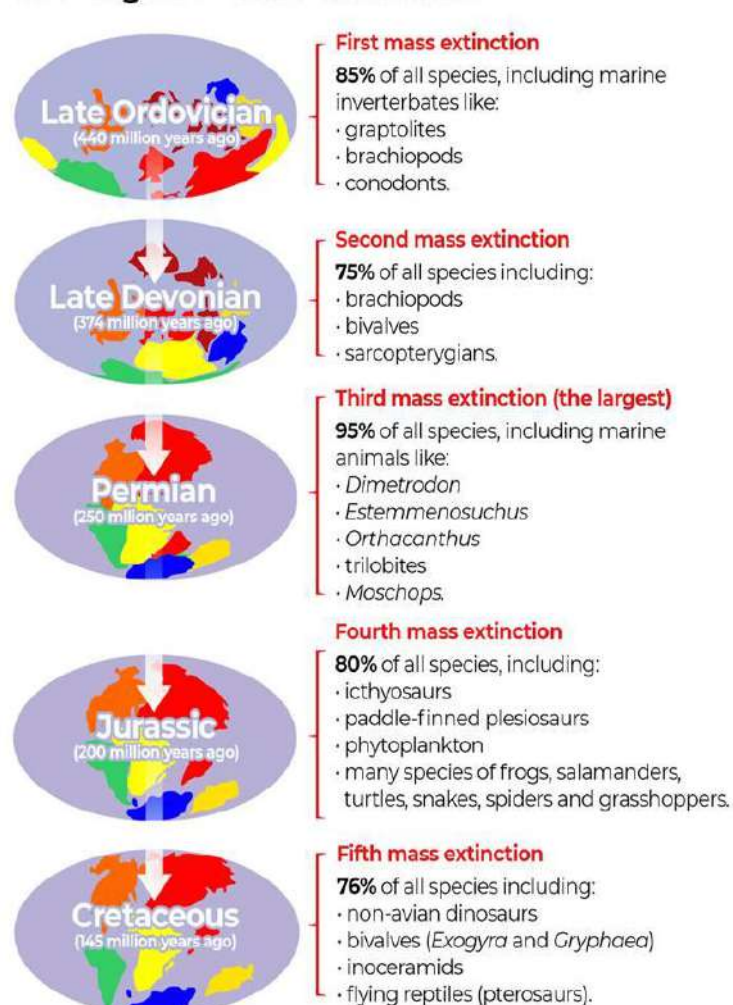
Top Five Extinctions

- Ordovician-silurian Extinction (440 million years ago)** Small marine organisms died out.
- Devonian Extinction (365 million years ago):** Many tropical marine species went extinct.
- Permian-triassic Extinction (250 million years ago):** The largest mass extinction event in Earth's history affected a range of species, including many vertebrates.
- Triassic-jurassic Extinction (210 million years ago):** The extinction of other vertebrate species on land allowed dinosaurs to flourish.
- Cretaceous-tertiary Extinction: 65 Million Years Ago**

Sixth mass extinction

- The Holocene extinction, otherwise referred to as the sixth mass extinction or Anthropocene extinction is an **ongoing extinction event of species during the present Holocene epoch** as a result of human activity.
- The current rate of extinction of species is estimated at 100 to 1,000 times higher than natural background extinction rates.

The "Big Five" mass extinctions



- The Holocene extinction includes **the disappearance of large land animals known as megafauna, starting at the end of the last glacial period.**

Reasons behind Mass extinction

- The **"Living Planet Report 2020"** points out five major reasons behind the biodiversity loss across the planet:
 - changes in land and sea use (habitat loss and degradation),
 - overexploitation of species,
 - invasive species and disease,
 - pollution and climate change.
- In the Asia Pacific region, including India that is experiencing loss of species higher than the global average, **habitat degradation is the biggest trigger, followed by species overexploitation and invasive species and disease.**
- The role of pollution and climate change was proportionately higher at 16 per cent.

COASTAL EROSION

GS-III ENVIRONMENT & ECOLOGY

Context

- The Ministry of Earth Sciences, informed the Lok Sabha that of the 6,907.18 km long Indian coastline of the mainland, **about 34% is under varying degrees of erosion, while 26% is of the coastline is of an accreting nature, and the remaining 40% is in a stable state.**
- The National Centre for Coastal Research (NCCR), Chennai is monitoring shoreline erosion since 1990 using **remote sensing data and GIS mapping techniques.**
- In terms of percentage, **West Bengal**, with a 534.35 km-long coastline, **suffered erosion along about 60.5% of the coast (323.07 km) over the period from 1990 to 2018.**
- This is followed by **Kerala**, which has 592.96 km of coastline and 46.4% of it (275.33 km) faced erosion.
- Tamil Nadu**, recorded erosion along 42.7% of it (422.94 km).
- Gujarat** recorded erosion along 27.06% (537.5 km) of it.
- Union Territory of Puducherry**, with a 41.66 km-long coastline, about 56.2% of its coast (23.42 km) recorded erosion.
- The **Indian National Centre for Ocean Information Services (INCOIS)**, has prepared and published an **atlas of Coastal Vulnerability Index (CVI) maps** for the entire coastline of India at a 1:100000 scale using data on sea level rise, coastal slope, shoreline change rate, coastal elevation, coastal geomorphology, tidal range and significant wave height.
- The **XVth Finance Commission** had recommended the **creation of a National Disaster Risk Management Fund (NDRMF) and State Disaster Risk Management Fund (SDRMF)** comprising a Mitigation Fund at the National and State-levels (NDMF/SDMF), and a Response Fund at the National and State level (NDRF/SDRF) for the award period from 2021-22 to 2022-26.
- It has also made specific recommendations for **'Mitigation Measures to Prevent Erosion' under NDMF and 'Resettlement of Displaced People Affected by Erosion' under NDRF'.**

What is Coastal erosion?

- It is the process by which local sea level rise, strong wave action, and coastal flooding wear down or carry away rocks, soils, and/or sands along the coast.
- There are four main processes of coastal erosion. These are **corrosion, abrasion, hydraulic action and attrition.**
- Coastal erosion structures **Seawalls, revetments, bulkheads, groins and breakwaters may reduce erosion in the short-term.**

GLOBAL WIND REPORT 2022

GS-III ENVIRONMENT & ECOLOGY

Context

- New offshore installations in 2022 are likely to decline to the 2019 / 2020 levels**, primarily due to the reduction of installations in China, according to Global Wind Report for 2022 published by the Global Wind Energy Council (GWEC).

Key findings of the report

- Wind energy installations every year across the world must **quadruple from the 94 GW installed in 2021 within this decade to meet the global climate targets.**
- Without the necessary amplification, restricting global warming over pre-industrial levels to 1.5 degrees Celsius — a target set by the Paris Agreement — and achieving Net Zero emissions by 2050 may become difficult.
- New installations of 93.6 gigawatt (GW) in 2021 brought global cumulative wind energy capacity to 837 GW, a year-on-year (YoY) growth of 12 per cent.
- More than three times the capacity of offshore wind compared to 2020 was installed.

- Carbon dioxide emissions can **reduce by 0.3-1.61 gigatonnes every year by 2050 if offshore wind energy generation is scaled up.**

Challenges to Wind energy installations growth

The wind energy sector continues to face considerable barriers to growth. These barriers include:

- Inconsistent policy environments focused on short-term political aims
- Badly designed markets which do not enable bankable renewable energy projects
- Infrastructure and transmission bottlenecks
- A lack of adequate industrial and trade policies related to renewable technologies Hostile political or misinformation campaigns.

Wind power scope in India

- In India, more than 1.4 GW of wind was installed in 2021, exceeding the 1.1 GW of installations during the previous year.
- The Union Ministry of New and Renewable Energy (MNRE) has set a target of installing 5 GW of offshore capacity by 2022 and 30 GW by 2030. **India is yet to develop its offshore wind energy facility.**
- India can generate 127 GW of offshore wind energy with its 7,600 km of coastline, according to the MNRE.
- Onshore wind energy refers to turbines that are located on land and use wind to generate electricity. Offshore wind energy is the energy generated from the wind at sea.

Following steps have been taken for promoting wind energyIn India

- Concessional custom duty exemption** on certain components required for manufacturing of wind electric generators.
- Generation Based Incentive (GBI)** is being provided to the wind projects commissioned on or before 31 March 2017.
- Technical support** including wind resource assessment and identification of potential sites through the National Institute of Wind Energy, Chennai.

Way forward

- The report urges governments to tackle issues such as **planning barriers and grid connection challenges.**
- To sustain and increase growth in **wind-based generation capacity, policymakers are urged to streamline the procedures to grant permits, including land allocation and grid connection projects.**
- Annual transition-related investment in the energy system must increase 2.7 times from the 2019 level, to \$5.69 trillion a year till 2030, International Renewable Energy Agency estimated.
- Greater public-private co-operation is needed to confront “the new geopolitics of the wind supply chain”.
- A stronger international regulatory framework is needed to address the increased competition for commodities and critical minerals.

NITROGEN RICH WORLD

GS-III ENVIRONMENT & ECOLOGY

Context

- An imbalance in nitrogen availability has been reported across the globe, with some places having an excess and others a shortage of the element, according to a new report.

Report highlights

- Imbalance in nitrogen availability has been hurting aquatic and terrestrial life that feed on it.
- Without nitrogen**, an essential nutrient, plants grow slowly and produce smaller flowers and fruits. Their leaves turn yellowish and are less nutritious to insects, birds and animals.
- Nitrogen availability has been shrinking in grasslands in central North America for a hundred years. Tropical and boreal forests are particularly more vulnerable.
- Plants grow quickly when exposed to high carbon dioxide (CO₂) concentrations. Thus, their demand for nitrogen also goes up.
- Declining nitrogen availability can be linked to **insect apocalypse**. Plants with low nitrogen levels can encourage swarming in some species of locusts.
- Further, low nitrogen availability could **limit plants' ability to capture CO₂ from the atmosphere.**
- When **excessive nitrogen accumulates** in the streams, inland lakes and coastal bodies of water, it could sometimes result in eutrophication, leading to harmful algal blooms, dead zones and fish kills.
- In humans, high levels of nitrogen in the groundwater are linked to **intestinal cancers and miscarriages and can be fatal for infants.**
- Reactive nitrogen compounds** like NO_x, ammonia and the greenhouse gas nitrous oxide impact air, water and soil quality, health, biodiversity and climate change, among others.

- Millions of lives and livelihoods are affected by nitrogen pollution, apart from loss of fertilisers worth billions of dollars from farms.

Factors contributing to nitrogen decline

- **High CO₂ levels dilute plant nitrogen**, triggering a cascade of effects that lower the availability of nitrogen
- Warming and disturbance including wildfire.

India and Nitrogen Pollution

- The Indian government's **subsidy on N-fertilizer (mainly urea) is over ₹ 50,000 crore per annum.**
- The farmer pays only a quarter of the market price of urea and harvests a similar proportion of it into grain, **at a Nitrogen Use Efficiency (NUE) of 25-30%.** The rest of it is lost as **N-pollution.**
- According to the **Indian Nitrogen Assessment (2017)**, **agriculture accounts for over 70% of all nitrous oxide emission in the Indian environment, out of which 77% is contributed by fertilizers, mostly urea.**
- Nitrous oxide is a greenhouse gas (GHG) that is **300 times more powerful than carbon dioxide.**
- It has replaced methane as the second largest GHG emission from Indian agriculture over the last 15 years.
- Cereals account for over 69% of the total consumption of N fertilizers in India, with rice topping the list at 37%, followed by wheat (24%).

The International Nitrogen Initiative

- The International Nitrogen Initiative (INI) is an **international program**, set up in 2003 under sponsorship of the **Scientific Committee on Problems of the Environment (SCOPE) and from the International Geosphere-Biosphere Program (IGBP).**
- The **key aims** of the INI are to:
 - optimize nitrogen's beneficial role in sustainable food production, and
 - minimize nitrogen's negative effects on human health and the environment resulting from food and energy production.
- The INI holds a conference every three years, inviting members of the international nitrogen community to meet up and discuss ideas and exchange knowledge on nitrogen issues.
- The last INI conference was held in Melbourne, in December 2016.
- This conference was attended by 380 delegates from over 33 countries.
- A key output of the conference was **The Melbourne Declaration**, which recognize the **management of reactive nitrogen is closely related to the UN Sustainable Development. It calls for responsible Nitrogen Management for a sustainable future.**

WILDLIFE (PROTECTION) AMENDMENT BILL, 2021

GS-III ENVIRONMENT & ECOLOGY

Context

- Standing Committee on Science and Technology, Environment, Forests and Climate Change has recommended government to remove the controversial clause in the Wild Life (Protection) Amendment Bill, 2021 that encourage sale and purchase of captive elephants.

Background

- The Wild Life (Protection) Amendment Bill 2021 was introduced in the Lok Sabha on December 17, 2021 and was referred to the Parliamentary panel on December 25.

Panel recommendations

- The committee has argued for a **"careful balance" between traditions and conservation.**
- It is deeply conscious of the fact that a number of religious and cultural institutions in some states own elephants which play a crucial role in daily worship and rituals.
- It has attempted to strike a careful balance to ensure that age-old traditions are not interfered with while at the same time addressing widespread concerns that nothing should be done to give an impression that private ownership of elephants and trade is going to be encouraged.
- It has recommended that the government could bring in **additional checks to allow sale and purchase by religious institutions.**
- It pointed out many discrepancies with the compilation, as a number of species is missing in all the three Schedules.
- It founds species that should be in Schedule I but have been placed in Schedule II. There are species missing altogether both in Schedules I and II as well as in Schedule III.
- The Bill fails to address **"human-animal conflict"**.

Wild Life (Protection) Amendment Bill 2021

- The 2021 amendment Bill proposes **50 amendments in the existing Wildlife (Protection) Act, 1972.**
- The amended Bill also seeks **to rework the protection Schedules.**
- The Bill seeks to increase the species protected under the law, and **implement the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**
- Instead of the present six Schedules in the principal Act, the Bill **proposes three Schedules** –
 - **Schedule I** for species that will enjoy the highest level of protection
 - **Schedule II** for species that will be subject to a lesser degree of protection, and
 - **Schedule III** that covers plants.
- **Obligations under CITES:** The Bill provides for the central government to designate a:
 - (i) **Management Authority**, which grants export or import permits for trade of specimens, and
 - (ii) **Scientific Authority**, which gives advice on aspects related to impact on the survival of the specimens being traded.
- **Invasive alien species:** The Bills empowers the central government to regulate or prohibit the import, trade, possession or proliferation of invasive alien species.
 - **Invasive alien species** refers to plant or animal species which are not native to India and whose introduction may adversely impact wild life or its habitat.
- **Control of sanctuaries:** The Act entrusts the Chief Wild Life Warden to control, manage and maintain all sanctuaries in a state.
- **Conservation reserves:** Under the Act, state governments may declare areas adjacent to national parks and sanctuaries as a conservation reserve, for protecting flora and fauna, and their habitat. The Bill empowers the central government to also notify a conservation reserve.
- **Surrender of captive animals:** The Bill provides for any person to voluntarily surrender any captive animals or animal products to the Chief Wild Life Warden. No compensation will be paid to the person for surrendering such items. The surrendered items become property of the state government.
- **Penalties:** The Act prescribes imprisonment terms and fines for violating the provisions of the Act. The Bill increases these fines

HUMAN ANIMAL CONFLICT

GS-III ENVIRONMENT & ECOLOGY

Context

- According to the Standing Committee on Science, Technology, Environment and Climate Change headed by Jairam Ramesh, the Environment Ministry must constitute an advisory body of experts to tackle growing instances of human-animal conflict.

What is Man-Animal Conflict (MAC)?

- It refers to the **negative interactions between people and wild animals, with consequences for both people and their resources and wildlife and their habitats (IUCN 2020).**
- Over 2,000 people in India were killed by elephants while tigers claimed over 200 lives in the last five years, according to data provided by the government.

Common Reasons

- Competition for shared natural resources between people and wildlife
- Human population growth and the transformation of land use.
- shrinking forest cover, poaching, rapid and unplanned urbanization
- electrification penetrating into forest areas
- increasing road density
- destruction of natural animal corridors
- agricultural expansion and cultivation up to forest boundaries.

Consequences of MAC

- Influences food security of people and the well-being of both people and animals.
- serious global threat to **sustainable development** and conservation in urban and rural landscapes.
- destruction of crops and reduced farm productivity
- competition for grazing lands and water, livestock predation, injury and death to farmers,
- damage to infrastructure and
- increased **risk of disease transmission among wildlife**

Conflict mitigation strategies include

- Lethal control
- Translocation of problematic animals
- Predator-deterrent guard dogs
- Effective land use planning
- Compensation
- Spatial analyses and mapping conflict hotspots:
- Erection of fences or other barriers
- Managing garbage to prevent attraction of carnivores
- Improving community education and perception of animals
- population size regulation and
- endangered species preservation
- applying scientific research, sociological studies, and the arts to reducing conflicts.

Existing government policies

- The government has come up with some policies to grapple with the problem: The **compensation for human deaths has been increased from Rs 2.5 lakh to Rs 5 lakh**;
- Project Elephant and National Tiger Conservation Authority (NTCA) guidelines have been issued to mitigate the conflict.
- **Immune-contraception** has been introduced in order to control the population of nilgai, monkeys and wild boars.

Conclusion

- Resolving human-wildlife conflicts and fostering coexistence requires **well-informed, holistic, and collaborative processes that take into account underlying social, cultural and economic contexts**.
- Government must explicitly include human-wildlife conflict in national policies and strategies for wildlife management, development and poverty alleviation.
- At the national level, **cross-sectoral collaboration between forestry, wildlife, agriculture, livestock and other relevant sectors is key to tackle this menace**.

CHIPKO MOVEMENT

GS-III ENVIRONMENT & ECOLOGY

Context

- Women in Chhattisgarh recreate 'Chipko movement' to save HasdeoAranya. Activists claim more than 200,000 trees spread across 841 hectares of forest will have to be chopped down for the mining projects planned in the area.
- State had given clearance for the project despite the people's appeal to the chief minister and governor to look into the fake consent papers that the authorities had got the Panchayat secretaries to sign in 2019.

About Hasdeo Aranya

- The **Hasdeo forest** covering Chhattisgarh's Korba, Sarguja and Surajpur districts, spans an area of 170,000 hectares. It is a **noted migratory corridor and has a significant presence of elephants**.
- It is also the **catchment area of the Hasdeo river**, the largest tributary of the Mahanadi.
- The area was declared as a '**No-Go Zone**' for mining by the Centre in 2009. Despite this, mining in the region continued as the policy for the 'No-Go Zone' was not finalised.

About Chipko movement

- It was a **non-violent agitation in 1973** that was aimed at **protection and conservation of trees**.
- It is remembered for the **collective mobilisation of women for the cause of preserving forests**, which also brought about a change in attitude regarding their own status in society.
- The uprising against the felling of trees and maintaining the ecological balance **originated in Uttar Pradesh's Chamoli district (now Uttarakhand) in 1973** and in no time spilled onto other states in north India.
- The name of the movement '**chipko**' comes from the word '**embrace**', as the villagers hugged the trees and encircled them to prevent being hacked.

Original ChipkoAndolan

- The **original Chipkoandolan dates back to the 18th century** and was started by **Rajasthan's Bishnoi community**.
- The incident has been etched in the annals of history for the sacrifice of a group of villagers, who led by a lady named **Amrita Devi**, laid down their lives while protecting trees from being felled on the orders of then King of Jodhpur.
- After this incident, the king, in a royal decree, banned cutting of trees in all Bishnoi villages.
- The trigger for the **modern Chipko movement** was the growth in development that Uttar Pradesh witnessed following the 1963 China border conflict.

- The need for infrastructural development attracted many foreign logging companies, who were eyeing the state's vast forest resources. However, the forests were the lifeblood of the villagers and they relied on it for both food and fuel.
- In 1970, widespread floods inundated the area and were attributed to the mismanagement due to commercial logging.
- Government's policy did not allow local agriculturists and herders to cut the trees for fuel wood or for fodder and for certain other purposes.
- However, a **sports manufacturing company was given the permission to fell trees and use them to make equipment**, which proved to be the final provocation and a people's movement was born.
- It was then that **environmentalist and Gandhian social activist Chandi Prasad Bhatt**, founder of the cooperative organisation Dasholi Gram Swarajya Sangh, **led the first Chipko movement near the village of Mandal in 1973**.
- When their appeals were denied, Bhatt led a group of villagers into the forest and embraced the trees to prevent logging. After many days of agitation, the government canceled the company's logging permit.

A Women's movement

- The Chipko movement can essentially be called a **women's movement**. Women, being solely in charge of cultivation, livestock and children, suffered the most due to floods and landslides, caused due to rise in deforestation in the face of urbanisation.
- Sheer survival made women support the movement. The Chipko Andolan also stands out as an **eco-feminist movement**. Women formed the nucleus of the movement, as the group most directly affected by the lack of firewood and drinking water caused by deforestation.

Sunderlal Bahuguna contribution

- The Chipko Movement gained traction under Sunderlal Bahuguna, an eco activist, who spent his life **persuading and educating the villagers to protest against the destruction of the forests and Himalayan mountains**.
- It was his endeavor that saw then Prime Minister Indira Gandhi banning the cutting of trees. Bahuguna is best remembered for the slogan "ecology is the permanent economy".

CARBON TAX

GS-III ENVIRONMENT & ECOLOGY

Context

- Pennsylvania becomes the first major fossil fuel-producing state in the US to adopt a carbon pricing policy to address climate change.
- It joins 11 states where coal, oil and natural gas power plants must buy credits for every ton of carbon dioxide they emit.
- **Canada** imposes fuel charges on individuals and also makes big polluters pay for emissions. It's one of 27 nations with some kind of carbon tax. Canada's carbon taxes include a **minimum fuel charge for individual's equivalent to about \$40 per ton**.

Provisions in India

- India, the **world's third-largest emitter of greenhouse gases**, is among the few countries in the world to have introduced a carbon tax.
- India has the **world's fourth-largest reserves and is the second-largest producer of coal**.
- The government created the **National Clean Energy Fund (NCEF)** with contributions from the **clean energy cess imposed on coal mined in India or imported**.
- The cess, which came into effect in July 2010, was initially **₹50 per tonne in 2010 and reached ₹400 in 2016**. However, with the goods and services tax (GST) coming into effect in July 2017, the **clean energy cess was subsumed by the GST compensation cess**.
- In Glasgow, India promised to **bring down the country's total projected carbon emission by 1 billion tonnes by 2030, reduce carbon intensity by 45% by the end of the decade from 2005 levels** and achieve net-zero carbon emissions by 2070.
- The commitment also includes meeting 50% of India's energy requirements from renewable energy by 2030 and increasing non-fossil fuel power generation capacity to 500GW by the end of the decade.
- The Union budget announced a scheme, named Roadmap for Sustainable and Holistic Approach through National Energy Efficiency, or **ROSHNEE**, to help cut the country's carbon emissions.

Carbon border tax

- A carbon border tax is a **tax on carbon emissions attributed to imported goods that have not been carbon-taxed at source**.
- The carbon border tax proposal is part of the **European Commission's European Green Deal** that endeavors to make Europe the **first climate-neutral continent by 2050**.
- A national carbon tax is a **fee that a government imposes on any company within the country that burns fossil fuels**.
- However, this often results in an increase of electricity costs in households and industry, which may lead to local business closures and other economic hardships for businesses and citizens.
- In contrast, a carbon border tax is **able to protect a country's local manufacturers, motivating them to adhere to green regulations**.

- Many EU companies are at a cost disadvantage as they have been paying a carbon border tax and for carbon emissions since 2005 under the EU's Emissions Trading System.
- The new carbon border tax can therefore lead to a more level playing field against importers, especially those from nations with more lax environmental standards.
- The border tax **would not take effect until 2026**.

How does this impact India?

- As India's third largest trading partner, the EU accounted for \$74.5 billion worth of trade in goods in 2020, or 11.1% of India's total global trade. India's exports to the EU were worth \$41.36 billion in 2020-21, as per data from the commerce ministry.
- By increasing the prices of Indian-made goods in the EU, this tax **would make Indian goods less attractive for buyers and could shrink demand**.
- The tax **would create serious near-term challenges for companies with a large greenhouse gas footprint--and a new source of disruption to a global trading system already roiled by tariff wars, renegotiated treaties, and rising protectionism**.
- A levy of \$30 per metric ton of CO2 emissions **could reduce the profit pool for foreign producers by about 20%** if the price for crude oil remained at \$30-40 per barrel.

VERTICAL FARMING

GS-III ENVIRONMENT & ECOLOGY

Context

- Instead of horizontally on the ground like traditional farming, vertical farming grows crops in vertical, stacked layers without putting too much impact on land and water resources which are scarce. It includes **soilless farming techniques** among others.

Various Vertical farming systems include

- **Aeroponics and hydroponics** that come under the broad umbrella ambit of 'protected cultivation', where one can control and regulate multiple variables like water, soil, temperature, humidity.
- Protected cultivation, when practised at scale can optimise our farm-to-plate supply chains by making food available closer to the consumer and improve our **nation's GDP and reduce imports' dependency**.

History

- In 1915, Gilbert Ellis Bailey coined the term vertical farming.
- The modern concept was first proposed in 1999 by Professor Dickson Despommier.
- It is centered on the idea that **urban areas should grow their own food which can save time and resources required for transportation**. This also made sure that **fresh, local, and seasonal produce** was available to the consumer.

What is hydroponics?

- To **reduce soil-related cultivation issues**, hydroponics involves growing food in water by using its natural, mineral content.

Aeroponics

- NASA (National Aeronautics and Space Administration) motivated the initiative of aeroponics to **find an efficient way to grow plants in space in the 1990s**.
- It requires spraying nutrient solutions over plants, which requires **very less water, no soil, and minimal space**.

Aquaponics

- It combines **fish farming and hydroponics**. The **nutrient-rich waste from fish tanks serves as a fertiliser for the hydroponic plants**.

Is it a viable option for a country like India?

- **Upfront initial capital cost** involved in vertical farming is **usually higher** and when the entire crop production design is done properly, it becomes financial viable to grow, harvest, and produce a particular crop throughout the year.
- All crops grown via vertical farming methods are usually **over 95 per cent water efficient, as compared to crops grown through traditional agricultural practices**.
- For a country like India, which consists of **only around four per cent of the world's water resources**, vertical farming-based technologies can **increase the efficiency and productivity of food production** and can help in water savings.
- It can give impetus to **India's ambitious goals of achieving carbon-neutrality within its food production ecosystem**.
- Positive impact on the circular economy particularly with vertical farming methods like **cocaponics (by upcycling agricultural residues into compost and thus creating value out of it)** has the potential to create **newer revenue streams and income opportunities** for farmers living near wastelands or marginal rural areas and in mitigating the soil degradation problem of India's rural economy.
- As most of the crops are grown **"without the use of pesticides"**, it leads to **"a positive contribution towards better public health as well over time"**.
- It gives a **zero-pesticide produce**, which is **healthy, fresh, and sustainable for the planet**.
- Protected cultivation has the potential to **create new jobs, skill sets, and economic opportunities for the agriculture students**.

Context

- The Ministry of Roads, Transport and Highways (MoRTH) has developed the portal named 'e-DAR' (e-Detailed Accident Report).

About

- 'e-DAR' will provide instant information on road accidents with a few clicks and help accelerate accident compensation claims, bringing relief to victims' families.

Features of the Portal

DAR

- Digitalized Detailed Accident Reports (DAR) will be uploaded on the portal for easy access.

Linked with iRAD

- The web portal will be linked to the Integrated Road Accident Database (iRAD). From iRAD, applications to more than 90% of the datasets would be pushed directly to the e-DAR. e-DAR would be an extension and e-version of iRAD.
- Stakeholders like the police, road authorities, hospitals, etc., are required to enter very minimal information for the e-DAR forms.

Multiple Checks against Fake Claims

- e-DAR portal would conduct multiple checks against fake claims by conducting a sweeping search of vehicles involved in the accident, the date of accident, and the First Information Report number.

Linked with Govt. Portal

- The portal would be linked to other government portals like Vaahan and would get access to information on driving licence details and registration of vehicles.

Geo-Tagging

- For the benefit of investigating officers, the portal would provide geo tagging of the exact accident spot along with the site map.
- This would notify the investigating officer on his distance from the accident spot if the portal is being accessed from any other location.

Upload of details

- Photos, video of the accident spot, damaged vehicles, injured victims, eye-witnesses, would be uploaded immediately on the portal.

Intimation

- Apart from the state police, an engineer from the Public Works Department or the local body will receive an alert on his mobile device and the official concerned will then visit the accident site, to examine it, and feed the required details, such as the road design.
- Hotspots for accidents would also be identified so as to obtain solutions to avoid accidents at these hotspots.

Significance

- With only 1 per cent of the world's vehicles, India accounts for 11 per cent of the global death in road accidents, the highest in the world, according to World Bank. Witnessing 53 road crashes every hour; road accidents are killing 1 person every 4 minutes.
- So, the e-dar portal and initiatives like this are of immense importance in tackling accidents and giving relief to victims.

To read more on Road Accidents: Visit: <https://www.iasgyan.in/daily-current-affairs/road-accidents-and-road-safety-in-india#:~:text=Witnessing%2053%20road%20crashes%20every,got%20injured%20on%20Indian%20roads.>

BUCHA

PLACES IN NEWS

Context

- Ukraine's President accused Russian troops of committing "the most terrible war crimes" since World War II for killing 300 plus civilians in Bucha.

About

- Bucha is a city in Ukraine's Kyiv Oblast.
- It borders the cities of Irpin and Hostomel.

Important Links:

<https://www.iasgyan.in/daily-current-affairs/ukraine-25;>

<https://www.iasgyan.in/daily-current-affairs/kharkiv;>

<https://www.iasgyan.in/daily-current-affairs/donbass-region-and-crimean-peninsula;>

<https://www.iasgyan.in/daily-current-affairs/kherson>



<https://www.iasgyan.in/daily-current-affairs/kharkiv;>

YEMEN AND RED SEA

PLACES IN NEWS

Context

- Yemen's Houthis criticized a new U.S.-led task force that will patrol the Red Sea.

Yemen

About

- Yemen is a country in Western Asia, on the southern end of the Arabian Peninsula.
- Yemen's constitutionally stated capital, and largest city, is the city of Sanaa.

Borders

- It borders Saudi Arabia to the north and Oman to the northeast.
- Yemen shares maritime borders with Eritrea, Djibouti, and Somalia.
- It is bordered by Red Sea to the west, the Gulf of Aden & Guardafui Channel to the south.

Islands

- Red Sea islands, including the Hanish Islands, Kamaran, and Perim, as well as Socotra in the Arabian Sea, belong to Yemen. Socotra faces the Guardafui Channel and the Somali Sea.

Important cities

- Abyan, Sanaa, Ta'izz, Al Anad, , Nishtun, Sa'dah, Aden, Al Ghayda, , Marib, Al Hudaydah.

Physical features

- The Rub' al Khali desert lies in the east. It is populated only by Bedouin herders of camels.
- The Tihmah forms a very arid and flat coastal plain along Yemen's entire Red Sea coastline.

Note: The Rub' al Khali desert includes parts of Saudi Arabia, Oman, the United Arab Emirates, and Yemen.



About Red Sea

- Red Sea is a seawater inlet of the Indian Ocean, **lying between Africa and Asia.**
- Its connection to the ocean in the south, is through the Bab el Mandeb strait & Gulf of Aden.
- To its north lie the Sinai Peninsula, Gulf of Aqaba, and Gulf of Suez (leading to the Suez Canal).
- Red Sea water mass-exchanges its water with the Arabian Sea, Indian Ocean via Gulf of Aden.
- It is underlain by the Red Sea Rift, which is part of the Great Rift Valley.
- It is the **world's northernmost tropical sea**, and has been designated a Global 200 ecoregion.
- Primary inflows: **Barka River, Haddas River, Anseba River, Wadi Gasus.**
- The climate of the Red Sea is the result of two monsoon seasons; a **northeasterly monsoon and a southwesterly monsoon.**
- The Red Sea is **one of the saltiest bodies of water in the world**, owing to high evaporation and low precipitation; no significant rivers or streams drain into the sea, and its southern connection to the Gulf of Aden, an arm of the Indian Ocean, is narrow.
- The Red Sea was **formed by the Arabian Peninsula being split from the Horn of Africa by movement of the Red Sea Rift.**

<https://www.thehindu.com/news/international/yemens-rebels-criticize-new-us-led-task-force-in-red-sea/article65326919.ece>



SOLOMON ISLAND

PLACES IN NEWS

Context

- A recent leaked document has revealed that the Solomon Island has reached a deal with China on security cooperation.

About

- About:** Solomon Islands is a sovereign country that **lies to the east of Papua New Guinea and northwest of Vanuatu.** The country's islands lie between latitudes 5° and 13°S.
- Islands:** It consists of **six major islands and over 900 smaller islands in Oceania.**
- World War II Link:** Solomon Islands are **famous as a battleground of World War II.** The **Battle of Guadalcanal** is named after the country's largest island where the restive capital Honiara is located. At that time it was known as the British Solomon Islands Protectorate. It became Solomon Islands before independence in 1978.
- Climate:** The islands' ocean-equatorial climate is extremely humid throughout the year, with a mean temperature of 26.5 °C. Most of the islands are part of rain forests eco-region.
- Volcanoies:** **Tinakula and Kavachi** volcanoes are the most active volcanoes.



FALKLAND ISLANDS

PLACES IN NEWS

Context

- The Government of Argentina is set to launch a campaign in India against UK to settle the territorial dispute over **the Islas Malvinas that are known as the Falkland Islands in the UK.**

About

- **Location:** Falkland Islands are an archipelago in the South Atlantic Ocean on the Patagonian Shelf. The Falkland Islands are located in the between 51°S and 53°S.
- **Parts:** The archipelago consists of two main islands, West Falkland and East Falkland, and 776 smaller islands.
- **Physical Features:** The islands are mountainous and hilly, with the major exception being the depressed plains of Lafonia (a peninsula forming the southern part of East Falkland)
- **Climate Zone:** The islands lie on the boundary of the sub-antarctic oceanic and tundra climate zones. The climate of the islands is cold, windy and humid maritime.
- **Biogeography:** The Falkland Islands are biogeographically part of the Antarctic zone, with strong connections to the flora and fauna of Patagonia in mainland South America.



- Since the 18th century, the Falkland Islands, located off the coast of Argentina in the south Atlantic Ocean, have always been subjected to colonisation and conquests by Britain, France, Spain and Argentina.
- Prior to the 1700s, the islands were uninhabited, with France first establishing a colony there in 1764.
- The next year, when the British arrived to claim the islands for themselves, it marked the start of a dispute that has been ongoing ever since.

KURIL ISLANDS

PLACES IN NEWS

Context

- Japan for the first time said that Russia has illegally occupied four islands near the Kamchatka Peninsula.

About

- The chain of these islands stretches north across the Pacific Ocean from Japan's Hokkaido to the southernmost tip of Russia's the Kamchatka Peninsula. The Japanese have called these islands - the Northern Territories - while Russia calls them the Kurils.
- 1,300 km long these islands separate the Sea of Okhotsk from the North Pacific Ocean.
- The islands have been under Russian administration since their 1945 Invasion by the Soviet Union at the end of World War II.
- Japan claims the four southernmost islands, including two of the three largest ones (Iturup and Kunashir), as part of its territory, as well as Shikotan and the Habomai islets, which has led to the ongoing Kuril Islands dispute. The disputed islands are known in Japan as the country's "Northern Territories".
- The Kuril Islands form part of the ring of tectonic instability encircling the Pacific Ocean referred to as the Ring of Fire.



SHORT NEWS ARTICLES

GS-I **CULTURE & HISTORY**

Malcha Mahal

Context

- Feroz Shah Tuglaq's 14th century hunting lodge – Malcha Mahal – which lies in ruin due to decades of neglect is likely to be restored.

About Malcha Mahal

- Also known as **Wilayat Mahal**, is a **Tughlak era hunting lodge** in the Chanakyapuri area of New Delhi, India next to the Delhi Earth Station of the Indian Space Research Organisation.
- It is a **14th Century hunting lodge** that had been built by **Feroz Shah Tughlaq**.
- From 1985-2017**, it had been **occupied** by members of a family that **claimed lineage to the Awadh royal family**.
- According to varied reports, the last Awadh prince was found dead inside the Mahal on September 2, 2018.
- The monument is **not ASI-protected** and no attention was paid to it in all these years in order to conserve it.

Lingaraj Temple

Context

- The Central government has told the Odisha government that its ordinance to bring the 11th-century Lingaraj temple in Bhubaneswar and its associated temples under a special law is **outside the legislative competence of the state legislature**.
- The ordinance is **in conflict with the rules laid down under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act)**.

What is the Lingaraj Temple Ordinance, 2020?

- Lingaraj temple, the largest in Bhubaneswar, was constructed by **King Jajati Keshari in the 10th Century and completed by King Lalatendu Keshari in the 11th Century**.
- In December 2019, the Odisha Government had announced a development plan for the temple and its peripheral area in Bhubaneswar.
- The 66-acre **"Ekamra Kshetra"** development plan was launched to **preserve the heritage and development of the nine sites and their nearby areas at a cost of around Rs 700 crore**.
- The first phase of the project includes outer access road development, Lingaraj entry plaza, Bindusagar revival plan, parking space, heritage complex, development of amenities for Kedar Gouri- Mukteswar complex, e-auto project, relocation project and a state-of-the-art interpretation centre.

Lingaraja Temple

- It is a Hindu temple dedicated to **Shiva** and is one of the oldest temples in Bhubaneswar, the capital of the Indian state of Odisha.
- The temple represents the quintessence of the **Kalinga architecture** and culminating the medieval stages of the architectural tradition at Bhubaneswar.
- The temple is believed to be built by the kings from the **Somavamsi dynasty, with later additions from the Ganga rulers**.
- The temple is built in the **Deula style** that has four components namely, **vimana** (structure containing the sanctum), **jagamohana** (assembly hall), **natamandira** (festival hall) and **bhoga-mandapa** (hall of offerings), each increasing in the height to its predecessor.
- The temple complex has 50 other shrines and is enclosed by a large compound wall.
- The central deity of the temple, Lingaraja, is worshipped both as **Shiva and Vishnu**.
- The harmony between the two sects of Hinduism, Shaivism, and Vaishnavism, is seen in this temple where the deity is worshipped as **Harihara**, a combined form of Vishnu and Shiva.

Guru Nabha Dass

Context

- Punjab government announced gazetted holiday on the birth anniversary of Guru Nabha Dass, a 16th century saint.

About Guru Nabha Dass

- He was **born on April 8, 1537** at village Bhadrachalam on the bank of Godavari river in Khammam district, which falls in the present day Telangana.
- He belonged to **Mahasha** also known as doom or dumna community, which is one of the Schedule Caste communities. People from this community are also known as **Nabhadassias**.
- Guru Nabha Dass **wrote 'Bhagatmal' in 1585**. It has the life history of around 200 saints. He died in 1643.
- He wrote the life history of almost every saint ranging from the Satya Yuga to the Kali Yuga age.

Sangeet Natak Akademi and Lalit Kala Akademi

Context

- 12th Vice President conferred the Sangeet Natak Akademi Fellowship and Sangeet Natak Awards for the year 2018 and National Awards of Lalit Kala Akademi to eminent artists.

About Sangeet Natak Akademi

- It is the **apex body** in the field of performing arts in the country.
- It **was set up in 1953** for the preservation and promotion of the vast intangible heritage of India's diverse culture expressed in forms of music, dance and drama.
- The management of the Akademi vests in its **General Council**. The Chairman of the Akademi is appointed by the President of India for a term of five years.
- The functions of the Akademi are set down in the Akademi's Memorandum of Association, adopted at its registration as a society on 11 September 1961.
- The **Sangeet Natak Akademi Awards** are the highest national recognition conferred on practising artists.
- The Akademi also confers Fellowships on eminent artists and scholars of music, dance and drama; and has in 2006 instituted annual awards to young artists – the Ustad Bismillah Khan Yuva Puraskar.

Lalit Kala Akademi or National Academy of Art (LKA)

- It is India's **national academy of fine arts**.
- It is an autonomous organisation, established in New Delhi in 1954 by Government of India to promote and propagate understanding of Indian art, in and outside the country.
- LKA provides scholarships and a fellow program, and sponsors and organises exhibitions in India and overseas.
- It publishes a **bilingual journal**. It is funded by the **Union Ministry of Culture**.

Megalithic Stone Jars

Context

- The discovery of a number of megalithic stone jars in Assam's Dima Hasao district has brought to focus possible links between **India's Northeast and Southeast Asia**, dating back to the second millennium BC.

More about news

- According to a study in Asian Archaeology, the jars are a **"unique archaeological phenomenon"**.
- It calls for more research to understand the **"likely cultural relationship"** between Assam and Laos and Indonesia, the only two other sites where similar jars have been found.
- The jars of Assam were **first sighted in 1929** by **British civil servants James Philip Mills and John Henry Hutton**, who recorded their presence in six sites in **Dima Hasao: Derebore (now Hojai Dobongling), Kobak, Kartong, Molongpa (now Melangpeuram), Ndunglo and Bolasan (now Nuchubunglo)**.
- Three distinct jar shapes (bulbous top with conical end; biconical; cylindrical) on spurs, hill slopes and ridge lines are documented.
- Significance**
 - While the jars are yet to be scientifically dated, the researchers said links could be drawn with the stone jars found in Laos and Indonesia.
 - Link to mortuary practices:** Researchers had said there was a **"strong association"** between the stone jars and mortuary practices, with human skeletal remains found inside and buried around the jars.

Puthandu-Pirappu

Context

- The President of India, Shri Ram Nath Kovind has sent his greetings to fellow citizens on the eve of Vaisakhi, Vishu, Rongali

Bihu, Naba Barsha, Vaisakhadi and Puthandu-Pirappu.

About Puthandu

- It is also known as **Puthuvarudam** or **Tamil New Year**.
- It is the **first day of year on the Tamil calendar and traditionally celebrated as a festival**.
- The festival date is set with the solar cycle of the lunisolar Hindu calendar, as the first day of the Tamil month Chithirai. It falls on or about 14 April every year on the Gregorian calendar.
- The same day is observed by some Hindus elsewhere as the traditional new year, but is known by other names such as **Vishu in Kerala, and Vaisakhi or Baisakhi in central and northern India**.
- On the auspicious day, people wear new clothes and visit temples. In some parts of Tamil Nadu, the festival is also called 'Chittirai Vishu'.
- The prayer offering includes **three fruits – mango, jackfruit, and banana** – money in the form of coins, gold or silver jewellery, a mirror, flowers, betel leaves and areca nut. **Rangolis called kolams** are drawn using rice flour on the home entrances.
- A feast is enjoyed on the occasion as people sit down together dressed in their best traditional clothes after having paid respects to the elders in the family.

Kodava Community

Context

- The Karnataka High Court upheld the **Arms Act exemption granted to every person of Coorg by race, and Jumma tenure landholders in Coorg** (Kodagu district).

More about news

- The Centre had decided to continue the **British-era rule** of exempting **Kodavas and Jamma land holders** in the hill district of Kodagu from obtaining licence for firearms such as pistols, revolvers and double-barrelled shotguns. **The exemption has been given for 10 years, till 2029.**
- 'Coorg race', possess a **threat to their life and liberty** and are permitted to hold arms and ammunition without any scrutiny of their antecedents or criminal records.
- The special privilege to own firearms without a license was granted to the Kodavas, a **small martial community** in Kodagu district in Karnataka, by the British in **recognition of their martial traditions**.

About Kodavas community

- Kodavas, an **ethno-linguistic tribe**, claim to be the **original inhabitants of Kodagu**.
- The community has its **rituals around guns and weapons like swords**.
- The community has received these rights under the **customary law since Kodavas' life revolves around the gun.**
- "**Kailpodh festival** (festival of arms) is celebrated annually in the month of September, which is **marked by the worship of guns, Odi Kathi and Peeche Kathi (two different kinds of swords), and agricultural equipment**.
- The gun has thus come to be historically perceived as both a **birthright and necessity for the Kodava lifestyle**.
- In the Kodava terminology, both **gun and rifle are used interchangeably as "thok"** while in the symbol of the Kodava community, it is the rifle which is represented along with Odi Kathi and Peeche Kathi.

Alluri Sitarama Raju

Context

- 'RRR' (Rise, Roar, Revolt) multi-starrer movie is a fictional storey based on two of India's greatest independence fighters, **Alluri Sitarama Raju and Komaram Bheem**.

About Alluri Sitarama Raju

- He was an **Indian rebel** who became a **monk at the age of 18**, led the **Rampa Rebellion in 1922** opposing the British Raj for enacting the **1882 Madras Forest Act**, which heavily **limited the tribal group's freedom of movement within their own woodlands**.
- The village was unwilling to completely implement the traditional Podu agricultural method, which entailed shifting cultivation, as a result of the Act's ramifications.
- In 1924, Raju was taken into police custody, tied to a tree, and shot by a public execution, effectively ending the armed rebellion.
- He was awarded the designation of **manyam veerudu, or "forest hero," for his courage**.

About Komaram Bheem

- He had fled from jail and was hiding on a tea plantation in Assam.
- He learned of Alluri's uprising while he was there, and **he was inspired to defend the Gond tribe to which he belonged**.
- In the early 1900s, he spearheaded a **rebellion against the last Nizam of Hyderabad and the oppression of local landowners**. Nizam is suspected of committing atrocities on unarmed tribals.

- Bheem originated the historical slogan 'Jal Jangal Zameen,' which has been extensively echoed in Adivasi struggles until this day.

GS-II

POLITY

Olga Tellis Judgement

Context

- The Olga Tellis Judgement was recently in the news after the anti-encroachment drive in the Jahangir puri case.

Details

- The case started in 1981 when the Maharashtra state government and the Bombay Municipal Corporation decided that pavement and slum dwellers in Bombay city should be evicted.
- The court had emphatically objected to the decision of the authorities to treat pavement dwellers as mere trespassers.

Key Points of the Judgement

- **In 1985, The Olga Tellis vs Bombay Municipal Corporation case** was decided by a five-judge Bench led by then Chief Justice of India Y.V. Chandrachud accepted that the pavement dwellers do occupy public spaces unauthorised.
 - But, the court also maintained that they should be given a chance to be heard and a reasonable opportunity to raise their concerns “before force is used to expel them”.
- In the final judgement, the Supreme Court stated that the **eviction using unreasonable force, without giving them a chance to explain is unconstitutional and goes Violation of Human rights as well as Fundamental rights.**
- The then Chief Justice of India stated that the **Pavement dwellers, too, have a right to life and dignity under Article 21 of the Indian Constitution**, and the right to life includes the right to livelihood.
 - They earn a livelihood by living and working on footpaths, a welfare state and its authorities should not use its powers of eviction as a means to deprive pavement dwellers of their livelihood.
- Article 21 of the Indian Constitution mandates that “no person shall be deprived of his life or personal liberty except according to procedure established by law.”
 - **The right to livelihood is an “integral component” of the right to life.**
 - Any person who is deprived of his right to livelihood except according to just and fair procedure established by law can challenge the decision as offending the right to life.
- The **procedure of eviction should follow the natural principles of justice** like allowing the other side to be heard.
 - The right to be heard gives affected persons an opportunity to participate in the decision-making process and also provides them with a chance to express them with dignity.

Surveillance Plan of DGCA

Context

- The Directorate General of Civil Aviation has announced a surveillance tool to identify and alert the authorities about the non-compliance with flight safety standards.

Details

- **The comprehensive surveillance programme was announced by the Directorate General of Civil Aviation** to identify and alert the authorities about flight safety standards.
- The new surveillance programme will involve experts from various areas like scheduled airlines, non-scheduled operators, aircraft maintenance organisations, design and manufacturing organisations and flying training institutes, etc.
- These new guidelines are the revised version of the guidelines that were first issued in 2009.
- There is a provision for the **“Deficiency Reporting Form”** that would explain the issue and specify the reference of the regulatory provision.
- Any notable non-compliance with safety standards recognised during surveillance inspection, spot checks or safety audits should be addressed instantly and must be reported to the DGCA.
 - In case organisations were not in a position to execute remedial measures within the specified timeframe of 30 days for justified reasons, the DGCA at its discretion may grant an extension of 15 days.

Directorate General of Civil Aviation (DGCA)

- **The Directorate General of Civil Aviation (DGCA) is a statutory body** to regulates civil aviation in India.
- **Functions;**
 - Civil aircraft Registration.
 - Certification of Airports.

- Registration and licence to pilots, aircraft maintenance engineers, air traffic controllers and flight engineers.
- Formulation of standards for civil aircraft registered in India.
- Investigating incidents and serious incidents involving aircraft.
- Approve the institutes engaged in flying training.
- Approve the standards for aircraft maintenance, repair, design and manufacturing organizations and their continued oversight.
- Advice to the Government on matters relating to air transport including bilateral air services agreements.
- It promotes indigenous design and manufacturing of aircraft and aircraft components by acting as a catalytic agent.
- Approve training programmes for operators for carriage of dangerous goods, issuing authorizations for carriage of dangerous goods, etc.

GOVERNANCE

Tour of Duty Scheme

Context

- The Department of Military Affairs is in process of finalising the “Tour of Duty (ToD)” scheme.

About Tour of duty Scheme

- The Department of Military Affairs to finalise the Tour of Duty (ToD)” scheme, **under the scheme a youth could join in armed forces for a short period of 3-5 years.**
- The idea was 1st proposed by the late Chief of Defence Staff, General Bipin Rawat.
- **Service condition:**
 - 25% of them would serve in the Indian Army for 3 years
 - 25% of them would serve for five years.
 - The remaining 50% would continue to serve in the India Army for the full duration till they reach their retirement age.
- The Proposal highlighted that **50% of soldiers discharged at the end of 3 and 5 years would be included in the National Pension Scheme.**
 - These soldiers would be given certain medical benefits for a fixed period.

Significance of the Scheme

- **It will lower the pension bill as well as reduce revenue expenditure** in terms of salaries and other costs.
 - It will help in releasing funds for military modernisation.
- The Tour of Duty scheme will provide adequate manpower in the Indian Army.
- Opportunity for the youth to contribute towards nation safety and security.
- People from the technical sector could help the Army to expand the technology in the Army.
- Golden opportunity for the youth to gain the experience of military life without joining the armed forces on a long-term basis.

Civil Registration System

Context

- The Union Government is planning to update the Civil Registration System (CRS) to enable the registration of birth and death in real-time.

Details

- **The Civil Registration System (CRS) is run by the Registrar General of India (RGI)** and is linked to the National Population Register (NPR), which already has a database of 119 crore residents.
 - The NPR is to be updated with the decennial Census exercise that has been postponed due to the COVID-19 pandemic.
- The CRS system is facing challenges of timelines, efficiency and uniformity, leading to delayed and under-coverage of birth and death.
 - To address these challenges, the Union Government has decided to introduce reforms in the Civil Registration System to register birth and death on a real-time basis with minimum human interface.



Civil Registration System

- Civil registration is the system by which a government records the important events (births, marriages, and deaths) of its citizens and residents.
- The main objective of civil registration is to create a legal document that can be used to establish and protect the rights of individuals.
 - Another important purpose is to create a data source.
- The history of the Civil Registration System (CRS) in India dates back to the middle of the 19th century.
 - In 1886 a Central Births, Deaths and Marriages Registration Act was promulgated to provide for voluntary registration throughout British India.
- Post-independence, the Registration of Births and Death Act (RBD Act) was enacted in 1969 to promote uniformity and comparability in the registration of Births and Deaths across the country.
 - The Act made registration of births, deaths and stillbirths mandatory in India.
- The Registrar General of India (RGI) under the Ministry of Home Affairs coordinates and unifies the activities of registration throughout the country.

National Population Register

- It is a register of the usual residents of the country.
 - A usual resident is a person who has resided in a local area for the past 6 months or more or a person who intends to reside in that area for the next 6 months or more.
- Every resident of India must register in the NPR.
- It includes both Indian citizens as well as foreign citizens.
- The objective of the NPR is to create a comprehensive identity database of every usual resident in the country.
- The first National Population Register was prepared in 2010 and updating this data was done in 2015 by conducting door to door surveys.
- NPR is prepared under the Citizenship Act 1955 and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003.

Broadcast Seva portal

Context

- The Union Minister of Information and Broadcasting, and Youth Affairs and Sports Anurag Singh Thakur launched the 'Broadcast Seva Portal'.

Broadcast Seva Portal

- The Broadcast Seva Portal was launched, to promote the "ease-of-doing business" initiative for the broadcasting sector.
- It is an online platform for speedy processing of applications by the broadcasters for different types of licences, permissions, registrations and other associated requirements.
- The portal would reduce the overall processing time of applications and help the applicants track the progress made.
- It would minimise the human interface and add to the capacity building.
- It would facilitate the stakeholders in seeking permissions, applying for registration, tracking applications, calculating fees and executing payments.
- It will provide its services to all the stakeholders, including private satellite TV channels, multi-system operators, community and private radio channels, etc.
- It will facilitate the business environment and empower the entire broadcast sector.
- It would bring transparency, accountability and responsiveness to the system and all information would be available on a single platform.

SOCIAL JUSTICE

ADIGRAMS

Context

- The Ministry of Tribal Affairs has organised a workshop in Jharkhand on ADIGRAMS.

Details

- The Ministry of Tribal Affairs (MoTA) has also organised a meeting with key stakeholders associated with the execution of government schemes at the ground level.
- ADIGRAMS (Adivasi Grants Management System)
 - More than 60 key officials associated with the implementation of the tribal scheme have participated in the training

program.

- ADIGRAM is a **web portal which monitors the physical and financial progress of the grants** given by the Union Ministry to the State Government and can track the actual utilization of funds.
- The **details of beneficiaries are also uploaded on the portal and the infrastructure projects are geo-tagged.**
 - The information will be placed in the public domain which will bring transparency and accountability.
- Similar programs have been conducted by the Tribal Affairs Ministry in Maharashtra, Himachal, Chhattisgarh, and Meghalaya.

INTERNATIONAL RELATIONS

Global Security Initiative

Context

- A new Global Security Initiative put forward by Chinese President Xi Jinping will look **to counter the U.S. Indo-Pacific strategy and the Quad.**

About new Global Security Initiative

- It is **put forward by Chinese President Xi Jinping.**
- It will look to **counter the U.S. Indo-Pacific strategy and the Quad – the India, U.S., Australia, Japan grouping.**
- **Aim:** To stay committed to the **vision of common, comprehensive, cooperative and sustainable security.** It would “**oppose unilateralism** and say no to group politics and bloc confrontation.”
- The members of the Quad have rejected the notion that it is an **Asian NATO or a military alliance**, and pointed to its broad-based cooperation, including on vaccines and technology.
- It will uphold the principle of “indivisible security”, it is also endorsed by Russia.
- It will **respect the sovereignty and territorial integrity of all countries**, while paying attention to the “legitimate” security concerns of all.
- It would **uphold the principle of indivisibility of security**, build **balanced, effective and sustainable security architecture** and oppose the building of national security on the basis of insecurity in other countries.

Raisina Dialogue

Context

- Prime Minister Narendra Modi inaugurated the seventh edition of the Raisina Dialogue in New Delhi.

More about news

- President of the European Commission will be the chief guest at the Dialogue.
- **Theme** -Terranova, impassioned, impatient, imperilled.
- **Broad thematic pillars of the Dialogue:**
 - Rethinking Democracy
 - End of Multilateralism
 - Water Caucuses
 - Achieving Green Transitions

About Raisina Dialogue

- It is a **multilateral conference** held annually in New Delhi, India.
- Since its inception in 2016, the conference has **emerged as India’s flagship conference on geopolitics and geo-economics.**
- The conference is hosted by the **Observer Research Foundation, an independent think tank, in collaboration with the Ministry of External Affairs of India.**
- The conference is structured as a **multi-stakeholder, cross-sectoral discussion, involving a variety of global policymakers** including heads of state, cabinet ministers and local government officials.
- It also welcomes **major private sector executives, as well as members of the media and academia.**
- It is designed **on the lines of Singapore’s Shangri-La Dialogue.**
- The name “**Raisina Dialogue**” comes from Raisina Hill, an elevation in New Delhi, seat of the Government of India, as well as the Presidential Palace of India, Rashtrapati Bhavan

Cosmos Malabaricus Project

Context

- Kerala State government has entered into a Memorandum of Understanding (MoU) with the Netherlands for the Cosmos Malabaricus project.

About Cosmos Malabaricus project

- It deals with 18th century Dutch documents on Malabar between 1643 and 1852, which are considered the most extensive source of information about the period in Kerala between 1643 and 1852.
- It is aimed at shedding further **light on the history of Kerala using 18th Century Dutch documents**.
- It is being jointly implemented by the **Kerala Council for Historical Research (KCHR), the National Archives, and the University of Leiden** in the Netherlands.
- The project will be **completed in six years**.
- It would help understand more about the political, social, economic and cultural history of Kerala.
- **MA in Holland:** As part of the project, students from Kerala would get an opportunity to pursue Master of Arts programmes at Leiden University, while those from the Netherlands would be allowed to take up an internship at the KCHR.
- **Dutch script of yore:** the material has remained **underutilised by historians and researchers since it is written in the Dutch script prevalent in the 17th and 18th centuries**.
- The signatories of the project have expressed willingness to **make the digitised archival sources accessible to scholars**.
- It will focus on developing digital Dutch and English language inventories and familiarising Indian archivists and historians with the historical context of the Dutch expansion overseas.
- **Two-week summer school:** KCHR and Leiden University will organise a two-week summer school each year on the history of Kerala.

HEALTH

National Digital Health Ecosystem

Context

- The National Health Authority (NHA) has extended an open invitation to all interested parties for sharing their Expression of Interest (EoI) in developing innovative solutions aimed at building a national digital health ecosystem for India.

Details

- National Health Authority (NHA) is the **implementing agency for the Ayushman Bharat Digital Mission (ABDM)**.
- ABDM aims **to create a seamless online platform that will enable interoperability within the digital healthcare ecosystem**.
- And in this collaboration interested parties shall provide solutions as a service at no cost to public and/or private entities.
- So, this approach will not just **help speed up the development but also will help in making digital public goods available to public** and private entities.

Read: <https://www.iasgyan.in/daily-current-affairs/ayushman-bharat-digital-mission-6>

WHO Global Centre for Traditional Medicine

Context

- Recently, PM laid the foundation stone of WHO Global Centre for Traditional Medicine (GCTM) in Jamnagar, Gujarat.

Details

- The primary objective of WHO GCTM is **to harness the potential of traditional medicine from across the world through modern science and technology and improve overall health of the communities' world over**.
- The Centre will highlight the potential of traditional medicine and utilize technological advancements to promote its safe & effective use.

Traditional medicine

- Traditional medicine is a **key pillar of health care delivery systems** and plays a crucial role in maintaining good health and well-being not only in India but across the world.
- In recent year, traditional medicine therapies have also seen a major transformation as usage of artificial intelligence; technological innovations have made it more accessible to masses.
- GCTM **will aim to integrate the benefits of traditional medicine with the achievements of modern science** and create a comprehensive health strategy.

Significance

- The WHO Global Centre for Traditional Medicine is recognition of India's contribution and potential in this field. India's traditional medicine system is not limited only to treatment. It is a holistic science of life. India can take this partnership as a huge responsibility for serving the entire humanity.
- The sanskrit sutra of '**BahujanHitay, BahujanSukhay**', that is **"Well being of all" will be fulfilled with this holistic way of treatment**".

Hepatitis B

Context

- A series of unexplained cases of Hepatitis B in children has taken over the world.

Hepatitis B

- About:** Hepatitis B is **an infection in the liver** which happens because of **the Hepatitis B virus** or HBV.
- Transmission:** The virus usually spreads through blood, semen or other body fluids. It can also be passed on from a mother to her baby.
- Symptoms:** Jaundice, fever, fatigue that lasts for weeks or even months, vomiting, loss of appetite, and pain in joints or belly.
- Prevention:** It can be prevented or protected against **through vaccination**.

Recent Outbreak

- The World Health Organization (WHO) said that at least 169 cases were recorded of children being diagnosed with Hepatitis B.
- Cases have been reported in the UK, Spain, Israel, USA, Denmark, Ireland, Netherlands, Italy, Norway, France, Romania, and Belgium.
- Also, Adenovirus, has been found in at least 74 cases worldwide.

Adenovirus and Hepatitis B: The link

- Adenovirus is a **group of viruses that commonly cause cold or flu-like symptoms**, fever, sore throat, acute bronchitis, pneumonia, conjunctivitis, acute inflammation of the stomach, diarrhoea, vomiting, nausea and stomach pain.
- Adenovirus is known to spread from one person to another through close contact, coughing, sneezing etc.
- Type 41 Adenovirus is suspected of causing Hepatitis B in children.** There have been case reports of hepatitis in immune compromised children with adenovirus infection, adenovirus type 41 is not known to be a cause of hepatitis in otherwise healthy children.

Ebola

Context

- The Democratic Republic of the Congo (DRC) has reported a fresh outbreak of Ebola virus disease (EVD).

Ebola

- About:** Ebola Virus Disease (EVD) is **a rare and deadly disease in people and nonhuman primates**.
- Origin:** EVD first appeared in 1976 in 2 simultaneous outbreaks - South Sudan, and Congo. The latter occurred in a village near the Ebola River, from which the disease takes its name.
- Transmission:** **To people from wild animals** and spreads in the human population through **human-to-human transmission**. Blood or body fluids of a person who is sick with or has died from Ebola+ Contact with objects contaminated with body fluids.
- Symptoms:** High fever, Headache, Joint & muscle aches, Stomach pain, bleeding inside the body, as well as from the eyes, ears, and nose.
- Treatment:** There's **no cure for Ebola**. Two monoclonal antibodies (Inmazeb and Ebanga) help block the virus from the cell receptor, preventing its entry into the cell. Supportive care - rehydration with oral or intravenous fluids - and treatment of specific symptoms improves survival. The **Ervebo vaccine** has been shown to be effective in protecting people from the species Zaire ebolavirus.

GS-III ECONOMY

MSME Sustainable Certificate Scheme

Context

- The MSME Sustainable (ZED) Certification Scheme was created by the Ministry of Micro, Small and Medium Enterprises.

About the scheme

- This Scheme is a multi-pronged effort to encourage and enable MSMEs to embrace Zero Defect Zero Effect (ZED) practises, as well as to motivate and reward them to pursue ZED Certification and become MSME Champions.
- MSMEs will get subsidies on the cost of ZED certification in accordance with the following structure under the Scheme:



- Micro Enterprises: 80%
- Small Enterprises: 60%
- Medium Enterprises: 50%
- MSMEs owned by women/SC/ST entrepreneurs OR MSMEs in NER/Himalayan/LWE/Island territories/aspirational areas would receive an extra 10% subsidy.

Benefits of the scheme

- MSMEs may minimise waste, boost productivity, raise environmental awareness, conserve energy, make better use of natural resources, extend their markets, and more by pursuing ZED Certification.
- It has the potential to influence manufacturers' mindsets and make them more environmentally conscientious.

What is Zero Defect Zero Effect scheme?

- The Ministry of MSME introduced it in 2016.
- It is a comprehensive and integrated certification system.
- Productivity, quality, pollution mitigation, energy efficiency, financial condition, human resource depth, and technological depth, including design and IPR (Intellectual Property Rights) in both goods and processes, are all factored into the plan.
- Its objective is to spread the 'ZED' culture throughout India, which is built on the concepts of Zero Defect and Zero Effect.

Farmer Distress Index: NABARD

Context

- The National Bank for Agriculture and Rural Development (NABARD) is developing a Farmer Distress Index (FDI) to track, identify, and assist "needy and distressed farmers."

What is the index all about?

- It may incorporate high-frequency data on critical agricultural variables such as monsoon rains deviations, excessive rainfall, drought and dry spells, temperature and soil moisture fluctuations, and yield of major crops in the district, among others.
- Policymakers and the government may use it to plan and implement a timely and focused approach to assisting distressed farmers.
- Instead of distributing distress packages to all farmers uniformly, the government and financial institutions might decide on a suitable package of help based on the severity of the distress.
- It won't be consistent across the country since stress levels vary from place to place.

Significance

- According to a survey, more than 60% of small and marginal farmers (SMFs) in "very high" and "high" distress did not get farm loan waiver (FLW) benefits.
- SMFs in the medium distress group had a 60% exclusion rate as well.
- It will assist farmers who are in desperate need.
- It will also benefit the whole financial industry, as well as government agencies and insurance firms.

State of Economy Report: RBI

Context

- In its 'State of the Economy' report, the Reserve Bank of India (RBI) warned that rising commodity prices are posing inflationary concerns, particularly through increased imports.

Background

- Despite the fact that the underlying fundamentals and stock of international reserves provide buffers, the ever-widening current and trade account deficits, as well as portfolio capital outflows, are exerting pressure on external sustainability.
- Retail inflation reached 6.95 percent in March.

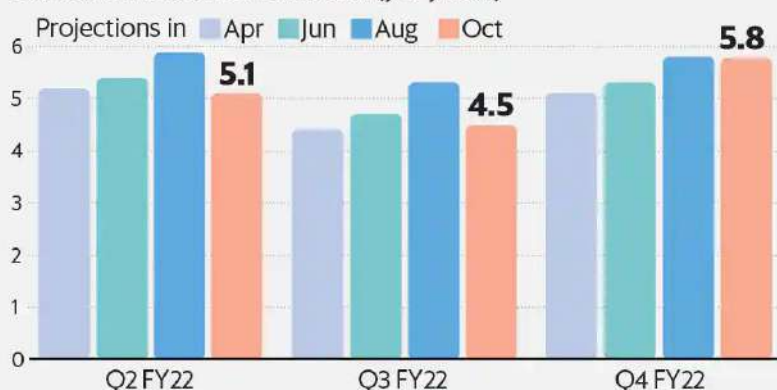
Highlights

- The biggest driver of retail inflation was food and beverage inflation, which increased to 7.5 percent in March from 5.9 percent in February.

Glide path

RBI is more comfortable now about the inflation path than it was in August, despite the recent increases in commodity prices.

RBI's estimates on CPI inflation (y-o-y in %)



- The country is also struggling from the global crisis brought on by Russia's invasion of Ukraine, according to the study.
- Inflation is rising as a result of the conflict and subsequent retaliatory measures.
- The RBI held the repo rate steady in its April monetary policy review, but it began the process of normalising the accommodative policy.

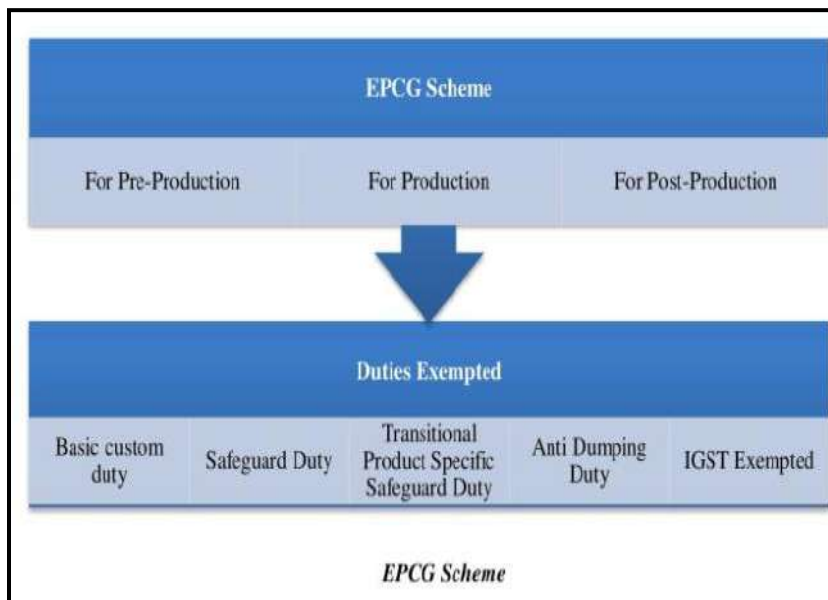
Export Promotion Capital Goods (EPCG) Scheme

Context

- Various processes under the Export Promotion Capital Goods (EPCG) scheme have recently been simplified by the government in order to **minimise compliance requirements and make doing business easier**.

Modifications

- The modifications include those relating to **yearly EO (export obligation) reporting**: instead of filing by April 30 each year, exporters **can now file by June 30 each year with required information**, but any delay will result in a Rs 5,000 late fine.
- Requests for export obligation extensions shall be made within **six months of the expiration date, rather than the previous 90-day limit**.
- However, late fees of Rs 10,000 per authorisation are charged for applications submitted after six months and up to six years.



About the scheme

- Electronic goods exporters can take advantage of the **EPCG Zero Duty Scheme**.
- It allows the import of capital goods for **pre-production, production, and post-production** (including CKD/SKD and computer software systems) at zero percent customs duty, subject to an export obligation **equal to six times the duty saved on capital goods imported under the EPCG scheme**, which must be fulfilled within six years of the Authorization issue date.
- The EPCG Scheme **allows capital goods for pre-production, production, and post-production** (including CKD/SKD thereof, as well as computer software systems) to be imported at a **reduced duty of 3%**, subject to an export obligation **equal to 8 times the duty saved on capital goods imported under the EPCG scheme**, which must be fulfilled within 8 years of the Authorization issue date.
- Spares (including refurbished/reconditioned spares), tools, jigs, fittings, dies, and moulds are all examples of capital goods. The EPCG Scheme allows for the importation of used capital items without regard to their age.
- If the realisation is in free foreign exchange, the export obligation can alternatively be met by supplying ITA-1 commodities to the DTA.
- Its goal is to make it easier to import capital goods for the production of high-quality goods and services, as well as to improve India's industrial competitiveness.

AVSAR Scheme

Context

- The **Airports Authority of India (AAI)** has taken an initiative to **allocate space to Self Help Groups (SHGs)** at its airports for **selling or showcasing the self-made products of their region**.
- This is in line with **Prime Minister Narendra Modi's vision of encouraging the talent of women, artisans, and craftsmen and providing them with the right opportunities**.

The Scheme

- An opportunity to assist the impoverished in mobilising their homes into operationally effective self-earned groups for self-reliance and self-dependence has been provided through AAI's Airport as Venue for skilled artisans of the Region (AVSAR) initiative.
- Each AAI-operated airport has been allocated an area of **100-200 square feet** under this arrangement.
- The self-help groups will be given space on a **turn-by-turn basis for a period of 15 days**.
- SHGs operated by local women are showcasing and marketing their homemade local products like **puffed rice, packaged papad, pickles, bamboo-based ladies bag/bottle/lamp sets, local artefacts, traditional craft, natural dyes, embroidery, and**

indigenous weaves with contemporary design to air travellers at a few outlets that have already been commissioned at Chennai, Agartala, Dehradun, Kushinagar, Udaipur, and Amritsar Airports.

Objective

- **Small and rural communities in India's most powerful routes** for moving from subsistence to sustainability are Self-Help Groups.
- Many of these organisations are **exceptional manufacturers, developers of local arts and crafts, useful and high-quality products in high demand**, and they require opportunities and space to display their wares.
- The plan to **enhance SHGs by allocating space at AAI Airports** will provide these small organisations a lot of publicity and prepare them to promote and advertise their products to a bigger audience, reaching out to a larger demographic.

India's first Steel slag road

Context

- **Surat is the first city** in the country to have a road made from processed steel slag (industrial waste).

Background

- The six-lane public road in Hazira industries is a joint-venture project between the **CSIR, the Central Road Research Institute (CRRI), the Union Ministry of Steel, NITI Ayog, and ArcelorMittal-Nippon Steel (AM/NS)**.

About the road

- **Converting heaps of steel trash into steel slag aggregate** is part of the road's construction.
- The cost of constructing a processed steel slag road is **30% less than that of constructing a road from natural aggregates**, and the road's thickness is likewise 30% less than conventional roads, while the road's durability is much longer due to the use of steel slag.
- Using processed steel slag in road construction paves the way for **sustainable use of waste** and reduces the **reliance on perishable natural aggregates**.
- It is also projected to **minimise GHG emissions and the carbon footprint of road construction**, which is in accordance with India's commitment to the **UNSDG-9, which calls for creating resilient infrastructure through inclusive and sustainable industrialization and green technologies**.
- This project falls under the initiative of the **Waste to Wealth and Clean India Campaign**.

SCIENCE & TECHNOLOGY

Wright Mons

Context

- It has been discovered that icy lava flows covered substantial tracts of dwarf planet Pluto's surface at the slopes of Wright Mons a billion years ago.

Details

- The slopes of Wright Mons are crowded with hummocks (hillock) up to 1km high and 6-12km across. The hummocks were created by **ice volcanism, known by the technical term "cryovolcanism"** – erupting icy water rather than molten rock. Pluto's bulk density shows that it must have rock in its interior, but its outer regions are a mixture of ices (water, methane, nitrogen, ammonia and carbon monoxide).

Wright Mons Ice Volcano

- If "Wright Mons," feature is confirmed to be a cryovolcano it will be the **largest such example in the outer solar system**.
- Height of Wright Mons, can be compared with Hawaii's Mauna Loa and the biggest volcanoes on Mars.
- There is an even bigger volcano, **Piccard Mons, to the south of Wright Mons** that also has a large central depression like Wright Mons.

Note: The inner solar system, is dominated by the **Martian mega-volcano Olympus Mons** that pushes above the Red Planet's atmosphere, towering 16 miles high- the largest volcano.

Europa Moon

Context

- Stanford University Researchers have said that double ridges on the surface of Jupiter's ice moon Europa are signs of water reservoirs.

Details

- **Earlier findings:** Europa, whose surface is mostly solid water ice, contains water beneath it.
- **New Findings:** The double ridge formations on Europa's surface and are similar to those seen on



Earth's Greenland ice sheet. They are formed over shallow pockets of water.

Implications of Recent findings

- Water pockets beneath the double ridge, increase the potential habitability of the moon.

Europa

- Europa or Jupiter II, is the smallest of the four Galilean moons orbiting Jupiter, and the sixth-closest to the planet of all the 80 known moons of Jupiter.
- It is also the sixth-largest moon in the Solar System. It was discovered in 1610 by Galileo Galilei.
- Europa is primarily made of silicate rock and has a water-ice crust. It has a very thin atmosphere, composed primarily of oxygen.
- Europa's ice shell is 15-25 km thick and is floating on an ocean, which is estimated to be between 60-150 km deep- NASA.
- Europa probably contains twice the amount of the water in all of the Earth's oceans.
- Europa is considered one of the most promising places in the solar system to find present-day environments that are suitable for life beyond the Earth.

New Cyber Security Guidelines By CERT-In

Context

- The Indian Computer Emergency Response Team (CERT-In) has issued new cyber security guidelines

Provisions

Reporting of Cybersecurity incidents

- All cybersecurity incidents must be informed by Service providers, data centres, companies and govt. organizations to CERT-In within six hours. These incidents can include: targeted scanning of critical networks and systems, compromise of critical systems and information, unauthorized access of data and systems etc.

Records of financial transactions

- Virtual asset service providers + exchange providers + custodian wallet service providers have to maintain all the information they have gathered as a part of the know your customer (KYC) process and records of financial transactions for a period of five years.
- With respect to transaction records, accurate information should be maintained in such a way that individual transaction can be reconstructed. This can be done by authorities using information related to the parties including IP addresses, timestamps and time zones, transaction ID, public keys, addresses or accounts involved, the nature and date of the transaction, and the amount transferred.

Customer Details

- Data centers, virtual private server providers, cloud service providers, and VPN providers shall be required to keep details like customer's validated name, period of the service, IP addresses allotted and used, purpose for which the service was sought, address and contact number as well as ownership pattern.

CERT-IN

- The Indian Computer Emergency Response Team (CERT-IN or ICERT) is an office within the Ministry of Electronics and Information Technology of the Government of India. It is the nodal agency to deal with cyber security threats like hacking and phishing.

Blue Stragglers

Context

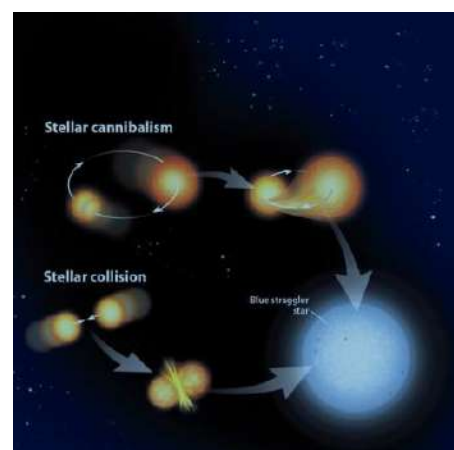
- Indian researchers have confirmed that blue stragglers are formed through mass transfer from a close binary companion star, collisions of 2 stars etc.

Blue stragglers

- Blue stragglers, a class of stars observed in old, dense stellar systems such as globular clusters. They stand out as they are bigger and bluer than the rest of the stars.

Details

- Stars once they get old are expected to have converted all its hydrogen into helium.
- Its core gets denser, while outer layers expand. So, it turns into a red giant.
- After this phase, its fuel spent, it shrinks, becoming a smaller, cooling star called a white dwarf star at the end of its life.
- Since, globular clusters are old; they are devoid of high-mass blue stars (since lack of hydrogen) which possess very short lifespans.
- The blue stragglers are a part of old stellar population. Still, they are weirdly bigger and bluer than the rest of the stars.



Reasons for being bigger and bluer (Lies in their origin)

- A clue to their origin is that Blue Stragglers are only found in dense stellar systems, where distances between stars are extremely small.
- In these dense environments, collisions between stars are relatively common, and it is assumed that blue stragglers are the result of the merger of two old, red stars.
- This merger produces a star with a greater mass and severely disrupts the two stars involved, mixing hydrogen into the stellar core and giving the star a new lease on life (hence bluer in colour).
- This model for the formation of blue stragglers was confirmed through observations of the nearby globular cluster, 47 Tucanae, taken with the Hubble Space Telescope.

Reusable Launch Vehicle

Context

- The Indian Space Research Organisation (ISRO) is aiming to carry out a landing experiment (LEX).
- LEX is a critical component of the Reusable Launch Vehicle-Technology Demonstration (RLV-TD) programme.

Details

- ISRO has been working on a Reusable Launch Vehicle-Technology Demonstration Program to develop a vehicle that can be used multiple times, unlike now when we use a new launch vehicle for every mission.
- It is in this context that ISRO has been launching a series of technology demonstration missions and developing Winged Reusable Launch Vehicle technology (RLV-TD).
- RLV-TD acts as a flying test bed to evaluate various technologies like powered cruise flight, hypersonic flight, and autonomous landing using air-breathing propulsion etc.

Significance

- The reusable vehicle is critical for strategic users rather than commercial users, which will allow India to take a payload up into space and bring it back safely.
- A major hurdle in space exploration is the prohibitive cost, which can be slashed if the launch vehicle is a reusable one. It will enable cheaper access to space.

Axiom Mission-1 (AX-1)

Context

- Recently, a four-member crew reached the International Space Station under the Axiom Mission.

Details

- Axiom Mission is the first privately funded and operated crewed mission to the International Space Station (ISS). The mission is operated by a company called Axiom Space.
- Under the mission a SpaceX Falcon 9 rocket with the Crew Dragon capsule Endeavor was launched.
- The Axiom crew will live and work alongside the regular crew of International Space Station.
- The company Axiom Space has partnered for a total of four missions with SpaceX, and NASA has already approved the second, Ax-2.
- Axiom voyages are the first steps of a bigger goal: to build its own private space station. The first module is due to launch in 2024.
- The station will be initially attached to the ISS. It will eventually fly autonomously when the ISS retires and is de-orbited after 2030.

Significance

- Private Missions are a critical step toward commercializing the "Low Earth Orbit" sector of space. In this way agencies like NASA will be able to focus on research and more ambitious voyages deeper into the cosmos.

DEFENCE AND SECURITY

1st Indigenous Combat Helicopter

Context

- The Cabinet Committee on Security (CCS) has approved procurement of 15 Light Combat Helicopter (LCH) Limited Series Production from HAL for IAF (10) & IA(05) at the cost of Rs. 3,887 Cr along with Infrastructure sanctions worth Rs. 377 Cr.

Light Combat Helicopter Limited Series Production (LSP)

- It is an indigenously designed, developed and manufactured state of the art modern combat helicopter containing approx. 45% indigenous content by value.

- It is equipped with requisite agility, maneuverability, extended range, high altitude performance and around-the-clock, all-weather combat capability to perform roles of Combat Search and Rescue (CSAR), Destruction of Enemy Air Defence (DEAD), Counter Insurgency (CI) operations, against slow moving aircraft and Remotely Piloted Aircraft (RPAs), high altitude bunker busting operations, Counter Insurgency operations in jungle and urban environments.
- The manufacturing of LCH by HAL will give a further **push to Atmanirbhar Bharat initiative** and boost indigenisation of defence production and the defence industry in the country.
- Production of LCH will **reduce import dependence for Combat helicopters in the country**.

About LCH by HAL

- Tejas will only be the second indigenously built fighter aircraft in India's history.

Tejas' history

- 1983: first time when the Government of India cleared a project to build a new Light Combat Aircraft as a **replacement for MiG 21s**.
- Tejas is **50 per cent indigenous**.
- It has a **GE American engine**, an **Israeli Elta radar**, and **British aerospace, avionics, and other engines**.

Solid Fuel Ducted Ramjet (SFDR)

Context

- Defence Research and Development Organisation (DRDO) successfully flight tested Solid Fuel Ducted Ramjet (SFDR) booster at the Integrated Test Range (ITR), Chandipur off the coast of Odisha.

More details

- The SFDR-based propulsion enables the missile to **intercept aerial threats at very long range at supersonic speeds**.
- The SFDR has been developed by Defence Research and Development Laboratory, Hyderabad in collaboration with other DRDO laboratories such as Research Centre Imarat, Hyderabad and High Energy Materials Research Laboratory, Pune.
- The SFDR technology is a **missile propulsion system based on the principle of the Ramjet Engine**
- A **solid-fuel air-breathing ramjet engine powers the apparatus**.
- The **Ramjet, unlike solid propellant rockets, absorbs oxygen from the atmosphere while in flight**.
- As a result, it is **light and can carry more gasoline**.

Ramjet Engine Technology

- A ramjet engine does not have any turbines unlike turbojet engines.
- It achieves compression of intake air just by the forward speed of the air vehicle.
- The fuel is injected and ignited. The expansion of hot gases after fuel injection and combustion accelerates the exhaust air to a velocity higher than that at the inlet and creates positive push.
- However, the air entering the engine should be at supersonic speeds. So, the aerial vehicle must be moving in supersonic speeds.
- Ramjet engines cannot propel an aerial vehicle from zero to supersonic speeds.

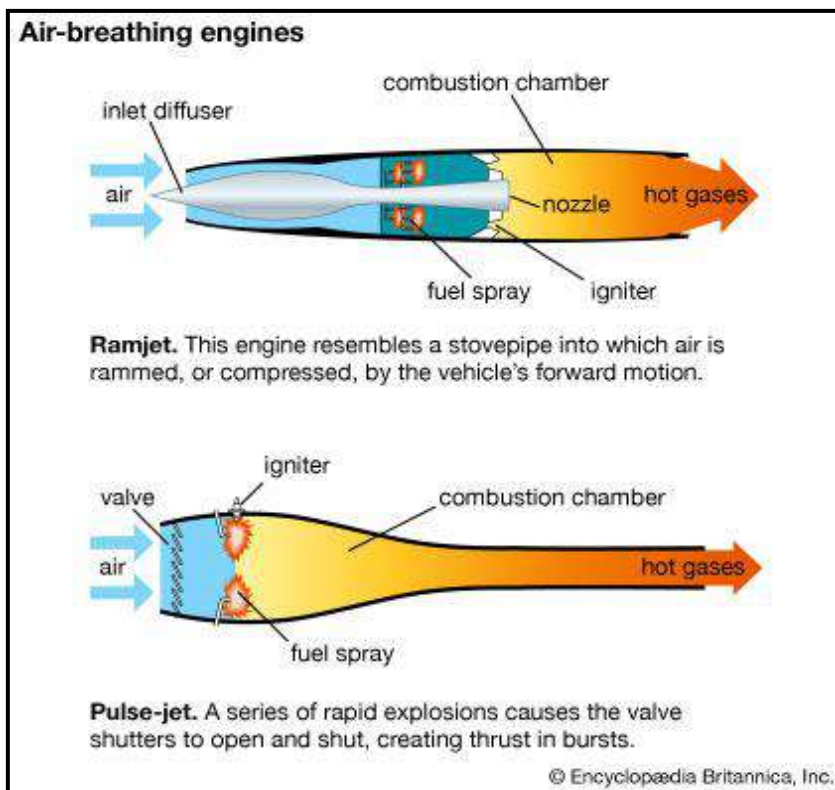
DefConnect 2.0

Context

- RakshaMantri inaugurated DefConnect 2.0 organised by iDEX-DIO in New Delhi.

About DefConnect 2.0

- **Organised by:** Continuing with the strategy of connecting regularly with the start-ups and the multifarious stakeholders,



Innovations for Defence Excellence, Defence Innovation Organisation (iDEX-DIO), under the aegis of Department of Defence Production (DDP), Ministry of Defence has organized DefConnect 2.0.

- It attracts a large number of **innovators and investors from India's leading industries in the defence sector.**
- The DefConnect provide a **unique opportunity for innovators associated with iDEX-DIO to showcase their capabilities, products and state-of-the-art-technologies to the target audience of the industry leaders.**
- Platforms like the iDEX enable the **military to find disruptive solutions to complex challenges through its flagship programmes like Defence India Startup Challenges (DISC) and Open Challenges (OC) which shall be the key components for the future of military technology.**

About iDEX

- It was launched by Prime Minister Shri Narendra Modi in 2018, essentially **provides a unified platform for various stakeholders in the defence and aerospace sectors.**
- It acts like an **umbrella organisation to oversee technology development and potential collaborations in this specific field.**
- It is able to utilise India's strong science, technology and research talent base to develop new capabilities in defence innovation.

ENVIRONMENT & ECOLOGY

Decreasing Water Levels in Reservoirs

Context

- The storage levels in 140 major reservoirs monitored by the Central Water Commission (CWC) fell to 39 per cent of their cumulative capacity from 50 per cent from March 17-April 21, 2022 – a 2-3 per cent dip every week.

Key findings of CWC report

- The nine major reservoirs in the **northern region have the lowest live storage** (32 per cent).
- The western region has 44 per cent live storage, followed by central with 42 per cent and southern and eastern regions with 37 per cent live storage each.
- There are at least 12 reservoirs with storage 10 per cent or lower.

Reasons

- Early and intense **heat wave as well as deficient pre-monsoon rainfall.**

Concerns

- It raises concerns about **meeting the daily water needs of cities and can affect the upcoming Kharif-sowing season.**

GO 111

Context

- Environmentalists and activists are criticising the Telangana government for withdrawing GO 111 order.

About Government Order (GO) 111:

- The GO 111 order **prohibited the setting up of industries, residential colonies, hotels, etc in the catchment area of the Osman Sagar and Himayat Sagar lakes up to a radius of 10 km.**
- The aim of the restrictions was to **protect the catchment area, and to keep the reservoirs pollution-free.**
- **The lakes had been supplying water to Hyderabad for nearly 70 years, and were the main source of drinking water for the city at the time.**

About Osman Sagar and Himayat Sagar reservoirs

- These were created by building **dams on the Musi (also known as Moosa or Muchkunda) river, a major tributary of the Krishna, to protect Hyderabad from floods.**
- The proposal to build the dams came after a major flood during the reign of the sixth nizam **Mahbub Ali Khan (1869-1911) in 1908, in which more than 15,000 people were killed.**
- The lakes came into being during the reign of the last nizam **Osman Ali Khan (1911-48).**
- **Osman Sagar was completed in 1921, and Himayat Sagar in 1927. The nizam's guesthouse at Osman Sagar is now a heritage building.**

Ariosoma Indicum

Context

- A group of Indian scientists have discovered a new species of eel from among specimens collected from the Kalamukku and Digha Mohana fishing harbours in Kerala and West Bengal respectively.

Details

- The newly discovered eel **belongs to the Congrid eels group and has been named *Ariosoma indicum*.**

- The term Indicum means that it was found in India.
- The total length of the new species is 362 millimetres.

Features

The eel has the following features according to the paper

- A greenish-brown body, with faint dark bands on the dorsal portion of the head
- Minute dark pigmentation patches on the extremities of the lower jaw
- Bicoloured pectoral fin
- A short wedge-shaped pointed vomerine teeth patch, with three or four rows in the anterior portion.

Distribution

- Ariosomaindicum is possibly distributed along the Indian coast, including the coastal waters of Kerala and West Bengal.
- The Ariosoma genus has seven species, including the newly identified eel that have been documented in Indian waters.
- Globally, there are 223 species in the genus.
- Most of these eels have landed as by-catch in trawl landings.
- Most eel groups possess less economic value and sampling of these groups has been rare in Indian waters, Mohapatra noted.

Conservation Status

- The new eel species is **not listed as 'Threatened' or 'Endangered'** by the International Union for Conservation of Nature's Red List or the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Vaquita Porpoise

Context

- Vaquita porpoise, found in the Gulf of California in Mexico, is nearing extinction and immediate measures are needed to save the remaining population.

About Vaquita porpoise

- It is the **world's smallest cetacean** and the most endangered marine mammal.
- It has the **smallest range of any whale, dolphin or porpoise**, and only lives in a small 1,500 square-mile area in Mexico's upper Gulf of California, near the town of San Felipe.
- The population of the species **declined 98 per cent in two decades**.
- Around 570 animals were recorded in 1999 and this fell to 10 animals in 2019.
- It has a rounded head and black patches around its mouth and eyes.
- It only measures up to five feet in size.
- It has been listed under the International Union for Conservation of Nature Red List as '**critically endangered**'.
- The vaquita population has been declining for decades due to **by catch in gillnets** set to catch shrimp and fish and **illegal fishing for international markets**.
- The Mexican law prohibits the use of gillnets within the vaquita's habitat in Upper Gulf of California and bans the catch.

Environment Clearances

Context

- Easing norms for infrastructure projects, the Union environment ministry has extended the tenure of environmental clearances (EC) granted for existing or new projects.

Rationale behind this move

- Some projects had 'high gestation' period due to several variables beyond the control of project proponents.
- Projects are delayed due to **geological surprises, red tape, delays in forest clearance, land acquisition, local issues, rehabilitation and resettlement, etc.**
- Central Government "**deems it necessary**" to extend the validity of Environmental Clearance (EC) for such projects.

Proposed changes: The EC for

- **river valley projects** will now have **13 year validity**
- **nuclear power projects**, or those involving the processing of nuclear fuel **15 years**
- projects and activities other than the mining and river valley projects will have their EC valid **for 10 years**.

Environmental clearances (EC)

- It is a **long-drawn process** that is **mandatory for projects** beyond a certain size and often **involves an environment impact assessment of a potential project and sometimes public hearings** involving the local populace who might be affected by the project.
- One of the conditions of an EC is that a **project must begin construction in the period that it has been granted an EC** and if unable, a fresh process must begin. This leads to projects being **financially unviable**.
- Under the **Environment Impact Assessment (EIA) Notification 2006**, the validity of prior environmental clearance granted to a river valley project or activity is 10 years, a maximum of 30 years for mining projects and seven years for other projects and

activities.

- Environmental clearance (EC) is mandatory for 39 types of developmental projects including mining, hydro power and thermal power among others, and the process for clearance is outlined by the Environmental Impact Assessment (EIA) notification of 2006.

Barbara Forest

Context

- Dubbed as Asia's largest teak and sal forest, the Barbara forest in Odisha is the **only forest in India guarded by the jawans of Central Reserve Police Force (for protecting forest resources).**
- The government is readying the infrastructure to **bring the natural forest on eco-tourism map.**
- This forest touches three districts Khordha, Nayagarh and Ganjam of Odisha.
- The timber mafia worked in tandem with the locals, prompting former Chief Minister Biju Patnaik to seek deployment of CRPF in 1994-95 to check tree felling and protect the forest.
- The CRPF wanted to withdraw from Barbara forest due to its commitment in other parts of the State, where Maoist violence was on the rise.

About Barbara Forest

- It is a nature's best-kept secret near Chilika Lake in coastal Odisha.
- It is named after a British woman, Barbara who had been killed by a tiger in the late 19th century while she was with her husband in a hunting expedition.
- The Barbara landscape is an enriched area that boasts several century-old plants sown by the British back in 1910.
- **Giant squirrels** are found in great numbers in the thick forests of Barbara, making it a major contender to become **sanctuary for giant squirrels.**
- Barbara was once historically famous for its tigers, now one can find sambar, deer, mouse deer and bison.

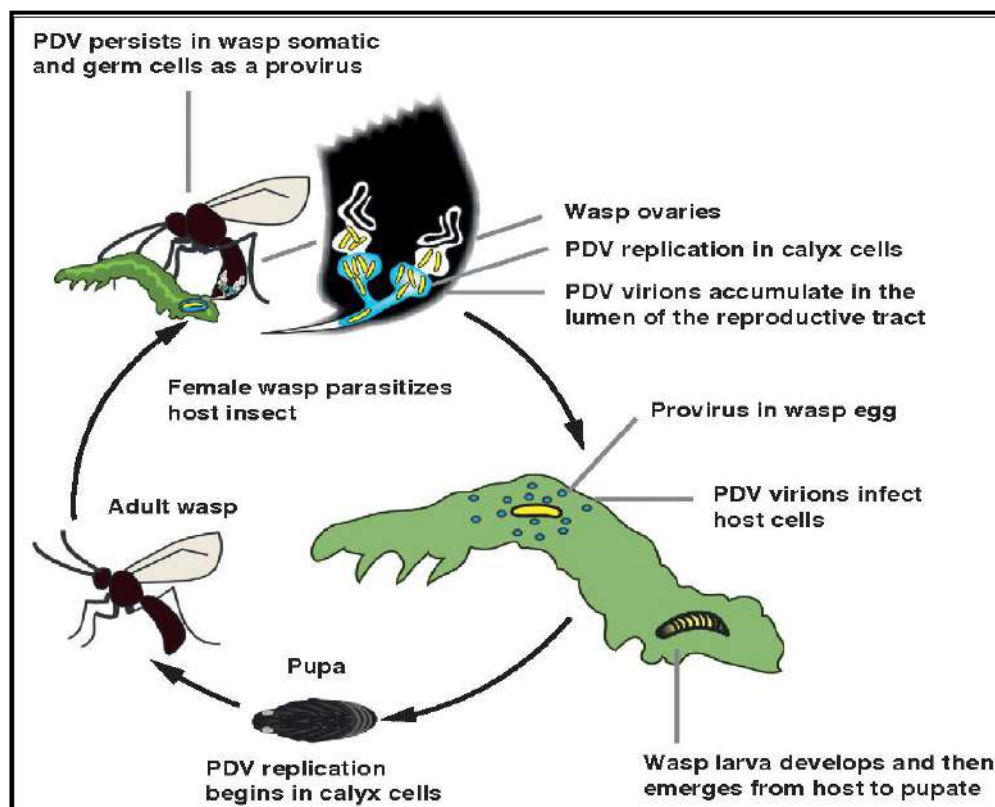
Parasitoid wasp

Context

- A new genus of Braconid wasp has been named 'Atree', after the Ashoka Trust for Research in Ecology and the Environment (ATREE), a leading research institution and environmental think tank based in Bengaluru.

Atreerajathae

- It is a new species of wasp, it is a **parasitoid wasp**.
 - parasitoids are the **most important natural enemies of other insects**, and humans exploit this behaviour for the biological control of crop pests.
- The new genus belongs to the **tribe Diopiliini of subfamily Brachistinae**, which are mostly distributed in the **Palearctic region**.
- Atreerajathae is the **first report of the tribe Diopiliini from India.**



Ganoderma Lucidum

Context

- Ganoderma lucidum is a medicinal mushroom in use for centuries to heal diseases like diabetes, cancer, inflammation, and

ulcer as well as bacterial and skin infections. In India, however, the potential of the fungus is still being explored.

Ganodermalucidum

- It contains more than 400 chemical constituents, including **triterpenes, polysaccharides, nucleotides, alkaloids, steroids, amino acids, fatty acids and phenols.**
- These show medicinal properties such as **immunomodulatory, anti-hepatitis, anti-tumour, antioxidant, antimicrobial, anti-HIV, antimalarial, hypoglycaemic and anti-inflammatory properties.**
- It is also called as “mushroom of immortality”, “celestial herb” and “auspicious herb”. It is globally also known as “red reishi mushroom”.
- It grows on wood or wood-based substrate only.
- The mushroom is shiny **red-brown in colour** and naturally grows on wood.
- It prefers **broad-leaved tree species like acacia, poplar, oak, maple, melia, eucalyptus, hevea, tectona and grewia.**
- It thrives well in **warm and humid climates, and grows preferably in mixed forests of sub-tropical to temperate regions.**
- Apart from medicines, Ganodermalucidum is also used as a **base material for manufacturing products such as tea, coffee, energy supplements, health boosters, beverages, baked goods and anti-ageing cosmetics.**
- **Scope in India:** In India, the mushroom is **mostly restricted to laboratory research at present.**
- The dried fruiting bodies or raw powder of Ganodermalucidum can be sold at Rs 4,000-5000 per kilogram.

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