



**INSIGHTSIAS**

SIMPLIFYING IAS EXAM PREPARATION

# INSTA MINDMAPS

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# JUNE 2024

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# General Studies – 1

Topic: Salient features of Indian Society, Diversity of India.

## 1. Baby Trafficking

### Introduction

- Criminal activity is mostly driven by a combination of socio-economic factors — poverty and unmet needs or desires.
- According to a recent UNICEF report, between 2012 and 2014, more than 60,000 child trafficking cases were detected in over 100 countries and regions.

### Recent Incident

- The news of baby smuggling rackets dominates headlines from time to time.
- The recent inter-State baby smuggling racket was busted by the Telangana police.
- An inter-State gang smuggled children from Delhi and Pune and sold them to prospective parents in Telangana and Andhra Pradesh.

### Reasons

- Poverty of the biological parents in many cases.
- Smuggling of newborns from government hospitals where security is lax.
- Couples eager to have children, and impatient with the long waiting time to adopt a baby legally.
- In some cases, non-availability of babies for adoption.

### Way Forward

- Children are not commodities to purchase at a premium from the free market.
- The government needs to do many things to ensure such incidents do not occur again:
  - provide effective poverty alleviation schemes;
  - employment opportunities for youth;
  - generate awareness about adoption schemes for both biological and adoptive parents;
  - remove unnecessary bureaucratic processes in adoption,
  - ensure effective policing to nip such plots in the bud,
  - Providing emotional support and counselling to infertile couples.

### Conclusion

- Governments, NGOs, and communities must collaborate to protect vulnerable children and create a safer environment for their growth and development.

Topic: Women related Issues

## 2. Fixing Gender Biases

### Introduction

- In his poem, The Mushroom Hunters, Neil Gaiman posits women as progenitors of science.
- Even after agriculture began, in pagan religions women were the “wise ones”: those who experimented, developed medicine and found the best materials to work with.
- They were the mothers who built the social institutions that would enable their societies.
- Yet, in the modern world, less than 30% of people in science and technology are women.

### Gender and STEM (Science, Technology, Engineering and Math)

- Many attempts have been made to explain why men and women tend to go for different fields of learning.

- One of the more recent theories is that male and female brains are differently oriented.
- However, research shows that no single half is stronger in any gender.
- Exciting learning explorations make both halves of all brains light up, irrespective of gender.
- There is a perception that STEM subjects are more challenging, and that girls should opt for 'easier' subjects.
- This bias arises from cultural patterns of expected behaviour and lifestyle, which are mostly gendered.
- However, women have performed equally or even surpassed their male counterparts.
- In India, the women behind Mission Mangalyaan have made history.

### **Gender biases in social sector**

- India's social sector is witnessing unexposed biases in the leadership roles.
- In the social sector funding, there are gaps that need to be filled in order to achieve the United Nations SDGs.
- The participation of women in field-based programs would be enhanced by enabling them to have mobility and flexibility in working hours.
- NITI Aayog suggests that India needs to allocate around 13% of its GDP to social causes, whereas the current average is only about 7%

### **Gender Bias in Business Schools**

- India's leading management institutes continue to grapple with gender diversity.
- Female enrolment at IIMs of Ahmedabad, Bangalore and Calcutta, about 30–50 female students for every 100 male students.
- The gender ratio in some of the top B-schools in developed economies is higher than that in Indian B-schools.

### **Importance of inspiration**

- Providing parents with information about the importance of STEM education for their daughters can dispel misconceptions and biases.
- Schools should encourage female students to take the lead on STEAM projects.
- Project Urja, an inter-school collaborative clean energy drive, was led by a female student of Grade 11.
- A group of five female students developed a Capstone project called Pawsitivity, for creating affordable prosthetic paws and limbs for dogs.
- Women teachers should seek to have their work published in prestigious journals and secure grants for their fieldwork.
- In arts, the general belief is that women are suited for dance and music and 'informal' arts.
- Here, too, school level interventions are important to take a gender-neutral view.

### **Conclusion**

- By giving creativity its due place, the journey of exploration becomes smoother and leads better findings.
- Putting the 'A' of arts into a STEM project can enhance the creativity of learners.
- An example of this is the work of Leonardo da Vinci, which shows a clear amalgamation of science, art and engineering.

## 3. Menstrual Leave for Women

### Introduction

- On 13 December 2023, India's Upper House of Parliament debated menstrual leave at workplaces.
- The key point of discussion was the **importance of menstrual leave in empowering individuals across various job roles and workplaces.**

### Female labour force participation (FLFP)

- In 2023, of 3.4 billion global employees, men outnumber women heavily.
- In India, women are estimated to constitute around 40% of the service sector's staff.
- The female labour force participation (FLFP) rate in India was 37% in 2023.
- This indicates more women joining organized workplaces.
- A rising FLFP is a growth driver for any economy.
- Equal female workforce participation could boost India's GDP by 27%

### Incentivising Women Employees

- It is important to ensure incentives are aligned to retain women in the labour force across various sectors.
- All workplaces should prioritize the physical, mental and emotional well-being of their employees for better retention.
- Workplace well-being factors constitute 'decent work,' a concept propounded by ILO.

### Need for Menstrual Leave

- Most women in India's labour force are aged 25-54 and a large proportion of them menstruate.
- Menstruation can be a matter of great discomfort and affect employees' comfort at work.
- They can lead to loss of focus and drop in performance and productivity.
- Menstrual leave can be seen as a rights-based provision for female labour force retention.
- It can compensate for the lack of menstruation amenities at most workplaces.
- It could enhance menstrual health, working conditions and thus favour gender equality.

### International Practice

- Japan, Indonesia, South Korea, Taiwan, Philippines and Vietnam—have policies of paid menstrual leave.

### Initiatives in India

- Bihar introduced menstrual leave in 1992.
- In 2021, the governments of Delhi and Uttar Pradesh announced menstrual leave for female employees.
- In 2023, Kerala granted menstrual leave for female university students.
- Private companies like Culture Machine, Gozooop, Swiggy, Byju's, Zomato and Viacom also have menstrual leave policies.

### Way Forward

- The pursuit of diversity, equity and inclusion should place a special focus on menstruating individuals.
- **Comprehensive research** can help decision-makers understand the effect of menstruation on women's work performance.
- Implement pilot menstrual leave schemes in various workplaces to evaluate their impact.
- **Regularly collect feedback** from all employees to understand their perspective.
- Review such leave policies used in other countries to adapt successful practices.
- Alternative policies like '**flexible leave**' or '**wellness leave**' can be considered.
- Promote education and awareness of menstruation to reduce stigma.
- Improving workplace conditions, menstrual hygiene infrastructure, access to safe menstrual products and emergency care facilities.

Topic: Poverty and developmental issues, Urbanization, their problems and their remedies.

## 4. Sustainable Urban Future

### Introduction

- The theme of World Cities Day (October 31) this year was “**Financing Sustainable Urban Future for All.**”
- Finances must be channelled in the right direction to make cities liveable and safe.

### Air Pollution

- A report shows that out of the 50 most polluted cities in the world, 39 are in India.
- An average Indian loses 5.3 years of his life expectancy due to pollution; for the residents of Delhi, it is 11.9 years.
- Bad air is not limited to the Indo-Gangetic plains anymore where the inversion of temperature and slowing down of wind speeds was a factor.
- The situation is getting bad even in India’s coastal cities.
- This highlights the **need for policy shifts to ensure better and liveable futures.**

### Expansion of ‘grey’ infrastructure

- The need now is to turn to **sustainable and “ecological urbanization”**.
- The trajectory of urban development, with the focus on real estate development, widening of roads, allowing large fuel guzzling vehicles on them are the major reasons for increased pollution in Indian cities.
- Motorised transport alone is the cause for 60% of urban pollution.
- The green lungs of the cities, water bodies, urban forests, and green cover on urban commons, and urban agriculture have all reported shrinkage.

### Pollution in the National Capital Region

- During winter in North India, the burning of paddy straw is the cause for smog.
- But this is only a small and seasonal part of the problem.
- India’s automobile market has risen in value.
- This must serve as an impetus to the new design of and direction to urban development.
- Traffic snarls are increasing each day, thus leading to more pollution levels.
- Construction activities contribute to roughly 10% of air pollution in the National Capital Region.

### Public Transport

- There needs to be good public transport, with investment in buses for towns and cities.
- Nearly 10 lakh buses would need to be added to the existing bus fleet in cities to meet the demand.
- Public transport must be made accessible and affordable to people.
- To control private motorised vehicular movement in the cities, congestion tax on private car owners driving during peak hours can be thought of.
- Some cities have a no car day on certain days — an example that should be put into practice.

### Strengthening Governance

- People’s empowerment through the city’s governance architecture is a firm step forward.
- Pollution guides and standard operating procedures for various line departments and agencies should be made readily available to the people.
- The Graded Response Action Plan must be adopted in other Indian cities as well.
- Zero acceptance of industrial pollution and real-time monitoring must become a reality.

## 5. Need for Urban Agriculture

### Introduction

- Urban agriculture has immense contributions to food security, but should be climate smart, as underscored by urban agriculture experts.

### Potential Benefits

- **Ensuring food security, dietary diversity, community cohesion and well-being.**
- **Ecological benefits** such as hydrological functions, air quality and soil quality.
- **Hydroponics** as a modern agricultural technology boosts urban farming productivity.
- Hydroponic technology could save up to 90 percent of the water consumed.

### Need for Urban Agriculture

- While 55 per cent of the world's population resides in urban areas, 79 per cent of all the food produced is destined for consumption in cities.
- According to the United Nations, by 2050, an estimated 68 per cent of the world's population will live in urban areas.
- **The rapid urbanisation places immense pressure on food supply chains.**
- These factors contribute to an increase in food insecurity, malnutrition, and the rise of diet-related non-communicable diseases.
- Therefore, there is a **need for stable food production, shorter and simplified food supply chains, and distribution tools.**

### Concerns / Challenges

- If not managed properly, urban farming can exacerbate climate change by emitting methane from decomposed wastes from urban farming plots.
- Urban farming and gardening can affect water resources in cities and the use of pesticides.
- The cultivation of non-native species can threaten local biodiversity.
- Access to land plots is limited.

### Way Forward

- **Cities should adopt climate-smart and biodiversity-friendly practices, taking the region and local bio-geographical and climatic conditions into account.**
- Embrace **environmental-friendly practices**, like planting drought-tolerant plants, to cut back on the consumption of irrigation water.
- Proper management of water and energy as well as access to agricultural technologies.
- The sector requires the utilisation of natural resources.
- Mitigation strategies to reduce emissions from the livestock sector are highly needed.

## General Studies – 2

Topic: Structure, organization and functioning of the Executive and the Judiciary

### 6. Court Vacations and Vacancies

#### Introduction

- The question of whether judges sit for 200 days or 365 is a red herring.
- It creates the impression that if judges stayed longer on their benches, arrears would magically disappear.

#### Arguments in favour of Court Vacations

- In a profession that demands intellectual rigour and long working hours, vacations are much needed for rejuvenation.
- Judges typically work for over 10 hours on a daily basis.
- A frequently-made argument is that judges utilise the vacation to write judgments.
- The issue of pendency relates largely to legacy cases that need to be tackled systemically.

#### Arguments against more Court Vacations

- A few more weeks of active sittings or uninterrupted court time will reduce delays.
- According to a Report, as of June 2020, on average, a case remained pending in the subordinate courts for three years and in high courts, at 2022 figures, for five years.
- Litigants want a quick resolution to their issues.

#### Court Vacancies

- There is a question of too few judges.
- No state has its full complement of judges: both in high courts and lower courts.
- 120th report of the Law Commission recommended there should be 50 judges per 10 lakh population.
- Each of India's BRICs partners has way more judges to serve their populations.
- Courtrooms are being built, but are still in short supply and too many in use are sub-optimal.
- Nationally, support staff shortages average 26 per cent.

#### Reasons for Delays

- Mismatch between proficiency of language, clarity of argument and final outcome leads to more appeals.
- A permissive culture within the legal fraternity allows unjustified applications and endless adjournments.
- Slow and uneven adoption of technology.
- Excessive government litigation presently accounts for roughly 50 per cent of the court load.
- Every new legislation adds its own slice of litigation.
- The India Justice Report estimates that the overall per capita spending on judiciary is low.

#### Recent initiatives to reduce pendency of cases

- Compulsory pre-trial mediation
- Lok Adalats and specialist courts
- Separating out petty cases
- Resolving burdensome procedural bottlenecks as the apex court recently directed the electronic communication of bail orders directly to prisons.
- Prioritising old cases and cases where delay will bring about loss of liberty and irreparable harm to one or other party.
- More tribunals.

#### Way Forward

- Increasing the number of judges in the courts can help reduce the backlog of cases.

- Need to implement a robust e-court system that can streamline court processes, reduce paperwork, and improve efficiency
- Trim and rationalise excessive government litigation.
- Cleaning out outdated laws and procedures helps to reduce cases.
- Appointing a permanent administrative secretariat headed by a qualified court manager within each court for court management.
- The establishment of additional courts can help reduce the backlog of cases and increase the efficiency of the judicial system.

## 7. Adopting Technology in Courts

### Introduction

- As the Indian judiciary deals with mounting caseloads and calls for greater transparency, artificial intelligence can emerge as a valued ally.

### Benefits of Tech adoption

- Tech adoption in the Indian judiciary can **improve case management, predictive analytics and legal research.**
- AI can **automate case prioritisation, categorisation, scheduling.**
- AI would help analyse large volumes of documents, **translate proceedings and provide data-driven recommendations.**
- The use of paperless courts is intended to be a significant step forward in **increasing judicial efficiency.**

### Recent Initiatives

- **E-court project under the National e-Governance Plan** aimed to computerise court processes and establish a networked infrastructure.
- The **National Judicial Data Grid** provides real-time information on pending and disposed cases.
- The Supreme Court has launched an **AI-powered portal, SUPACE** to assist judges in case management and decision-making.

### International Examples

- The US has employed AI-powered tools such as COMPAS for data collection, risk assessment and decision support.
- The US system has also developed chatbots that provide information to the public.
- The UK justice ministry launched a Digital Case System in 2020, harnessing AI in the judiciary.
- China's use of AI in Xiao Zhi 3.0, its smart court system, claims to have reduced a judge's average workload by over a third.

### Concerns / Challenges

- The use of AI in the judiciary is a double-edged sword.
- **Potential biases in decision-making** due to biased metadata or false information.
- US judges widely use algorithms to make decisions on granting bail and sentencing.
- An investigation claimed that the system generated "false positives" for black people and "false negatives" for whites.

### Judicial pendency

- **Justice delayed is justice denied.**
- There are over 4.32 crore pending cases and a notable shortage of judges.
- High courts and subordinate courts face a significant deficit, with 30 percent and 22 percent fewer judges than their sanctioned strengths.
- The Naz Foundation case related to Section 377 took 624 days to receive a judgement.

- There is a correlation between judicial pendency and economic growth.
- According to a report, the inability of the Indian state to deliver timely justice resulted in preventable violence which cost India as much as 9 percent of annual GDP.

### Way Forward

- **The integration of AI in the justice system requires a comprehensive legal, regulatory and ethical framework to establish trust in these technologies.**
- Careful implementation with transparency, fairness and accountability is crucial.
- It is important to train judges, advocates and other public servants to prevent AI-related harms.
- With the present pendency of cases and judicial vacancies, **AI is a promising factor in fast-tracking justice delivery.**
- Its integration into the legal system is a significant step in the right direction.

Topic: Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

## 8. Balancing of Healthcare Costs

### Introduction

- Indian health care cost considerations are increasingly influencing every aspect of service delivery and patient care.
- **With rising health disparities, there is a need for equitable and sustainable health-care policies.**
- The discussions about setting rates for medical services shape how we perceive, access, and deliver health care across India.

### Private Hospitals

- **Private hospitals are not only centres of specialised care but also innovation hubs.**
- Joint Commission International (JCI) and NABH (National Accreditation Board for Hospitals)-accredited big hospital groups have embraced cutting-edge technologies to enhance patient outcomes.
- These institutions invest heavily in top-tier infrastructure and advanced technologies.

### Price caps, quality and innovation

- Supreme Court deliberates on standardising medical procedure rates across government and private sectors.
- **Imposing one-size-fits-all price caps could severely undermine health-care quality.**
- Study shows that hospitals under financial pressure from price caps report a 15% increase in patient dissatisfaction.
- Such caps could drastically slow the development of new treatments and technologies, such as cancer research and robotic surgery.
- Properly implemented rate standardisation can alleviate health-care disparities.
- Dynamic pricing models based on medical complexity and the financial status of patients, offers a fair solution.
- **Thailand's tiered pricing system, which considers patient-income levels and medical necessity, successfully balances cost and care.**
- This could serve as a model for India's diverse economic landscape.

### Legal and regulatory challenges

- Managing health-care costs effectively demands legislative reform.
- Accommodating local demographic and economic conditions can support rate standardisation and high-quality care.

### Role of Technology

- Technology is revolutionising health care, making diagnostics faster and more accurate.
- **Telemedicine initiatives in Karnataka have slashed hospital visits by 40%.**

- This not only makes medical care more accessible, especially in remote areas, but also more cost-effective.
- Innovations such as **mobile health apps and wearable devices** are crucial in managing chronic conditions outside hospitals.
- Ensuring that these technologies reach all population segments is key.

#### Role of data in shaping policies

- In today's big data era, health-care policy decisions rely on data-driven insights.
- Data analytics can shed light on patient outcomes, treatment efficacy, and cost-efficiency.

#### Way Forward

- Implementing pilot projects in select districts to gauge the impact of rate caps on health-care quality and innovation.
- Allocating government subsidies to support research and development in private hospitals.
- Establishing **public-private partnerships to integrate cutting-edge technologies in public hospitals.**
- As India aspires to be a global health-care leader, fostering an environment conducive to innovation is crucial.

## 9. Democratising Education

#### Introduction

- India's path to economic growth is paved with the promise of its young and vibrant population.
- According to CII report, if the country's working-age population is productively employed, India's GDP can grow to \$9 trillion by 2030 and \$40 trillion by 2047.
- **The key to unlocking this potential lies in education technology, or EdTech.**

#### Capitalising on demographic dividend

- 43 per cent of Indians aged 25 and younger in 2023, and the majority of the population is expected to remain of working age until at least 2100.
- **India has started capitalising on its "demographic dividend" by providing tech-enabled education to its youth.**
- Democratising technology and unleashing its full potential will propel the nation towards its Amrit Kaal goals.

#### Education Technology

- Digital technology is the foundation of the modern ecosystem.
- Developments in education technology and the use of AI and Augmented reality/virtual reality have led to a marked increase in education technologies available for learners and teachers.
- **Pandemic gave online learning a major boost that has set edtech on the fast track to growth.**
- Technology has proven to be a powerful tool to successfully overcome the urban-rural divide.
- Edtech is democratizing education by expanding access to quality education without the restrictions of geography or time.
- UGC (University Grants Commission) notification of recognising online learning at par with offline will further accelerate the acceptance of LifeLongLearning.
- Learners in Tier 2 and 3 towns can access higher learning in renowned Indian and global educational institutions through edtech platforms.

#### Access to quality education

- New UNESCO data shows that one out of four children aged five has never had any form of pre-primary education.
- The pandemic further exacerbated challenges to education, widening learning gaps and bringing in a generational learning loss.

- Data shows that children with disabilities, from migrant families, those living in remote areas, from marginalised communities, and girls in particular experience these inequalities most acutely.

### Examples of India's capacity for innovation

- Sapan Patralekh of Jharkhand's Dhumartar village, who turned the walls of mud houses in the village into blackboards.
- Shailesh Raval's famous loudspeaker classes in Gujarat's Parpada village, along with several other "mohalla" classes utilising the public announcement systems of Panchayat Bhawan.
- These are examples of India's thirst for knowledge and innovation.

### Way Forward

- India's ancient value systems, which have emphasised the importance of education, will play a pivotal role in ushering the nation into the Knowledge Age.
- The transformative power of education can change lives for the better.
- **By nurturing the talents and potential of every child, one can create a society that is truly prosperous, innovative, and compassionate.**

## 10. Antimicrobial Resistance (AMR)

### Introduction

- **The Delhi Declaration during India's G20 presidency saw a commitment to strengthen the global health architecture.**
- An important part of this agreement was to prioritise tackling Antimicrobial Resistance (AMR) through R&D, infection prevention and control.
- A pledge to facilitate equitable access to safe and affordable vaccines, therapeutics, diagnostics and other medical countermeasures was also undertaken.

### Present Status

- A 2021 Lancet report estimated that 4.95 million deaths were associated with bacterial AMR.
- The magnitude is equal to that of diseases such as HIV and malaria.
- Sub-Saharan Africa and South Asia had the highest death rates, signifying high susceptibility to AMR.

### Implications

- The rising levels of antimicrobial resistance threaten to **compromise public-health gains in the field of infectious diseases.**
- It also jeopardises cancer treatment, transplants etc.
- It will have profound **implications for low and middle-income countries** with low investments in healthcare infrastructure.

### Government Initiatives

- Free Diagnostic Services and Kayakalp
- Strict protocols under Indian Public Health Standards.
- India was one of the first countries to develop a comprehensive National Action Plan (NAP) on AMR (NAP-AMR) in 2017.
- There has been a special focus on surveillance and research under the NAP-AMR.

### International Examples

- Indonesia has developed national surveillance plans.
- Australia prioritised animal health and committed to reducing antibiotic use in livestock.
- Brazil has shown reduction in antibiotic use in humans.
- UK and the US are investing in research to develop new diagnostics, drugs and vaccines.

**Way Forward**

- Countries must create regional AMR action plans.
- G20 countries can look towards an international funding mechanism that focuses on AMR R&D.
- Promote patent reforms for fostering innovation and ensuring affordability in new antibiotics.
- **Promotion of responsible behaviour among citizens by educating people on the dangers of overusing antibiotics.**
- Involving academia and civil society organisations (CSOs) in these efforts is essential.
- **The same impetus, investment and prioritisation as Covid-19 needs to be applied to AMR.**
- Building more resilient, equitable, sustainable and inclusive health systems to implement the One Health approach.
- Enhance pandemic preparedness and strengthen existing infectious diseases surveillance systems.

## 11. A Case for Disability Inclusion

**Introduction**

- Disability as an identity exists at the intersection of multiple vulnerabilities — social, economic and gender — with each facet requiring careful consideration.
- Disability inclusion is rooted in assuring the rights of persons with disabilities and recognising the economic benefits of inclusion.

**Present Status**

- Globally, 1.3 billion people live with some form of disability.
- Of them, 80% live in developing countries; further, 70% of them live in rural areas.
- Current systems are designed for persons without disabilities and end up being exclusionary to people with disabilities.
- This results to higher instances of poverty, lack of access to education and opportunities, informality and other forms of social and economic discrimination.

**A case for inclusion**

- The inclusion of persons with disabilities into the economy can help boost global GDP between 3% to 7%, as per ILO.
- Everyone has the right to equal treatment and opportunities at work.
- The current employment scenario provides fewer jobs for persons with disabilities and perpetuating stereotypes that create further barriers.
- It is also in direct contravention of the United Nations Convention on the Rights of Persons with Disabilities.
- The convention advocates changing attitudes and perceptions towards persons with disabilities and viewing inclusion from a social development dimension.
- Unique id for persons with disabilities (UDID) card, established as part of the Rights of Persons with Disabilities Act (2016).

**Challenges in rural areas**

- In rural areas they tend to face greater challenges when compared to their urban counterparts.
- Limited access to education and employment.
- Some developmental schemes, too, exclude them.
- They are viewed as objects of charity and not as persons with agency with an ability to participate in decision-making processes.
- Risk of climate calamities arising from rising sea levels, reduced access to clean water and food, hurricanes, heatwaves and floods.

**Role of Private Sector**

- The private sector holds a key in promoting the employment.

- Building the confidence of companies to hire and retain workers with disabilities.
- Employers' federations as well as trade unions have great potential to promote the employment of persons with disabilities.

### **Sparking Disability Inclusive Rural (SPARK) project**

- Through this project, persons with disabilities were put in the lead, being identified from the villages, and trained as Disability Inclusion Facilitators (DIFs).
- The DIFs engage with the community, persons with disabilities and other stakeholders to raise awareness about disability inclusion.
- The DIFs identify women with disabilities and mainstream them in existing self-help groups for social and economic development.
- The SPARK project has been able to bring an attitudinal shift, right from the societal to administrative levels.

### **Way Forward**

- The goal of social justice cannot be achieved without the inclusion of persons with disabilities in all spheres of development.
- The first step is awareness to ensure last-mile connectivity of the benefits enumerated by the government.
- Capacity-building of community leaders who can advocate for this at the grass-roots level.
- A bottom-up approach to disability inclusion is crucial to build productive pathways out of poverty.
- Ensure that persons with disabilities are recognised as active members of society and the economy.

Topic: Salient features of the Representation of People's Act.

## 12. Autonomy for Delimitation Commission

### **Introduction**

- The subject of constituency delimitation has become controversial over the past several months.
- This is due to the Women's Reservation Bill and the population disparity between the southern and northern states.

### **What is Delimitation**

- **It denotes the fixation of boundaries of parliamentary and assembly constituencies in a certain proportion to the country's or state's population.**
- It is constitutionally mandated under Articles 82 and 170.
- This function is performed by a statutory body called the Delimitation Commission.
- Four commissions have been established till date in 1952, 1962, 1972 and 2002.

### **Politicisation of Delimitation**

- Delimitation has been politicised and is fraught with challenges.
- One example is the reservation of constituencies for the SC/ST.
- The criterion for ST reservation as per various delimitation acts is their population should be the "largest" in the constituency.
- This necessitates a relook at guidelines to better align with current realities.
- The act prescribes reservation of seats for SCs where their population in the constituency is "comparatively large".
- It allows the creation of a new SC reserved constituency where none existed before or the removal of an existing reservation.
- An SC reserved constituency with an SC population that has traditionally voted against the party in power could be converted into a "general" constituency and vice versa.
- Such political manipulation is possible since the criterion is vague.
- **The delimitation based solely on population disregards the progress made by the southern states in population control.**

- Population-trim states are also likely to be affected with regard to constituency-related funding.

### Timely Delimitation

- **Timely delimitation is essential to enable a functional democracy.**
- It is imperative that constituencies are rationalised to have optimal population to representative ratio.
- This requires a strong and autonomous Delimitation Commission.

### Concerns / Challenges

- Delimitation Commission is only a statutory body that **lacks the protection of comprehensive constitutional guidelines.**
- The concerned provisions are overarching rather than procedure or detail oriented.
- Without constitutional status, the Commission's autonomy is liable to compromise.
- **Delimitation is also not subject to any form of judicial review, legal recourse or parliamentary/assembly scrutiny.**
- This imply the government is the only agency that has any power over this exercise.

### Way Forward

- There is a need to initiate a parliamentary debate about **strengthening the Commission's autonomy to discharge its mandate without fear or favour.**
- Instead of relying solely on population as the criterion, other factors such as development indicators, human development indices, and efforts in implementing family planning programs could be considered.
- States that have effectively implemented family planning programs should be acknowledged and rewarded for their efforts.
- **Delimitation reflects the country's political philosophy, futuristic agenda and civic commitment.**
- Thus, it is as vital for the democratic system as elections.

Topic: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

## 13. Maritime Domain Awareness (IPMDA)

### Introduction

- The Indo-Pacific region holds a central place in global geopolitics.
- **Indo-Pacific Maritime Domain Awareness (IPMDA) initiative of Quad grouping, is a testament to free, open, inclusive and rules-based Indo-Pacific.**

### Need for IPMDA

- Building partnerships is instrumental in ensuring the security and stability of the Indian Ocean Region (IOR).
- For ensuring the **safety of critical sea lines of communication.**
- **For responding to natural disasters, conducting joint exercises, and sharing critical maritime information.**
- The region is significant for global peace and prosperity.

### Need for readiness

- The events from the stand-off with China in eastern Ladakh, the conflicts in Ukraine and West Asia serve as a reminder of the need for resilience and readiness.
- **To secure maritime interests, including energy and trade routes, as well as supply chain vulnerabilities.**
- Importance of integrated joint operations and a holistic approach to national defence.
- **Indian Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR) has greatly improved the situational awareness in the region.**

**Intelligence sharing**

- Navies are able to respond more effectively to maritime threats, piracy, and other security concerns.
- Sharing of intelligence and information also contribute to enhanced Maritime Domain Awareness [MDA].
- This provide better management of marine resources and environmental protection.
- The Indian Navy's role in supporting the nation's security extends beyond the seas.

**Indian Navy**

- The Navy currently has over 140 ships and submarines and is targeting a 170 to 180 Navy by 2028.
- The Navy's engagements and tempo of exercises has significantly gone up in the last few years.
- These are amplified by the bilateral logistics, Navy to Navy and information sharing agreements that India has concluded with several countries.
- India has also taken up capacity building to assist littoral states in augmenting their armed forces.
- Senior defence officials had termed exercise Malabar as the most complex naval exercise India does with any other country.

**Security Challenges**

- IOR has multiple security challenges as it contains major shipping lines and nearly 1,20,000 ships transit through various choke points.
- The region is the centre of gravity of piracy and trans-national crimes and also locus of 70% of world's natural disasters.
- Around 120 warships of extra-regional navies are in the IOR at any point of time.
- The Chinese naval presence in the Indian Ocean Region (IOR) has steadily been increasing since 2008

**Way Forward**

- The centre must continue to strengthen its efforts in enhancing Maritime Domain Awareness [MDA].
- Sharing best practices and fostering a sense of collective responsibility among like-minded nations and organisations.

Topic: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

## 14. The state of India-U.S. Ties

**Introduction**

- **U.S.-India initiative on Critical and Emerging Technology (iCET) is considered a major success for bilateral relations.**
- Atal Bihari Vajpayee called India and the U.S. "natural allies in the quest for a better future" for the world in the 21st century.

**Background**

- India and USA have seen ascendance of relationship in the 21st century, which was crystalised by 2008 India Nuclear Civil Nuclear Agreement.
- Various factors, including LPG reforms, rise of China, increasing influence of Indian community in USA are the factors behind this.

**Bilateral Ties**

- Delhi and Washington have built up strategic ties year on year.
- **The dialogues are growing — from climate change and green energy to critical and emerging technologies and outer space.**
- Over the past decade
  - growth is seen in strategic trust in particular
  - conclusion of all foundational agreements
  - plethora of military exercises

- growing inter-operability and coordination on maritime operations
- purchases of military hardware
- Old irritants going away from relations
  - de-hyphenation of U.S.-India ties with Pakistan
  - silence over old concerns on Jammu-Kashmir
- India's increased engagement with the Quad.
- Shared concerns over China's aggression have brought Delhi and DC on the "same page."

### **Differences**

- Some of the "not-so-good" or work-in-progress areas lie in the areas of multilateral cooperation on global conflicts.
- Russia's war in Ukraine has been one major area of difference.
- Since 2018 both countries were engaged in tariffs war.
- India and USA are involved in WTO disputes on issues like, Capping prices of medical devices by India, greater Indian market access for American agriculture and dairy products etc.

### **The China factor**

- Growing concerns over China's threats against Taiwan.
- Latest conflagration over the Philippines in the South China Sea.

### **Concerns / Challenges**

- Planned visits by U.S. National Security Adviser were cancelled twice this year, due to the Gaza crisis, in turn affecting the iCET review.
- There has been no Indian Ambassador in Washington for months.
- The State Department's comments on the state of democracy in India before the general election 2024.
- Consistent bad reviews for India in the State Department's Religious Freedom report.
- A possible Trump presidency in November might introduce much more uncertainty to their ties.

### **Way Forward**

- The upward trajectory in India USA relations indicates a sense of greater nuance to the need for institutionalisation of bilateral ties.
- Design frameworks in a manner that maximise convergences between the two countries.
- The changing geopolitics, and increased Chinese aggression necessitates closer cooperation between India and USA.

## General Studies - 3

Topic: Major crops cropping patterns in various parts of the country

### 15. Open-source seeds movement

#### Introduction

- Open-source software like Linux is well-known and widely used.
- As programmers have done for decades, farmers have innovated and shared seeds without any intellectual property rights (IPR) claims for centuries.
- In this regard, software and seeds actually have a strong parallel.

#### What is plant-breeders' rights?

- The advent of hybrid seeds, commercial seed industry, and scientific plant-breeding conferred developers of new varieties with the plant breeders' rights (PBR).
- In this regime, farmers' rights were limited while rights-holders could demand royalty on seeds and legally enforce PBRs.
- In some countries, the PBR regulations allow rights-holders to restrict the unauthorised use of seeds to develop new varieties.
- In 1994, the establishment of WTO and the Trade-Related IPR Agreement cast a global IPR regime over plant varieties.

#### Green Revolution

- The Green Revolution was spearheaded by public-sector breeding institutions.
- Seeds were available as open pollinated varieties with no restrictions on farmers to cultivate, reuse and share.
- But the genetic revolution in agriculture was led by the private sector, with seeds protected by strong IPRs.

#### How is IP protected in agriculture?

- There are now two forms of IPR protection in agriculture: plant-breeders' rights and patents.
- Together, they restrict the freedom to develop new varieties using germplasm from IP-protected varieties.
- They have consolidated the seed sector and increased the number of plant varieties covered by IPRs.
- As public sector breeding declined and the private sector began to dominate the seed sector, the need for alternatives became keenly felt.
- This is when the success of open-source software inspired a solution.

#### What are 'open-source seeds'?

- In 1999, a Canadian plant-breeder suggested an approach to seeds based on the principles of open-source software.
- **The Open-Source Seeds Initiative won't restrict others' use of these seeds or their derivatives by patents or other means.**
- Worldwide, the number of seed firms are using open-source models.
- India is yet to test and adopt it widely.
- Under the **Plant Variety Protection and Farmers' Rights Act (PPVFR) 2001**, farmers can register varieties as 'farmer varieties', and have the right to reuse, replant, and exchange seeds.
- However, they can't breed and trade in varieties protected under the Act for commercial purposes.
- Using the open-source approach here will enable farmers to gain more rights over germplasm and seeds and facilitate innovation.

#### Way Forward

- There are many traditional-variety conservation and sharing initiatives in India, unique to specific regions.

- **The government and other stakeholders can consider an open-source model.**
- The model can also be used to promote farmer-led participatory plant-breeding exercises.
- **Open-source principles can facilitate testing, improvisation, and adoption – all of which will be beneficial to India's food security and climate resilience.**

Topic: Conservation, environmental pollution and degradation

## 16. Ocean Warming

### Introduction

- The oceans play a key role in regulating climate.
- According to the UNESCO State of Ocean Report, world's understanding is still insufficient to design solutions for multiple ocean crises.

### Present Status

- The global ocean has taken up more than 90% of the excess heat in the climate system.
- Since 1993, the rate of ocean warming has more than doubled.
- Oceans are heating up 40 percent faster on average than IPCC estimate.

### Ocean Warming and it's consequences

- The upper 2,000 metres (m) of oceans warming is leading to irreversible changes in the centennial to millennial time scales.
- Scientists are particularly concerned about the accelerated ocean warming in the past two decades.
- Increased greenhouse gas emissions from human activities is leading to increased uptake of the **Earth energy imbalance (EEI) by oceans.**
- EEI is the balance between incoming energy from the Sun and outgoing energy from the Earth.
- About 90 per cent of the EEI is being absorbed by oceans, resulting in a cumulative increase in ocean heat content (OHC).
- Increased OHC leads to deoxygenation.
- It can have long-term negative impacts on
  - health of coastal and large marine ecosystems,
  - a sustainable blue economy,
  - coastal communities that depend on oceans
  - tourism, fisheries, aquaculture, and ecosystem services.
  - Arctic and Antarctic ice sheets are shrinking due to ocean warming.

### Marine carbon dioxide removal (mCDR)

- **mCDR technology involves techniques that capture carbon dioxide from the air and store it durably.**
- Examples include
  - altering the chemical composition of seawater so that oceans absorb more carbon dioxide from the atmosphere.
  - adding nutrients such as iron to encourage the growth of microscopic plankton that can sink to the seafloor and be stored longer.
- There is growing number of start-ups developing mCDR techniques.
- Funding for mCDR research announced by the United States and the European Union in 2023.

### Way Forward

- Need to provide regular data on how ocean warming is evolving and its impacts.
- Improve the space-based and in situ observing systems for monitoring sea level rise at global, regional, and coastal scales.
- **Expanding coastal blue carbon habitats such as mangrove forests, seagrass meadows, and tidal saltmarshes to increase the sequestration of carbon.**

## 17. Reducing Deforestation

### Introduction

- Indiscriminate felling of trees as a result of urbanisation, industrialisation, mining operations, and use of wood for domestic and other purposes have caused heavy depletion of forests.
- This is called deforestation.

### Present Status

- According to a United Nations report, countries that have promised to halt deforestation by 2030 have not implemented necessary actions.
- Emissions from deforestation increased since the Glasgow Leaders' Declaration on Forests and Land Use in 2021.
- The increase in global deforestation emissions was mostly attributed to Latin America and the Caribbean between 2019 and 2022.
- The main reasons for deforestation were agriculture.

### Importance of Forests

- Forests offer ecosystem services like maintaining water quality, providing habitat for pollinators and resources for communities.
- Forests act as carbon sinks that contribute in mitigating climate change.

### Impacts of Deforestation

- Deforestation is a contributor to global warming.
- Deforestation affects wind flows, water vapour flows and absorption of solar energy thus influencing local and global climate.
- Increase in the rate of soil erosion.
- It can destroy genetic variations (such as crop resistance) irretrievably.
- Eviction of tribals and forest dwellers rendering them homeless and destitute.

### Nationally Determined Contributions (NDC)

- NDC pledges made between 2017 and 2023 did not meet the global goals to halve and reverse deforestation.
- Only eight of the 20 countries with the most tropical deforestation have set targets to reduce tree cover loss in their NDCs.
- Colombia's use of co-operative approaches under the 2015 Paris Agreement to reach net zero deforestation.
- The pledges lack clarity.
- Five countries have area-based targets (e.g., number of hectares), three have emissions-based targets (e.g., tonnes of CO<sub>2</sub> equivalent) and six have both.

### Way Forward

- Strengthening and aligning forest-based measures mentioned in NDCs and clearly defined national policies.
- Developed and forest countries must work in tandem to achieve internationally set goals.
- Forest carbon prices must be increased by \$30-50 / tonne of CO<sub>2</sub> emissions in the carbon market.
- Recognition of the forest land and carbon rights of local communities can play an effective role in protecting forests.
- Improved enforcement of existing laws through intensified raids on illegal activities occurring on Indigenous lands.
- Forests should not be replaced by commercially important fruit orchards.
- Cultivation of apples in many parts of the Himalayas has done great damage to the original stands of natural forests.

**Conclusion**

- COP30 to the UNFCCC in Brazil next year is a global milestone for ambition on forest protection.
- Countries, especially those with extensive forest cover, must include concrete, measurable targets on forests in their revised NDCs.

Topic: Science and Technology- developments and their applications and effects in everyday life.

**18. Building Research Infrastructure****Introduction**

- For India to be a research and development-driven economy, universities play an indispensable role.

**Building Research Infrastructure**

- **Innovation requires building institutional frameworks and research infrastructure.**
- We should start by connecting institutions nearby.
- **The initial funding to build large research infrastructures needs to come from the public exchequer.**
- Government funding is the initiator of turning ideas into workable solutions in science and technology-led innovation.
- The start-up companies need to be financed by private investors, like angel investors and venture capitalists.

**India's R&D expenditure**

- India's R&D expenditure-GDP ratio of 0.7% is very low when compared to major economies and is much below the world average of 1.8%.
- India falls behind major developed and emerging economies such as China (2.4%), Germany (3.1%), South Korea (4.8%) and the United States (3.5%).
- The main reason is the low investment in R&D by the corporate sector.
- While the corporate sector accounts for about two-thirds of gross domestic expenditure on R&D (GERD) in leading economies, its share in India is just 37%.
- **A significant portion of R&D funding originates from the government, and directed towards autonomous R&D laboratories operated by the government.**

**Education and learning**

- Education is extrinsic, passive and curriculum-led.
- Learning is intrinsic, active and curiosity-led.
- **A well-defined curriculum paves the way for greater learning outcome.**
- When the two facets of education and learning work together, it can lead to solving some of the world's greatest problems.

**Innovation and entrepreneurship**

- Need to establish the right ecosystem to nudge students towards innovation and entrepreneurship, which traditional engineering education has failed to do.
- We need an ecosystem where students can engage with corporates, start-ups, industry experts, partners, investors, accelerators, etc.

**Way Forward**

- The university curricula need to get away from focusing exclusively on awarding degrees to providing vocational training towards developing students' skills.
- Focusing on innovation must not take our minds away from problems in fundamental sciences or other streams.
- Funding for applied sciences should not be at the cost of fundamental sciences.
- The market caps of many technology-driven companies rank in the top 20 of global GDP alongside the nation-states.
- **Universities can play a significant role in fostering the economies of all nations.**

- Need for Sustained public funding to build world-class research and development infrastructure and hiring the best faculty in our university system.



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