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Don't let water scarcity boil over

- As India's population continues to grow and with most people still engaged in agriculture, water scarcity can be all the more debilitating. According to a report by US-based World Resources Institute (2015), approximately 54% of people living in India are already experiencing water scarcity.
- Similarly, a World Bank report estimates that the average per capita water available will decline from 1588 cubic meters to less than half that by 2030. Another study on climate change and water by the World Bank in 2016 has warned that the countries with water scarcity could lose up to 6% of their Gross Domestic Product (GDP) by 2050.
- Since irrigation has become increasingly scarce in many parts of the country, farmers are experiencing many difficulties cultivating crops; in some states, farmers have even committed suicide citing crop failure. Such occurrences can affect the country's food security.
- As the overall economic growth of our country is still heavily dependent on the agriculture sector — which also accounts for about 90% of the water consumed — India needs to address water scarcity more urgently than other countries.

Reasons for the Water Scarcity in India

- **Changes in Water Storage:**
 - Although the number of large irrigation dams has increased from 236 in 1960 to 5,334 in 2020, the gross water availability of dams dwindles during summer.
 - Studies show that perennial rivers like Ganga, Godavari and Krishna dry up in many places during summer.
 - It is estimated that the level of groundwater in Ganga and Brahmaputra, which are said to be the largest groundwater rich river basins in the world, declines by 15-20 mm per year.
 - Owing to human and other interventions in the catchment area, the sediment deposit in the water storage area of major and medium dams has increased, which is reducing the total water storage.
- **Agricultural Demand:**
 - The Ministry of Water Resources has estimated that the country's total water demand may exceed the amount of water available for use by 2050, due to the rapid economic development and increasing population.
- **Cultivation of more Water-Intensive Crops:**
 - Due to income and market-related reasons, farmers have been cultivating more water-intensive crops in recent years.
 - For example, between 1990-91 and 2020-21, the area under water-intensive sugarcane increased by 32%, paddy by 6%, and banana by 129%.

- This has led to a rapid increase in the demand for water in recent times.
- Unequal Distribution:
 - Unequal distribution of water resources across different regions of the country is also a major issue. Some regions have abundant water resources while others face acute shortages.
- Over-extraction of Groundwater:
 - Over-extraction of groundwater for agriculture, industries, and domestic purposes has led to the depletion of groundwater levels in many parts of the country.
 - This has made it difficult for people to access water for their daily needs.
- Pollution:
 - The pollution of rivers, lakes, and other water bodies has made it difficult to use water for drinking, irrigation, and other purposes.
 - Industries and urban areas discharge untreated waste into water bodies, which not only pollutes the water but also reduces its availability.

Addressing the Issue of Water Conservation

- Encouraging Rainwater Harvesting:
 - India receives a significant amount of rainfall each year, especially during the monsoon season.
 - For example, in a single day, Mumbai received 950 mm of rainfall in 2005, Chennai 494 mm in 2015, and Mount Abu 770 mm in 2017. In November 2022, Sirkazhi in Tamil Nadu received 420 mm of rainfall in a single day.
 - By implementing rainwater harvesting systems, India can collect and store rainwater for later use. This can be done by building rainwater harvesting structures like rooftop rainwater harvesting, percolation pits, and recharge wells.
- Maintaining Small Water Bodies:
 - India has a vast network of small water bodies like ponds, lakes, and tanks, which play a vital role in recharging groundwater and providing water for irrigation.
 - The 5th Minor Irrigation Census mentions that India has a total of 6.42 lakh small water bodies. Due to lack of proper maintenance, their storage capacity has been declining.
 - As a result, the irrigated area of tanks has declined sharply from 45.61 lakh hectares in 1960-61 to 16.68 lakh hectares in 2019-20.
 - By restoring and maintaining these small water bodies, India can help conserve water and improve the availability of water in nearby communities.
- Removing Silting:

- Silting is a significant problem in many rivers, lakes, and ponds in India.
- Over time, sediment and debris accumulate at the bottom of water bodies, reducing their storage capacity and impairing water quality.
- By removing the silt and debris, India can restore the storage capacity of water bodies and improve the quality of water.
- Implement Efficient Irrigation Methods:
 - Agriculture is the largest consumer of water in India. Therefore, the government should promote efficient irrigation methods such as drip irrigation and sprinkler irrigation, which can reduce water wastage and improve crop yield.
- Adopt Water-Efficient Technologies:
 - The government should encourage the adoption of water-efficient technologies such as low-flow toilets, water-efficient washing machines, and dishwashers, which can significantly reduce water usage.
- Promote Awareness:
 - The government should conduct awareness campaigns to educate people about the importance of water conservation and the need to use water judiciously.

Steps taken

- National Water Policy, 2012
- Pradhan Mantri Krishi Sinchayee Yojana
- Jal Shakti Abhiyan- Catch the Rain Campaign
- Atal Bhujal Yojana

Govt schools need urgent fixing

- As per Annual Status of Education Report (ASER) 2023, covid pandemic caused unprecedented learning poverty.
 - Learning poverty is defined as being unable to read and understand a simple text by age 10.
- Three-fourths of the children have come back to government schools as incomes and employment have shrunk.
- However, poor governance and politicisation resulted in non-hiking of school Budgets.
- Given the already unsatisfactory learning outcomes in schools, this situation demands an immediate response.
- In this context, there is urgent need to make reforms in government run educational institutions.

Issues in Government School

- Why people do not want to send their kids to government primary schools in India:
 - Poor infrastructure.
 - Poor student to teacher ratio.
 - Low education standards of teachers. Lack of dedication from teachers.
 - Overloading of teachers with miscellaneous works.
 - Political interference in the administration.
 - Corruption in all affairs of the primary school.
 - Lack of concern of state government in providing quality education.
- Government schools in most States have become the abode of children from vulnerable social groups.
 - In such schools, the parents have limited disposable incomes and the education of girls often continues to be a formality, merely for bettering marriage prospects.
- Going beyond Central/State funding issues, it is necessary to improve governance in schools.
 - Schools must shed their forlorn and dilapidated look, an outcome of the long school closure due to Covid.

Suggestions for improve in Government School

Improving a government school is the most pro-poor activity that any State can undertake.

Give responsibilities to Local governments and women's collectives

- Local governments and women's collectives should be given the responsibility for elementary schools with funds and functionaries.

- They must be authorized to fill any vacancy by rationalization or recruiting a community volunteer who has cleared the Teacher Eligibility Test.
- The devolved funds should be sufficient to meet the needs for basic learning and support.
- The school should become a community institution rather than be a government entity.
- It should be able to draw on voluntarism/donations and get the support of gadgets to ensure healthy learning outcomes.
- The physical and human infrastructure has to be adequate for learning to happen.

Training of teachers

- All teachers should be trained in the use of gadgets and course material.
- Every classroom must have a large TV and a good sound system to provide online lessons that supplement what is taught in class.

Give Mid-Day Meal responsibility to women SHG

- Mid-Day Meal responsibility must be handed over to the village level self-help group (SHG) of women.
- The Panchayat and School Management Committee shall be the supervisors of the SHG.
- Teachers should not have any role in the Mid-Day Meal scheme. They must only teach.

Develop public library

- Develop public libraries where older children in the village can study and prepare for jobs and admissions to good institutions.
 - Such community institutions attract volunteers.
- Karnataka has done outstanding work on strengthening its public libraries and this has gains for school learning outcomes as well.

Use of innovative methods

- Use sound boxes, video films, play-way learning items, indoor and outdoor sports, cultural activities for learning on scale.
- Let toys-based learning start from early childhood learning, with the support of the Integrated Child Development Services.
- In any case, the New Education Policy 2022 mandates a continuum from ages 3 to 8 to ensure this important early beginning in life.

Give nutrition responsibility to schools

- Nutrition challenges must be the school leadership's responsibility, as too many committees only dilute convergent action.
- Field functionaries like Aanganwadi Sevikas, Ashas, Auxiliary Nurse Midwife (ANMs), and Panchayat Secretaries must all be made responsible for the well-being of children.
- To make a difference, healthcare management must be in partnership with the local government.

Community campaigns and regular school-level interactions with parents

- Teachers must build a relationship with every household to ensure children's care and learning.
- Parental involvement can greatly improve learning outcomes.
- The Nipun Bharat Mission to ensure oral, written literacy and numeracy should become a people's movement like the Total Literacy Campaign.

Disaggregate Central and State grants

- The Central and State grants be disaggregated gram panchayat-wise and urban local body-wise, to ensure the transfer of untied funds to schools, including salary payment.
- The school must be community managed and the State is at best the principal financing agent.
- Let the private sector adopt schools to make them better.

Education opens up a world of possibilities for individuals by empowering them with knowledge. Recently, Uttar Pradesh's 'Mission Kayakalpa' for making schools attractive and an inviting place once again, is a great example to follow by the All States to improve the look of their schools. Currently the government schools face lack of vocational training, lack of competent teachers, increase in drop-out rate, an obsolete pedagogy, lack of infrastructure, and, most importantly, an apathetic government structure. Government should solve all issue based on priority like to create Back-to-school campaigns and re-enrolment drives, expanded nutrition programmes to address malnutrition and by increasing budget for school in budget.

All about Windfall Tax

Windfall Tax

- Windfall taxes are designed to tax the profits a company derives from an external, sometimes unprecedented event — for instance, the energy price-rise as a result of the Russia-Ukraine conflict.
- These are profits that cannot be attributed to something the firm actively did, like an investment strategy or an expansion of business.
- The US Congressional Research Service (CRS) defines a windfall as an “unearned, unanticipated gain in income through no additional effort or expense”.
- One area where such taxes have routinely been discussed is oil markets, where price fluctuation leads to volatile or erratic profits for the industry.

When did India introduce this?

- In July this year, India announced a windfall tax on domestic crude oil producers who it believed were reaping the benefits of the high oil prices.
- It also imposed an additional excise levy on diesel, petrol and air turbine fuel (ATF) exports.
- Also, India's case was different from other countries, as it was still importing discounted Russian oil.

How is it levied?

- Governments typically levy this as a one-off tax retrospectively over and above the normal rates of tax.
- The Central government has introduced a windfall profit tax of ₹23,250 per tonne on domestic crude oil production, which was subsequently revised fortnightly four times so far.
- The latest revision was on August 31, when it was hiked to ₹13,300 per tonne from ₹13,000.

Why govt. introduced windfall tax?

There have been varying rationales for governments worldwide to introduce windfall taxes like:

1. Redistribution of unexpected gains when high prices benefit producers at the expense of consumers,
2. Funding social welfare schemes, and
3. Supplementary revenue stream for the government

Why are countries levying windfall taxes now?

- Prices of oil, gas, and coal have seen sharp increases since last year and in the first two quarters of the current year, although they have reduced recently.
- Pandemic recovery and supply issues resulting from the Russia-Ukraine conflict shored up energy demands, which in turn have driven up global prices.
- The rising prices meant huge and record profits for energy companies while resulting in hefty gas and electricity bills for households in major and smaller economies.
- Since the gains stemmed partly from external change, multiple analysts have called them windfall profits.

Issues with imposing such taxes

- Companies are confident in investing in a sector if there is certainty and stability in a tax regime.
- Since windfall taxes are imposed retrospectively and are often influenced by unexpected events, they can brew uncertainty in the market about future taxes.
- IMF says that taxes in response to price surges may suffer from design problems—given their expedient and political nature.
- It added that introducing a temporary windfall profit tax reduces future investment because prospective investors will internalise the likelihood of potential taxes when making investment decisions.
- There is another argument about what exactly constitutes true windfall profits; how can it be determined and what level of profit is normal or excessive.
- Another issue is who should be taxed — only the big companies responsible for the bulk of high-priced sales or smaller companies as well— raising the question of whether producers with revenues or profits below a certain threshold should be exempt.

How India can fortify public distribution governance?

- Public distribution system (PDS) is a government-sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of the society at very cheap prices.
 - Wheat, rice, kerosene, sugar, etc. are a few major commodities distributed by the PDS.
 - It is managed by Food Corporation of India (FCI).
- Recently, a review of performance reports published by the Comptroller and Auditor General (CAG) in 2021 and 2022 shows a massive drop in leakages and errors.
 - The Department of Food and Public Distribution, which is responsible for the PDS received 1,005 complaints of corruption.
- In the 1980s, it was said that out of every rupee spent by the government, only 15 paise reached the intended beneficiary.
 - It was a reflection of the massive challenge of leakages in public distribution.
- However, in the last decade, Direct Benefit Transfer (DBT) and the Jan Dhan-Aadhaar-Mobile (JAM) programs have achieved great results.

Significance of Public Distribution Governance

- Establishing a reliable public distribution was a difficult task, especially in a country as vast and populous as India.
 - The federal structure also introduced varied complexities.
- Since the starting of DBT in 2013, ₹28 lakh crore has been transferred through the route.
 - During covid lockdown ₹5.5 lakh crore was transferred.
- In 2021, DBT had generated a total savings of ₹2.2 lakh crore for central schemes alone due to the removal of 94 million duplicate, corrupt, or non-existent beneficiaries across databases.
 - The PDS and similar schemes contributed about ₹1 lakh crore in savings by removing about 40 million fake accounts.
 - The Ujjwala Yojana scheme alone resulted in savings of ₹72,000 crore.
 - Money saved implies more spending, newer schemes and further inclusion.
- Evidence of financial inclusion is the Pradhan Mantri Jan-Dhan Yojana (PMJDY), which has enrolled over 480 million beneficiaries with accumulated savings of over ₹189,000 crore in February.
 - This implies that the poor now have funds for food, take care of emergencies, and potentially invest too.
- Digitisation has streamlined the transfer process, resulting in substantial time savings, reduced errors and cost of governance and eliminated malpractices.

- The quick digital transfer process has enhanced trust in the system and has increased the money in circulation by reducing money inventory at various points.

Suggestions to improve Public Distribution Governance

There are still opportunities to enhance India's public distribution governance by following points.

Strengthen the technical infrastructure

- It is crucial to strengthen the technical infrastructure and provide further transparency.
- There have been some instances in the past such as the lack of traceability of maternity benefit payments, issues reported in the PM-Kisan Yojana, or Aadhaar's de-duplication functionalities which need addressing.
- The databases also need continuous clean-ups, including further biometric verifications at every point.
- Technical and operational gaps leading to inclusion or exclusion errors must be plugged to ensure the money reaches the intended beneficiaries.

Need proper Identification of beneficiaries

- Over 80 million Jan-Dhan accounts in 2022 were declared inoperative.
 - This is a major burden on the banks, and suggests that several beneficiaries are not availing their rightful benefits.
 - Thus, there is a need to track and reactivate such accounts.
- While JAM has brought the rural poor within the ambit of the banking system, issues such as the lack of access to a Confirmation of Payee (COP), network failure and point-of-sale malfunctions have led to a high number of dormant or low-activity accounts.

Need for Simplification of beneficiary identification

- The discovery of and access to benefits could be eased further.
- Enrolling in government schemes is complex due to varying eligibility criteria, and the multitude of documents and identity requirements.
 - Similar to how foreign governments rely on just one Indian document, the passport, various departments and states should also rely on just one document or ID.
- Simplification will allow superior beneficiary identification as well as enable deeper analytics for sharper targeting of schemes to those who need them the most.

Need for broad assessment for design and prioritization of benefits

- The design and prioritization of benefits could be assessed more broadly from the transfer of money to the needy to empowerment in broader ways.
- Jan Samarth is a step in the right direction to enable easy access to government credit schemes for individuals and small and medium enterprises.

- It is high time the government considers extending DBT as the sole means of distribution.
- A wealth of data on the impact of government schemes and citizens' feedback could inform the design and implementation of future policies.
- This will strengthen the foundation for a new and revolutionary era in public distribution governance.

The PDS is a cornerstone of government policy responding to nutrition and food security. The PDS may not be able to eliminate the issue of malnutrition and childhood morbidity or mortality in India, but it can reduce the levels of hunger in India if implemented effectively. If PDS is improved effectively it can solve global hunger issue because India ranks 107th on Global Hunger Index out of 121 countries. To decrease the leakage of food grains there is need proper Collecting biometric information of all cardholders in a household. There is a need to track several beneficiaries which are not availing their rightful benefits.

Proton Beam Therapy

Proton therapy, also called proton beam therapy, is a type of radiation therapy. It uses protons rather than x-rays to treat cancer. A proton is a positively charged particle. At high energy, protons can destroy cancer cells. Doctors may use proton therapy alone. They may also combine it with x-ray radiation therapy, surgery, chemotherapy, and/or immunotherapy. Like x-ray radiation, proton therapy is a type of external-beam radiation therapy. It painlessly delivers radiation through the skin from a machine outside the body.

How proton therapy works

- A machine called a synchrotron or cyclotron speeds up protons. The high speed of the protons creates high energy. This energy makes the protons travel to the desired depth in the body. The protons then give the targeted radiation dose in the tumor.
- With proton therapy, there is less radiation dose outside of the tumor. In regular radiation therapy, x-rays continue to give radiation doses as they leave the person's body. This means that radiation damages nearby healthy tissues, possibly causing side effects.
- People usually receive proton therapy in an outpatient setting. This means they do not need to have treatment in the hospital. The number of treatment sessions depends on the type and stage of the cancer.

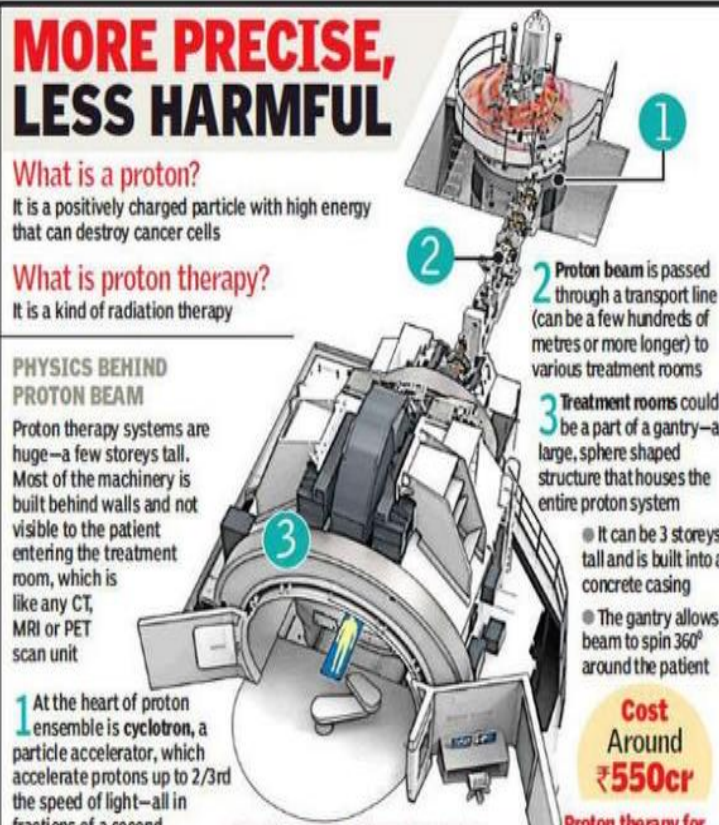
MORE PRECISE, LESS HARMFUL

What is a proton?
It is a positively charged particle with high energy that can destroy cancer cells

What is proton therapy?
It is a kind of radiation therapy

PHYSICS BEHIND PROTON BEAM
Proton therapy systems are huge—a few storeys tall. Most of the machinery is built behind walls and not visible to the patient entering the treatment room, which is like any CT, MRI or PET scan unit

1 At the heart of proton ensemble is cyclotron, a particle accelerator, which accelerate protons up to 2/3rd the speed of light—all in fractions of a second



(Sizes of human and machine are in proportion)

2 Proton beam is passed through a transport line (can be a few hundreds of metres or more longer) to various treatment rooms

3 Treatment rooms could be a part of a gantry—a large, sphere shaped structure that houses the entire proton system


- It can be 3 storeys tall and is built into a concrete casing
- The gantry allows beam to spin 360° around the patient

Cost Around ₹550cr

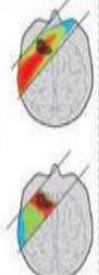
Proton therapy for cancers of Skull base, liver, spine, brain, lung, head and neck, breast, lymphomas, esophagus, pancreatic, paediatric, prostate, astrointestinal, bone

● Proton therapy may also be used for tumors that recur in areas that have previously been treated with standard radiation therapy

DIFFERENCE BETWEEN PROTON AND STANDARD RADIATION THERAPY



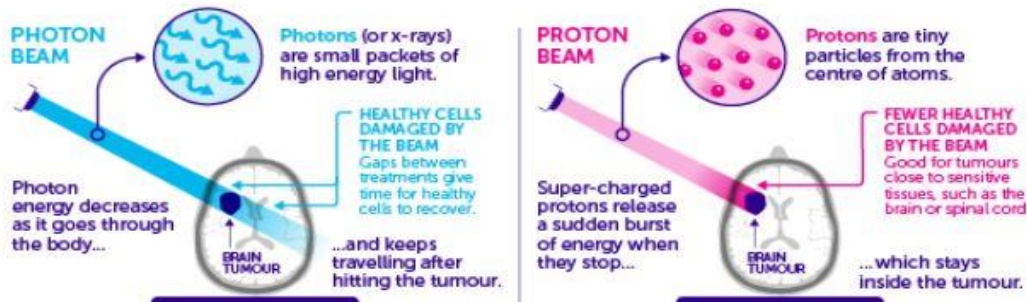
- Standard radiation therapy uses X-rays (photons) which deliver radiation not only to the targeted tumour but even to healthy tissues beyond
- Proton beams, on the other hand, can be adjusted to deliver most of their energy to a particular point



- Cancers treated with proton therapy Proton therapy is useful for treating tumors that have not spread and are near important parts of the body. For instance, cancers near the brain, spinal cord and eye. It is also used for treating children because it lessens the chance of harming healthy, growing tissue.

PHOTON AND PROTON RADIOTHERAPY WHAT'S THE DIFFERENCE?

Radiotherapy targets tumours with a beam of energy which damages DNA and kills cancer cells.



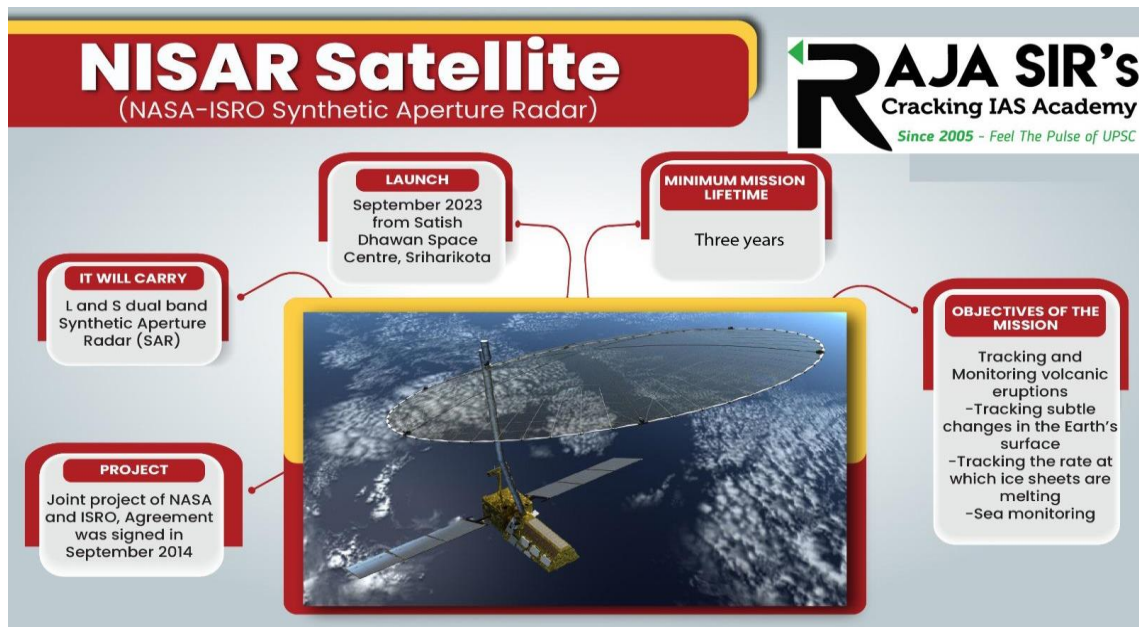
Risks and benefits

- Compared with x-ray radiation therapy, proton therapy has several benefits: Usually, up to 60% less radiation can be delivered to the healthy tissues around the tumor. This lowers the risk of radiation damage to these tissues. It may allow for a higher radiation dose to the tumor. This increases the chances that all of the tumor cells targeted by the proton therapy will be destroyed. It may cause fewer and less severe side effects such as low blood counts, fatigue, and nausea during and after treatment.
- But there are also some drawbacks to proton therapy: Because proton therapy requires highly specialized and costly equipment, it is available at just a few medical centers. Not all cancers can be treated with proton therapy.

What is NISAR satellite, jointly built by ISRO and NASA?

- Jointly developed by the *National Aeronautics and Space Administration (NASA)* and the *Indian Space Research Organisation (ISRO)*, an *Earth-observation satellite*, called *NISAR (NASA-ISRO Synthetic Aperture Radar)*, got a send-off ceremony at the *American space agency's Jet Propulsion Laboratory (JPL)* in Southern California on 3 February 2023.
- The *SUV-size satellite* will be shipped to India in a *special cargo container flight* later this month for a *possible launch in 2024 from Satish Dhawan Space Centre* in Andhra Pradesh.
- The event was attended by ISRO Chairman *S Somanath*, JPL Director *Laurie Leshin* and officials from NASA and India, according to a statement released by the American space agency.
- "Today we come *one step closer to fulfilling the immense scientific potential NASA and ISRO* envisioned for NISAR when we joined forces *more than eight years ago*," Somanath said while speaking to the media. "This mission will be a *powerful demonstration of the capability of radar* as a science tool and help us study *Earth's dynamic land and ice surfaces* in greater detail than ever before."

NISAR



- NISAR has been built by space agencies of the *US and India* under a *partnership agreement signed in 2014*. The *2,800 kilograms satellite* consists of *both L-band and S-band synthetic aperture radar (SAR) instruments*, which makes it a *dual-frequency imaging radar satellite*.
- While *NASA* has provided the *L-band radar, GPS, a high-capacity solid-state recorder to store data, and a payload data subsystem*, *ISRO* has provided the *S-band radar, the GSLV launch system and spacecraft*.

- Another important component of the satellite is *its large 39-foot stationary antenna reflector*. Made of a *gold-plated wire mesh*, the reflector will be used to focus “*the radar signals emitted and received by the upward-facing feed on the instrument structure*”, according to NASA.

Mission

- Once launched into space, NISAR will observe *subtle changes in Earth's surfaces*, helping researchers *better understand the causes and consequences* of such phenomena. It will *spot warning signs of natural disasters*, such as *volcanic eruptions, earthquakes and landslides*. The satellite will also measure *groundwater levels, track flow rates of glaciers and ice sheets*, and monitor the planet's forest and agricultural regions, which can improve our *understanding of carbon exchange*.
- By using *synthetic aperture radar (SAR)*, NISAR will produce *high-resolution images*. SAR is capable of *penetrating clouds* and can *collect data day and night* regardless of the weather conditions.
- According to NASA, “*the instrument's imaging swath— the width of the strip of data collected along the length of the orbit track — is greater than 150 miles (240 kilometres), which allows it to image the entire Earth in 12 days.*”
- NISAR is expected to be launched in *January 2024* from Satish Dhawan Space Centre into a *near-polar orbit*. The satellite will operate for a *minimum of three years*. NASA requires the *L-band radar for its global science operations for at least three years*. Meanwhile, *ISRO will utilise the S-band radar for a minimum of five years*.

Lessons from Turkey: How to make India earthquake prepared?.

- Recently, tremors have been felt in Meghalaya and in the region around Joshimath and Chamoli in Uttarakhand.
 - Geologists have also warned of a probable massive earthquake in the Himalayan state.
- Nearly 58 % of the Indian landmass is vulnerable to earthquakes.
- Court orders and state government audits for safety assessment of vulnerable buildings alone cannot adequately prepare Indian cities for earthquakes.

Issues with India's policy earthquake preparedness

- It ignores the buildings that were constructed before National Building Codes were published in 1962.
 - Such buildings form a large part of Indian cities.
- It assumes infallibility in the processes of enforcement — relying only on penalization and illegalities.
- It treats earthquakes as a problem of individual buildings as if they exist and behave in complete isolation from their urban context.
 - Buildings exist in clusters and in the event of an earthquake, behave as a system.
 - They collapse on nearby buildings and on the abutting streets, damaging buildings that might have otherwise survived and blocking evacuation routes.

Suggestions

- Earthquake preparedness in city infrastructure: Indian's earthquake preparedness needs to act at the scale of building details as well as that of cities.
 - It must think about it in the realm of policy and not just legal enforcement.

Need for comprehensive policy:

- At the scale of building details, India needs to create a system of retrofitting existing structures and enforcing seismic codes with more efficiency.

Measures to include in India's earthquake policy:

- Retrofitting Buildings to Seismic Codes:
 - Aim: To create a system of tax-based or development rights-based incentives for retrofitting one's building up to seismic codes.
 - Such a system of incentives will enable the growth of an industry around retrofitting and will generate a body of well-trained professionals and competent organisations.
- Better enforcement of seismic codes:

- Ensuring better enforcement of seismic codes through step such as the National Retrofitting Programme launched in 2014.
 - Under the programme, the Reserve Bank of India directed banks to deny loans for any building activity that does not meet the standards of earthquake-resistant design.

Examples

- Japan: It has invested heavily in technological measures to mitigate the damage from the frequent earthquakes that it experiences.
 - Skyscrapers are built with counterweights and other high-tech provisions to minimise the impact of tremors.
 - Small houses are built on flexible foundations and public infrastructure is integrated with automated triggers that cut power, gas, and water lines during earthquakes.
 - This has been a result of cultivating an industry around earthquake mitigation and fostering expertise.
- San Francisco: It was devastated by an earthquake in April 1906.
 - San Francisco implemented policy changes similar to Japan's.
 - The next major earthquake hit in 1989, the city recorded just 63 casualties compare to more than 3,000 deaths in 1906.

Four criteria to generate earthquake vulnerability maps:

- The percentage of vulnerable structures in the area
- The availability of evacuation routes and distances from the nearest open ground
- Density of the urban fabric; and fourth, location of nearest relief services and the efficiency with which these services can reach affected sites.
- Location of nearest relief services and the efficiency with which these services can reach affected sites.
- Example: Flood zone mapping is an exercise that has proven to be successful in terms of timely evacuation and efficient implementation.

Approach to make policy on earthquake preparedness

- Develop new innovative solutions: Some areas such as dense historic city centers which are destroyed by earthquake will still be beyond repair.
 - They will require either retrofitting or revised town planning schemes. However, both options are unreliable and could be damaging to history.
- Need for political will: There is lack political will to execute policies related to earthquake rehabilitation and prevention.
 - Example: After the 2001 Bhuj earthquake, the Gujarat government immediately adapted new town planning schemes that widened roads and created routes for evacuation and relief work.

- Turkish government, in denial of its own responsibility, has arrested contractors for building unsafe buildings.

Governments and policymakers ought to know better than act in a piecemeal manner. India must seize this opportunity to include earthquake preparedness in our U20 agenda and learn from the Japanese and the American delegates.

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Right against Self-incrimination

The Supreme Court (SC) has recently refused to hear a plea by Delhi Deputy Chief Minister seeking bail in the excise policy case.

- The case is related to the Prevention of Corruption Act, under which Central Bureau of Investigation (CBI) has demanded the custody of the Delhi Deputy Chief Minister.
 - The Prevention of Corruption Act is a statutory act to combat corruption in government agencies and public sector businesses in India.
- The plea was filed under Article 32 of the Constitution rather than the Section 482 of the CrPC.
 - Article 32 guarantees the right to move the SC to enforce Fundamental Rights and empowers the SC to issue directions or orders or writs for that purpose.
- SC has ruled that he had a right against self-incrimination.

Section 482 of the CrPC

- It lays down three purposes for which High Court (HC) can exercise its inherent power:
 - To make orders to give effect to any order under the Code
 - To prevent abuse of the process of any court
 - To secure the ends of justice

An individual's right against self-incrimination

- It originated in Roman law, and evolved under the English jurisprudence.
- In United States' Constitution: No person shall be compelled in any criminal case to be a witness against himself, without due process of law.
- In Indian Constitution: Article 20(3) in Part III (Fundamental Rights)-No person accused of any offence shall be compelled to be a witness against himself.
 - It gives the right to be presumed innocent until proven guilty, and the right to remain silent in an interrogation.
 - It also ensures that police cannot coerce anyone to confess to a crime and become convicted based on that confession.
 - It extends only to criminal proceedings and not to civil proceedings or proceedings which are not of criminal nature.
- In India, the protection against self-incrimination extends to both oral evidence and documentary evidence. However, it does not extend to:
 - Compulsory production of material objects
 - Compulsion to give thumb impression, specimen signature, blood specimens
 - Compulsory exhibition of the body.

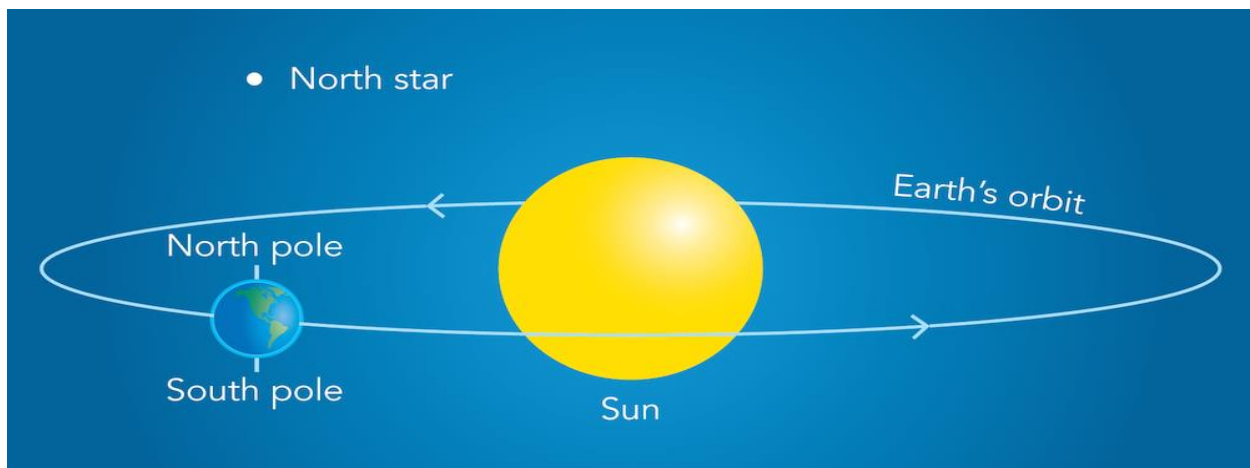
Earlier SC rulings on right against self-incrimination:

- In 1961 case of “The State of Bombay versus Kathi Kalu Oghad”, SC ruled that obtaining photographs, fingerprints, signatures, and thumb impressions will not violate the right against self-incrimination of an accused.
 - There is a difference between being a witness and from “furnishing evidence”.
- In 2019, case of Ritesh Sinha versus State of Uttar Pradesh, the SC broadened the parameters of handwriting samples to include voice samples.
 - It also stated that this would not violate the right against self-incrimination.
- In 2010, case of Selvi v State of Karnataka, the SC ruled that a narcoanalysis test without the consent of the accused would lead to violation of the right against self-incrimination.
 - However, obtaining a deoxyribonucleic acid (DNA) sample from the accused is permitted.
 - Under Section 114 of the Evidence Act, if an accused refuses to give a sample, the court can draw adverse inferences against him.
- In case of the Satish Chandra vs. M.P. Sharma, SC ruled that the term "Witness" includes both oral and written testimony.
 - Authorities can search any location and confiscate any document but any information that the accused provides is voluntarily acceptable.
- In case of the Maneck vs. Narayanlal, SC ruled that this rule cannot be applied based only on general investigations and inquiries.
 - This right is available to both the witness and the accused in the same manner and it is applicable at every stage where information is provided.

Parliament is the essence of democracy and it is the North Star of democracy

- Recently, Rajya Sabha Chairman Jagdeep Dhankhar termed Parliament as the "North Star of democracy".
- Recently, Both the houses of Parliament were adjourned due to the opposition creating a ruckus and demanding a discussion on the Hindenburg report on the Adani conglomerate.
- The report by Hindenburg Research, a US-based investment firm has accused the Adani Group of "stock manipulation and accounting fraud" leading to a steep fall in the share prices of group firms.
- Previously, the Chief Justice of India D Y Chandrachud had described the basic structure of the Constitution, laid down by the Supreme Court in the 1973 Kesavananda Bharati judgment, as the "North Star".
- The Doctrine of Basic Structure is a form of judicial review that is used to test the legality of any legislation by the government and gives certain direction to the interpreters and implementers of the Constitution.

North Star



- The North Star, also known as Polaris, is a bright star located in the constellation Ursa Minor.
- It is located less than 1° away from the north celestial pole and is in direct line with the Earth's rotational axis.
- Its position and brightness make it useful for navigation since late antiquity.
- Polaris was first charted by the Roman mathematician and astronomer Ptolemy and became central to human history during the Age of Exploration.

- The North Star has been used in literature as a metaphor for something that provides guidance and direction, with "constant as the Northern Star" being a famous example from Shakespeare's Julius Caesar.
- The title of "North Star" passes to different stars over time as the Earth's axis of rotation wobbles like a spinning top, causing the celestial pole to "wander in a slow circle".
- Polaris is around 2,500 times more luminous than the Sun and is approximately 323 light years away from Earth.

Indian Parliament

- The Indian Parliament is the supreme legislative body of the Republic of India.
- It is responsible for making laws and policies that govern the country and serves as a platform for representatives of the people to voice their opinions and concerns.
- The Indian Parliament has a long and rich history that dates back to the colonial era. The Indian National Congress was established in 1885, and in the following years, the demands for independence and self-rule grew louder.
- The Government of India Act 1935 established a federal structure of government and provided for a bicameral legislature.
- India achieved independence from British rule on August 15, 1947, and the Constituent Assembly was established to draft the country's constitution.
- The Indian Constitution came into effect on January 26, 1950, and the Parliament of India was constituted under its provisions.

Structure of Indian Parliament

- The Parliament of India is a bicameral system, consisting of two houses: the Rajya Sabha and the Lok Sabha.
- The Rajya Sabha is the upper house, composed of members appointed by the President and elected by the state and territorial legislatures.
- It has a maximum strength of 250 members, with 238 members being elected and 12 members appointed by the President.
- The Lok Sabha is the lower house, composed of directly elected members, with a maximum strength of 552 members.

Organs of Indian Parliament

The Parliament of India has several organs, including:

- **The President:** The President of India is the constitutional head of state and is elected by an Electoral College composed of members of both houses of Parliament and the legislative assemblies of the states.
- **Vice-President:** The Vice-President of India is elected by members of both houses of Parliament and serves as the ex-officio Chairman of the Rajya Sabha.
- **Speaker and Deputy Speaker:** The Speaker and Deputy Speaker of the Lok Sabha are elected from among its members and preside over its proceedings.
- **Chairman and Deputy Chairman:** The Chairman and Deputy Chairman of the Rajya Sabha are elected from among its members and preside over its proceedings.

Importance of Parliament

- The Indian Parliament is the supreme legislative body of the country and is responsible for making laws and policies that govern India.
- It serves as a platform for representatives of the people to voice their opinions and concerns and to hold the government accountable for its actions.
- The Parliament is also responsible for controlling the nation's finances, including the imposition of taxes, the management of public funds, and the preparation of the national budget.

Key challenges of Parliament:

- **Political polarization:** The political polarization between different parties in the Parliament has led to gridlock and prevent meaningful legislation from being passed. This can result in a lack of progress on important issues and a failure to address the needs of the people.
- **Lack of attendance and participation:** Many members of Parliament fail to attend sessions regularly, leading to a lack of participation in the legislative process. This can result in a lack of accountability and a failure to represent the views and interests of the people.
- **Disruptive behavior:** Unparliamentary behavior by members of Parliament often disrupts the functioning of the House and prevent meaningful debates and discussions from taking place. This can result in a lack of progress on important issues and a failure to address the needs of the people.
- **Corruption:** It remains a major challenge for the Indian Parliament, as some members may be influenced by money or other incentives to vote in a certain way resulting in legislation that benefits a select few rather than the general public.

- Lack of representation: The current system of representation in the Parliament may not accurately reflect the diverse views and interests of the people resulting in a lack of representation for marginalized groups and a failure to address their needs and concerns.

Looking forward

- Bridging the gap: The relationship between the judiciary and parliament is crucial in any democratic system of government as both institutions play important roles in ensuring the rule of law and protecting the rights and freedoms of citizens.
- Strengthening attendance and participation: It can improve the functioning of the House and can be achieved through measures such as fines for absentees or incentives for regular attendance.
- Encouraging constructive debate: It can improve the functioning of the House and can be achieved through measures such as allowing members to freely express their views and opinions, and creating a culture of respectful disagreement.
- Addressing corruption: Addressing corruption is crucial for it to function effectively and can be achieved through measures such as increased transparency, accountability, and penalties for corrupt behaviour.
- Increasing representation: Increasing representation for marginalized groups through measures such as reserving seats for underrepresented groups, or implementing a more proportional representation system.
- Enhancing transparency and accountability: This can be achieved through measures such as regular reporting on the activities of the Parliament and increased public access to information about the legislative process.

What are Judicial activism, Judicial Overreach and Judicial restraint?

Judicial Activism:

- Judicial activism signifies the proactive role of the Judiciary in protecting the rights of citizens.
- The practice of Judicial Activism first originated and developed in the USA.
- In India, the Supreme Court and the High courts are vested with the power to examine the constitutionality of any law, and if such a law is found to be inconsistent with the provisions of the constitution, the court can declare the law as unconstitutional.
- It has to be noted that the subordinate courts do not have the power to review constitutionality of laws.
- Origin:
 - The term judicial activism was coined by historian Arthur Schlesinger, Jr. in 1947.
 - The foundation of Judicial Activism in India was laid down by Justice V.R Krishna Iyer, Justice P.N Bhagwati, Justice O.Chinnappa Reddy, and Justice D.A Desai.
- Criticism:
 - Judicial Activism has led to a controversy in regard to the supremacy between Parliament and Supreme Courts.
 - It can disturb the delicate principle of separation of powers and checks and balances.

Judicial Restraint:

- Judicial Restraint is the antithesis of Judicial Activism.
- Judicial Restraint is a theory of judicial interpretation that encourages judges to limit the exercise of their own power.
- In short, the courts should interpret the law and not intervene in policy-making.
- Judges should always try to decide cases on the basis of:
 - The original intent of those who wrote the constitution.
 - Precedent – past decisions in earlier cases.
 - Also, the court should leave policy making to others.
- Here, courts “restrain” themselves from setting new policies with their decisions.

Judicial Overreach:

- When Judicial Activism goes overboard, and becomes Judicial Adventurism, it is referred to as Judicial Overreach.

- In simpler terms, it is when the judiciary starts interfering with the proper functioning of the legislative or executive organs of the government.
- Judicial Overreach is undesirable in a democracy as it breaches the principle of separation of powers.
- In view of this criticism, the judiciary has argued that it has only stepped in when the legislature or the executive has failed in its own functions.

Why is it Required?

- **Judicial Activism:**
 - Judicial activism has arisen mainly due to:
 - The failure of the executive and legislatures to act.
 - Since there is a doubt that the legislature and executive have failed to deliver the desired results.
 - It occurs because the entire system has been plagued by ineffectiveness and inactiveness.
 - The violation of basic human rights has also led to judicial activism.
 - Due to the misuse and abuse of some of the provisions of the Constitution, judicial activism has gained importance.
 - **Necessity of Judicial Activism:**
 - To understand the increased role of the judiciary, it is important to know the causes that led to the judiciary playing an active role.
 - There was rampant corruption in other organs of government.
 - The executive became callous in its work and failed to deliver results required.
 - Parliament became ignorant of its legislative duties.
 - The principles of democracy were continuously degrading.
 - Public Interest Litigations brought forward the urgency of public issues.
 - In such a scenario, the judiciary was forced to play an active role. It was possible only through an institution like judiciary which is vested with powers to correct the various wrongs in society. In order to prevent the compromise of democracy, the Supreme Court and High Courts took the responsibility of solving these problems.
 - For example, in *Satyannarayana vs Eastern Power Distribution Company (2004)*, Justice Gajendragadkar ruled that a mandatory enquiry should be conducted if a worker is dismissed on the ground of misconduct, and be provided with an opportunity to defend himself. This judgement

added regulations to labour law which was ignored by legislation.

- Similarly, *Vishaka vs State of Rajasthan* (1997) is an important case that reminds the need of Judicial activism. Here, the SC laid down guidelines that ought to be followed in all workplaces to ensure proper treatment of women. It further stated that these guidelines should be treated as a law until Parliament makes a legislation for enforcement of gender equality.
- Some other famous cases of Judicial Activism include -
 - *Kesavananda Bharati case* (1973): The apex court of India declared that the executive had no right to intercede and tamper with the basic structure of the constitution.
 - *Sheela Barse v. State of Maharashtra* (1983): A letter by Journalist, addressed to the Supreme Court addressing the custodial violence of women prisoners in Jail. The court treated that letter as a writ petition and took cognizance of that matter.
 - *C. Golaknath & Ors vs State Of Punjab & Anrs.* (1967): The Supreme Court declared that Fundamental Rights enshrined in Part 3 are immune and cannot be amended by the legislative assembly.
 - *Hussainara Khatoon (I) v. State of Bihar* (1979): The inhuman and barbaric conditions of the undertrial prisoners reflected through the articles published in the newspaper. Under article 21 of the Indian Constitution, the apex court accepted it and held that the right to speedy trial is a fundamental right.
 - *K. Gopalan v. State of Madras* (1950): The Indian Supreme Court rejected the argument that to deprive a person of his life or liberty not only the procedure prescribed by law for doing so must be followed but also that such procedure must be fair, reasonable and just.
- **Judicial Restraint:**
 - Judicial restraint helps in preserving a balance among the three branches of government, judiciary, executive, and legislative.
 - To uphold the law established by the government in the legislature.
 - To show solemn respect for the separation of governmental problems.
 - To allow the legislature and the executive to follow their duties by not reaching in their arena of work.

- To mark a respect for the democratic form of government by leaving the policy on policymakers.
- Trends in Judicial Restraint:
- R. Bommai v Union of India (1994) is a famous example often stated to show restraint practiced by Judiciary. The judgement stated that in certain cases the judicial review is not possible as the matter is political. According to the court, the power of article 356 was a political question, thus refusing judicial review. The court stated that if norms of judiciary are applied on matters of politics, then it would be entering the political domain and the court shall avoid it.
- Similarly, in Almitra H. Patel Vs. Union of India (1998) the Supreme court refused to direct the Municipal Corporation on the issue of assigning responsibility for cleanliness of Delhi and stated that it can only assign authorities to carry out duty that is assigned as per law.
- Judicial Overreach:
- The direct effect of legislative and executive negligence or inability is "judicial overreach".
- Weak and injudicious results, not only in the making of laws, but also in their application.
- The Indian judiciary has been criticized by many legal scholars, lawyers and judges themselves, for playing an exceedingly activist role and overreaching.
- Impact of Judicial Overreach:
- Since the legislature is lagging behind in its function, the judiciary tends to Overreach from its function causing a conflict between legislature and judiciary. The clear impacts from such an Overreach of Judiciary are as follows:
 - There is a threat to the doctrine of separation of powers which undermines the spirit of the constitution. There is a lack of harmony between legislature and judiciary and an impression on the public of inaction by the legislature.
 - In certain scenarios like that of environmental, ethical, political, expert knowledge is required which the judiciary might not possess. If it renders judgement while having no experience in these domains, then it not only undermines expert knowledge but also can prove harmful to the country.
 - Judicial Overreach can lead to an expression of disregard by the judiciary in the elective representation. This can decrease the faith of the public in the institution of democracy.

- Hence, It is an obligation on the part of courts to remain under their jurisdiction and uphold the principle of separation of powers. The Supreme court has itself reminded other courts, in 2007, to practise Judicial restraint. It stated "Judges must know their limits and must try not to run the government. They must have modesty and humility, and not behave like emperors." Further, it said, "In the name of judicial activism, judges cannot cross their limits and try to take over states which belong to another organ of the state".
- Examples of Judicial Overreach:
- A famous case of Judicial Overreach is censorship of the Film Jolly LLB II. The case was filed as a writ petition, and alleged that the film portrayed the legal profession as a joke, making it an act of contempt and provocation. The Bombay High Court appointed a three person committee to watch the movie and report on it. This was viewed as unnecessary, as the Board Of Film Certification already exists and is vested with the power to censor. On the basis of the report of the committee, four scenes were removed by the directors. It was seen as violative of Article 19(2), as it imposed restriction on freedom of speech and expression.
- On a PIL about road safety, the Supreme Court banned the Sale of Liquor, at retail shops, restaurants, bars within 500m of any national or state highway. There was no evidence presented before the court that demonstrated a relation of ban on liquor on highways with the number of deaths. This judgement also caused loss of revenue to state governments and loss of employment. The case was seen as an Overreach because the matter was administrative, requiring executive knowledge.

How is it Manifested?

- Judicial Activism:
 - Through Judicial Review
 - Judicial review is the doctrine under which legislative and executive actions are subject to review by the judiciary.
 - Judicial review is an example of check and balances in a modern governmental system.
 - Judicial review is adopted in the Constitution of India from the Constitution of the United States of America.
 - It gives power to the Supreme Court to examine the constitutionality of any law and if such a law is found to be inconsistent with the provisions of the Constitution, the Court can declare the law as unconstitutional.
 - Through Public Interest Litigation:

- Public interest litigation means a suit filed in a court of law for the protection of public interest.
- Judicial activism in India acquired importance due to public interest litigation. It is not defined in any statute or act.
- In India, PIL initially was resorted to towards improving the lot of the disadvantaged sections of the society who due to poverty and ignorance were not in a position to seek justice from the courts.
- Justices P.N. Bhagwati and V.R. Krishna Ayerhas played a key role in promoting this avenue of approaching the apex court of the country.
- Through Constitutional Interpretation:
 - Constitutional interpretation comprehends the methods or strategies available to people attempting to resolve disputes about the meaning or application of the Constitution.
 - The possible sources for interpretation include the text of the Constitution, its "original history," including the general social and political context.
- Through Access to international statutes for ensuring constitutional rights:
 -
 - The court refers to various international statutes in its judgements.
 - This is done by the apex courts to ensure the citizens of their rights.
 - International Law is referred to by Supreme Court's judgments in many cases. Example: Recently, SC reaffirmed the rights of disabled person to live with dignity in Jeeja Ghosh v. Union of India. The court underlined the Vienna Convention on the law of treaties, 1963 which requires India's internal legislation to comply with international commitments.
- Judicial Restraint:
 - Through referring to the original intent of those who wrote the constitution:
 -
 - Judges look to the original intent of the writers of the Constitution.
 - Judges refer to the intent of the legislatures that wrote the law and the text of the law in making decisions.
 - Any changes to the original Constitution language can only be made by constitutional amendments.

- Through Precedent:
 - Precedent means past decisions in earlier cases.
 - Judicially-restrained judges respect stare-decisis, the principle of upholding established precedent handed down by past judges.
- Through leaving the legislature and executive to decide policies:
 - Judicial Restraint is practised when the court leaves policy making to others.
 - The courts generally refer to interpretations of the constitution by the Parliament or any other constitutional body.

How do they Differ?

- Judicial Activism VS Judicial Restraint:
 - On basis of Meaning:
 - Judicial activism:interpretation of the constitution to advocate contemporary values and conditions.
 - Judicial restraint:limiting the powers of the judges to strike down a law.
 - On basis of Goals:
 - Judicial restraint:the judges and the court encourage reviewing an existing law rather than modifying the existing law, whereas in judicial activism: it gives the power to overrule certain acts or judgments.
 - On the basis of Intent:
 - Judicial activism judges should look beyond the original intent of the framers.
 - In Judicial restraint, Judges should look to the original intent of the writers of the Constitution.
 - On basis of Power:
 - In Judicial activism, the judges are required to use their power to correct any injustice especially when the other constitutional bodies are not acting.
 - Judicial restraint is limiting the powers of the judges to strike down a law.
 - On basis of their Role:
 - Judicial activism has a great role in formulating social policies on issues like protection of the rights of an individual, civil rights, public morality, and political unfairness.
 - Judicial restraint helps in preserving a balance among the three branches of government, judiciary, executive, and legislative.

Summing up

- In India, Judiciary has played an active role through its activism, especially through PIL. This has restored the rights of disadvantaged sections of the society.
- The Supreme Courts and the High Courts have worked in favour of progressive social policies and citizens hold a high regard for the institution of judiciary.
- However, in a democracy, it is important to maintain the principle of separation of powers and uphold the legitimacy of the three organs of government.
 - It can be possible only when the executive and legislature are attentive and functional.
 - At the same time, the Judiciary should be cautious of stepping into spheres of activity that does not belong to it.

It has legal backing.

It has societal backing.

Breaking laws has legal sanctions.

It is voluntary in nature. If you do unethical work, you will not land in prison (although you can face social ostracization).

There may be many areas where the law does not exist or is silent.

Ethics has a wider scope.

Law is the same for all people.

Ethics may vary from person to person.

Laws need to be specifically changed by the legislature.

Ethics change automatically as society matures.

Whether law guides ethics or ethics guide law

- Ethics usually guide the laws, as the law is the minimum ethical conduct the state wants each person to uphold. For example, in the highest form of ethical conduct, we shouldn't take anything that isn't rightfully ours. It includes something we have found by chance, like a ₹500 note lying on the road. But as minimum ethical conduct, the state wants that person shouldn't indulge in theft. A person is punished if he indulges in such activity.
- Sometimes the law can be more progressive than ethics, and in that case, the law guides ethics. E.g., the Sati Abolition law when William Bentinck enacted it. In that case, the law guided ethics and made society more progressive.
- But some of the laws have nothing to do with Ethics. For example, the law prescribes driving to the left (in India, England etc.) and the right (in the US, Canada etc.). Although these laws prevent chaos on the roads, it has nothing to do with ethics.

Exception: Law can be Immoral or Unethical

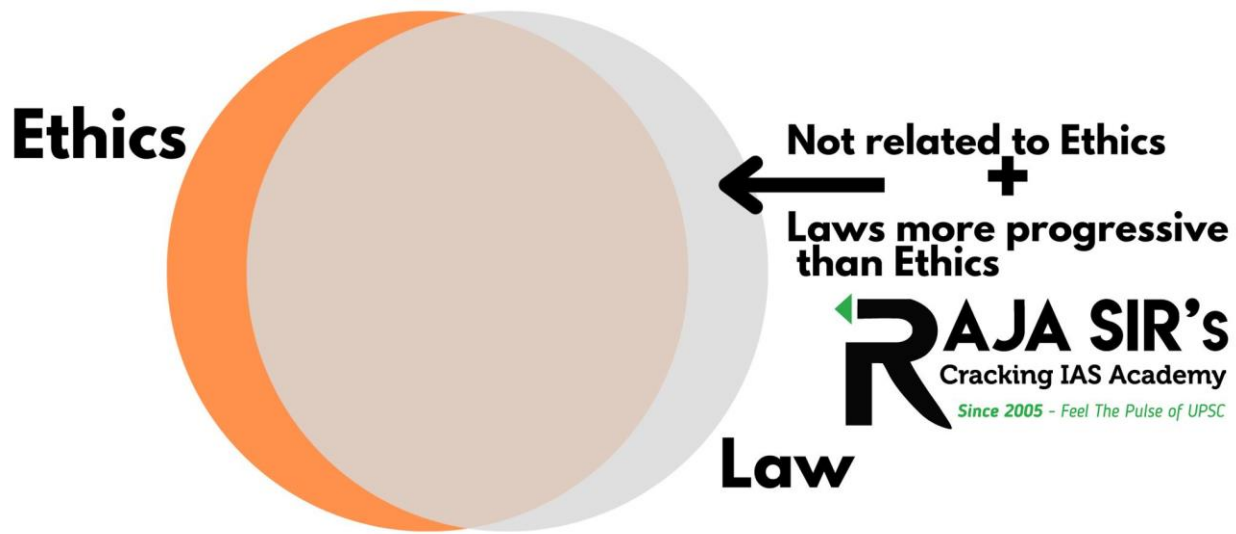
However, not all laws can have moral or ethical sanctions. Even in a democracy, a majority can take over the legislative process and frame a law that may not be just for every section of society or may undermine the dignity of some. A law that caters to most at the cost of a few is unjust. And according to St. Augustine, an unjust law is no law at all. Mahatma Gandhi also argued that an unjust law is itself a species of violence. In the present context, the following examples could be seen in this light:

1. Criminalizing Homosexuality: Many countries, including India, have recently criminalized the LGBT community for their sexual orientation.

2. Adultery: Until recently, only a man in India could be prosecuted for adultery under Section 497 of IPC.
3. Historically, laws related to apartheid in South Africa and racial discrimination in the US were ethically corrupt.

Therefore, these laws were withdrawn after widespread opposition and resentment by the population.

Some acts which are 'ethical but not legal' and 'legal but not ethical'.



Ethical but not legal

- Starting the pension, if some old age person doesn't have age proof but it is clear that he is a senior citizen.
- Stealing medicine to save somebody's life
- Breaking signal to save a life.

Legal but not ethical

- Removing slums because they are not legal owners of property without giving them any shelter
- It is ethical not to give capital punishment as it is against the dignity of human life. Still, according to the law, it is correct (mainly for heinous crimes) to maintain law and order.
- Old apartheid laws of South Africa
- Marital Rape
- Suicide

Law as a source of Ethical Guidance

Law and ethics overlap considerably. The law is the minimum acceptable standard of behaviour backed by legal sanctions. But laws can't cover every possible ethical issue. Hence, it can be said that

- Law is the minimum morality that is placed on all the members of society. Whether a person wants or not, he has to possess that much morality in himself. Hence, by this notion, it is clear that laws indeed act as a source of ethical guidance.
- But we must remember that morality and legality aren't identical. Morality (or ethics) is much more than legality, and it is expected that the person's moral standards should be higher than Legal Standards. But the tragic plight is that we have started to equate Morality & Ethicality with the letter of the law. The old adage "if it isn't illegal, it must be ethical" is deeply flawed in the context of modern society.
- Outlawing something takes back the legitimacy of that action. E.g. banning alcohol by law is easy, but it is challenging to implement it. But even after this limitation, banning it takes the legitimacy of drinking back.
- Laws command both action and inaction: Some laws lay down what should not be done, e.g. murder, whereas others lay down what should be done, e.g. registration of motor vehicles.

Disobeying the unjust laws / Philosophy of Civil Disobedience

In earlier Authoritarian and Colonial Regimes

- Historically, most of the regimes were authoritarian and colonial and didn't consist of the people's elected representatives. They made laws to increase their control over people's lives and protect their own financial and commercial interests. We also have to remember that they didn't have any moral sanction to rule people since people did not elect them. Those were despotic governments.
 - Taxing salt production may have been just for the financial convenience of the British Indian administration; it was totally unjust for the millions of Indians.
 - Slavery laws were made to benefit a few landed magnates and justified the exploitation of millions.
- Hence, disobeying those unjust laws without any doubt wasn't wrong. Gandhi advocated the moral responsibility to disobey unjust laws through non-cooperation and civil disobedience.

Modern Democracies

- But the real issue is whether one should go for breaking the law in the case of Modern Democracies. We have to keep the following points in mind while going to conclusions.
 - First of all, these laws are made by elected representatives of the people. People have given them moral sanctions to make laws.
 - Secondly, people can change the government in the next elections if the government is formulating anti-people laws.
 - Still, some government actions may be considered grossly unjust and unfair to a large section. In such situations, peaceful protests and

pressurizing through the building up of popular opinion should be resorted to.

- Resorting to Civil disobedience should be avoided because:
 - Resort to unconstitutional methods could be justified in past as there was little rule of law or adherence to constitutionalism. In the present, we must hold to the constitutional methods of achieving our social and economic objectives.
 - It may result in anarchy: While disobedience may be helpful to some, it may spiral out of control soon, undermining peace and benefitting none.

Martin Luther King also provided a template for opposing unjust laws. He said that one who breaks an unjust law must do so openly, lovingly, and with a willingness to accept the penalty. There should be acceptance of the penalty of imprisonment to arouse the community's conscience over its injustice.

A thumbs down for the 'Adopt a Heritage' scheme"

- In Feb 2023, the government announced that it will hand over around 1,000 monuments to the private sector for their upkeep under the control of the Archaeological Survey of India.
- The Indian government has launched a revamped version of the 'Adopt a Heritage' scheme. It aimed at encouraging private companies, public sector units, and other firms to adopt and maintain State-owned archaeological sites and monuments. The businesses that enter such agreements will be known as "Monument Mitras."
- The government aims to adopt 500 protected sites by 15th August 2023, and another 500 sites shortly thereafter, which would be a tenfold increase in the number of sites brought under the ambit of the original 'Adopt a Heritage' scheme launched in 2017.
- However, the "revamped" scheme, however, has some serious flaws, and the nation's valuable pluralistic heritage is at risk of extinction.
- There are a number of concerns raised about the Adopt a Heritage Scheme including historical preservation, community, traffic, tourism, and corporate interests which needs to be addressed.

Issues with the Adopt a Heritage Scheme

- Lack of Expertise:
 - Allowing businesses without expertise in heritage preservation to construct and maintain heritage sites can lead to the risk of losing historical significance and misrepresenting India's past.
 - Example: Permitting a watch company without expertise in bridge engineering to maintain a colonial-era bridge in Morbi, Gujarat, possibly contributed to a heart-wrenching tragedy.
- Undermining the Mandate of ASI:
 - The scheme sidelines the Archaeological Survey of India (ASI) and disregards the Sarnath Initiative, which provides guidelines for safekeeping excavated objects and presenting them to visitors in an engaging manner.
- Duplication of Infrastructure:
 - Some monuments selected for the scheme already have tourist infrastructure, which raises questions about the need for new ticket offices and gift shops.
- Diminishing Public Space:
 - The scheme allows businesses to occupy prime public land and build their brands, which may further diminish the grounds around iconic monuments.
- Undermining Local Communities:

- The scheme may undermine local communities' relationships with historical sites, endangering livelihoods of those who have lived near the site and made a living by regaling visitors with stories of its colourful past.
- Alteration of Historical Character:
 - Some monuments selected for the scheme are not protected by the ASI, and businesses may be able to alter their historical character without much opposition.
- Risk of Monuments Being Converted into Hotels:
 - If monuments are not adopted by Monument Mitras in the predetermined time frame, they may be converted into hotels, prioritizing tourism and corporate interests over historical preservation.
 - According to media reports, the Uttar Pradesh government has started turning over such monuments to the Tourism Department to convert them into hotels. They include Chunar Fort, a citadel overlooking Barwasagar Lake, and several residences built by Awadh's Nawabs.

Issues with the Heritage Protection in India

- Limited Trained Manpower:
 - Government agencies may have limited resources, particularly experimental and numerical facilities, which prevent them from undertaking structural safety research and development.
 - The lack of efforts to mainstream heritage preservation as a career and provide skills remains a formidable challenge at the institutional level.
- Infrastructural Shortcomings:
 - There is a lack of convergence between modern-day engineering education and traditional knowledge of construction materials and practices; this is a serious hindrance to preservation of heritage.
- Informalisation of Systems:
 - Formal systems are absent in India, which recognise the need for use of scientific tools for diagnosis and quantitative assessment of residual capacity before choosing repair or strengthening strategy.
 - India has a large stock of heritage structures, which has to be addressed through a formal platform focussing on their structural safety.
- Lack of Awareness:
 - There is widespread lack of civic sense among domestic visitors who tend to deface historical monuments e.g. by inscribing their names on historical monuments.
- Environmental Pollution:

- There are several types of environmental pollution which are killing the heritage properties e.g. Taj Mahal was badly affected by Sulphur dioxide emitted by the oil refinery at Mathura.
- Lack of Funding:
 - Finances continue to be crucial challenges for preservation of cultural heritage. The conservation and preservation of heritage has not received due attention from public authorities.
- Outdated Mechanism of Excavation and Exploration:
 - Due to the prevalence of outdated mechanisms, Geographic Information System and Remote Sensing are rarely used in exploration.
 - Also, local bodies involved in urban heritage projects are often not equipped enough to handle heritage conservation.

Looking ahead

- Making Citizens Aware:
 - Corporate Social Responsibility (CSR) funds can be earmarked for researching, writing, and publishing high-quality textbooks on history and monuments, as well as developing innovative teaching methods.
 - This approach can be effective in educating citizens about the value of monuments and promoting their preservation.
 - Corporates might also follow the lead taken by Sudha Murthy and N.R. Narayana Murthy in giving gifts to organisations such as the Bhandarkar Oriental Research Institute in Pune to continue their missions of writing history by rationally coordinating the textual record and the archaeological evidence.
- Encourage Traders to Donate Funds:
 - Encourage traders and shopkeepers to donate funds to school libraries to collect archival materials such as books, maps, and old photographs relevant to local monuments.
 - This approach can be a cost-effective way to provide students with access to historical resources and help them appreciate the value of monuments in their community.
- Use CSR Funds to Purchase Equipment:
 - Use CSR funds to purchase equipment that reduces pollution and protects heritage buildings.
 - This approach can be an effective way to preserve heritage buildings and prevent their decay.
 - In the past, Tata Sons, Oil and Natural Gas Corporation (ONGC), and other companies have regularly contributed funds to organisations training individuals in much needed restoration skills and creating jobs for them.

What is organoid intelligence?

Recently, Scientists have outlined a plan for a potentially revolutionary new area of research called “organoid intelligence”, which aims to create “biocomputers”, where 3D brain cultures grown in the lab are coupled to real-world sensors and input/output devices.

- Technology is expected to harness the processing power of the brain and understand the biological basis of human cognition, learning, and various neurological disorders.
- These “mini-brains”(with a size of up to 4 mm) are built using human stem cells and capture many structural and functional features of a developing human brain. It is used to study human brain development and test drugs to see how they respond.
 - However, Brain organoids developed in the lab are not advanced enough as they lack the required sensory inputs and blood circulation that are necessary for the development of a complex organ like the human brain.
- Moreover, Scientists transplanted human brain organoid cultures into rat brains and observed that they formed connections with the rat brain and showed functional activity.
 - This system could provide a way to study brain diseases in a human context.
 - However, the organoids are still in the rat-brain microenvironment, which may not be representative of the human brain.

New 'Bio-computer'

- Researchers plan to combine brain organoids with modern computing methods using machine learning to create “bio-computers”.
- They will grow organoids inside structures with multiple electrodes that can record the firing patterns of neurons and mimic sensory stimuli.
- Machine-learning techniques will then be used to analyse the effect of neuron response patterns on human behavior or biology.
- Scientists have already grown human neurons on a microelectrode array and trained them to generate electrical activity similar to what electrons would generate while playing table tennis.

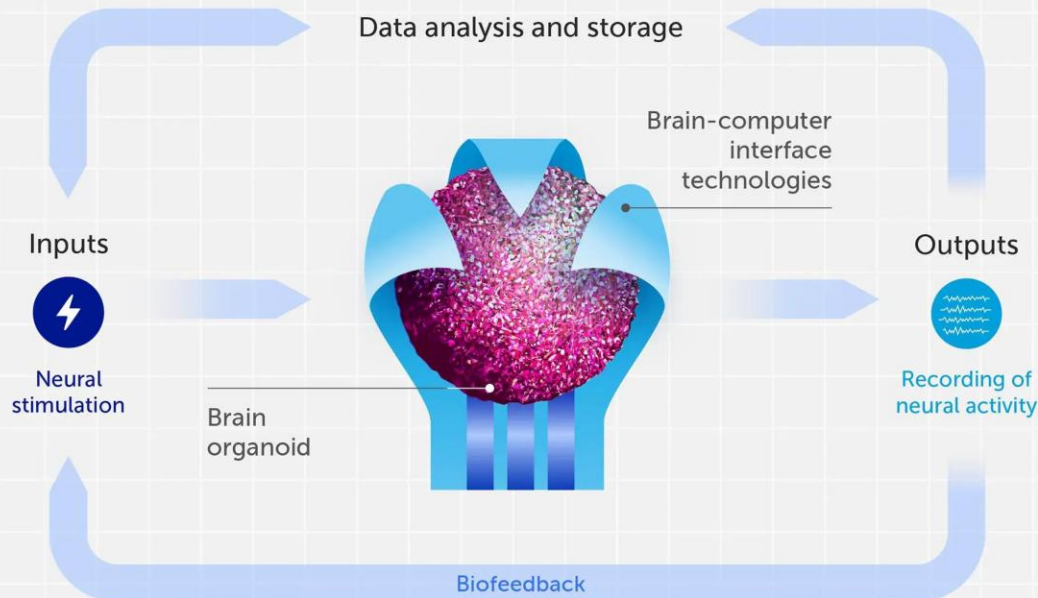
Opportunities for 'Bio-Computers'

- Brain organoids developed using stem cells from individuals with diseases like Parkinson's disease and microcephaly can aid drug development for these conditions.
- These organoids can provide insights into the biological basis of human cognition, learning, and memory by comparing the data on brain structure, connections, and signaling between healthy and patient-derived organoids.

- While human brains are slower than computers at simple arithmetic, they outshine machines at processing complex information.

Organoid intelligence

The new frontier in biocomputing



**OI could be more efficient, more powerful,
and faster than AI – all with lower energy needs**

Looking ahead

- Currently, brain organoids have a diameter of less than 1 mm, roughly three-millionth the size of an actual human brain. So, scaling up the brain organoid is key to improving its computing capacity.
- Neural recordings from each neuron and connection will be needed to store and analyse using 'Big Data' infrastructure.
- Researchers will also have to develop microfluidic systems to transport oxygen and nutrients, and remove waste products.
- There is also a need to identify, discuss, and analyse ethical issues as they arise in the course of this work.

How are the CEC and ECs appointed, and what has the Supreme Court order changed?

- A Constitution Bench of the Supreme Court in its landmark judgment has held that the Chief Election Commissioner (CEC) and Election Commissioners will be appointed by the President on the advice of a committee that includes:
 - The Prime Minister,
 - The Leader of the Opposition (LoP) in the Lok Sabha, or the leader of the single largest party in Opposition, and
 - The Chief Justice of India (CJI)
 - This judgement of the Supreme Court has put an end to the practice of appointing the CEC and ECs on the advice of the Council of Ministers, as is laid down in the Constitution.

How are the CEC and ECs currently appointed?

<p>EXISTING PROCEDURE As of now, Centre has a free hand in appointment of ECs. Though Article 324(2) says appointment of CEC and other ECs shall be subject to provisions of any law made... by Parliament, no law has been framed so far</p> <p>SC DIRECTION ➤ Appointment of CEC, ECs by President on recommendation of a committee comprising PM, leader of opposition and CJI to maintain 'purity of elections' ➤ 'It is desirable that the grounds for removal of the ECs shall be the same as that of the CEC that is on the like grounds as a judge of the apex court'</p>	<p>“ A person who is in a state of obligation or feels indebted to the one who appointed him fails the nation and can have no place in the conduct of elections... An EC should be one who holds the scale evenly in the stormiest of times by not being servile to the powerful... That would be true independence</p> <p>The founding fathers clearly contemplated a law by Parliament and did not intend the executive exclusively calling the shots in the matter of appointments to the Election Commission</p> <p>A near-insatiable quest to continue in the saddle requires a pliable EC who functions as an unfair and biased overseer... perhaps offers an assured gateway to acquisition and retention of power</p> <p>One of the ways the executive can bring the EC to its knees is by starving it of requisite finances much needed for its independent functioning... A vulnerable commission... may kneel to the pressure of the executive, and that would result in an insidious conquest...</p> <p>A brute majority generated by a democratic process must conform to constitutional safeguards and the demands of constitutional morality</p> <p>An unrelenting abuse of the electoral process over a period of time is the surest way to the grave of democracy –SC bench</p>
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- Under Article 324 (2), the President appoints the CEC and other Election Commissioners.
- The President makes the appointment on the advice of the Union Council of Ministers headed by the Prime Minister.
- The Constitution does not prescribe any qualifications, academic or otherwise, for appointment to these offices.

- The tenure of office and the conditions of service of all the commissioners is determined by the President.
- The tenure of commissioners is 6 years or up to the age of 65, whichever is earlier.
- The CEC and the two other ECs have the same powers and emoluments, including salaries, which are the same as a Supreme Court judge.
- All three commissioners have the same right of taking a decision. In case of a difference of opinion amongst the three members, the matter is decided by the Commission by a majority.
- The Constitution has not debarred the retiring Election Commissioners from any further appointment by the Government.
- Composition: The commission consists of a Chief Election Commissioner (CEC) and two Election Commissioners (ECs).

Can CEC and ECs be removed?

- Article 324 of the Constitution of India mentions the provisions to safeguard and ensure the independent and impartial functioning of the Election Commission.
- The CEC is provided with security of tenure.
- He cannot be removed from his office except in the same manner and on the same grounds as a judge of the Supreme Court.
- Any other election commissioner or a regional commissioner cannot be removed from office except on the recommendation of the CEC.

What does the recent Supreme Court ruling say?

- The CEC and other ECs should be appointed by the President on the advice of a committee comprising the prime minister, the leader of the opposition in the Lok Sabha, and the Chief Justice of India.

“How to double India’s farmers’ income”?

- Ashok Gulati, chair professor for agriculture at ICRIER, wrote an article titled ‘How To Double India’s Farmers’ Income’ published in The Indian Express on 6th March 2023.
- On February 28, 2016, Prime Minister Narendra Modi shared his dream of doubling farmers’ incomes in the year when India completes 75 years of Independence and enters Amrit Kaal.
- Now that India has entered Amrit Kaal, it is a good time to revisit that dream and see if it has been fulfilled, and if not, how best it can be done.

Need to double India’s farmers’ income

- Sustained high growth: Unless the incomes of farmers go up, we cannot have sustained high growth of overall GDP. It is the right way to ensure long-term high growth of the overall economy.
- Food and nutritional security: Agriculture also provides food and nutritional security to the largest population on this planet.
- Employment: Agriculture engages the largest share of the workforce (45.5 percent in 2021-22 as per PLFS).

Doubling of Farmers Income (DFI)

- Government had constituted an Inter-Ministerial Committee in April, 2016 led by Ashok Dalwai to examine issues relating to “Doubling of Farmers Income (DFI)” and recommend strategies to achieve the same.
- The Committee submitted its final report to the Government in September, 2018 containing the strategy for doubling of farmers’ income through various policies, reforms & programmes.
- The DFI strategy recommends recognition of agriculture as a value-led enterprise, identifying 7 major sources of income growth viz.,
 - improvement in crop productivity;
 - improvement in livestock productivity;
 - resource use efficiency or savings in the cost of production;
 - increase in the cropping intensity;
 - diversification towards high value crops;
 - improvement in real prices received by farmers; and
 - shift of surplus manpower from farm to non-farm occupations.

Challenges

- Rising cost of Production: The cultivation costs have almost doubled, and their income is not commensurate with the rising inflation.

- Income from wages for farmers was 32 per cent in 2012-13. It was recorded to be 40 per cent in 2018-19. This implies that farmers are turning into daily wage labourers.
- MSP: Only 14 percent of 14.6 crore landholding farmers (2015-16) getting benefits from the MSP, most farmers are out of the MSP net and continue to sell their produce below the MSP.
- MSP has distorted cropping patterns, with excessive focus on the cultivation of wheat, rice, and sugarcane in the procurement states at the expense of other crops such as pulses, oilseed, and coarse grains.
- Policies of Government: Marketing policies adopted by the government that suppress farmers' incomes.
- For instance, the ban on exports of wheat or the 20 percent export tax on rice, the suspension of several commodities from the futures markets, and the imposition of stocking limits on certain commodities from time to time.
- The recent dumping of 2.5 MMT of wheat to bring down prices in mandis just before the procurement so that the government can buy at the Minimum Support Price, which is lower than the market price.
- These are hidden policy instruments of "implicit taxation" of farmers' incomes.
- Fragmentation of land holdings: Fragmentation of land holding decreases agricultural productivity and diminishes the economic opportunities available.
- Area under Irrigation: The irrigated area in India is still limited to 34.4 percent which is less than the wholly unirrigated area of 38.6 percent.
- Climatic factors: Rising temperatures along with increased occurrences of extreme weather conditions have made climate change a major threat to Indian agriculture and productivity loss.
- Poor usage of machinery: In India, the average farm size is less than two hectares. It is difficult for farmers to use heavy equipment on such small farms.
- Agricultural waste management: Burnings of agricultural residue in the northern states increase air pollution levels, create health hazards and contribute to global warming.
- Supply-side issues: low public investments, inadequate cold storage capacity, and the nascent food processing industry are partly responsible for volatility in food prices in India.
- Policy paralysis: As agriculture marketing is a state subject, there is no consensus and coordination among central and state governments to address the marketing issues as a holistic approach.

Steps taken by the government to support farmers

- The price of urea in India stayed constant at about \$70 per metric tonne despite the fact that global price reached \$1,000. There is also the additional Rs 60,000 crore from PM Kisan.
- Also, through the PM Garib Kalyan Anna Yojana, many small and marginal farmers receive free rations of at least 5 kg per person every month.

- In addition, there are subsidies for finance, irrigation (drip), and crop insurance.
- States also dole out power subsidies in abundance, especially on irrigation.
- All this if combined, would easily cross Rs 4 lakh crore per annum.

Negative Impact of subsidies

- The policy of heavy subsidisation of input subsidies, especially fertilisers and power, along with assured and open-ended procurement of paddy and wheat at least in some selected states, is affecting the environment negatively.
- Depletion of groundwater levels.
- Overconsumption of fertilisers and pesticides.

Steps to be taken

- Increasing total output across the agricultural sub-sectors through realising higher productivity
- Rationalizing/reducing the cost of production
- Ensuring remunerative prices in the agricultural produce
- Effective risk management
- Adoption of sustainable technologies
- Audit of agricultural subsidies: CAG should take up the audit of all subsidies given by the Centre and by the states to examine their outcomes in terms of the incomes of farmers and environmental consequences. The results of such an audit can induce us to streamline these policies
- Ecofriendly policies: Supporting policies are to be realigned keeping environmental outcomes for instance Millets, pulses, oilseeds, and much of horticulture could perhaps be given carbon credits to incentivise their cultivation. They consume less water and fertilisers.
- Crop neutral subsidies: Subsidies/support should be in favour of those crops that are benign to the planet's basic resources.
- Contract farming: It is an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices.
- For instance, a corporate in Madhya Pradesh is buying soybean at Rs 6,000/quintal, way above the MSP of Rs 4,300/quintal to make tofu, soya milk powder, soya ice cream, and even frozen soya yoghurt.

Looking ahead

- According to experts the government schemes will not help farmers double their income unless the government policies on agriculture are comprehensive, grant freedom of technology and market, and infuse more money into infrastructure development.
- Ad hoc policies and schemes will not help farmers as long as the government intervenes in the market to control prices to keep the consumers happy at the cost of farmers.

- Innovations in technologies, products, institutions, and policies for more diversified high-value agriculture that is also planet friendly are needed for doubling farmers' income.
- Additionally, diversifying to high-value crops, and even putting solar panels on farmers' fields as a third crop will be needed. It is only with such a concerted and sustained effort one hopes to double farmers' incomes.

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Different faces of the Indian women's movement

- “When woman, whom we call abala (weak), become sabala (strong), all those who are helpless will become powerful” a clarification by Gandhiji at All India Women's Conference (1936) was the hallmark of a nationalist movement that relied on women to serve as its face.
- The vibrancy of the Indian women's movement is acknowledged worldwide.
 - However, its gradual transformation has received much less attention.

Women evolution in India

- Nationalist movement: the salt satyagraha and the Quit India movement.
- Ecofeminist movements: Mrinal Gore and her women protesters carrying rolling pins and protesting against the price rise.
 - Examples: Chipko and Nirbhaya, Shaheen Bagh and Sabrimala protests of more recent years.
 - Chipko: one of the earliest ecofeminist movements in the world broadcasting pictures of women clinging to trees to protest logging.
- Quiet revolution of the 1970s: It probably did as much to enhance attention to women's specific needs as street protests. It includes-
 - The Self-Employed Women's Association began to unionize women in the informal sector leading the advocacy for reforms in legal and social protection for women workers;
 - Feminist advocacy highlighting sex-selective abortion and discrimination in inheritance patterns led to legal reforms; and
 - Women's formal and informal collectives have worked hard to reform and implement laws against sexual harassment in the workforce and in public spaces.
- 73rd Amendment to the Constitution: It was passed, reserving one-third of seats in panchayat and leadership positions in local bodies for women.

Impact of these movements

- Grassroots organising for legal and policy reforms.
- State-led organisations for economic empowerment — each have addressed various dimensions of women's lives.
- Nationalist movement: set the stage for the acceptance of women's leadership in politics.
 - Their very presence created space for women's increased participation in electoral politics, setting the stage for grass-roots mobilisation.
- Civil society mobilisation around legal and policy reforms directly affecting women's lives tried hard to remain non-partisan and build a rights-based agenda as a bulwark against persistent patriarchal institutions.

- However, this right-based agenda ultimately sought to reform state policies and legal institutions.

Government programs and its deficiencies

- Mahila Samakhya: It was explicitly designed to mobilise women and sensitise them about their rights.
 - Its relatively ineffectiveness in enhancing vocational skills and entrepreneurship
- National Rural Livelihood Mission (NRLM): Reliance on high-interest loans from moneylenders has declined. In some states, there is a slight increase in incomes (largely men's wage incomes), often because NRLM participation was layered with MGNREGA.
 - However, there is limited evidence of increased incomes due to entrepreneurship or women's empowerment within the household.

Self-help groups (SHGs) in India

- About 12 million SHGs, consisting of 10-15 members each, are organised under the aegis of government programmes in the Indian.
- The Economic Survey notes that today there are about 1.2 crore SHGs in India, most of which are all-women.
- These SHGs are typically supported and mentored by Community Resource Persons paid by the state.
- Function: mainly as thrift and credit institutions, where members deposit small amounts of savings per month and can borrow in an emergency.

Challenges

- The SHG movement's potential for enhancing women's incomes has been underutilised.
- Most of the activities of SHGs are limited to micro-credit.
- Limited evidence of increased incomes due to entrepreneurship or women's empowerment within the household.
- Sometimes SHGs have been used as a political weapon by ruling governments.
For example, the use of SHG women in Kerala during the Sabarimala protests.

The growth of SHGs has brought a large number of women into the public arena. If a strong civil society-led women's movement continues to thrive, SHG members may be able to draw strength from government programmes that empower them economically and civil society institutions that empower them socially and politically to create a formidable force for India's development.

India's tremendous tourism potential in its border States

- India's tremendous tourism potential in its border States remains largely untapped due to the remoteness of locations and the difficulty of access.
- Apart from the infrastructure deficit, even adventure sports, mountaineering and related commercial activities are subject to cumbersome security procedures and permits, often by multiple agencies.

Vibrant Villages Programme

- It will provide funds for development of essential infrastructure and creation of livelihood opportunities in 19 Districts and 46 Border blocks 4 states and 1 UT along the northern land border of the country.
- Allocation: Rs. 4800 Crore, out of which 2500 crore will be used for roads.
- It will help in achieving inclusive growth and retaining the population in the border areas.
- In the first phase 663 Villages will be taken up in the programme.
- It aids to identify and develop the economic drivers based on local natural human and other resources of the border villages on northern border and development of growth centres on "Hub and Spoke Model".
- Vibrant Village Action Plans will be created by the district administration with the help of Gram Panchayats.
- 100 % saturation of Central and state schemes will be ensured.
- Key outcomes:
 - Connectivity with all-weather road
 - Drinking water
 - 24x7 electricity – Solar and wind energy to be given focused attention
 - Mobile and internet connectivity
 - Tourist centers
 - Multi-purpose centers
 - Health and wellness Centers.

Potential tourist destinations in Indian border states

Ladakh

- Karakoram Pass: Regular motorcycle expeditions should be organised for civilians in cooperation with India's major motorcycle manufacturers.
 - Areas such as the Saser Kangri massif could be explored for mountaineering expeditions by small experienced teams in tandem with the armed forces and the Indian Mountaineering Federation.
- Pangong Lake: The area around Pangong Lake and Chushul is a delight for photographers and birdwatchers.
- Changthang wildlife sanctuary: There are wetlands and a thriving population of the Kiang, a wild ass.

- Lhari Peak: It is sacred to both Hindus and Buddhists.
- Demchok area: It is home to several hot springs that are popular for naturopathy cures.
 - The nearby villages of Tsaga, Koyul and Hanle can also be further developed.
- Tso Moriri Lake area: It can be promoted in the, with a particular focus on home stays.

Uttarakhand

- Mana Pass: It is one of the highest vehicle-accessible passes in the world.
- Mana village: It is steeped in mythology as the gateway to heaven.
 - It is close to Hemkund and the Valley of Flowers.
 - The Badrinath shrine is located nearby.
- Deo Tal lake: It can be developed for sailing, and the nearby slopes offer a good site for skiing.
- Peaks such as Mount Kamet and nearby peaks in the Nilang-Jadang valley are prime destinations for mountaineering expeditions.
- Other places:
 - There is also scope to develop tourism around the Parvati Kund at Rimkhim in the Barahoti bowl.

Sikkim

- Doka La: It is ripe for tourism.
- Pedong, Nathang Valley, Zuluk, Kupup, Baba Harbhajan Mandir and the Yak Gold Course, the highest golf course in the world, are nearby.
- Trekking expeditions up to Batang La, could be a start.

Arunachal Pradesh

- Bum La Pass: It is already a well-established tourism hub.
 - There is scope to bring in more tourists all the way up to Zero Point, the site of border personnel meetings with China.
- Subedar (Baba) Joginder Singh memorial: He was posthumously awarded the Param Vir Chakra for outstanding bravery in the battle near Tongpen La during the India-China war in 1962.
 - Nearby, the Pangateng and Sangetsar lakes are picturesque.
- Expeditions on the lines of NIMAS's Winter Bailey Trekking Expedition could attract international tourists to Tawang and the interiors of the State.
- Taksing: It is surrounded by beautiful river valleys, virgin rainforest and scenic camping sites.
 - It also holds religious significance for Buddhists along the ancient Tsari pilgrimage route.
 - River rafting beyond Siyum is also a possibility.

- Walong: The area in Anjaw district is the site of the Battle of Walong.
 - Walong, Dong, Kibithu and Kaho could showcase India's military history and tourism.

Recommendations

- Military Deployment: It still remains the mainstay of livelihood for local residents in many remote places.
 - This should change in favour of commercial activity, including tourism.
- Infrastructure: The priority should be to build all-weather roads, rest houses, rest rooms, fuel pumps, health clinics, electricity (preferably solar and wind energy), telecom towers, and medical facilities in suitable areas.

The vast tourism potential of India's border areas needs to be tapped; it is equally important to ensure that tourism projects are implemented after conducting feasibility studies. Unbridled construction in violation of norms leads to subsidence in the Himalayan belt. Infrastructure which is built in a sustainable manner and benefits the local economy should be encouraged.

India - a soft power?.

The Committee on External Affairs has recently presented its 16th Report on the prospects and limitations of India's Soft Power and Cultural Diplomacy.

- Soft Power:
 - In contrast to the coercive nature of Hard power, Joseph Nye suggested the concept of soft power in post-cold war world
 - Soft power is the ability to shape the preferences of others through appeal and attraction.
 - The three pillars of soft power are:
 - Political values, culture, and foreign policy.
 - Hard Power:
 - Power in international relations has traditionally been understood in the context of military and economic might.
 - It is known as Hard power (which is quantifiable).
 - Hard power is deployed in the form of coercion:
 - Using force, the threat of force, economic sanctions etc.
 - Requirement:
 - Nye argues that successful states need both hard and soft power, the ability to coerce others as well as the ability to shape their long-term attitudes and preferences.

Soft Power is significant for India

In addition to economic and military power, the idea of Soft Power has gained traction during the past few decades. Indian arts, culture, yoga and spiritualism, culinary varieties, festivals, music and dance forms etc, have attracted people from all around the world for centuries.

- For creating Goodwill: Indian ethos and practices has helped it build a benevolent image and tremendous goodwill globally, but it has to be backed with quality project delivery.
- As a Strategic Investment: To become a leading strategic investor in commercially viable and financially attractive public-private partnership infrastructure projects, India needs to deliver on its promises.
- Post-Pandemic Changes: With increased scope of cooperation and the realisation that global problems require global efforts, India's role has gained prominence as the pharmacy of the World.
- Trade and Investment Flow: To build an image of a trusted and reliable partner, India needs to make other countries believe in its commitment to deliver. This will lead to rising trade and investment flows to growing Indian markets.
- Agreements and Communication: The projection of Soft power can help India establish agreement and communication between states through peaceful methods. It also helps build a brand for itself by promoting its Non-aligned commitments, Democratic values, morals, ethos, etc.
- In order to Reach Globally: There is no denying the fact that India can use these instruments of soft power to reach out to the global audience—in turn, making an all-embracing impact on the worldwide market.
 - India's ancient wisdom and spirituality needed to be utilised to capitalise on India's leadership role in the world.

Challenges of being soft

- Lack of Funds:
 - With limited capacity to fund infrastructure projects, India needs to rationally allot its funds, keeping in mind its strategic objectives.
 - Moreover, improving the Indian economy and opening up the market can help India to accumulate funds for international projects.
- Lack of Institutional Framework:
 - India needs an independent development partnership agency that develops long-term and short-term strategies, identifies priorities, builds knowledge and facilitates learning.
 - It needs to remove internal institutional hurdles, such as policy and bureaucratic delays, to meet its infrastructure targets.

Recommendations of the Committee

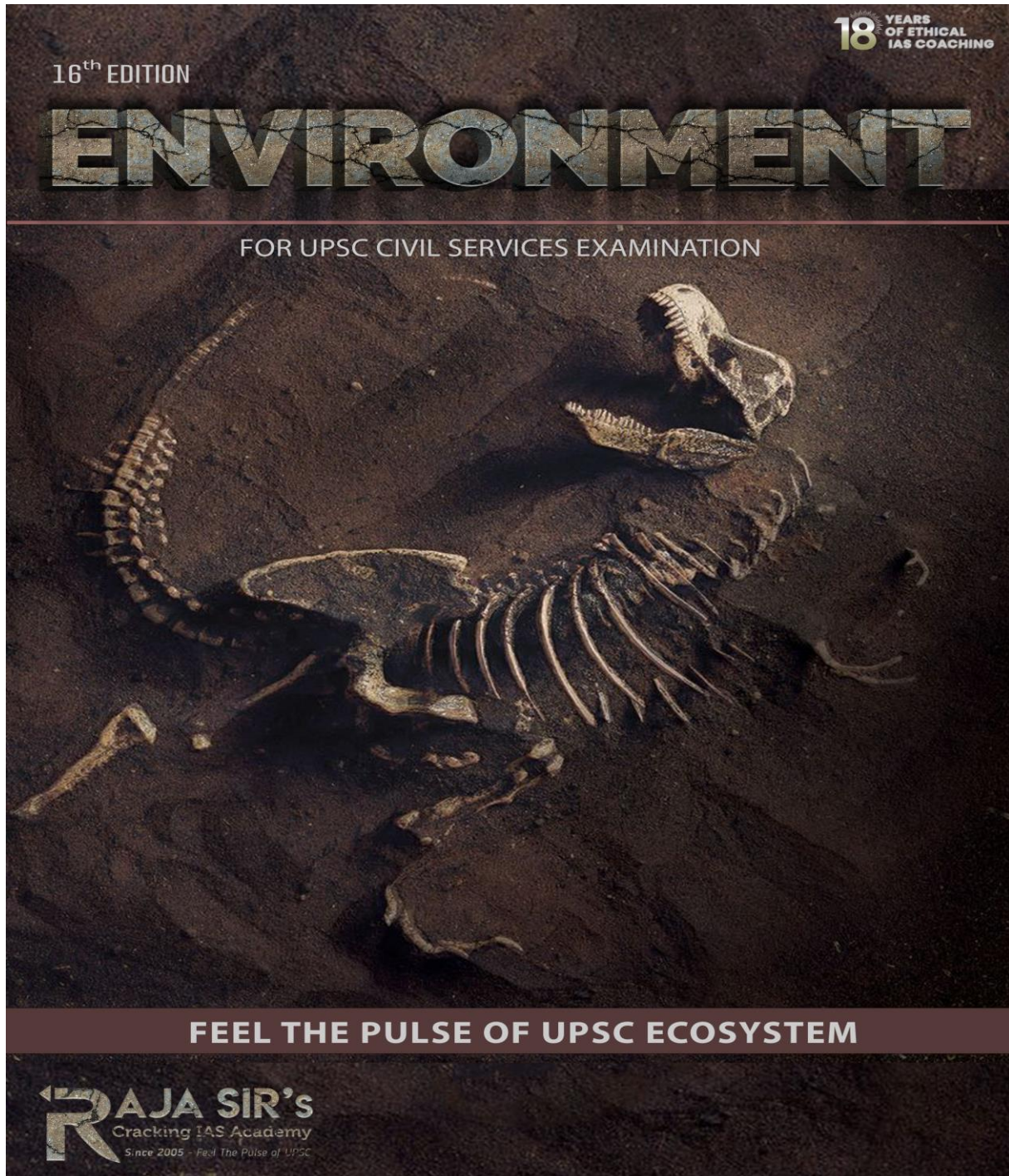
- Overseas Centres: Ministry of External Affairs (MEA) should facilitate the opening of more AYUSH (Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy) centres overseas in a “strategic and planned manner”.
- Yoga Certification Board: In the context of the government’s push to popularise yoga through initiatives such as the International Day of Yoga and setting up of other related facilities, the panel recommended that the ministries of AYUSH and external affairs should set up a ‘Yoga Certification Board for certifying Indian yogic practices and therapies’.
- Diaspora Collaboration: The Indian diaspora, too, is a major asset of India’s soft power diplomacy. Collaboration with the Indian diaspora should also be encouraged to disseminate India’s soft power in regions where it is not yet widely known.
- In the Field of Medicine: Concerted efforts to get recognition of Ayurveda as a system of medicine and adopt the pharmacopeia of India so that the products can be exported as medicine.
 - Ayurveda does not have a recognised pharmacopeia, which is why such products are being exported as dietary supplements and nutraceuticals. The products are still not recognised in most of the foreign countries.
- Pricing System: On the issue of the differential pricing of tickets to monuments for foreigners and Indians, the panel suggested that the pricing system “may be revisited” since such a policy is unnecessary in a globalised world.
 - Such differential pricing leads to a loss of a large segment of foreign travellers.
- Budgetary Allocation: The panel sought an enhanced annual budgetary allocation of ₹500 crore for the Indian Council For Cultural Relations (ICCR) for “conducting India’s soft power and cultural diplomacy in a robust and extensive manner”.
- Coordination Committee: Establishment of a coordination committee consisting of representatives from the MEA and other ministries to overcome the lack of coordination among multiple institutions in projecting India’s soft power and cultural diplomacy.
- A Policy Document: The MEA should also prepare a policy document on “India’s soft power projections, delineating India’s soft power toolbox and manner in which it is being projected abroad along a vision statement for the future”.

Looking ahead

- In its capacity as the biggest democracy in the world, India's soft power should extend beyond simply sharing election best practices, to also countering executive overreach through a sophisticated framework of democratic institutions.

- The other way to overcome a shortage of money and minds on the job isto examine how the private sector can be included to fill some of the gaps left by official agencies.

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A Critical Scan of the Directive Principles of State Policy

- During the period of independence, India heavily incorporated most of its governance features from already established democracies all across the world, due to the naïve status with its new 'emerging democracy' status. In this manner, India had also certain basic principles of governance that it wanted the country to be governed by. Out of these, a country governed partly by socialist principles was agreed upon as the makers of the constitution were in *consensus ad idem* on the notion that democracy took care of its citizens in every possible manner. In this manner, India had borrowed the Directive Principles of State Policy (hereinafter referred to as DPSP) from
- These directive principles have been enshrined in Part IV of the Indian Constitution and it aims to maintain a delicate balance between individualistic and socialist principles of the country. These principles give India the title of a welfare state under the constitution-makers who believed that a true balance as well as development, can only be achieved when the public sector, that is, the state, is given more space and opportunities to act in a way that benefits the people.
- However, true to its name, DPSP is mere directives that the state needs to take into consideration when making legislative and administrative decisions regarding the country. They are not legally enforceable in a court of law if any state fails to follow through with them. That does not stop the Indian judiciary by making it clear that these principles form one of the basic guidelines that every state is supposed to adhere to.
- DPSP are principles that do not have any legal backing or enforceability. The reason behind which they are still enshrined in the constitution even with their non-justiciable character is that these guidelines reflect the spirit and aim to obtain the ultimate ideals of the preamble of the Constitution. DPSP was created to have a basis for the successful execution of the four pillars of the Indian Constitution – Justice, Equality, Liberty, and Fraternity. Justice in all forms, especially, is the main purpose of the DPSP. The makers thought that justice can be achieved by the birth of a welfare state that was solely devoted to the people of the country which was absent during the pre-independence era.

Another reason for DPSP being non – justiciable could be the following:

1. The newly independent India would not have been able to take the mounting pressure of following through with all these principles right after its birth.
2. During the pre-independence as well as the post-independence era, there is a lack of proper resources needed for the successful execution of these guidelines. This might have been because of an imbalance between the population and the necessary resource.

Features of Directive Principles of State Policy.

1. The Phrase 'Directive Principles of State Policy' denotes the ideals to be considered while forming the policies and statutes for governance. These are like guidelines or recommendations or instructions for forming the laws and legislatures. These need to be kept in mind by all the authorities under the meaning of 'State' defined in Fundamental Rights.
2. The Directive Principles of State Policy are similar to the concept of 'Instrument of Instructions' contained in the Government of India Act of 1935 which were recommendations for Governor-General and other Governors of the colonies by the British Government. The only difference is that they are for legislatures and are recommended by the Constituent Assembly.
3. These are comprehensive guidelines for Socio-Economic and political guidelines for the idealistic democratic State which was not possible at the time of Independence but seek to achieve high ideals of justice, liberty, equality and fraternity on which pillars of Indian Democracy stands. The concept of welfare state needs to be achieved in contrast to the police state as it was under British.
4. These principles are non-justiciable in nature, means these cannot be legally enforced in a court of law against government. However, Article 37 of the Constitution itself says that these are fundamental in the governance of the country and it shall be the duty of the state to apply these principles in making laws.

5. Although these are non-justiciable in nature, they immensely help the court in determining the constitutional validity of the law. The Supreme Court many a time seeks to enforce Directive Principles till justice is done.

Article 36

As Part IV talks about the principles that a state needs to follow for proper governance, this article explains what a state is. It holds the same meaning as a state does under Part III of the Constitution. A state, therefore, consists of the following:

1. The Central Government and the State Governments,
2. The Parliament at the Centre and the different state legislatures,
3. Any other local body or authority that is under the control of India or is a part of its territory.

In the case of *Rajasthan State Electricity Board v. Mohan Lal*, 1967 AIR 1857, 1967 SCR (3) 377, it was held by the court that the term other authorities under the definition of a state can be extended to any and every organ that is created by the Constitution or a statute or any other law provision and that it cannot be restricted to bodies that only execute government functions.

Article 37

This article talks about the non-enforceable nature of the Directive Principles of State Policy. DPSP cannot be enforced in a court of law; however, it does not mean that the states do not have a duty to follow through with the principles.

In the case of *Akhil Bharatiya Soshit Karamchhari Sangh v. Union of India*, (1981) 1 SCC 246, the court highlighted the major differences between the Fundamental Rights guaranteed under Part III of the Constitution and the Direction Principles under Part IV. The court said that the main goal of Part III is to provide political freedom to the citizens by way of preventing excessive state control over individuals. This freedom will only hold value if the citizens can exercise these rights before the judiciary. On the other hand, the main aim of Part IV is to ensure some economic and state freedom by suitable state actions. They are mere guidelines that the states are supposed to consider throughout their governance. It is therefore clear that DPSP, because of its very nature, cannot be made enforceable in a court of law. Again, the court

emphasized that their non-enforceability does not do make them any less important than the Fundamental Rights.

Composition of the DPSP

The principles are contained in Articles 36 to 51, which makes up for Part IV of the Constitution of India. The DPSP can be said to have broadly been divided based on three principles – Socialist, Gandhian, and Liberal principles. Socialist principles are ones that focus on justice and equality in the society, Gandhian principles are ones that focus on rural reconstruction and national development and Liberal principles are ones that focus on freedom and separation of individuals and organs in the society that will lead to a developed as well as a globalized nation.

1. Socialist Principles

Freeman and slave, patrician and plebeian, lord and serf, guild-master and journeyman, in a word, oppressor and oppressed, are now on equal footing in the eyes of the law but there were huge inequalities in the society, to curb these social Hierarchical problems, the Constituent assembly wants to achieve Socialist State and for this they included the following Articles of the Constitution that reflects the ideology of Socialism.

1. Article 38: The current article is the one that reflects the characteristics embedded in the Preamble of the Constitution, especially Justice and Equality. Sub-clause (1) states that the ultimate goal of the DPSP is to secure justice in all forms – social, political, and economic, across the country. Subclause (2) talks about how the state has to ensure that there are low to nil inequalities among the public with relation to income, facilities, and services, opportunities, etc. The 44th Amendment Act in the year 1978 expanded sub-clause (2) to state that efforts should be made to reduce inequalities not only among individuals but also among different groups of people residing in different areas of the country. This particular article shows the socialist status of the DPSP in which the main characteristic of a state is that it is societal -welfare-oriented.

The concept of livelihood also came into question before the court about A.38. In the case of *S. Subramaniam Balaji v. the State of T.N.*, (2013) 9 SCC 659, the court stated that the concept of livelihood has changed from the previous good food, clothing, and shelter, to also encompass medicines, transport, preliminary education, etc.

- Article 39: This article lays down some basic and general principles that the DPSP proclaims. They are the following:
- Presence of equal means to a sufficient livelihood. Livelihood, as mentioned in the case of *Subramaniam*, consists of food, clothing, medical facilities, education, etc.
- Ownership and authority over material resources should be distributed in a utilitarian manner.
- There should not be any concentration of wealth in the hands of a few people/groups of people that might result in a detriment of the common good of the public.
- Presence of equal pay for equal work done, no matter if it is a man, a woman, or any other gender.
- The health as well as the strength of the public workers that can be man, woman, child, etc. should not be abused. The people should not be compelled to enter into vocations that are not suitable for either their age or strength simply by economic necessity.
- As inserted by the 42nd Amendment, the state should ensure that children have a healthy environment around them for their holistic growth and development into able adults in the future.

Though given under A.39(d) of the Constitution, the concept of equal pay for equal work is not enforceable under a court of law. As stated in the case *Harbans Lal v. the State of H.P.*, (1989) 4 SCC 459, this principle is not enforceable as a separate fundamental right. It can only be read with articles 14 and 16 of the Constitution that are subjected to certain conditions.

Article 39A: It will the duty of the state to secure equal justice and to provide equal access to justice, a system of free legal aid for economically backward class people, so justice is denied to none

- Article 41: The State plays the role of a welfare government under this Article by focusing on the parts of society that needs its help to flourish. Therefore, issues such as unemployment, food scarcity, old age, disability, etc. are looked after by the government through schemes and programs such as MGNREGA, Pension schemes, Social assistance programs, etc. The state also ensures that

adequate education and job opportunities are available to the best of its current economic abilities.

- Article 42: It is the duty of the state to ensure just and humane conditions in the workplace and provisions for maternity relief.
- Article 43: State will ensure a living wage to industrial, agriculture workers and ensure decent workplace to work and to promote cottage industries on an individual or co-operative basis in rural areas.
- Article 47: This article brings about the duty of the state to ensure that the country has moderate to high standards of nutrition and public health. Steps need to be taken by the state to provide nutrition to the poor and deserving, and also to prohibit or limit the consumption of drinks and drugs that are injurious to public health. Through these steps, the state tries to promote the standard of living of people in the country. Programs such as the mid-day meal scheme, National Health Mission, etc. are already in function to achieve these objectives.

These Articles are embedded keeping in mind to achieve the Socialist nature of Society in mind. However, only a few of them are achieved and the Government is still struggling to make them a reality.

2. Gandhian Principles

As the name suggests these Principles are based on the ideology of Gandhi. In order to fulfil the dreams of Gandhi and to achieve Gandhian State, these articles were included in the constitution. These are the following articles.

1. Article 40: The steps will be taken by the states to organize village panchayats and there will be decentralisation of power and authority, in order to form self-government.
2. Article 43: This goes back to the fair and equal wages principle under A.39 (d). The state, under this article, states that the wages and salaries of people working in any kind of job – agricultural, industrial, etc. should be fair and enough to provide them with a decent standard of living and be able to enjoy the luxuries of their lives. In particular, under this article, the state should give more focus and help to the cottage industries of the country either on its own or on a co-operative basis. The 97th Amendment Act of 2011 has inserted 43 B so

that the state would also promote the co-operative societies on their formation and functioning.

Article 43B: To promote voluntary formation, autonomous functioning, democratic control and professional management of co-operative societies.

3. Article 46: This article is about the protection of the minority and weak communities of the country such as the SCs, STs, etc. against any exploitation. As they are the weaker sections of the society, they may find it more difficult to prosper as compared to their counterparts. Therefore, the state needs to ensure that they are received with enough care and adequate economic and educational opportunities are also available to them.
4. Article 47: The state shall work in raising the level of nutrition and standard of living of its people To raise the level of nutrition and the standard of living of people and to improve public health.
5. Article 48: Organization of agriculture and animal husbandry on the basis of scientific lines and steps in preserving and improving the breeds, prohibiting the slaughter of cows, calves and other milch and draught cattle.

3. Liberal-Intellectual Principles

The liberalism ideology stands for the freedom and autonomy of an individual. These principles are included keeping in mind the ideology of Liberalism. These are:

1. Article 44: This article is quite controversial in its time. According to this article and according to the case of *Ahmed Khan v. Shah Bano Begum, (1985) 2 SCC 556: 1985 SCC (Cri) 245*, the state should endeavor to secure a uniform civil code (UCC) to all citizens throughout the territory of India. It means that there would be one law that would apply to all the various diverse communities and religions of India with regards to civil matters such as marriage, divorce, property, etc. However, many religious communities protested against UCC as they believe that it would lead to a violation of their fundamental right to freedom of religion under A.25 of the Constitution. These communities do not want to let go of their laws of practicing religion.
2. Article 45: The current article was inserted by the 86th This article talks about the right of children to obtain compulsory and free pre-school education up to 6 years of age for their holistic growth and development. It shall also provide free

and compulsory education up to 14 years of age within which the child would have basic education to survive.

3. Article 48: The current article talks about the need of the state to engage in the promotion of agriculture and animal husbandry through scientific lines and methods. Through this manner, the state shall also ensure that unnecessary slaughtering of cows, calves, and other milch and draught cattle is prohibited as well as take scientific steps to improve the breeds of the cattle. In the case of *State of Gujarat v. Mirzapur Jamat, (2005) 8 SCC 534*, the court had held that the term 'milch and draught cattle' was used to distinguish other kinds of cattle that neither belong to milch or draught. It is simply a form of classification.

Article 48 A talks about the protection and safeguard of the environmental surroundings as well as the flora and fauna of nature. In the case of *Municipal Corpn. Of Greater Mumbai v. Hiranman Sitaram Deorukhar, (2019) 14 SCC 411*, the court had held that preservation and protection of open spaces such as parks are of vital interest to the public. The state authorities are dutybound to act in trusteeship for common spaces such as air, water, forests, etc.

4. Article 49: it is the obligation of the state to protect every monument or place or object of artistic or historic interest declared under law as a monument of national importance.
5. Article 50: To separate the judiciary from the executive in the public services of the State. In the case of *P Gupta v. Union of India, 1981 Supp SCC 87*, the court had reiterated the importance of the independence of the judiciary from executive pressure and influence.
6. Article 51: The last directive principle is about the international dealings of the state. According to it, the state's main international aim is to maintain and preserve peace and security across borders, foster healthy relationships with other states, respect international law and other treaty obligations with another state, etc.

New Directive Principles

The best feature of our constitution that it is a living being and keeps on evolving. Changes have taken place in directive principles and major changes were by the 42nd Amendment Act of 1976 which added four new principles for the first time. These were:

1. Article 39: Additional clause was added to secure opportunities for the healthy development of children and to respect the dignity and freedom of children.
2. Article 39 A: It will be the duty of the state to secure equal justice and to provide equal access to justice, a system of free legal aid for economically backward class people, so justice is denied to none.

In the case of *Anokhilal v. State of M.P.*, (2019) 20 SCC 196, the court reiterates the fact that the right to a free legal service is an inalienable right of every Indian citizen. The court also stated that the state is duty-bound to provide a lawyer to an accused person if circumstances of the case and needs of justice so require such as poverty, indigence, etc. as long as the accused does not object to the provision of providing a lawyer.

3. Article 43 A: Steps taken to ensure that participation of workers in the management of undertakings, establishments, or any other organization of the industry.
4. Article 48 A: To protect and improve the environment and to safeguard forests and wildlife.

The 44th Amendment Act of 1978 added one more Directive Principle, which requires the State to minimise inequalities in income, status, facilities and opportunities which was inserted in Article 38.

It is not that only new Directive Principles are added but these Directive principles are promoted in the category of fundamental rights, it happened by 86th Amendment Act of 2002 which made elementary education a fundamental right under Article 21A. Again in 2011 with the help of 97th Amendment added Directive Principles related to Co-operative Societies under Article 43B.

Importance of Directive Principles of State Policy

- The Constitution itself under Article 37 declares that these are fundamental in the Governance of the country. Dr B.R. Ambedkar embarked that Directive Principles have great value because they lay down the goals of Indian Polity is 'economic democracy' as distinguished from 'political democracy'.
- Dr B.R. Ambedkar had pointed out that the Directives have great value because they lay down that the goal of Indian polity is 'economic democracy' as distinguished from 'political democracy'.

- Further, Granville Austin opined that the Directive Principles are 'aimed at furthering the goals of the social revolution or to foster this revolution by establishing the conditions necessary for its achievement'. Sir B N Rau, the constitutional advisor to the Constituent Assembly, stated that the Directive Principles are intended as 'moral precepts for the authorities of the state. They have at least an educative value.'
1. Directive Principles are non-justiciable but these are backed by *vox populi* (voice of the people), which is the real sanction behind every law in reality.
 2. DPSP gives the philosophical foundations of a welfare system. These principles makes it a responsibility of the State to secure it through welfare legislation.
 3. Their nature is more of moral ideals. They constitute a moral code for the State but this does not reduce their value as moral principles are very important and the absence of it may hamper the growth of a society. A state is run by its people and the Government is always formed and managed by them, so it's really important to have a set of standards for making laws in the country.
 4. Directive Principles act as a guide for the government which helps them in making policies and laws for the purpose of securing justice and welfare in the State.
 5. DPSP are like a source of continuity in the Governance of the country because in a democratic system, the Governments change after regular elections and every new government makes different policies and laws for the country. The presence of such guidelines is really important because it ensures that every Government will follow the set of principles in the form of DPSP while formulating its laws.
 6. Directive Principles can be called as the positive directions for the State which helps in securing social and economical dimensions of democracy. DPSP are supplementary to Fundamental Rights which offers political rights and other freedoms. They both are nothing without each other as one provides social and economic democracy and the other, political rights.
 7. Directive Principles of State Policy make it possible for people to measure the worth of a government and its working. A Government which doesn't consider these principles can be rejected on this ground by the people in favour of a

government which gives due importance to the task of securing these Directive Principles in the state.

8. The Directive Principles constitute a manifesto of a Nation. These reflect the ideas and views which were there in the mind of the drafters while drafting the constitution. These reflected the philosophy behind the making of the Constitution and hence provide useful information to the courts in interpreting the existing provisions in the Constitution and in coming up with better laws and policies.
9. The Directive Principles do not seem to be very rigid in their meanings and this helps the State in interpreting and applying these principles in accordance with the situation prevailing at a given time.

Thus, the inclusion of Part IV which contains the Directive Principles of State Policy proved to be very useful for the country. The Directive Principles provide good foundations for welfare state. The securing of Directive Principles helped in completing the requirements of a democratic system. It supplemented the Fundamental Rights of the people and built a State characterized by these four pillars – Justice, Liberty, Equality, and Fraternity.

Implementation of Directive Principles of State Policy

There are some acts and policies from 1950 onwards which had been implemented to give effect to these Directive Principles. They are as follows:

- The Minimum Wages Act (1948)
- Child Labour Prohibition and Regulation Act (1986)
- The Maternity Benefit Act (1961)
- Equal Remuneration Act (1976)
- Handloom Board, Handicrafts Board, Coir Board, Silk Board, etc. have been set up for the development of cottage industries in the country.
- Integrated Rural Development Programme (1978)
- Jawahar Rozgar Yojana (1989)
- Swarnajayanti Gram Swarozgar Yojana (1999)
- Sampoorna Gram Rozgar Yojana (2001)
- Mahatma Gandhi National Rural Employment Guarantee Programmes (2006)
- The National Forest Policy (1988)

- Article 21-A was inserted by the 86th amendment, making free education for children below the age of 14 compulsory.
- Prevention of Atrocities Act safeguarding the interests of SCs and STs.
- Several Land Reform Acts.

DPSP and Fundamental rights

Fundamental Rights are described as the basic rights guaranteed to every citizen of the country under the constitution. They are present in Part III of the Constitution which ensures some rights to all its citizens so that they can live their lives peacefully. They help in checking the activities of the Government so that it cannot curtail any of the basic rights granted by the Constitution in the form of Fundamental rights.

Fundamental Rights apply to all the citizens without any form of discrimination on the basis of race, caste, creed, sex, place of birth, etc. Violation of the fundamental rights may lead to punishment and can initiate proceedings against the government if it tries to curtail them.

There are six fundamental rights of Indian Constitution along with the constitutional articles related to them are mentioned below:

1. Right to Equality (Article 14-18)
2. Right to Freedom (Article 19-22)
3. Right against Exploitation (Article 23-24)
4. Right to Freedom of Religion (Article 25-28)
5. Cultural and Educational Rights (Article 29-30)
6. Right to Constitutional Remedies (Article 32)

Directive Principles of State Policy are some important guidelines given to the government so that it can work accordingly and refer to them while formulating the laws and policies, and to build a just society.

These principles are mentioned in Part IV from Article 36 to 51 of the Constitution. Directive Principles are non-justiciable. However, these are recognized as an important roleplayer in governing the State. These principles aim at creating such an environment, which can help the citizens to live a good life where peace and harmony prevails.

The directive principles conjointly gauge the performance of the state, in order to achieve the objectives stated in the preamble of the Indian Constitution.

Comparison between DPSP and Fundamental rights

Basis	Fundamental Rights	Directive Principles
Meaning	The essential or basic rights granted to all the citizens of the country.	The guidelines which are considered while formulating policies and laws.
Defined	In Part III of the Constitution.	In Part IV of the Constitution.
Nature	Negative	Positive
Enforceability	Legally enforceable.	Not enforceable.
Democracy	Political democracy.	Social and economic democracy.
Legislation	Not required.	Required.
Promotes	Individual welfare	Public welfare

The conflict between DPSP and fundamental rights

Fundamental Rights and the DPSP are supplementary to each other and are essential to meet the social and economic dimensions of a democratic government.

The conflict between Fundamental Rights and DPSP often arises as sometimes it has been seen, by various legislations, that DPSP have wider scope than the Fundamental Rights. The Fundamental Rights are the rights which are enforceable by the Courts and any law that is in contravention to the provisions mentioned in Part III are *ultra vires*.

On the other hand, the DPSP are not enforceable in any Court of Law and nothing can be declared as void merely because it is against the provisions given under the DPSP.

In the case of *State of Madras v. Champakam*, the Supreme Court held the Fundamental rights are superior to the DPSP saying that the Fundamental Rights under Part III prevails over DPSP in case of any conflict between them.

In the landmark judgment given by the Supreme Court in the *Golak Nath case*, it was held that the provisions mentioned under Part III as Fundamental Rights cannot be undermined just to implement the provisions given under Part IV which enlists some important guidelines for the State in the form of the DPSP.

The Constitution was amended in the year 1971 and through this amendment, Article 31C was incorporated in the Constitution. It confers wider importance on the DPSP.

In the *Minerva Mills* case, the Supreme Court restricted this wide scope which was conferred on the DPSP under Article 31C by making the following changes:

- It restored Article 31C to its pre-1976 position. A law would be protected by Article 31C only in the case if it has been made to implement the Article 39 (b) and Article 39 (c) of the DPSP and not any of the other directive included in Part IV.
- There is a fine balance in the Constitution between the DPSP and the Fundamental Rights, which should be adhered by the Courts without placing any of them as superior.

Criticism of Directive Principles of State Policy

The Directive Principles have been severely criticized several times. Some of the major criticisms are concluded as follows.

1. No Legal Force: one of the prominent criticisms of Directive Principles is that they are non-justifiable in nature. K.T. Shah compared these with “a cheque on a bank, payable only when the resources of the bank permit”. In the words of Nasiruddin, these principles are ‘no better than new year’s resolutions, which are broken on the second of January’. However, the legislators have created laws to implement these Directive Principles but no action is being taken against the Uniform Civil Code which has been long-standing demand.
2. Illogically Arranged: In one of the opinions, the criticism is that these are illogically arranged and are not based on any consistent philosophy or logic. In the words of N Srinivasan, ‘the directives are neither properly classified nor logically arranged. The declaration mixes up relatively unimportant issues with the most vital economic and social questions. It combines rather incongruously

the modern with the old and provisions suggested by the reason and science with provision purely on sentiment and prejudice’.

3. Conservative: Sir Ivor Jennings criticizes them as the Directives are based on the British political philosophy of the 19th Century. He remarked ‘The ghosts of Sydney Webb and Beatrice Webb stalks through the pages of the text. Part IV of the constitution expresses Fabian Socialism without socialism’. These are based on old age philosophy of state which doesn’t represent 20th Century ideology.
4. The constitutional conflict between centre and state: Some people think that these principles are not compatible with a federal system of government where the centre has the final decision powers. The state has no control over its policies, laws, and other essential and fundamental state items. The Centre has full control over all aspects of life in this country and even over Constitution itself. So principles cannot be applied to check any part of state policy or law-making by the state.

Thus, directive principles also result in conflicts between:

- Centre and state government
- Prime Minister and President of India
- The chief minister and state government of India

The Central Government provides instructions to the state government regarding implementing principles. But in case of non-compliance, the state government cancelled this implementation, resulting in a constitutional conflict between the centre and state government.

5. Lack of clarity: These principles are often criticised for being very vague and open to interpretation, leading to widely different meanings and interpretations. They are difficult to interpret and cause confusion among different constitutional jurists and the general public. The Indian courts have tried to apply the directive principles in specific cases, but it is difficult to ascertain what problems they should address. The principles themselves have been interpreted differently by different courts in India, leading to huge confusion among the people and in policymaking.
6. Reactionary in Nature: Most state governments had criticised these policies as having a reactionary nature. Although, they have alleged that the political person in power can use these directive principles for his benefit. Along with

this, the process of enumeration of these principles needed unnecessary binding of the present policies with the past. It makes the principles very complicated and hard to understand, making the implementation of Directive Principles of State Policy very difficult.

7. The Directive to push international peace and friendly relations among all the nations is just a declaration but the real issue is the securing part of it for which nothing has been given.
8. Part IV includes some directives which are not complete in actual observation. The ideal is to introduce liquor prohibition but this ideal cannot be really and effectively realised. The states which introduced prohibition had to scrap it later on.
9. Many critics hold that the Preamble should also enlists all these goals which are given under DPSP and their description in Part IV has made things more complicated and complex than it was before.
10. Directive principles just create an impression about the usage of the legitimate power by the State and the motive is to gain support through promise-making and not through inaction.

World Leaders Adopt Doha Political Declaration

Doha Political Declaration

- It is a key outcome of the second part of the LDC5 conference held under the theme “From Potential to Prosperity” in Qatar.
- The declaration welcomed the Doha Programme of Action (DPoA) and strongly committed to its implementation throughout the coming decade.
- The declaration also requested the United Nations (UN) Secretary-General to ensure the full mobilization and coordination of all parts of the UN system to facilitate coordinated implementation of the Doha Programme of Action

Doha Programme of Action (DPoA)

- The DPoA for the Least Developed Countries was adopted at the first part of the LDC5 conference held in New York in
- It is a 10-year plan to put the world's 46 most vulnerable countries back on track to achieving the UN-mandated Sustainable Development Goals (SDG).
- DPoA (2022-2031) consisted of six key focus areas:
 - eradicating poverty;
 - leveraging the potential of science and technology;
 - addressing climate change;
 - environmental degradation;
 - recovering from COVID-19 pandemic;
 - building resilience against future shocks for risk-informed sustainable development;

Least developed countries (LDCs)

- They are low-income countries confronting severe structural impediments to sustainable development.
- They are highly vulnerable to economic and environmental shocks.
- There are currently 46 countries on the list of LDCs which is reviewed every three years by the Committee for Development Policy (CDP) of the UN.
- LDCs have exclusive access to certain international support measures, particularly in the areas of development assistance and trade.

ISRO's SSLV-D2 launch

- The Indian Space Research Organisation (ISRO) recently launched the second development flight of the Small Satellite Launch Vehicle (SSLV).
 - The Small Satellite Launch Vehicle (SSLV-D2) was launched successfully from the first launch pad at the Satish Dhawan Space Centre SHAR, Sriharikota, Andhra Pradesh.
 - It was ISRO's first launch of 2023.
 - It will place the Indian Space Research Organisation (ISRO) earth observation satellite EOS-07 and two co-passenger satellites Janus-1 and AzaadiSat2 in a 450-km circular orbit around the Earth.
 - Janus-1 and AzaadiSat2 are developed by start-ups.
 - G20 logo:
 - The satellite will also carry the G20 logo to space and the NCC song to celebrate 75 years of the organisation.

Janus-1

- Janus-1 is a technology demonstrator satellite built by United States-based Antaris and its Indian partners XDLinks and Ananth Technologies.
- It weighs only 10.2 kg, is a six-unit cube satellite with five payloads on board — two from Singapore, and one each from Kenya, Australia, and Indonesia.
- The entire satellite was built in 10 months, less than half the time it usually takes to manufacture satellites of this size.

AzaadiSat2

- The payloads have been built by 750 girl students from across India.
- The payloads contain:
 - LoRa amateur radio, a sensor to measure radiation levels in space, and sensors to measure the health of the satellite such as temperature, reset count, and inertial data

Significance of SSLV

- Multiple satellites & multiple drop-offs:
 - SSLV is perfectly suited for launching multiple microsats at a time and supports multiple orbital drop-offs.
 - SSLV is capable of launching Mini, Micro, or Nanosatellites (10 to 500 kg mass) to a 500 km planar orbit.
- Development of commercial Market:
 - The new vehicle was developed to capture the emerging small and micro satellite commercial market, with launches offered on demand.
 - The launch of small satellites has until now been dependent on 'piggy-back' rides with big satellite launches on ISRO's work-horse

- Less time, manpower & cost-effective:
 - It will take only 72 hours to integrate, unlike the 70 days taken now for a launch vehicle.
 - Only six people will be required to do the job, instead of 60 people.
 - So, the entire job will be done in a very short time and the cost will be only around Rs 30 crore.
 - It will be an on-demand vehicle.

Previous development flight:

- Failure:
 - The vehicle's first development flight that took place last August after repeated delays due to the pandemic, failed to place the satellites in precise orbit.
- Analysis:
 - A failure analysis report on why satellites were not injected in desired orbits during the August launch suggests that it was because of vibrations picked up by the accelerometers on-board, which led to the systems thinking that they were faulty.

Polar Satellite Launch Vehicle

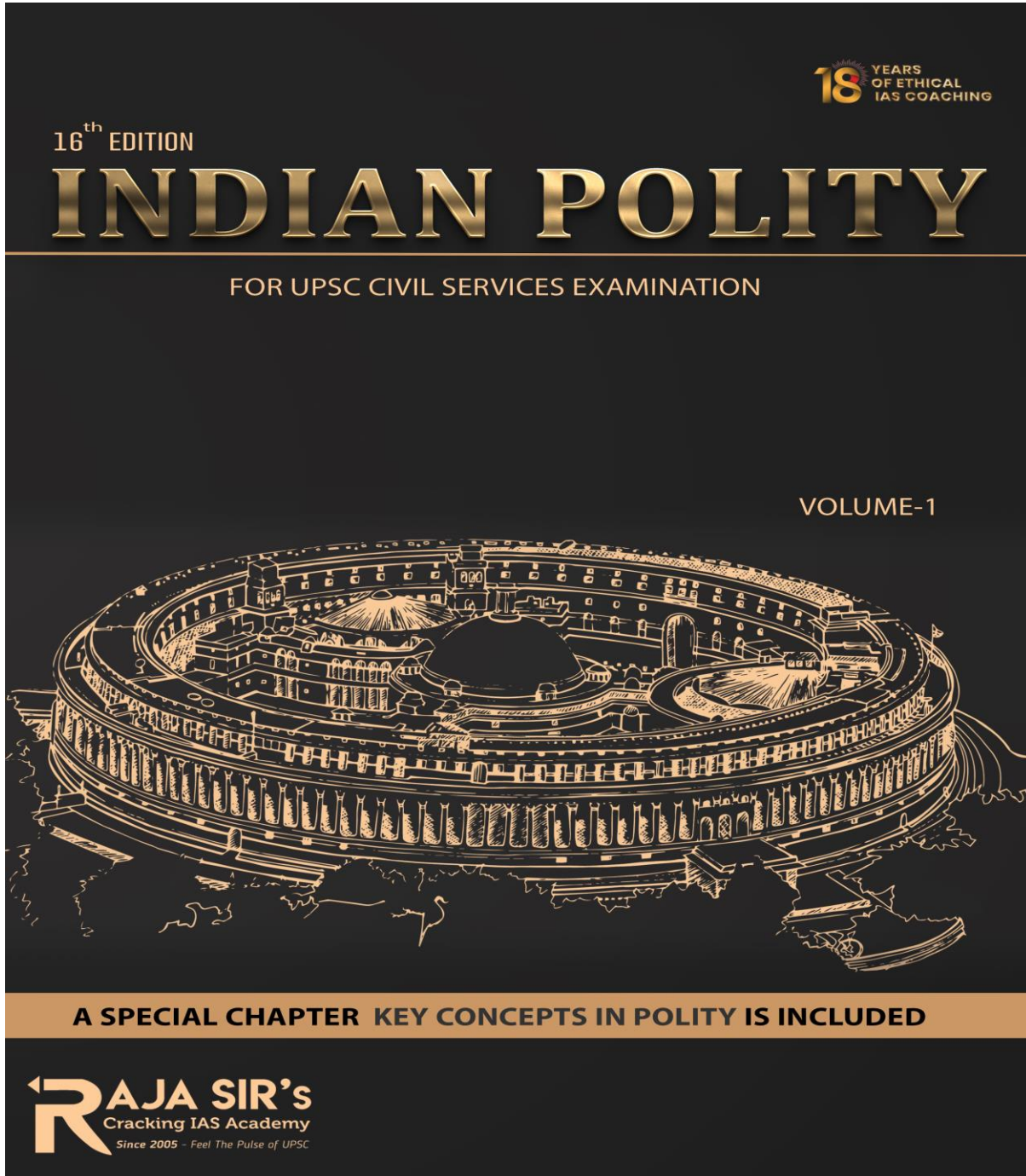
- It is the third generation launch vehicle of India.
- It is the first Indian launch vehicle to be equipped with liquid stages.
- After its first successful launch in October 1994, PSLV emerged as the reliable and versatile workhorse launch vehicle of India with 39 consecutively successful missions by June 2017.
- The vehicle successfully launched two spacecraft – Chandrayaan-1 in 2008 and Mars Orbiter Spacecraft in 2013 – that later travelled to Moon and Mars respectively.
- Difference: PSLV was developed to launch low-Earth Orbit satellites into polar and sun synchronous orbits whereas GSLV was developed to launch the heavier INSAT class of geosynchronous satellites into orbit.

Difference between circular and elliptical orbits

- Mostly objects such as satellites and spacecrafts are put in elliptical orbits only temporarily.
- They are then either pushed up to circular orbits at a greater height or the acceleration is increased until the trajectory changes from an ellipse to a hyperbola and the spacecraft escapes the gravity of the Earth in order to move further into space.
- Satellites that orbit the Earth are mostly placed in circular orbits.
 - One reason is that if the satellite is used for imaging the Earth, it is easier if it has a fixed distance from the Earth.

- If the distance keeps changing as in an elliptical orbit, keeping the cameras focussed can become complicated.

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India and the Anglosphere

- The AUKUS is about promoting deterrence and stability in the Indo-Pacific.
- US is actively participating in Asian regional grouping such as AUKUS and QUAD (Quadrilateral forum).
 - However, Concerns such as China's anger over Australia's participation in these grouping could well be an inflection point in the evolution of Asian geopolitics.

AUKUS

- AUKUS is the new enhanced trilateral security partnership between Australia, the United Kingdom, and the United States.
- It is the collaboration of the technology, scientists, industries, and defense forces of the three countries to deliver a safer and more secure region.
- The first major initiative of AUKUS would be to deliver a nuclear-powered submarine fleet for Australia.
- The deal is seen as a step towards curtailing China's aggressive maneuvers in the Pacific region, especially in and around the South China Sea.

Phases of AUKUS nuclear submarine deal between US, UK, and Australia

- First Phase: It will embed Australian personnel in the American and British nuclear submarine establishments. There will also be more port calls by US and British nuclear-powered submarines in Australia.
- Second Phase: From 2027, UK and US will forward deploy nuclear submarines in Australia "to accelerate the development of the Australian naval personnel, workforce, infrastructure and regulatory system necessary" to establish solid SSN capabilities in Australia.
- Third Phase: It will start in the early 2030s, the US will sell up to five nuclear-powered submarines to Australia.
- Fourth Phase: It will start in the late 2030s, the UK will deliver the first British-built AUKUS submarine to Australia.

Consequences of the AUKUS submarine deal for Asia

This multi-decadal plan will trigger multiple strategic consequences for Asia, including India. Five of them are mentioned below:

Change in Australia's strategic capabilities

- AUKUS is an essence about transforming Australia's strategic capabilities and making it a powerful factor in shaping the Indo-Pacific regional security environment. Nuclear-powered submarines are only one part of this broader ambition.

- AUKUS will see a deeper partnership between the US, UK, and Australia in a range of underwater technologies to counter the expansion of Chinese naval capabilities in the Indo-Pacific.
- AUKUS involves a range of emerging technologies like artificial intelligence and quantum computing that will shape regional security scenarios.
- In this context, India can now increase cooperation with Australia in the field of science and technology.

Importance of the UK in Asia

- The UK abandoned its security responsibilities East of Suez in the late 1960s, and become marginal to Asian security all these decades.
- But UK will now see its profile in Asia boosted by the AUKUS deal.
- UK is the lynchpin in the AUKUS, with its critical role in designing and developing a new class of nuclear-powered submarines by US technologies to Britain's domestic nuclear capabilities and the Australian demand.

The idea of an Anglosphere

- AUKUS has reinvigorated the idea of an "Anglosphere" that speaks of the enduring geopolitical bonds between the US, UK, Australia, Canada, and New Zealand.
- India had difficult ties with the Anglosphere in the past but in recent times a rapid expansion of its ties with the English-speaking world can be seen.
 - For example: The post-war intelligence sharing among the "Five Eyes" has remained an important feature of India's international relations.
 - The Five Eyes is an intelligence alliance comprising Australia, Canada, New Zealand, the United Kingdom, and the United States.
- AUKUS arrangement is more narrowly focused on the Indo-Pacific and will look beyond information sharing to the integration of the technological and defense industrial bases of the three countries.

Involvement of nuclear weapons

- The US and UK are nuclear weapon powers, and Australia has renounced its nuclear weapon option by joining the Nuclear Nonproliferation Treaty (NPT).
- AUKUS does not involve nuclear weapons.
- However, China has launched a campaign against the AUKUS, similar to its campaign opposing the India-US civil nuclear initiative during 2005-08 by saying it is against the non-proliferation norms.
- The NPT does not prohibit AUKUS-like cooperation between nuclear and non-nuclear weapon states.

- Also, three countries have repeatedly reaffirmed that they will negotiate the strictest terms for the international monitoring of the transfer and use of nuclear material under the AUKUS arrangement.

No Expansion Plans for AUKUS

- The US has made it clear that it does not plan to extend the AUKUS arrangement to other partners like Japan and India.
- In India, there is neither any expectation of such cooperation nor India has any reason to quarrel with the AUKUS plan to deter Chinese expansionism in the Indo-Pacific.

US's regional strategy for the Indo-Pacific

- In the past, the US sought to promote regional security unilaterally through its own military capabilities.
- Due to the military challenge from China, the US is now eager to boost the strategic capabilities of its allies such as India and partners in the Indo-Pacific.
- Its focus is different with different partners, but the objective is similar — to promote local balances of power.
- It is boosting the military capabilities of Japan and South Korea and seeking to build a deeper partnership with India on strategic technologies.

India has an opportunity to develop a unique set of arrangements of its own with the US and its allies that will strengthen India's comprehensive national power as well as enhance its contribution to regional peace and security.

Anglosphere

- Anglosphere is a group of English-speaking nations that share cultural or historical ties with the United Kingdom.
- These countries maintain close military, political, and diplomatic ties.
- Generally, Australia, Canada, New Zealand, the United Kingdom, and the United States are included as Core Anglosphere.

Climate-proofing Indian agriculture

- The agriculture sector of India is the lifeline of the country, and its importance to the economy cannot be overemphasised as it contributes 17 per cent to the national GDP. It has not only proved to be one of the most resilient sectors during the pandemic, registering a growth of 3.6 per cent in 2020-21 and 3.9 per cent in 2021-2022, but also played a significant role in the revival of the economy.
- However, one of the biggest challenges faced by the agriculture sector in India and across the globe is climate change. There is a common consensus that the world is getting warmer, and the increasing weather vagaries adversely impact the agriculture sector. This growing strain is not only reducing the food produce but also impacting the sustainability of the livelihood dependent on it.

Status of climate-proof agriculture in India:

Over the years, India has taken several steps to de-risk agriculture.

- India has large buffer stock of food grains for public distribution system mainly due to the efforts of farmers, researchers, and government schemes such as crop insurance, farm inputs and markets.
 - Such huge buffer stock helped support nearly 800 million people during Covid-19.
- Indian Council for Agricultural Research (ICAR), with its CGIAR (Consultative Group on International Agricultural Research) partners and BISA (Borlaug Institute for South Asia), developed several high-yielding crop varieties.
 - Wheat varieties with early heat tolerance enabled farmers in Punjab and Haryana to plant wheat in late October/early November and escape terminal heat stress.
 - CGIAR, established in 1971, is a global partnership that unites international organizations engaged in research about food security.
 - BISA is a non-profit international research institute dedicated to food, nutrition and livelihood security in South Asia.
- ICAR has also invested in understanding the magnitude of the climate crisis, identifying adaptation and mitigation strategies, and realistic measurements of greenhouse gas emissions from agriculture.
- Indian government have had reasonable success with minimum tillage and laser-levelling practices in north-western India.

Challenges faced by Agriculture due to climate change

1. Pace and complexity of climate change
 - Pace and complexity of evolving climate risks are much more than research and development efforts.
 - There are multiple stresses of different intensities and duration in one crop season.

- For example, heat, drought, and even floods occur in the same places, one after the other.
2. Crop production
 - According to Intergovernmental Panel on Climate Change (IPCC) Report, the rise of global temperature and increasing food demand would pose large risk to food security globally and regionally.
 - It finds that even at just 10C of warming, a negative impact for major crops like wheat, rice and corn would be seen.
 3. Agricultural soil
 - The global Climate Change will have adverse effect on soil processes and properties important for restoring soil fertility and productivity.
 - Increase in temperature, will reduce the soil carbon storage due to increased decomposition of soil organic matter by carbon dioxide emission, and ultimately leading to low water holding and nutrient supplying capacity.
 4. Water resources
 - Climate Change will have an impact on the predictability and variability in the availability of water, and also increase in the frequency of floods and droughts.
 - Climate projections developed for India for the 2050s indicate an increase in the average temperature by 2-40 C during that period, an overall decrease in rainy days by more than 15 days in Western and Central India and an increase by 5-10 days near foothills of the Himalayas and North-East India.

Government initiative to make agriculture climate-proof

- a) National Mission for Sustainable Agriculture (NMSA)
 - NMSA is one of the Missions within the National Action Plan on Climate Change (NAPCC) which aims to evolve and implement strategies to make Indian agriculture more resilient to the changing climate and to sustain an increase in production.
- b) Per Drop More Crop (PDMC) scheme
 - To promote efficient use of water and fertilizer through micro-irrigation
- c) Rainfed Area Development (RAD) scheme
 - Implemented to promote a sustainable Integrated Farming System
- d) Mission Organic Value Chain Development in North East Region (MOVCDNER)
 - Aims to development of certified organic production in a value chain mode to link growers with consumers and to support the development of the entire value chain starting from inputs, seeds, certification, to the creation of facilities for collection, aggregation, processing, marketing and brand building.
- e) Paramparagat Krishi Vikas Yojana
 - Aims at supporting and promoting organic farming, in turn resulting in the improvement of soil health.
- f) m-KISAN portal

- Portal is a platform which provides web-based mobile advisory to farmers with technological backstopping from Research Institutes and Agricultural Universities supporting farmers

Suggestions for creating an inter-ministerial programme for improvement of Indian agriculture

Risk zoning

- India's agroecological mapping should urgently factor in the dynamic risk profile of a region, based on the frequency and intensity of hazards and yield losses.
 - For example, diversification from agriculture would be preferred in very high-risk areas.
 - In contrast, growth-promoting options should be the priority in low-risk zones and climate adaptation in medium-risk zones.

Land-use pattern

- Alternative land-use plans considering market demand, agroecological potential, climate risk profile, and socio-economic constraints of the region need to be developed.
 - Policy support, incentives, and disincentives to farmers can enforce such land use plans.
- Such plans need to be developed and implemented for 100 backward districts.

Managing water resources

- Changing climate results in intensifying very heavy or no rainfall episodes.
- Identifying such hotspots, developing innovative harvesting systems for managing floods or waterlogging at a panchayat scale, and later using this water for irrigation in water-deficit periods should be given priority.

Genetic technology deployment

- Enhanced trait-based breeding, using precision phenotyping and molecular approaches, including genome editing, is increasingly being used to realise the full potential of genetics in different crops.
 - Strategies are needed to deploy these for managing biological and climate stresses.

Digital agriculture and early-warning systems (EWS)

- There has been great progress in modelling, remote sensing, and machine learning worldwide, including in India.
- Coupling these tools with digital agricultural technologies can provide farmers and other stakeholders with value-added actionable knowledge to manage climate risks.
 - These tools also need to develop state-of-the-art EWS for weather, food insecurity hotspot mapping at a granular scale, early identification of global trade opportunities, and tracing the movement of transboundary pests and diseases.

Efficient and inclusive insurance solutions

- The importance of insurance in managing climate risks will only grow due to the continued unpredictability of hazards.
- Integrating satellite data, crop modelling, machine learning, and risk profiles of panchayats can greatly increase the efficiency and efficacy of insurance schemes.
 - These technologies can also support universal insurance coverage for all farmers, providing them with a much-needed safety net.

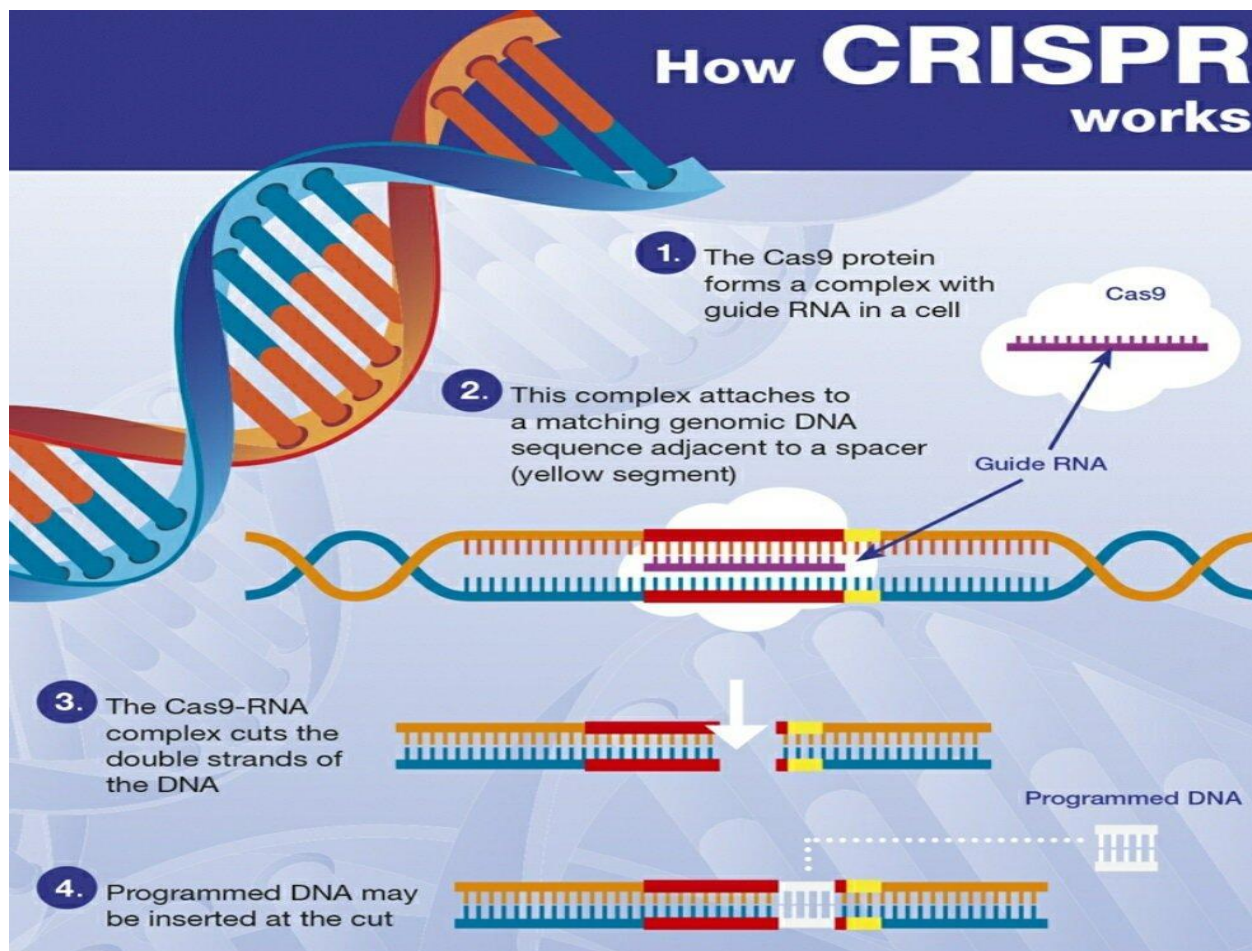
Managing business risks

- Both food demand and supply are dynamically linked to climate risks.
- Innovative partnerships for agriculture produce aggregation, warehousing, distribution, and marketing models can help.
- Several banks and money-lending agencies are investing in understanding the climate risk profile to reduce their risk exposure.
- While this secures banks, poor farmers face pressure while purchasing agricultural inputs and could potentially fall into a poverty trap.
 - Social safety needs to be streamlined to support such farmers.

Energy transition is much talked about in the sustainability space, as it is backed by large corporations and often at the core of government plans worldwide. However, we must recognise that while agriculture is often classified with the social sector, its sustainability transition helps with the country's climate goals and drives socio-economic growth as well. With governments largely driving the reform of the agricultural sector across countries, we look forward to more action in making this segment climate-proof.

CRISPR Technology

- CRISPR stands for Clustered Regularly Interspaced Short Palindromic Repeats.
- CRISPR-Cas9 is the most prominent technology that enables to edit parts of the genome by removing, adding or altering sections of the DNA sequence.
- Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is a gene editing technology, which replicates natural defence mechanism in bacteria to fight virus attacks, using a special protein called Cas9.
- It usually involves the introduction of a new gene, or suppression of an existing gene, through a process described as genetic engineering. CRISPR technology does not involve the introduction of any new gene from the outside.
- The CRISPR-Cas9 system consists of two key molecules that introduce a change mutation into the DNA.
 1. Cas9- An enzyme that acts as a pair of 'molecular scissors' that can cut the two strands of DNA at a specific location in the genome.
 2. Guide RNA (gRNA)- The gRNA is designed to find and bind to a specific sequence in the DNA.



- The Cas9 follows the guide RNA to the same location in the DNA sequence and makes a cut across both strands of the DNA.
- At this stage, the cell recognises that the DNA is damaged and tries to repair it.
- The DNA repair machinery is used to introduce changes to one or more genes in the genome of a cell of interest.
- The technology replicates a natural defence mechanism in some bacteria that uses a similar method to protect itself from virus attacks.

- Advanced research has allowed scientists to develop the highly effective clustered regularly interspaced palindromic repeat (CRISPR) -associated proteins based systems.
 - This system allows for targeted intervention at the genome sequence.
 - This tool has opened up various possibilities in plant breeding. Using this tool, agricultural scientists can now edit the genome to insert specific traits in the gene sequence.
- Depending on the nature of the edit that is carried out, the process is divided into three categories — SDN 1, SDN 2 and SDN 3.
 - SDN1 introduces changes in the host genome's DNA through small insertions/deletions without introduction of foreign genetic material.
 - In the case of SDN 2, the edit involves using a small DNA template to generate specific changes.
 - Both these processes do not involve alien genetic material and the end result is indistinguishable from conventionally bred crop varieties.
 - The SDN3 process involves larger DNA elements or full length genes of foreign origin which makes it similar to genetically modified organisms (GMO) development.

Merits

- Faster and Cheaper- It is faster and cheaper than previous techniques of editing DNA.
- High accuracy- Genetic engineering has made the work more accurate by allowing scientists to have greater control on trait development.
- Viable compared to GMO- CRISPR technology proves viable against the criticisms of Genetically Modified Organisms (GMO).

How is gene editing different from GMO development?

- Genetically modified organisms (GMO) involve modification of the genetic material of the host by introduction of a foreign genetic material.
- In the case of agriculture, soil bacteria is the best mining source for such genes which are then inserted into the host genome using genetic engineering.
 - For example, in case of cotton, introduction of genes cry1Ac and cry2Ab mined from the soil bacterium *Bacillus Thuringiensis* (BT) allow the native cotton plant to generate endotoxins to fight pink bollworm naturally.
 - BT Cotton uses this advantage to help farmers naturally fight pink bollworm which is the most common pest for cotton farmers.
- The basic difference between genome editing and genetic engineering is that while the former does not involve the introduction of foreign genetic material, the latter does.
- In the case of agriculture, both the techniques aim to generate variants which are better yielding and more resistant to biotic and abiotic stress.
- Before the advent of genetic engineering, such variety improvement was done through selective breeding which involved carefully crossing plants with specific traits to produce the desired trait in the offspring.
- Genetic engineering has not only made this work more accurate but has also allowed scientists to have greater control on trait development.

Applications

- Animal models: CRISPR-Cas9 can be used to create animal models to mimic human diseases and to understand disease development by mutating or silencing genes.
- Genome editing in specific tissues: Researchers have been able to modify the genomes of specific tissues such as liver and brain tissues using hydrodynamic injection and adeno-associated virus (AAV).
- Multiple gene mutations: CRISPR-Cas9 can be used to generate mutants for target genes.
- Treatment of diseases: CRISPR-Cas9 can be applied to cells in vivo or ex vivo. In the in vivo approach, CRISPR-Cas9 is directly transferred to cells in the body using either viral or nonviral methods. In the ex vivo approach, first the cells are removed from the body; then CRISPR is applied to the cells and they are transferred back to the body.
- Health - CRISPR-Cas9 can act as a tool for treating a range of medical conditions that have a genetic component, including cancer, hepatitis B or even high cholesterol. It was shown in mice that it is possible to shut down HIV-1 replication and even eliminate the virus from infected cells. In sickle cell anaemia, a single gene mutation makes the blood sickle-shaped, which can be reversed using gene editing technology. Some scientists are working to create

sterile mosquitoes to prevent the vector based transmission of diseases like Malaria.

- Industrial uses: CRISPR was first used for commercial purposes to make bacterial cultures used in cheese and yoghurt production resistant to viral infections.
- RNA editing: Single-stranded RNA (ssRNA) sequences can also be edited by CRISPR-Cas9.
- Military applications: These studies are commonly focused on increasing the tolerance of soldiers against biological or chemical warfare. This technology has the potential to influence human performance optimization.
- Agriculture- CRISPR/Cas9 technology has been used to optimize the shape and size of the crops according to consumer preferences. CRISPR genome-editing technology opens new opportunities to engineer disease resistance traits. Japan has already approved the commercial cultivation of a tomato variety that has been improved using CRISPR-based intervention.

Nobel Prize for Chemistry 2020

Emmanuelle Charpentier of France and Jennifer A Doudna of the USA have been awarded the 2020 Nobel Prize in Chemistry for developing CRISPR/Cas9 genetic scissors, one of gene technology's sharpest tools.

§ It is for the first time a Nobel science prize has gone to a women-only team.

§ The CRISPR/Cas9 genetic scissors can be used to change the deoxyribonucleic acid (DNA) of animals, plants and microorganisms with extremely high precision.

o The CRISPR/Cas9 tool has already contributed to significant gains in crop resilience, altering their genetic code to better withstand drought and pests.

o This technology has had a revolutionary impact on the life sciences and contributes to new cancer therapies. It has the potential of curing inherited diseases.

o Charpentier, while studying the *Streptococcus pyogenes*, a harmful bacterium, discovered a previously unknown molecule, tracrRNA.

o TracrRNA was part of bacteria's ancient immune system, CRISPR/Cas, that disarmed viruses by cleaving (cutting) their DNA.

§ TracrRNA is programmed to locate the particular problematic sequence on the DNA strand, and a special protein called Cas9 (also known as genetic scissor) is used to break and remove the problematic sequence.

o Both scientists collaborated and succeeded in recreating the bacteria's genetic scissors in a test tube and simplifying the scissors' molecular components making it easier to use.

o In their natural form, the scissors recognise DNA from viruses but the duo reprogrammed them so that they could be controlled and can cut any DNA molecule at a predetermined site.

Concerns with CRISPR technology

- Ethical concerns- In 2018, a Chinese researcher's disclosure of creating a 'designer baby' has caused widespread concern in the scientific community.
- Biological concerns- Though the technology is not 100% precise and has the risk of causing mutations, side effects and undesirable changes like antibiotic resistance.
- Genetic drive - Once the manipulated genes get transferred on to next generations, they become part of the environment.
- Gene gap- CRISPR can be very expensive and get limited to those who can afford it.

India in the field of gene editing and CRISPR

- India is at its infancy when it comes to genome editing.
- Research in gene editing is not so abundant but it is growing steadily.
- Although the funding for biology has been steadily growing, a lot of investment is needed in infrastructure.
- India's draft gene-editing rules allows genome-edited organisms without any "foreign" genes to be subjected to a different regulatory process than the one applied to genetically engineered products.

Genetic Engineering Appraisal Committee (GEAC), Ministry of Environment, Forest and Climate Change is the final technical body that certifies a Genetically Modified product as safe for commercial release.

The technology is not 100% precise and could induce few errors which may be passed to future generations. A specific solution needs to be devised for every disease or disorder that is to be corrected. Ethical dilemmas and potential for misuse of the technology must be considered around its development.

Will the national champions model of infrastructure development work?

- Infrastructure in emerging economies has taken on aspects of a magic bullet. It simultaneously works as a national aspiration good, a barometer of national progress, a mechanism for job creation, a vehicle for crowding in private investment, and more.
- Although infrastructure is a sign of development, it is also a burden on emerging economies like India as it has become an essential requirement, which is a significant responsibility.

Constraints on infrastructure development

The two biggest constraints on infrastructure provision are:

- One, it needs to be built to a minimum scale, which makes it expensive.
- Two, it often has a public good component which makes the social value of infrastructure higher than its private value to individual users.
 - Hence, private investors tend to find such investments relatively unprofitable.
- The traditional approach to financing infrastructure has thus relied on tax revenues or government borrowing.
 - But this introduces a vicious trap: Poorer economies generate less tax revenue, which limits infrastructure investment.
 - This reduces returns to private investment with further spinoffs that affect the growth of the economy and keep the country poor.
- Attempting to break the cycle by increasing public borrowing domestically tends to crowd out private investment.
 - Crowd out private investment is a situation when increased interest rates lead to a reduction in private investment spending such that it dampens the initial increase of total investment spending.

PPP model

- One possibility is to incentivise private sector participation by providing targeted subsidies for infrastructure investments.
- India tried this in the early 2000s by introducing the Public-Private-Partnership (PPP) model.
 - It entailed the government facilitating acquisitions of land and primary commodities, as well as access to credit from public sector banks for infrastructure projects.
 - Armed with these implicit and explicit subsidies, the private sector got to construct and run the projects for a designated period of time.
 - Constrain: While a lot of infrastructure did get built under the programme, the PPP model ended in an avalanche of non-performing assets with public sector banks, private sector bankruptcies, accusations of widespread corruption.

National champion model

- The government further modified the PPP approach by assigning the bulk of the infrastructure provisioning for roads, ports, airports, energy, and communications to a few chosen industrial houses.
- This is the “national champions” model where the government picks a few large conglomerates to implement its development priorities.
 - To incentivise national champions to build the projects identified by the government, they still need to provide a subsidy to cover the costs.

There are three new aspects to the national champion's model:

- First, infrastructure projects take a long time before they start generating returns which also tend to be low.
 - To incentivise investment in such projects, these champions need to be given control over existing projects with strong cash flows.
 - This helps the conglomerates to achieve their targeted aggregate returns while keeping negative cash flow projects on their books.
- Second, the public association of the champions with the government's national development policy generates a competitive advantage for the champions in getting domestic and foreign contracts.
 - This too guarantees some stable cash flow.
- Third, access to some cash-rich projects allows these national champions to borrow from external credit markets by using these entities as collateral.
 - This lowers the cost of finance of the other projects while also freeing up domestic savings for private investment. This is clever and innovative.

Problems in national champion model:

- First, the direct association of these conglomerates with government policies creates the potential for markets and regulators to treat them as too big to fail.
 - This opens the door to market hysteria, delayed discovery of problems, and spillovers of sectoral problems into systemic shocks.
 - This has been brought into sharp relief by the recent troubles of the Adani companies.
- Second, the market concentration it encourages can often be bad for efficiency and productivity at the economy-wide level.
- Third, the longer it takes for projects to generate large cash flows, the greater will be the need for the state to provide the champions with access to additional cash flows.
 - That risks turning the country into an industrial oligarchy.
- Fourth, the optics of an uneven playing field in terms of market access and selective regulatory forbearance can become a significant deterrent for foreign investors, an outcome that India can ill afford.

- Fifth, it is believed that infrastructure provision is the solution to India's growth aspirations.
 - From the experience of the infrastructure investment boom of the early 2000s, this assumption is problematic.
 - The problem in the power sector was not generation but rather the inability of the power distribution companies to recover payments.

India is at an inflection point in its development path. It has bet on a development model based on a domestic demand-driven production structure, powered by soft and hard infrastructure that is heavily concentrated in a few hands. If it works it will be touted as the next-generation Asian model. Else, it will provide a salutary tale of caution for many generations.

The Upswing of Para Diplomacy in India

- Para diplomacy refers to the use of sub-national actors and organizations to further the interests of a state in the international arena. It is a concept that has gained prominence in recent years as countries look for alternative ways to pursue their foreign policy goals. In this blog, we will examine the significance of para-diplomacy in Indian foreign policy, the background of Indian foreign policy, the importance of para-diplomacy, its implementation in practice, and the criticisms and challenges it faces.
- The foreign policy of India has evolved significantly since its independence in 1947. India's early foreign policy focused on non-alignment, a strategy that avoided formal alliances with either the Western or Eastern blocs during the Cold War. Over time, India has shifted towards a more pragmatic foreign policy, pursuing closer economic and security ties with the United States and other major powers.
- The Ministry of External Affairs (MEA) is the primary institution responsible for formulating and implementing India's foreign policy. It is responsible for managing India's diplomatic relations with other countries and international organizations. The MEA is supported by a network of Indian missions and consulates abroad, which are responsible for promoting India's interests and strengthening its ties with other countries.

Para diplomacy and its Importance

- Para diplomacy can play an essential role in complementing the efforts of traditional diplomacy by leveraging the resources and expertise of sub-national actors. This can include NGOs, religious leaders, cultural organizations, and the Indian diaspora. These actors can be instrumental in promoting India's interests and values and can also help to build bridges with other countries and cultures.
- One of the critical advantages of para-diplomacy is that it can broaden the reach and impact of a state's foreign policy. By working with a range of sub-national actors, a state can engage with a broader range of audiences and stakeholders beyond the traditional diplomatic corps. This can help to build greater understanding and support for a state's foreign policy goals.
- Another advantage of para diplomacy is that it can help to create new and innovative ways of pursuing foreign policy goals. For example, Indian NGOs can play a crucial role in promoting development cooperation, human rights, and environmental sustainability. They can also serve as necessary intermediaries between the Indian government and other countries and international organizations.
- The role of the Indian diaspora in para-diplomacy is also significant. The Indian diaspora is a global community of people of Indian origin who are spread across the world. They can play an essential role in promoting India's interests and

values and can help to build bridges between India and other countries. For example, the Indian diaspora can help boost trade and investment between India and the countries where they reside and help build cultural ties and understanding.

Para diplomacy in Practice

- In recent years, para diplomacy has gained prominence as a new way for countries to pursue their foreign policy objectives. With its large and influential diaspora community, India has been at the forefront of exploring the potential of para diplomacy.

Examples of Para diplomacy in Indian Foreign Policy

- The use of para-diplomacy in Indian foreign policy can be traced back to the early 1990s when India started using its diaspora community as a tool to enhance its economic and political influence abroad. India's diaspora community has been instrumental in promoting the country's interests in various regions of the world, including the Middle East, Africa, and the United States. For instance, the Indian diaspora in the United States has played a crucial role in advocating for Indian interests in the US Congress and in various other forums.

The Role of the Indian Diaspora in Para diplomacy

- The Indian diaspora is one of the world's largest and most influential diaspora communities, with millions of Indians living and working in various countries across the globe. The Indian diaspora has been an essential component of India's foreign policy. The Indian government has been actively engaging with the diaspora through various initiatives such as the Pravasi Bharatiya Divas, which is a biannual event that brings together members of the Indian diaspora from around the world.
- The Indian diaspora has been instrumental in promoting India's economic interests abroad. Indian diaspora communities have established businesses and invested in various sectors, including technology, healthcare, and finance, which have helped to enhance India's economic presence in these countries. The Indian diaspora has also promoted cultural exchange and highlighted India's cultural and historical heritage.

The Role of the Indian Military in Para diplomacy

- The Indian military has actively promoted India's foreign policy objectives, particularly in the Indian Ocean region. The Indian army has been involved in various peacekeeping missions, disaster relief operations, and other humanitarian efforts, which have helped to enhance India's reputation and influence in the region. The Indian military has also been involved in various capacity-building initiatives, such as training programs for military personnel

from other countries, which have helped to build trust and enhance India's reputation as a responsible global power.

Criticisms and Challenges

- Despite its potential benefits, para diplomacy in Indian foreign policy has faced criticism and challenges. One of the limitations of para-diplomacy is that it operates outside the formal structure of international relations and can often lead to inconsistencies in foreign policy. For example, while Indian corporations may be promoting Indian economic interests, their actions may not align with the government's foreign policy objectives. Additionally, para diplomacy can lead to a lack of accountability and transparency, as non-state actors may be subject to different regulations than state actors.
- Another criticism of para-diplomacy is that it can undermine the role of the state in shaping international relations. Critics argue that the increased influence of non-state actors in shaping foreign policy can dilute the state's authority. For example, corporations may prioritize their own interests over the national interest, leading to conflicting objectives between the state and non-state actors.
- Para diplomacy in Indian foreign policy faces numerous challenges in its implementation. One of the main challenges is the need for coordination between the state and non-state actors. This lack of coordination can lead to inconsistencies in foreign policy and undermine the effectiveness of para-diplomacy. Additionally, para diplomacy is often limited by the need for more resources and infrastructure, making it difficult for non-state actors to engage in foreign policy.

Summing up

In conclusion, para-diplomacy has become essential for Indian foreign policy in recent years. While it has the potential to further various objectives such as economic cooperation, cultural exchange, and people-to-people engagement, it also faces criticism and challenges in its implementation. Despite these challenges, para-diplomacy is likely to play an increasingly important role in Indian foreign policy in the future. The future of para-diplomacy in Indian foreign policy will depend on the ability of the state and non-state actors to work together effectively and overcome the challenges posed by the implementation of para-diplomacy. By addressing these challenges, India can leverage the potential of para-diplomacy to achieve its foreign policy objectives and promote its interests in the international arena.

Gaps that need to be filled in PLI Schemes

- The government has been attempting to spruce up the manufacturing sector for a long time.
- Production Linked Incentives (PLI) scheme is one such initiative under the flagship Atmanirbhar Bharat Abhiyaan.
- However, the real picture is different than expected. There are several problems in this scheme that raises serious concerns about its ability to deliver the results.

Production Linked Incentive (PLI) scheme Production Linked Incentive or PLI scheme is a scheme that aims to give companies incentives on incremental sales from products manufactured in domestic units. The scheme invites foreign companies to set up units in India, however, it also aims to encourage local companies to set up or expand existing manufacturing units and also to generate more employment and cut down the country's reliance on imports from other countries. It was launched in April 2020, for the Large Scale Electronics Manufacturing sector, but later towards the end of 2020 was introduced for 10 other sectors. This scheme was introduced in line with India's Atmanirbhar Bharat campaign.

Flaws in the design of the Production Linked Incentives (PLI) scheme

1. No criteria for incentives

- An Empowered Committee has been constituted by the government for overseeing the scheme's implementation. It is additionally responsible for fund disbursement under each sector.
- How these funds are to be awarded remains ambiguous.
- There are no set criteria or common parameters for consideration by the ministries and departments for giving these incentives.
- The lack of a centralized database that captures information like an increase in production or exports, the number of new jobs created, etc. makes the evaluation process harder.
- It impacts transparency and can lead to malfeasance, further widening the fault lines and weakening the policy structure.

2. Predisposed to larger firms

- Fund disbursement in some of the PLI sectors alludes to a bias towards bigger players.
- Beneficiary sectors under the scheme such as automobiles, electronics, and technical textiles are largely constituted by big firms.
- Indian industrial structure is largely composed of Micro, Small & Medium Enterprises (MSMEs). These MSMEs not just contribute to a bulk of the manufacturing output and exports but generate much of the employment in the manufacturing sector.

- However, the next phase of the PLI scheme will incorporate labor-intensive sectors such as toys, furniture, leather, and bicycle manufacturing in its fold.
- Such unqualified expansion of this list may potentially risk the creation of a subsidies-dependent manufacturing industry.

3. Efficacy of production subsidies

- The efficacy of production subsidies depends on a combination of factors like a steady stock of raw materials available at competitive prices, the size of the domestic market, and the relationship between upstream and downstream manufacturers, among others.

Examples:

Container manufacturing industry:

- PLI's extension to the container manufacturing industry is unmindful of an understanding of the prevailing dynamics in India and that of the global container manufacturing business.
 - Around 80 percent of the total cost of production of these containers is composed of a single raw material called Corten steel, the price of which is ₹120-130 per kg in India, as compared to ₹80-90 in China.
- India has limited capacity to manufacture A-grade Corten steel. Domestic manufacturers source it from China, Japan, and South Korea. So, the high cost of primary input makes the sector uncompetitive, limiting its ability to compete in the global market.

Shipping industry

- The demand in the sector is driven by the global shipping industry controlled by a few developed countries and China, which creates significant barriers.
- Since the domestic market for containers is driven only by a handful of shipping companies involved in port-to-port shipment mostly in the neighborhood, it is quite small to support large-scale production with an assured demand.

4. The same treatment in all sectors

- The scheme treats manufacturing with a broad brush as if all sectors are at the same stage of development and technological advancement, and, have the same requirements.

Example

Pharmaceuticals

- A technology-intensive sector such as pharmaceuticals requires more resources for Research and Development (R&D), and, innovation infrastructure to sustain manufacturing at the optimum level.

Textile

- The needs and nature of incentives required for a sector like textile are different. The PLI for textiles rightly underpins the importance of boosting the production of man-made fibers (MMF) and technical textiles.

- However, cover fabric which remains a highly imported category in the country.
- It further excludes from its scope synthetic fabrics such as viscose, polyester, and nylon, which are major inputs for apparel.

The PLI scheme is a classic case of 'good intentions but bad approach'. The structural problems within the policy design and economic system need to first be addressed. Understanding the need of every sector is key. Only then will India fulfill its dream of becoming a global manufacturing hub.

MISHTI for Mangroves

- India is displaying its commitment to the conservation and restoration of natural ecosystems and has firm commitments to the conservation and management of mangroves.
- Even when the rate of mangrove decline is 1% per year globally, India has recorded a net increase of 946 sq km between 2017 and 2021.
- In this context, MISHTI is a significant step in providing nature-based solutions for mitigating the effects of cyclones and storm surges and fight against the climate crisis.

International Day of Forests (IDF):

- It was started in the year 2012 by The United Nations General Assembly.
- It celebrates and raises awareness of the importance of all types of forests.
- Theme for 2023 IFD: "Forests and Health".

Mangroves:

- A mangrove is a shrub or a small tree that grows along the coastlines and has roots in salty sediments, often underwater.
 - They also grow in swamps.
- They are highly productive but extremely sensitive and fragile.

Global data on mangroves:





- Mangrove forests represent 0.4% of the global forest area.
- Mangroves are in 123 countries, covering an area of about 150,000 sq km. Approximately one-third is in Southeast Asia.

Importance of Mangrove Ecosystems:

- Carbon sink: Mangroves are great carbon sinks. All global mangroves can sequester up to 21 million tonnes of carbon per year, about 10 times greater than equivalent upland tropical forests.
 - Mangrove ecosystems contribute 10 to 15% to coastal sediment carbon storage and export around 10% of particulate terrestrial carbon to the ocean.
- Mangrove Ecosystems also serve as a nursery for several organisms.
- They act as a bulwark against coastal erosion, sequestering carbon and providing livelihoods to millions of people, besides harboring an array of faunal elements in their habitat.
- They also protect groundwater aquifers from seawater intrusion, ensuring water security for the coastal population.
- They provide numerous goods and services to the marine environment and communities.

- A global fish catches of up to 80% depends on mangroves, ensuring food security for coastal people.

WHY ARE MANGROVES IMPORTANT?

<ul style="list-style-type: none">➤ Act as buffer zones between the land and sea➤ Protect the land from erosion➤ Provide a natural shield against cyclones and disasters. Protect the shorelines 	 <ul style="list-style-type: none">➤ Provide breeding and nursery grounds for a variety of marine animals➤ Harbour a variety of lifeforms like fish, amphibians, birds and others➤ A good source of timber, fuel and fodder➤ Save the marine diversity which is fast diminishing  
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Mangroves exploitation

- The scale of human impact on mangroves has increased over the past three decades, and many countries have lost 60% to 80% of the mangrove cover that existed in the 1960s.
- Mangroves have been susceptible to exploitation because of valuable forest produce, fishery resources, and their existence in coastal areas, which are converted to other land uses.

Mangroves ecosystem in India

- India has restored different types of mangrove ecosystems on the east and west coasts and learned some valuable lessons.
- The wide range of coastal habitats, along with the riverine and estuarine ecosystem, provides an ideal system for mangroves in India in terms of density and cover.

- Indian mangroves have high species diversity, with around 50 true mangrove species and more than 60 mangrove-associated plant species.
- It is spread across nearly 50,000 sq km in India. It can remove nine tonnes of CO₂ daily, equivalent to about \$270 million in the international market.

Faunal diversity of the mangrove ecosystem

- The faunal diversity of the mangrove ecosystem contributes to about 5% of Indian fauna.
- West Bengal leads the list of faunal components with around 2,500 species, followed by Andaman and Nicobar Islands with about 1,200 species and Tamil Nadu with a little over 1,000.
 - Example: The Sundarban Tiger Reserve harbors more than 100 tigers and associated carnivores and herbivores. Recognizing the importance of such tiger habitat in the mangrove forest, the Sundarban National Park has been declared a world heritage site.
- India has about 3% of the total Mangrove cover in South Asia.
- Mangrove cover in the country has increased by 54 sq km (1.10%) as compared to the previous assessment.
- West Bengal (WB) has 42.45% of India's mangrove cover, South 24 Parganas district of West Bengal alone accounts for 41.85% mangrove cover of the country.
 - WB is followed by Gujarat at 23.66% and Andaman & Nicobar Islands at 12.39%.
- Gujarat shows a maximum increase of 37 sq km in mangrove cover.

MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes)

- MISHTI is an initiative for intensive afforestation of coastal mangrove forests.
- It will function under the Ministry of Environment, Forest, and Climate Change.
- Under this initiative, mangrove plantations will be taken up along the country's coastline apart from salt pans, wherever feasible.
- Implemented through convergence between the MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme), CAMPA (Compensatory Afforestation Fund Management and Planning Authority) Fund, and other sources.
- This initiative requires extensive work with local communities.

Mangrove Alliance for Climate (MAC):

- Aim: To scale up and accelerate the conservation and restoration of mangrove ecosystems.
- Launched at: COP27 Summit in Egypt
- The initiative is led by the UAE and Indonesia.
- Five other countries, India, Sri Lanka, Australia, Japan, and Spain, have joined the alliance.
- Objectives: To raise awareness about the role of mangroves as a nature-based climate change solution, and work towards expanding and rehabilitating mangrove forests globally.
- MAC will follow a voluntary approach.
- The members can determine their commitments toward planting and restoring mangrove ecosystems.

Mangroves are the economic foundations of many tropical coastal regions. To sustain a blue economy, it is important to preserve the sustainability of coastal habitats. The world has much to gain from India's experience in mangrove conservation which has shown expertise in the area for nearly five decades.

Right to health is a basic right of every person.

- Health is “Everyone has the right to a standard of living adequate for the health and wellbeing of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control and motherhood and childhood are entitled to special care and assistance.” Throughout the world health care has now been a matter of great concern. The United Nations has adopted various resolutions to safeguard the interest of patients. The World Health Organisation has also played a pivotal role in guiding health policy development and ensuring and attaining the highest standards of health care to all the people around the globe.
- Right to health is an age-old phenomenon. It may be traced back in the common law principles under the ‘Law of Torts’. Right to health care and protection has also been recognized in India since early times. As a founder member of the United Nations, it has ratified various International Conventions promising to secure health care rights of individuals in society.
- The right to health is an essential component of human dignity, and it is the responsibility of governments to ensure that this right is protected and promoted for all individuals, regardless of their gender, race, ethnicity, religion, or socioeconomic status.
- So far as the Indian Constitution is concerned, nowhere the term ‘health’ or ‘right to health’ has been defined in it. Through Judicial interpretations it has been observed that ‘right to life’ also includes ‘right to health’ and thus it is a fundamental right.
- Part IV of the Constitution under the Directive Principles of State Policy (DPSP) ensures social and economic justice to its citizens. Therefore, Part IV of the Constitution directly or indirectly relates to public policy in terms of health.

Related Provisions in India

- International Conventions: India is a signatory of the Article 25 of the Universal Declaration of Human Rights (1948) by the United Nations that grants the right to a standard of living adequate for the health and well-being to humans including food, clothing, housing and medical care and necessary social services.
- Fundamental Rights: Article 21 of the Constitution of India guarantees a fundamental right to life & personal liberty. The right to health is inherent to a life with dignity.
- DPSP: Articles 38, 39, 42, 43, & 47 put the obligation on the state in order to ensure the effective realization of the right to health.
- Judicial Pronouncements: Supreme Court in Paschim Banga Khet Mazdoor Samity case (1996) held that in a welfare state, the primary duty of the

government is to secure the welfare of the people and moreover it is the obligation of the government to provide adequate medical facilities for its people.

- Also, in its landmark judgment in *Parmanand Katara Vs Union of India (1989)*, Supreme Court had ruled that every doctor whether at a government hospital or otherwise has the professional obligation to extend his services with due expertise for protecting life.

Significance

- **Right Based Healthcare Services:** The people are entitled to the right to health, and it creates a compulsion for the government to take steps toward this.
- **Wide Access to Health Services:** Enables everyone to access the services and ensures that the quality of those services is good enough to improve the health of the people who receive them.
- **Reduce Out of Pocket Expenditure:** Protects people from the financial consequences of paying for health services out of their own pockets and reduces the risk of people getting pushed into poverty.

Challenges Related to Right to Health in India

- **Inadequate Healthcare Infrastructure:**
 - Despite recent improvements, India's healthcare infrastructure remains inadequate, particularly in rural areas.
 - India has 1.4 beds per 1,000 people, 1 doctor per 1,445 people, and 1.7 nurses per 1,000 people. Over 75% of the healthcare infrastructure is concentrated in metro cities, where only 27% of the total population resides—the rest 73% of the Indian population lack even basic medical facilities.
- **High Disease Burden:**
 - India has a high burden of communicable and non-communicable diseases, including tuberculosis, HIV/AIDS, malaria, and
 - Addressing these diseases requires significant investment in healthcare infrastructure and resources.
 - According to a report by Frontiers in Public Health, more than 33% of the individuals are still suffering from infectious diseases out of the total ailing population in India.
 - The per capita out-of-pocket (OOP) expenditure on infectious diseases is INR 7.28 and INR 29.38 in inpatient and outpatient care,
 - **Gender Disparities:**
 - Women in India face significant health disparities, including limited access to healthcare, higher rates of maternal mortality, and gender-based violence.

- According to the World Economic Forum 2021, India consistently ranks among the five worst countries in the world for the health and survival of females.
- Women from poor households account for over 2,25,000 lesser hospital visits than men between 2017 and 2019 for nephrology, cardiology, and oncology services alone,
- Limited Health Financing:
 - India's health financing system is limited, with low levels of public spending on healthcare. This limits the government's ability to invest in healthcare infrastructure and resources, and it can lead to inadequate healthcare services for individuals.
 - Government of India spent 2.1% of GDP on healthcare in FY23. This is much lower than the average health spending share of the GDP — at around 5.2% — of the Lower- and Middle-Income Countries (LMIC).

Looking ahead

- India needs to significantly increase its investment in healthcare infrastructure and resources, including medical facilities, equipment, and healthcare professionals. This can be achieved through increased public spending on healthcare and increased private sector investment.
- To improve access to healthcare, India needs to address the barriers that prevent individuals from accessing healthcare services, including financial constraints, transportation, and discrimination.
- This can be achieved through targeted policies and programs, such as health insurance schemes and mobile healthcare units.
- There is a need to create a designated and autonomous agency to perform the functions of disease surveillance, information gathering on the health impact of policies of key non-health departments, maintenance of national health statistics, enforcement of public health regulations, and dissemination of information to the public.

Modernising insurance fraud detection tools

- The insurance sector has undergone unprecedented changes in response to the pandemic, necessitating rapid operational adjustments to minimise business disruptions. Insurers responded quickly to this crisis by increasing the digitalisation of sales, customer service, and claims management and enabling their staff to operate in a hybrid working model.
- India is on its way to become the sixth largest insurance market in the world, over the next decade with the insurance premiums growing at an average of 14% per annum in nominal local currency terms. However, the Insurance Sector is facing several challenges which need to be addressed.

Current Status of Insurance Sector in India

- According to the Economic Survey 2022-23, India's insurance market is poised to emerge as one of the fastest-growing markets globally in the coming decade.
- As per the insurance regulatory body, IRDAI, insurance penetration in India increased from 3.76% in 2019-20 to 4.20% in 2020-21, registering a growth of 11.70%.
 - Also, the insurance density increased from USD 78 in 2020-21 to USD 91 in 2021-22.
- The life insurance penetration in 2021 was 3.2%, almost twice more than the emerging markets and slightly above the global average.

Challenges with the Insurance Sector in India

- **Low Penetration:**
 - The insurance penetration rate in India is low as compared to other countries. This is due to low awareness and a lack of trust among people towards insurance.
 - Around 65% of India's population, amounting to over 90 crores, inhabits rural parts of the country. However, only 8%-10% of rural India has life insurance coverage.
 - According to the Insurance Regulatory and Development Authority of India (IRDAI), the penetration of the Indian insurance industry is less than 5% of the GDP. In terms of penetration, India is far behind the global average of 7% of the GDP.
 - **Lack of Product Innovation:**
 - The insurance sector in India has been slow in product innovation. Many insurance companies offer similar products, which leads to a lack of differentiation in the market.
 - **Fraud:**

- Fraud is a major challenge in the insurance sector in India. Insurance fraud includes false claims, misrepresentations, and other illegal activities.
- Fraud can often be facilitated by weaknesses in an organization's systems and controls, which can create opportunities for those intent on committing fraud.
- Moreover, digitisation and customer-centric policies may have inadvertently provided opportunities for fraudsters to commit identity theft, misrepresentation, and fraudulent claims.
 - More than 70% of Indian insurers indicated a marginal to a significant increase in frauds in the past two years.
- Talent Management:
 - The insurance sector in India faces a talent shortage. The industry needs skilled professionals in areas such as actuarial science, underwriting, claims, and risk management.
 - Attracting and retaining talented professionals is a challenge for the industry.
- Slow Rate of Digitalization by Incumbents:
 - The insurance sector in India has been slow to adopt digitalization compared to other industries, which has resulted in several challenges such as inefficient processes, lack of transparency, and poor customer experience.
- Lack of Automation:
 - Many insurance companies in India still rely on manual processes for tasks such as underwriting, policy servicing, and claims management, which can be time-consuming and error prone.
 - This can result in delays, higher costs, and dissatisfied customers.
- Claims Management:
 - The claims process in India is often seen as complicated, slow, and opaque, which can lead to customer dissatisfaction and loss of trust in the insurance industry.
 - This can be due to a lack of transparency, inefficient processes, and poor communication with customers.

Looking ahead

- Leveraging Technology:
 - Digitalization should be made a target to achieve across the value chain, with an order of priority - to reduce cost, improve efficiencies & support further ecosystem developments.

- Technology would need to be leveraged to create and maintain higher employee efficiency. Upskilling programs can be established that develops a mix of soft, technical and digital skills.
- **Aligning with Dynamic Changes in Customer Behaviour:**
 - Players would need to be aligned with dynamic changes in customer behaviour & preferences and manage perceptions by showcasing fiduciary responsibility, like offering quick personalized products that can be prioritized over mass-product offerings to give customers more flexibility.
- **Optimising Usage of Data & Analytics:**
 - There's an urgent need to optimise usage of Data & analytics across functions for maximum efficiency, especially in the case of underwriting & claims.
- **Simplifying Claims Management:**
 - The claims management process would need to be simplified for the insurer and insured. Strategic partnerships can be considered to manage scale and gain access to a further set of partners.
- **Adopting Hybrid Distribution Models:**
 - A new approach to distribution is necessary, one that integrates technology and prioritizes high-potential markets. To achieve this, hybrid distribution models that combine human expertise and technology can be employed, with a particular emphasis on serving rural markets.
- **Tackling Fraud:**
 - The key objectives of an effective, business driven Fraud Risk Management (FRM) approach should encompass controls that prevent the occurrence of fraud, detect fraud, and provide an effective response mechanism to limit the consequences.
 - An effective way to counter fraud is through effective data management.
 - The first step for insurers is to organise their data effectively by identifying the relevant data sources and integrating them on a common platform or a data lake wherein accurate, complete, and appropriate information is stored.

Developing Small Water Bodies

- Water is paramount for economic development and poverty reduction.
- Unfortunately, the small water bodies (tanks and others) which have been supporting India's agriculture and domestic requirement of water for many years in India are fast vanishing now.

Small Water Bodies in India

- From 46.30 lakh hectares (lha) in 1960-61, the area irrigated by tanks in India declined to 16.68 lha in 2019-20.
- About one million hectares of irrigation potential was lost due to encroachment and other reasons.
- Share of tank area in India's net irrigated area (NIA): Declined from 20 percent in 1960-61, to 2 percent in 2019-20.
 - Example: In States like Tamil Nadu, where tank irrigation accounted for one-third of irrigated area in the 1960s and 1970s, the area under tank irrigation declined from 9.36 lha to 3.72 lha during this period.
 - Even in years with good rainfall, the area irrigated by tanks has not increased in Tami Nadu.
- The farmers who were completely relying on tank irrigation for the cultivation of crops have left agriculture or kept the land fallow.
- Surface minor irrigation schemes: It has declined from 6,01,000 in 2006-07 to 5,92,000 in 2013-14.

Need for Small Water Bodies (SWBs)

- In the early to mid-2010s, 1.9 billion people, or 27 percent of the global population lived in severely water-scarce areas.
 - This number will increase to 2.7- 3.2 billion people by 2050.
- One out of three people will live in a water-stressed area by 2025. (The Water and Related Statistics 2021).
- These suggest that there is an urgent need to augment the water supply wherever possible to avert the looming water crisis.

Benefits of Small Water Bodies (SWBs)

- SWBs provide easy access to water for domestic needs, animal husbandry, drinking water, and agriculture.
- SWBs can be easily managed because of their small size.
- The maintenance cost of this water source is low compared to that of canal irrigation.
- The command area of most SWBs is normally small, irrigating 100-500 acres. This allows the distribution of water effectively, without any conflicts between tail-end and head-reach farmers, which is common in canal command areas.

- SWBs help reduce the poverty of resource-poor small and marginal farmers.
- The increased water storage from SWBs also helps increase groundwater recharge.
- SWBs are located in every village, so women do not have to walk far to fetch water for their drinking needs.

Key issues of Small Water Bodies (SWBs)

- SWBs are now rapidly declining in terms of numbers and area irrigated.
- Reasons are continuous encroachment on catchment areas and flow canals that carry rainwater to tanks, lack of annual maintenance of tanks by allocating adequate funds, etc.
- It has severely impacted SWBs, turning many of them into dumping grounds.
- Civic bodies remained silent when encroachments of water bodies happen.

Recommendations

1. Legislation against encroachment
 - Strong legislation should urgently be enacted to make encroachment on water bodies a cognizable offense.
 - Approval for the layout or building plan on lands located on SWBs should not be given. (Madras High Court).
2. Separate Ministry for Small Water Bodies
 - It should be created with adequate funding to conduct periodic repair and rehabilitation works.
3. Tank user's organization
 - Without the participation of farmers who are the main beneficiaries of SWBs, it is difficult to improve their performance.
 - Farmers must voluntarily come forward to set up a tank users' organization and undertake the repairing of SWBs, as followed earlier under the age-old Kudimaramathu system.
 - Kudimaramathu system: It is one of the old traditional practices of stakeholders participating in the maintenance and management of irrigation systems.
4. Corporate Social Responsibility
 - Corporates are increasingly using water; they should be asked to repair and renovate SWBs under the ambit of corporate social responsibility.

If swift actions are not taken to save SWBs, they will slowly disappear and the water woes will aggravate. Without Small Water Bodies even wells will not have water because the recharge system of the well will collapse.

Dealing with the digital gender divide in India

- India continues to push forward as a digitally powered and empowered nation at an astonishing pace.
- With India's position at the G20's helm and drive towards a trillion-dollar-plus digital economy, the country has its building blocks in place to be at the forefront of the next digital revolution.
- However, India also needs a comprehensive strategy to ensure that its economy gains from female participation.

India's digital divide data

- Only one in three women in India (33%) have ever used the internet, compared to more than half (57%) of men.
- Rural India faces an even more pronounced divide, with men twice as likely as women to have used the internet (49% vs 25%).
- India is home to the largest number of women anywhere in the world—an estimated 691 million.
- This represents 691 million opportunities for women to contribute, participate and innovate in this ever-expanding and dynamic digital ethos.

Gender barriers and suggestions in India's digital revolution

Lack of access:

- There is low accessibility in infrastructure, coverage, and smartphone penetration, and gender inequality further underpins the low access that women and girls have to digital devices and services.
- Suggestions:
 - Enabling smartphone and internet access through wider connectivity and penetration in rural areas.
 - Providing affordable solutions and educating households on the benefits of digital access.

Digital illiteracy:

- Inequality in functional literacy also represents the gender digital divide.
- Girls with lower levels of functional literacy often cannot make optimum use of smartphones.
- 59% of women in the age group 15-49 years across urban and rural India have not completed 10 or more years of schooling. (National Family Health Survey)
- Suggestion:
 - It needs a big push to fully participate in and learn from the digital world, stay safe online and develop critical and analytical skills.
 - Digital education would help to reduce the traditional development gender divide.

Cyber safety and security:

- Lower levels of digital literacy and skills than men, women, and individuals of other non-privileged genders may be more vulnerable to online harassment, cyberbullying, and cyberstalking.
 - It reduces or restricts the use of digital technologies by women and girls, further widening the digital divide.

Recommendation to improve digital gender equity

Designing digital solutions to advance gender equity

- The involvement of girls and women in co-creation will accelerate digital adoption and help reduce the digital gender divide and accessibility.

Digital literacy and capacity building:

- Giving early access to digital technology to young women and girls will make them learn and engage in it more productively.
- They absorb new knowledge and skills, reach out socially, and are generally more confident in their endeavors.
- Digital literacy is increasingly seen as essential for employability and has been linked to higher earning potential and new economic opportunities.

Responsible technology:

- Protecting user privacy and data must be a top priority to ensure that technology is not used to perpetuate harmful biases or discrimination against women and girls.
- Technology industry and the government need to collaborate to assure people's safety in cyberspace.

Government efforts to reduce the digital divide

Pradhan Mantri Gramin Digital Saksharta Abhiyan

- It aims to bridge the digital divide.
- It specifically targets our rural population, with 60 million households covered.

National Digital Library for children and adolescents

- It was proposed in the Union budget for 2023-24.
- It will play a pivotal role in narrowing the digital divide and ensuring equitable access to quality education and improvement in digital literacy levels.

Stay Safe Online campaign

- It was a campaign by the ministry of electronics and IT, conceptualized as part of India's G20 presidency.

- It is another example of the government prioritizing awareness creation of the internet, social media, and digital payment facilities for the benefit of citizens.

The stage for a transformative and gender-equal digital revolution has been set. Encouraging girls and women in the digital revolution would open a wide window of opportunities so that they can aspire to be well-informed, develop more comprehensive worldviews, and make the most of their potential for their benefit and society.

Compensatory Afforestation in India

Compensatory Afforestation

- Compensatory afforestation means that every time forest land is diverted for non-forest purposes such as mining or industry, the user agency pays for planting forests over an equal area of non-forest land, or when such land is not available, twice the area of degraded forest land.

Compensatory Afforestation Fund (CAF) Act, 2016

- Aim: The Act seeks to mitigate the impact of diversion of forest land for non-forest purposes by making sure through a well-defined institutional mechanism, that the funds are released and utilized quickly, efficiently and transparently.
 - The CAF Act was enacted to manage the funds collected for compensatory afforestation which till then was managed by ad hoc Compensatory Afforestation Fund Management and Planning Authority (CAMPA).
 - Adhoc CAMPA was established following the Supreme Court's Order (T.N. Godavarman Thirumulpad Vs Union of India case) in 2006 to manage the Compensatory Afforestation Fund (CAF).
- National and State Funds: The Act established a National Compensatory Afforestation Fund under the Public Account of India and State Compensatory Afforestation Fund under the Public Account of each state.
 - The payments made for compensatory afforestation, net present value and others related to the project will be deposited in the fund.
- Net Present Value: The Act acknowledged the fact that newly afforested land cannot be expected to immediately start delivering the range of goods and services like timber, bamboo, fuelwood, carbon sequestration, soil conservation, water recharge, and seed dispersal that the diverted forests were providing.
 - As a result, project developers are also asked to pay for the Net Present Value (NPV) of the forests being cleared based on a calculation decided by an expert committee.
- Distribution: The State Funds will receive 90% of the payments while National Fund will receive remaining 10%.
- Use of Funds: The funds can be used for the treatment of catchment areas, assisted natural generation, forest management, wildlife protection and management, relocation of villages from protected areas, managing human-wildlife conflicts, training and awareness generation, supply of wood saving devices, and allied activities.

Afforestation and Reforestation Programmes in India

- **National Mission for a Green India:** It is one of the eight Missions under the National Action Plan on Climate Change. It aims at protecting, restoring and enhancing India's forest cover and responding to Climate Change.
- **National Afforestation Programme (NAP) Scheme:** The objective of this scheme is ecological restoration of degraded forests and to develop the forest resources with peoples' participation, with focus on improvement in livelihoods of the forest-fringe communities, especially the poor.
- **Namami Gange Programme:** It is an Integrated Conservation Mission, approved as 'Flagship Programme' by the Union Government in June 2014 with budget outlay of Rs.20,000 Crore to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga.
- **National Forest Policy (NFP), 1988:** It encourages plantation of trees alongside roads, railway lines, rivers, streams, canals etc. under social forestry.

Concerns with Compensatory Afforestation

- **Greenwashing:** According to some experts, compensatory afforestation has legitimised clearing of forests, and see it as an example of 'greenwashing'.
 - Greenwashing is when a company purports to be environmentally conscious for marketing purposes but isn't making any notable sustainability efforts.
 - The contrary view is that since the clearing of forests for one or the other purpose cannot be entirely eliminated, compensatory afforestation is a good mechanism for attempting to make up for these losses to some extent.
- **Low Utilization of Funds:** The money collected for compensatory afforestation before 2016 has remained largely unutilized. Serious work on compensatory afforestation has begun only after the 2016 Act.
- **No Availability of Land:** Lack of availability of suitable land remains the biggest problem for compensatory afforestation.
 - The land that is made available for afforestation usually cannot be used for any other purpose and is often extremely unsuitable for growing plantations.
- **Monoculture Plantations:** Often the plantations are monocultures, meaning they contain only one species of plants. There is a lack of biodiversity. There is also biotic pressure, referring to the challenge the plantations face from nearby human habitations and cattle.
- **Reductive View of Forests:** According to some experts, the concept of compensatory afforestation works for the benefit of the biggest polluters of the planet.
 - Projects that consume good forests can engage states or private entities to undertake paid plantations in distant regions despite no compatibility in terms of the qualities of what is lost and what is to be recreated.

- Parliamentary Standing Committee on Science and Technology, Environment and Forests (PSC) Report: According to the report, CAF Act 2016 has no time frame for creating compensatory forests, and is highly bureaucratic in operations.

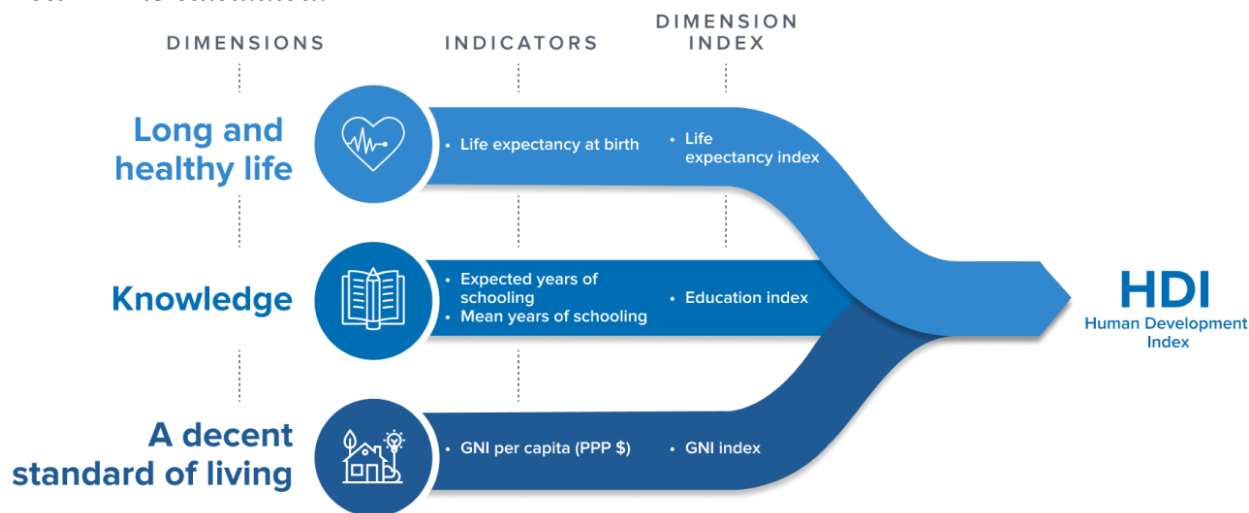
Disparities in Human Development Index (HDI)

- India is now one of the fastest-growing economies globally.
- However, this growth has not resulted in a corresponding increase in its Human Development Index (HDI).

Human Development Index (HDI)

- The HDI is a composite statistical measure created by the United Nations Development Programme.
- It aims to evaluate and compare the level of human development in different regions around the world.
- It was introduced in 1990 as an alternative to conventional economic measures such as Gross Domestic Product (GDP), which do not consider the broader aspects of human development.
- HDI scores range from 0 to 1, with higher values indicating higher levels of human development.
- The HDI assesses a country's average accomplishment in three aspects: long and healthy life, knowledge, and a decent standard of living.
- India's Rank: 132 out of 191 countries (2021-22).
 - India is behind Bangladesh (129) and Sri Lanka (73).

How HDI is calculated?



- The HDI is calculated using four indicators:
 - Life expectancy at birth,
 - Mean years of schooling,
 - Expected years of schooling, and
 - Gross National Income (GNI) per capita
- Life expectancy estimates are taken from the Sample Registration System.

- Mean and expected years of schooling are extracted from National Family Health Survey-5.
- Estimates for GNI per capita are unavailable at the subnational level, gross state domestic product (GSDP) per capita is used as a proxy indicator to measure the standard of living.

How does the GSDP per capita is calculated?

- GSDP (PPP at constant prices 2011-12) is gathered from the Reserve Bank of India's Handbook of Statistics on Indian States.
- GSDP per capita is estimated using the population projection provided by the Registrar General of India's office.
- The methodology involves calculating the geometric mean of the normalized indices for the three dimensions of human development while applying the maximum and minimum values recommended by the UNDP and NSO.

About the subnational Human Development Index (HDI)

Subnational HDI

- A new index using the methodology suggested by the UNDP and the National Statistical Office (NSO) which measures human development on a subnational level for 2019-20.
- It will help India realize its demographic dividend.

Findings

- It shows that while some States have made considerable progress, others continue to struggle.
- Delhi occupies the top spot and Bihar occupies the bottom spot.
 - Note: Bihar is no longer considered a low human development State.
- Five States with the highest HDI scores: Delhi, Goa, Kerala, Sikkim, and Chandigarh.
 - Delhi and Goa have HDI scores above 0.799, which makes them equivalent to countries in Eastern Europe with a very high level of human development.
 - 19 States have scores ranging between 0.7 and 0.799. It includes states like Kerala, Maharashtra, Tamil Nadu, Haryana, Punjab, Telangana, Gujarat, and Andhra Pradesh. They are classified as high human development States.
- Bottom five States: Bihar, Uttar Pradesh, Madhya Pradesh, Jharkhand, and Assam.
 - This category also includes States such as Odisha, Rajasthan, and West Bengal, which have HDI scores below the national average.
 - The scores of these low-performing States resemble those of African countries such as Congo, Kenya, Ghana, and Namibia.

- Gujarat and Haryana are ranked 21 and 10 despite the highest SGDP per capita among larger States.
- Kerala stands out with consistently high HDI values over the years, which can be attributed to its high literacy rates, robust healthcare infrastructure, and relatively high-income levels.
- Bihar has consistently held the lowest HDI value, with high poverty levels, low literacy rates, and poor healthcare infrastructure being the contributing factors.
- Note: The impact of COVID-19 on subnational HDI is not captured here.

Reasons for discrepancies

Economic growth

- It is unevenly distributed. The top 10% of the Indian population holds over 77% of the wealth.
- This has resulted in significant disparities in access to basic amenities, healthcare, and education.

Quality of Services

- India has made significant progress in reducing poverty and increasing access to healthcare and education. But the quality of the service remained low.
- Example: The country has achieved near-universal enrolment in primary education, but the quality of education remains low.

Key suggestions to improve human development

- Multi-faceted approach that addresses income inequality and gender inequality;
- Improves access to quality social services;
- Addresses environmental challenges; and
- Provides for greater investment in social infrastructure
 - Social infrastructure includes healthcare, education, and basic household amenities including access to clean water, improved sanitation facility, clean fuel, electricity, and Internet in underdeveloped States.

The government must prioritize human development alongside economic growth to ensure that the benefits of growth are more evenly distributed. India should prioritize investments in human development and job creation, particularly for its youth.

Hidden corridor in the Great Pyramid

- A hidden corridor, 9 m long and roughly 2 m wide, has been unearthed by scientists close to the main entrance of the 4,500-year-old Great Pyramid of Giza. Egyptian antiquities officials confirmed the discovery on 2 March 2023, Reuters reported.
- The discovery was originally made by the *ScanPyramids project* in 2016 using a non-invasive technique called *cosmic-ray muon radiography*, the BBC reported. Since then, scientists have carried out a *dedicated study of the discovered structure* using multiple methods, the results of which were published in *Nature* journal on 2 March 2023.
- “We’re going to continue our scanning so we will see what we can do...to figure out what we can find out beneath it, or just by the end of this corridor,” Mostafa Waziri, head of *Egypt’s Supreme Council of Antiquities*, told reporters in a press conference in front of the pyramid.

The greatest pyramid

- The *Great Pyramid of Giza* is the largest of the three pyramids in Giza, originally standing roughly 147 m above the Giza plateau. Construction was started in circa 2550 BC, during the reign of *Khufu*, often considered the *greatest pharaoh of Egypt’s old kingdom*. It is estimated that the pyramid was built using 2.5 million stone blocks, each weighing between 2.5 and 15 tonnes according to The National Geographic.
- Building the *Great Pyramid* was a feat of engineering unmatched for thousands of years. Of note is *not only the scale of the building* – it was the *tallest structure on the planet* until the *main spire of the Lincoln Cathedral in the United Kingdom* overtook it in 1400 AD – but also its symmetry and perfect alignment to the four cardinal directions (the error is less than *1/15th of a degree*).
- Thus, over the years, the structure has been an *object of fascination for many*. Greek historian *Herodotus* wrote about it *glowingly in the 5th century BC*, Arab travellers in the middle ages described and measured the structure with remarkable accuracy, and *Napoleon Bonaparte*, during his *Nile expedition of 1798*, spent days at Giza with a team of scholars and scientists, ostensibly starting the modern field of Egyptology as we know it.

The inside of the Great Pyramid

- But as interesting as the *Great Pyramid’s towering presence* is, perhaps of even greater fascination are its *inner secrets– passages and chambers hiding many mysteries*, some still untouched, others found and long forgotten, and many currently accessible.
- According to the *Smithsonian Magazine*, *Khufu’s pyramid* contains “*by far the most elaborate system of passages and chambers* concealed within any pyramid”. This is the only one of the 35 such tombs constructed between 2630 and 1750 BC to contain tunnels and vaults well above ground level – most

others either have a chamber at the ground level or well below it with the structures being completely *solid inside*.

- This has meant that the *Great Pyramid hides within it a world unto itself* which has attracted treasure hunters and *scholars of Egypt's antiquity alike*. While there is no consensus on *who first entered the tomb after it was sealed in about 2566 BC*, accounts as far back as that of *Herodotus (445 BC)* imply that at least some passages inside the pyramid had already been opened and explored in antiquity itself.
- There are *two distinct tunnel systems inside the Great Pyramid* – the *Descending Passage* (described by Greeks like Herodotus) and the *Ascending Passage* (more hidden, opened by the Arabs as recently as the 9th century).

The latest discovery and the technology used

- The *tourists' entrance* used today is the *passage dug by the Abbasid Caliph al-Ma'mun's men in the Middle Ages*, located at the intersection of the *Descending and Ascending Corridors*.
- Scientists detected an *empty space behind the northern face of the Great Pyramid*, about *7 m above this entrance*. Marked on the outside with a stone slab with a gabled chevron structure, scientists have now confirmed the presence of a hidden corridor behind it.
- The *initial discovery of a void* was made using an imaging technique known as *cosmic-ray muon radiography*. This method uses the *penetrative power of cosmic subatomic particles called muons to scan large structures*.
- A *muon detector tracks the number of muons going through the object from different directions*, to form a *three-dimensional image*. Subsequently, this picture is compared with a *muon image of the "free sky"* – indicating how many muons have been blocked. The final picture is essentially a *shadow of the object, in the light of cosmic muons*.
- Further tests were then carried out with *radar and ultrasound* before a *6 mm-wide (0.24 in) endoscope* was fed through a tiny joint between the stones that make up the chevrons, the BBC reported. The footage from this camera was unveiled during *Waziri's news conference*.

The importance of the discovery

- *ScanPyramids, initiated in 2015*, is an *international project* that uses various *high-tech instruments* employing *non-invasive infrared thermography, ultrasound, 3D simulations* and *cosmic-ray radiography* to study the structures. For the longest time, experts have known that many secrets hide behind the thick walls in often physically inaccessible places.
- *Christoph Grosse* of the Technical University of Munich, a leading member of the *ScanPyramids project*, told DW that he hopes to *uncover still more hidden secrets*. Speaking of the newly discovered corridor, he said, "There are *two large*

limestones at the end of the chamber, and now the question is what's behind those stones and below the chamber?"

- *Waziri suggested the corridormay have been designed to redistribute weight above the main entrance or around another as yet undiscovered chamber, the DW report said. Waziri also said that it might help reveal whether the burial chamber of King Khufu still existed inside the pyramid, according to the BBC.*
- *The salience of the discovery lies not in the newly discovered corridor itself, but in the various implications of the finding, which can help answer longstanding questions around the Great Pyramid, including how it was constructed more than 4500 years ago, using the technology and wherewithal available at the time.*

SC order on CEC and ECs appointment

- A five-judge Constitution Bench of the Supreme Court on 2 March 2023 unanimously ruled that a high-power committee consisting of the Prime Minister, Leader of Opposition in Lok Sabha and the Chief Justice of India must pick the Chief Election Commissioner (CEC) and Election Commissioners (ECs).
- This is a very significant judgment that seeks to change the way in which India's top election officials are appointed, and can potentially have far-reaching implications. As of now, the central government essentially has a free hand in appointing these officials.
- The Bench headed by Justice K M Joseph ruled on a batch of petitions seeking a selection process similar to what is followed in the case of the Director, Central Bureau of Investigation (CBI). The Bench also comprised Justices Ajay Rastogi, Aniruddha Bose, Hrishikesh Roy and C T Ravikumar.

What was the plea before the Supreme Court?

- The public interest petitions sought a law governing the appointment of the CEC and ECs. A first PIL had been filed in 2015, and the Supreme Court agreed to hear a second PIL on the issue filed in 2018 by Delhi BJP leader Ashwini Upadhyaya, and referred the issues to a Constitution Bench.
- The court had heard the case in November last year. On the last day of the hearing, the court had noted that the appointment of Arun Goel as EC had been carried out with "lightning speed", with the procedure taking less than 24 hours on 18 November from start to finish.
- Justice Rastogi authored a separate opinion agreeing with the majority opinion authored by Justice Joseph. The fine print of the ruling is awaited.

How are the CEC and ECs currently appointed?

- There are just five Articles (324-329) in Part XV (Elections) of the Constitution. Article 324 of the Constitution vests the "superintendence, direction and control of elections" in an Election Commission consisting "of the Chief Election Commissioner and such number of other Election Commissioners, if any, as the President may from time to time fix".
- The Constitution does not lay down a specific legislative process for the appointment of the CEC and ECs. The President makes the appointment on the advice of the Union Council of Ministers headed by the Prime Minister.

What are the powers of the Election Commission?

- The Constitution of India gave the Election Commission sweeping powers without going into the specifics. Introducing this provision in the Constituent Assembly on 15 June 1949, Babasaheb Ambedkar had said "the whole election machinery should be in the hands of a Central Election Commission, which alone would be entitled to issue directives to returning officers, polling officers and others".

- Parliament subsequently enacted The Representation of the People Act, 1950 and The Representation of the People Act, 1951 to define and enlarge the powers of the Commission.
- The Supreme Court in 'Mohinder Singh Gill & Anr vs The Chief Election Commissioner, New Delhi and Ors' (1977) held that Article 324 "operates in areas left unoccupied by legislation and the words 'superintendence, direction and control' as well as 'conduct of all elections' are the broadest terms". The Constitution has not defined these terms.
- The SC said Article 324 "is a plenary provision vesting the whole responsibility for national and State elections" in the ECI "and, therefore, the necessary powers to discharge that function".
- The Election Commission (Conditions of Service of Election Commissioners and Transaction of Business) Act, 1991 (EC Act) requires that the EC and CEC must hold the post for a period of six years. This law essentially governs the conditions of service of the CEC and ECs.

Was the Election Commission always a three-member body?

- No. For almost four decades of the republic, until 1989, the Election Commission was a single-member body, with only a Chief Election Commissioner (CEC). The Election Commission was expanded just ahead of the elections to the ninth Lok Sabha in an atmosphere of friction between the Rajiv Gandhi government and then CEC R V S Peri Sastri.
- These differences had resulted in some uncomfortable moments for the government during the Presidential election of 1987, and Rajiv's government, apprehensive of what Peri Sastri might do during the Lok Sabha elections of 1989, decided to curtail his powers by making the Election Commission a multi-member body. So on 7 October 1989, President R Venkataraman, in the exercise of his powers under Article 324(2), issued a notification creating two positions in the Election Commission in addition to that of the CEC. On 16 October 1989, the government appointed S S Dhanoa and V S Seigell to these posts.
- But this arrangement did not last. The Congress lost power in the elections, and the National Front government of Prime Minister V P Singh quickly rescinded the presidential notification of 7 October 1989. EC Dhanoa challenged his removal in the Supreme Court, but his petition was dismissed.
- The V P Singh government then enacted the aforementioned Act of 1991, which gave the CEC a status equal to that of a Supreme Court judge, and his retirement age was fixed at 65 years. The ECs were given the status of High Court judges, and their retirement age was fixed at 62 years. The passage of the EC Act essentially meant that if and when the Election Commission became a multi-member body again, the CEC would act as its chairman, and the ECs would be junior to him.

So when did the Election Commission again become a three-member body?

- On 12 December 1990, T N Seshan was appointed CEC. Seshan was fiercely independent, and as he went about the Commission's job with messianic zeal, the Congress government headed by P V Narasimha Rao decided to expand the poll body again on 1 October 1993. M S Gill and G V G Krishnamurthy were appointed as ECs. Also, the government brought an Ordinance to amend the EC Act, and made the CEC and the ECs equal by giving all three the status of a Supreme Court judge, retiring at the age of 65 years.
- In other words, all three Commissioners now had equal decision-making powers. The amendment also introduced sections that envisaged that the CEC and the ECs would act unanimously and, in case there was a difference of opinion on any issue, the majority view would prevail.
- Seshan moved the Supreme Court, alleging that the three provisions were an attempt by the government to curtail his powers. A five-judge Bench headed by Chief Justice of India A M Ahmadi dismissed the petition (T N Seshan Chief Election Commissioner vs Union Of India & Ors, 14 July 1995), and the ECI has functioned as a three-member body ever since.

Hydrogen Mission needs solid implementation

- Green hydrogen is a potential substitute for fossil fuels that can be used for transport, for the production of ammonia, fertilizers, chemicals, and steel, and for generating electricity.
- India's National Green Hydrogen Mission's goal is 'to make India the Global Hub for production, usage, and export of Green Hydrogen' and 'to assume technology and market leadership'.
- In this context, government should consider constructing a pilot green hydrogen plant for making green steel.

Green Hydrogen

- Green hydrogen is hydrogen that is produced using renewable energy through electrolysis.
- Green hydrogen has significantly lower carbon emissions than grey hydrogen.

National Green Hydrogen Mission

- It was first announced in his Independence Day speech of Prime Minister in 2021.
- Aim: To facilitate demand creation, production, utilization, and export of Green Hydrogen.
- Mission outlay of Rs 19,744 crore.
- It will fuel key sectors of the economy using hydrogen that is made by splitting water through an electrical process called electrolysis, using a device called an electrolyser that is powered entirely by renewable energy.
- A public-private partnership framework for R&D (Strategic Hydrogen Innovation Partnership – SHIP) will be facilitated under the Mission.
- Regions (such as Kerala) capable of supporting large-scale production and/or utilization of Hydrogen will be identified and developed as Green Hydrogen Hubs.
- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT):
 - Aim: To achieve a reduction in fossil fuel imports and abatement of annual greenhouse gas emissions by 2030.
 - It will promote two financial incentive mechanisms: Targeting domestic manufacturing of electrolysers and the Production of green hydrogen.

Benefits

- Creation of export opportunities for Green Hydrogen and its derivatives.
- Decarbonisation of industrial, mobility, and energy sectors; reduction in dependence on imported fossil fuels and feedstock.
- Development of indigenous manufacturing capabilities.
- Creation of employment opportunities.

- Development of cutting-edge technologies.

Mission outcomes by 2030:

- Development of green hydrogen production capacity of at least 5 MMT (Million Metric Tonne) per annum with an associated renewable energy capacity addition of about 125 GW in the country.
- Over Rs 8 lakh crores in total investments.
- Creation of over Six lakh jobs through a skill development programme.
- Cumulative reduction in fossil fuel imports over Rs. 1 lakh crore.
- Abatement of nearly 50 MMT of annual greenhouse gas emissions.

Overcoming the challenges of the Green Hydrogen Plant

Competitive Procurement

- Competitive Procurement creates a competitive industry structure so that movement down the cost curve is accelerated through successive bids enabling India to also get the full benefit of the global decline in prices that is likely.
- Example: This approach gave India exceptionally good results in the National Solar Mission when the price of solar power was initially about four times the price of thermal power and has now become clearly much cheaper.

Minimum size of plants for least cost production

- It would need to be determined for the production of green hydrogen and its downstream uses at the outset.
- Example: the minimum size of a new fertilizer plant, a green ammonia manufacturing unit, and a green hydrogen-producing plant may be determined.
 - Then working backward from the fertilizer plant, the supply and demand of green ammonia and green hydrogen would have to be matched for the supply chain.

Competitive bids

- It may be invited to get the least cost of production of green hydrogen.
- With this green hydrogen cost, the price of green ammonia may be competitively determined.

Subsidy from Budget

- Subsidy for each tonne of green fertilizer produced can be given to bridge the gap between the market-determined price of green fertilizer and the price fixed by the government for sale to farmers.
- This subsidy would naturally be far higher than the subsidy being given per tonne for normal fertilizer production.

Long-term procurement contract

- The government could enter into a long-term procurement contract for the entire production of a green steel plant.
- As this would be one of the first green steel plants in the world, our major steel producers should be persuaded to form a consortium and set up the plant so that they all learn the new technology.

Using green steel in government projects

- More expensive green steel may be used by the government in all its own construction projects as well as by its agencies.
- The impact would be marginal and could be easily absorbed and that too at affordable costs. of the construction projects.

Supply chain and shipping

- The supply chain up to green ammonia would be the same as for fertilizer production.
- Competitive procurement of green shipping services could be done through a long-term contract indicating the price at which green ammonia would be supplied.
- This would completely de-risk the investment in building a cargo ship that would use green ammonia.
- The higher cost of the shipping service can easily be absorbed by the Indian user as freight costs are a fairly small portion of his total cost.

Promoting green hydrogen in chemical, pharma, and other industries

- It can be done by a combination of a lower GST rate as has been done for Electric Vehicles (EVs), or a direct subsidy per kg of green hydrogen used.
- This would also need to be done for the use of green ammonia for electricity generation for meeting seasonal spikes in electricity demand.
 - However, storage and transport of hydrogen have high costs.

Empowering private sector

- Financing the private sector in partnerships with our research institutions to work to develop scalable outcomes would be the challenge needing leadership.

India can use creative policy instruments with speed, flexibility, and agility to become the global frontier in green hydrogen production in this decade, and that too at an affordable cost.

Healthcare in India has made great progress, but challenges remain

- The Indian health system has overcome seemingly insurmountable problems, long considered hopeless.
- Estimates said even under the best-case scenario, India would achieve a total fertility rate of 2.1 (replacement level) only by 2041, but India achieved this by 2020.

Health and lifestyle issues in India

1. High maternal and infant mortality

- High maternal and infant mortality seemed destined to persist as late as 2010.
- Ten years later in 2020, even in the BIMARU (Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh) states, hospital deliveries have soared to 89 % (NFHS-5)
- At least five interrelated challenges pervading the population.
- Cardiovascular diseases (CVDs), cancers, chronic respiratory diseases (CRDs), and diabetes are spiraling and they all share four behavioral risk factors:
 - Unhealthy diet,
 - Lack of physical activity and
 - Use of tobacco and alcohol

2. Deaths due to non-communicable diseases (NCDs):

- Increased from around 38 % in 1990 to 62 % in 2016.

3. Obesity in India:

- Increased from 19 % to 23 % between NFHS-4 and NFHS-5, in both urban and rural areas.
- 38 % of Delhi's citizens were found to be obese, followed by Tamil Nadu and Kerala.
- People in Punjab, Telangana, Andhra Pradesh, and Karnataka also have large sections of the population that are obese.
- This increases the risk of diabetes, hypertension, and CVD.

Tackling these challenges

- Building awareness and exhorting people to lead healthy lives can result in saving millions from illness and decelerating premature death.
- Governments must keep millions away from ill health — more cost-effective than eventually treating chronic medical conditions in hospitals.

India's Healthcare Scenario

1. Health and wellness centres

- Centre and states are trying to bolster primary healthcare by establishing health and wellness centers.

As per the report by the Centre for Community Medicine in AIIMS:

- There are huge variations between states.
- Mizoram, Arunachal Pradesh, and Nagaland were found to have better arrangements followed by Gujarat and Chhattisgarh.
- Jharkhand, Karnataka, and Uttar Pradesh (UP) had the lowest proportions of primary health facilities with full institutional capacity.

2. Core health services

- Challenge: To bridge the gap in hospital services between large urban agglomerations and tier II and tier III cities.
- Only 16 % of the district hospitals in Tamil Nadu offered all key services. (Lancet publication 2023)
- In Assam, Punjab, Madhya Pradesh, Mizoram, and UP, it was found to be just 1 %.
- This forces people into the private sector, which owns two-thirds of the country's hospital beds.

3. Private hospital Beds

- Large private hospital chains account for just 4-5 % of the beds in the private sector.
- Standalone hospitals and nursing homes provide 95 % of private hospital beds.
 - They are unable to provide multi-specialty, leave alone tertiary and quaternary care.
- Solution: The gaps between services available in the metros and big cities and in districts must be bridged.
 - Making the centrally-run hospitals (where a 40 % vacancy was reported only a few months ago) and the district hospitals fully functional is imperative.

4. Health insurance penetration

- It is very low resulting in a very high personal outgo on healthcare.
 - But more than four crore Indians have bought health insurance in the last 3 years.
- Ayushman Bharat insurance scheme: It is for 10 crore poor families and has been undertaken to provide insurance against hospitalization for up to Rs 5 lakh per year per family.
- Nearly 74 % of Indians are either covered or eligible for health insurance coverage under the Employees State Insurance (ESIC), group insurance, and CGHS.

- However, millions remain uninsured.
- Out-of-pocket (OOP) expenditure: This is pegged at 50 % of the total health expenditure.
 - Therefore, essential to provide insurance for the unorganized middle class and to include identified out-patient costs.

5. Use of Artificial Intelligence (AI) and Digital Technology

- Surgery assisted by robots, the use of genetic codes, clinical judgments based on AI, and even pandemic forecasting are already widespread.
- Concern: Ethical and regulatory concerns abound, which recently prompted the Indian Council of Medical Research to release guidelines foreseeing the problems of a lack of accountability for machine-made medical decisions.

India has shown how the impossible can be achieved. India can think out of the box in terms of policy-making and implementation. It will result in better infrastructure and might bridge the gap between metropolitan cities and rural healthcare facilities.

All about WTO's Appellate Body

- WTO was established to provide a platform for negotiations for liberating trade and creating rules, as well as to monitor and administer multilateral trades.
- One of the key objectives was also to address the grievances between its members by acting as a court for global trade.
- The Appellate Body, set up in 1995, is a standing committee of seven members with a limited four-year term that presides over appeals against judgments passed in trade-related disputes brought by WTO members.
- Disputes arise when a member country observes that another member government is breaching a commitment, or a trade agreement made at the WTO.
- Structure:
 - The Appellate Body is composed of seven Members who are appointed by the Dispute Settlement Body (DSB) to serve for four-year terms.
 - The DSB has authority to establish dispute settlement panels, refer matters to arbitration, adopt panel, Appellate Body and arbitration reports, maintain surveillance over the implementation of recommendations and rulings contained in such reports, and authorize suspension of concessions in the event of non-compliance with those recommendations and rulings.
 - Each person may be reappointed for another four-year term.
- Appointment:
 - Each member of the Appellate Body is required to be a person with demonstrated expertise in law, international trade and the subject-matter of the covered agreements generally.
 - They are also required to be unaffiliated with any government and are to be broadly representative of the membership of the WTO.
 - A Chairman is elected among the Members to serve a one-year term, which can be extended for an additional period of one year.
 - He is responsible for the overall direction of Appellate Body business.
 - The current Chairperson is Hong Zhao of China.
 - A Division of three Members is selected to hear each appeal and each division elects a Presiding Member.

Issues

- Stopping of the Judges' Appointment:
 - The United States stopped the process of reappointing judges, after their terms expired in 2017. In December 2019, the number of judges in the court fell below three — the minimum required.
 - It believes the WTO is biased against it, and has criticised it for being “unfair”.

- At least three people are required to preside over an appeal, and if new members are not appointed to replace the two retiring ones, the body will cease to be relevant.
- Very Less Efficient at Rulings:
 - Over 600 cases reached the body since its formation in 1995 and rulings were issued in some 350.
 - It has even blamed that the AB has failed to issue rulings within the 90-day deadline.

Implications

- With the Appellate Body unable to review new applications, there is already great uncertainty over the WTO's dispute settlement process.
- If the body is declared non-functional, countries may be compelled to implement rulings by the panel even if they feel that gross errors have been committed.
- Countries may refuse to comply with the order of the panel on the ground that it has no avenue for appeal. It will run the risk of facing arbitration proceedings initiated by the other party in the dispute.
- This also does not bode well for India, which is facing a rising number of dispute cases, especially on agricultural products.
- In the backdrop of rising trade tension between the US and China, the overall weakening of the WTO framework could have the effect of undoing over two decades of efforts to avoid protectionism in global trade.

Disputes Involving India at the WTO

- The disputes where India is a complaining party are countervailing duty by the US on Indian steel products, measures by America concerning non-immigrant visas, renewable energy programmes of the US, and import duties imposed on steel and aluminium products by America.
- WTO disputes where India is a responding party include prohibition by India on import of poultry and poultry products filed by the US, and import duties on certain information and communication technology goods filed by the EU, Japan and Taiwan.
- In January 2022, India appealed against a ruling of WTO trade dispute settlement panel which ruled that the country's domestic support measures for sugar and sugarcane are inconsistent with global trade norms.

Looking ahead

- Support Proposal to get New Members:
 - Usually, new appointments to the Appellate Body are made by a consensus of WTO members, but there is also a provision for voting where a consensus is not possible.

- The group of 17 least developed and developing countries, including India, that have committed to working together to end the impasse at the Appellate Body can submit or support a proposal to this effect, and try to get new members on the Appellate Body by a majority vote.
- But, this may be an option of the last resort, as all countries fear unilateral measures by the US as a consequence of directly opposing its veto.
- **Suitable Punishment if Breaks Law:**
 - If a country has done something wrong, it should swiftly correct its fault. And if it continues to break an agreement, it should offer compensation or face a suitable response that has some bite — although this is not actually a punishment: it's a “remedy”, the ultimate goal being for the country to comply with the ruling.
- **Reformative Approach:**
 - The permanent long-term solutions based on reformative approach include having a transitional rule for the outgoing members, allowing them to completely dispose the pending appeals even after the expiry of their terms and limiting the Appellate body's interpretation to the meaning of consented national laws without stepping over the policy space, so as to preserve sovereignty of the nations.
- **Regular Meeting of the Members:**
 - The other long-term solutions include regular meetings of the WTO members with the Appellate body to ensure effective communication and immediate redressal mechanism.
 - Thus, all the nations must come together to bring in a common ground to address the crisis so as to not be faced with the worst-case scenario.