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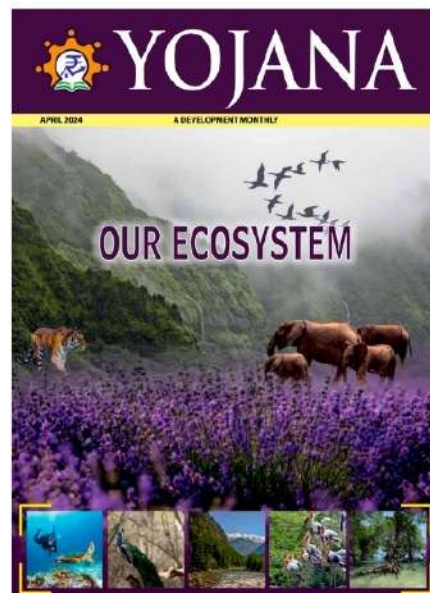
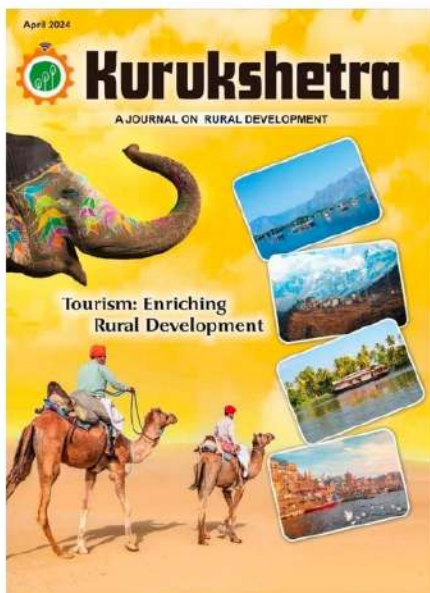
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# Contents

1) Rural Tourism.....	2	15) India's Changing approach towards the South China Sea Region: .....	24
2) Soil Ecosystem.....	3	16) Water Security: .....	25
3) Sacred Groves.....	4	17) Issues in Indian Food Sector:.....	26
4) Uniform Civil Code: .....	7	18) Time to engage with Left Wing Extremists .....	27
5) HIV/AIDS control program in India	9	19) Indian Seafarers- Threats faced in current geopolitical situation:.....	28
6) Defence Ecosystem in India- Moving towards Atma Nirbhar: .....	11	20) Impacts of Climate Change on human health: .....	30
7) Green Hydrogen- Opportunities and Challenges:.....	12	21) Curative Jurisdiction: .....	32
8) Issues in Indian Prisons: .....	14	22) Senior Citizen Care in India:.....	33
9) Household Consumption Expenditure Survey (HCES) 2022- 23:.....	16	23) Model Code of Conduct- Challenges and Reforms: .....	34
10) Climate Crisis and Women:.....	17	24) Coral bleaching in Great Barrier Reef .....	36
11) Increasing Women labour Force Participation Rate- Lessons from Japan:.....	18	25) Soil Health.....	37
12) Human Animal Conflict: Issues with rescuing animals:.....	19	26) Water scarcity .....	39
13) India and the Arctic:.....	21	<b>Model Questions .....</b>	<b>41</b>
14) Persons with disabilities as Consumers:.....	22		

## 1) Rural Tourism

*(GS-II: Inclusive Growth and issues arising from it)*

### Context

- Rural tourism in India is still in a nascent stage, emerging as a niche sector within the broader tourism industry.
- India's villages serve as a storehouse of the nation's rich culture, traditions, crafts, heritage, and agricultural practices.
- Harnessing the potential of these local elements through tourism generate not only **income** but also create **job opportunities** in rural regions.
- It also contributes to **mitigating distress migration** from rural areas, **addressing poverty**, and **promoting sustainable development**.

### Strategising the Way Forward

- The **Ministry of Tourism**, for promoting and developing rural tourism in India, has formulated two strategies.
- The **National Strategy and Roadmap for the Development of Rural Tourism in India** and the **National Strategy for the Promotion of Rural Homestays in India**.
- Both strategies are formulated with a broader vision to capitalise on the potential of Indian rural tourism. The strategies focus on the **holistic approach for developing rural tourism uplifting the rural economy alongside**.
- For the effective implementation of the National strategies and the providing support for promotion and development of Rural Tourism, the Ministry of Tourism has designated **Indian Institute of Tourism and Travel Management** as the Central Nodal Agency for

Rural Tourism and Rural Homestay.

### Positioning Indian Rural Tourism at Global Level

- The efficacy and triumph of the initiatives undertaken by the Government of India to foster rural tourism development are being accentuated by the international acclaim received from the **UN Tourism** (earlier UNWTO).
- **Pochampally village** from **Telangana state** was recognised as the **UNWTO Best Tourism Village** in 2021. Pochampally is a **small hamlet of weavers** known for the **renowned Pochampally silk** adorned with the Ikat design.
- The village demonstrates one of the finest models of community involvement in rural tourism and their development thereto.
- In 2023, **Dhordo from Gujarat state** was recognised as the **UNWTO Best Tourism Village**. Dhordo village sets the perfect example of incorporating tourism as the key economic driver impacting trade, job creation, investment, infrastructural development, social inclusion, etc.

### Community Reinforcement

- To enhance the capacity and ensure the enduring sustenance of rural tourism, the Government is aiming to establish **Capacity Building Resource Centres** at the National, State, and Cluster levels.
- These resource centres will serve as pivotal platforms for stakeholders, facilitating knowledge exchange and fostering interaction among practitioners, educational institutions, government agencies, and volunteers.
- The centres will also support local community-based tourism, build

stakeholder capacities, and emphasize collaboration for the resilience of communities and rural tourism providers in the face of challenges.

### Conclusion

- In fostering rural development, rural tourism plays a pivotal role in providing a range of benefits and avenues for development.
- Initiatives like competitions, international recognition, and strategic programs taken for the development of Indian rural tourism, unlock economic growth, preserve cultural heritage, and empower local communities.
- These comprehensive approaches not only showcase the untapped potential of rural India but also position it as a vibrant hub for responsible tourism, fostering resilience, and enhancing the overall well-being of rural communities.

## 2) Soil Ecosystem

*(GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)*

### Introduction

- The soil ecosystem is a remarkable and complex network of organisms and abiotic factors that interact in a dynamic environment beneath our feet.
- From microscopic bacteria to burrowing mammals, soils **support a diverse array of life forms**, playing a critical role in **sustaining terrestrial ecosystems and human societies alike**.

### Components of the Soil Ecosystem

#### 1. Physical Environment:

- The physical properties of soil, including **texture, structure, and moisture content**, create the foundation for the soil ecosystem. These factors influence the

distribution and behaviour of organisms within the soil profile.

#### 2. Organic Matter:

- **Dead plant and animal material**, along with living organisms such as microbes, fungi, and earthworms, comprise the organic component of soil. Organic matter **provides nutrients and energy** to support soil life and plays a crucial role in **soil fertility and structure**.

#### 3. Microorganisms:

- **Bacteria, fungi, protozoa, and other microorganisms** are abundant in soil and are **vital for nutrient cycling, decomposition, and soil health**. They break down organic matter, fix nitrogen, and contribute to the formation of soil aggregates.

#### 4. Macroorganisms:

- Larger organisms, including earthworms, insects, nematodes, and small mammals, inhabit the soil and play various roles in **nutrient cycling, soil aeration, and soil structure formation**. Their activities **influence soil fertility and ecosystem functioning**.

#### 5. Plant Roots:

- Plant roots **penetrate the soil, anchoring plants and absorbing water and nutrients**. Root exudates fuel **microbial activity** and contributes to **soil organic matter, shaping soil microbial communities and nutrient cycling processes**.

### Functions of the Soil Ecosystem

#### 1. Nutrient Cycling:

- **Soil organisms decompose organic matter**, releasing nutrients such as nitrogen, phosphorus, and potassium into the soil. These nutrients are then taken up by plants, fuelling growth and productivity.

#### 2. Decomposition:



- Microorganisms and detritivores break down organic matter, recycling nutrients and returning them to the soil. Decomposition processes contribute to **soil fertility and organic matter accumulation**.

### 3. Soil Formation:

- Through **weathering and biological processes**, soil develops over time from parent material. Soil organisms, especially earthworms and soil microorganisms, play a key role in soil formation by mixing and transforming soil materials.

### 4. Water Regulation:

- Soil acts as a **reservoir for water**, storing and releasing it slowly over time. Soil structure and organic matter content influence **water infiltration, retention, and drainage**, affecting plant growth, groundwater recharge, and flood mitigation.

### 5. Habitat Support:

- Soil provides a habitat for a vast array of organisms, ranging from microscopic bacteria to larger mammals. Soil structure and organic matter content determine habitat quality and support biodiversity within terrestrial ecosystems.

### Interconnections in the Soil Ecosystem

- The **components and functions of the soil ecosystem are interconnected** through intricate networks of relationships and feedback loops.
- For example, plant roots exude sugars and other compounds, fuelling the growth of soil microbes. In return, microbes aid in nutrient uptake by plants and contribute to soil aggregation and structure formation.
- Similarly, earthworms ingest soil organic matter and mineral

particles, mixing and enriching the soil as they move through it.

### Conclusion

- The soil ecosystem is a dynamic and diverse community of organisms and abiotic factors that sustain life on Earth. From nutrient cycling to habitat support, soil plays a vital role in terrestrial ecosystems and human well being.
- Understanding the complexity of the soil ecosystem is essential for sustainable land management and ecosystem conservation, ensuring the continued health and productivity of soils for future generations.

## 3) Sacred Groves

*(GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)*

### Context

- Sacred groves are **small forest patches** conserved by local people through religious beliefs, traditional sentiments, and taboos and are repositories of many threatened species; they are popularly called **living biological heritage sites** as they contain rich diversity.
- The existence of sacred groves took place all over the world, including in India as well as in Asia, Africa, Europe, Australia, and America.
- It is estimated that the total number of sacred groves in India is likely to be more than 1.5 lakh.

### Significance of Sacred Groves

#### 1. Protection of Ecosystems:

- Sacred groves often serve as protected areas, safeguarding biodiversity by restricting human activities that can harm the environment.

#### 2. Traditional Knowledge:

- Local communities that manage sacred groves often possess a deep understanding of the local ecology

and traditional practices that have been passed down through generations. This knowledge can be valuable for informing conservation efforts for future generations.

### 3. Biodiversity Conservation:

- Sacred groves can act as refuge for a wide range of plant and animal species, especially in areas where habitat loss is a major threat. Biodiversity conservation practices associated with sacred groves often lead to sustainable management of natural resources and the maintenance of biodiversity.

### 4. Cultural Preservation:

- Sacred groves are important repositories of cultural and religious practices of local communities. They are often seen as the dwelling places of deities or spirits, and are used for religious ceremonies and rituals.

### 5. Community Empowerment:

- Sacred groves are often managed by local communities. Supporting the conservation of these areas can help to empower these communities and give them a greater role in decision-making about their natural resources.

### 6. Environmental Benefits:

- They play a vital role in maintaining the ecological balance of an area. The trees and other vegetation in sacred groves help to prevent soil erosion and provide clean air.

### 7. Community Conservation:

- The core principle of community conservation is protecting biodiversity, preserving natural resources, and managing natural resources sustainably for future preservation. It can also lead to a number of other benefits, such as improved livelihoods for local communities, increased food security, and enhanced cultural preservation.

## Challenges

- Sacred Groves have been legally protected under the **Community Reserves in the Wildlife (Protection) Amendment act, 2002**, these are the best examples for community conservation and also unique source for in-situ conservation but, in the modern era, the groves are facing serious threat due to:

#### 1. Habitat loss:

- Due to developmental activities like urbanisation, infrastructure development, and expansion of agriculture in top hills many sacred groves are being cleared or fragmented, which can harm the plants and animals that live there.

#### 2. Climatic change:

- Threatens the forest health and ecosystem, due to sudden and abrupt changes in temperatures. This is leading to rapid erosion of the sacred groves, their ecology, floral compositions, including medicinal taxa.

#### 3. Global warming:

- Increase of temperature for a long time disrupts weather patterns, like heat waves, droughts, floods, forest fires causes changes in forest ecosystem, this will lead to loss of biodiversity.

#### 4. Invasive/ Alien species:

- These are introduced species that can harm the native species. Often, they are considered one of the major threats to the entire ecosystem, e.g. *Chromolaena odorata*, *Lantana camara* and *Prosopis juliflora*.

#### 5. Exploitation of resources:

- In some cases, local communities may collect too much firewood, medicinal plants, or other resources from the sacred grove. This can put a strain on the ecosystem and lead to degradation.

**Other challenges:**

- Anthropogenic pressure, encroachment, deforestation, cultural degradation, pollution, and no proper legislations, etc.

**Management of Sacred Groves**

- Some groves are under the custody and management of local communities or tribes. Some are owned and managed by the village communities through a system of hereditary trusteeship. All management decisions are made collectively by the entire village during the annual rituals in the sacred grove. Community Involvement, Sustainable Practices, Scientific Collaboration with Organisations, Balancing customs, Religious Beliefs and Conservation are key principles for management of Sacred Groves.

**Legislations:**

- The **Wildlife (Protection) Act, 1972** empowers the **State Government** for declaration of any private or community land, as a community reserve, for protecting flora fauna, traditional or cultural conservation values and practices.
- **Wildlife (Protection) Amendment Act, 2002:** This act introduced the concept of '**Community Reserves**', which can be used to provide government protection to sacred groves on community-conserved lands. This act prohibits hunting and logging within these areas.

**Constitutional Protection:**

- There is **no specific article directly mentioning sacred groves** but there are a few articles that can be **interpreted** to some level of protection of sacred groves.
- **Article 25(1):** This article guarantees the freedom of conscience and the right to practice and propagate religion. This right

extends to the protection of practices associated with sacred groves, as long as they do not violate the rights of others.

- **Article 48A:** Directs the state to protect and improve the environment and to safeguard the forests and wildlife of the country. This can be seen as providing an indirect mandate for the protection of sacred groves, as they represent both environmental and cultural importance.
- **Article 51A(g):** This article imposes a fundamental duty on every citizen to protect and improve the environment and to have compassion for living creatures reflecting the respect for nature inherent in sacred groves.

**Conclusion**

- Sacred groves have been legally protected under community reserves under the Wildlife (Protection) Amendment Act, 2002. These are the best examples of community conservation and unique source for in-situ conservation, but in the modern era, the groves are facing serious threats due to rapid urbanisation, cultural shifting, anthropogenic pressure, global warming, and climatic change, etc., leads to rapid erosion of the sacred groves, their ecology, floral shifting, anthropogenic pressure, global warming, and climatic change, etc., leads to rapid erosion of the sacred groves, their ecology, floral & faunal compositions, and sociocultural significance.
- Hence, there is an urgent need to promote/ initiate conservation measures both of in-situ, and ex-situ; stringent government legislation (legal protection) and awareness programmes that includes traditional knowledge,

cultivars, folk varieties, and incentives for research & development are necessary to protect these groves for future generations.

#### 4) Uniform Civil Code:

*(GS-II: Indian Constitution—Historical Underpinnings, Evolution, Features, Amendments, Significant Provisions and Basic Structure.)*

##### Definition:

- Uniform Civil Code is a proposal in India that is aimed at replacing multiple personal laws based on religions, customs, and traditions with one common law for everyone irrespective of religion, caste, creed, sexual orientation, and gender.

##### In the Constitution:

- The Constitution of India in **article 44** says, “The State shall endeavour to secure for the citizens a **uniform civil code throughout the territory of India.**”
- It is part of the **Directive Principles of State Policy (Part IV of the Constitution)**, whose provisions are not enforceable by any court, but the principles laid under them are to be considered as “fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws.”

##### In India:

- The Goa Civil Code has been in force since Portuguese times and is considered a Uniform Civil Code.
- In 1867, Portugal enacted a Portuguese civil code and in 1869 it was extended to Portugal’s overseas provinces (that included Goa).
- In independent India, Uttarakhand was the first state to have an UCC in place.

##### Need for a UCC:

- **Equality:** A UCC promotes equality by ensuring all citizens are subject to the same laws, irrespective of their religion. This helps to eliminate discrimination based on religion.
- **Gender Justice:** Many personal laws are seen as discriminatory against women. A UCC could provide women with equal rights in marriage, divorce, inheritance, and adoption by removing the inbuilt gender biased provisions of the personal laws.
- **National Integration:** A common set of laws would promote national unity by fostering a sense of belonging among all citizens.
- **Simplification of Laws:** It would simplify the complex legal framework by reducing the number of laws and judicial interpretations, making the legal system more accessible.
- **Secularism:** A UCC is in line with the secular principles enshrined in the Constitution, treating every citizen equally under the law.

##### Challenges in implementing UCC:

- **Cultural Sensitivity:** India is a diverse country with deep-rooted traditions and customs. Imposing a uniform set of laws might be seen as an infringement on cultural and religious practices.
- **Opposition from Minority Communities:** Minority communities might view UCC as an attempt to undermine their cultural identity and impose the majority’s cultural norms.
- **Practical and Implementation difficulties:** Implementing a UCC involves significant legislative changes and could lead to widespread resistance and legal challenges.
  - Few states already have common laws in place which



are to be included into the National level UCC.

- Drafting a UCC that accommodates the diverse cultural practices and traditions of all communities in India is a complex task.
- **Political Sensitivity:** The UCC is a politically sensitive issue, with potential to cause communal tensions. Different political parties have varying stands on this issue.
- Concerns have been raised on the working of UCC in **Uttarakhand** by different sections. Any move on the direction of a national level UCC should be done after a detailed consultation across the society.

#### Key provisions of Uttarakhand UCC:

##### Marriage:

- **Monogamy:** Prohibits bigamy or polygamy; neither party should have a living spouse at the time of marriage.
- **Compulsory Registration:** All marriages must be registered within 60 days. Non-registration attracts a penalty of ₹10,000, while providing false information can lead to a fine of ₹25,000 and imprisonment for three months

##### Divorce:

- **Equality in Rights:** Equal reasons and rights for men and women regarding divorce. Divorce cannot be granted without a court order.
- **Punishable Practices:** Halala, iddat, and triple talaq are punishable offences.
- **Nullity of Marriage:** Grounds for annulment include non-consummation, contravention of marriage conditions, force or coercion, or pregnancy by someone other than the spouse.
- **Custody of Children:** Custody of children under 5 years remains with the mother in case of divorce or domestic dispute.

##### Inheritance:

- **Equal Property Rights:** Sons and daughters have equal rights to property across all classes.
- **Inclusion of Various Children: Illegitimate, adopted, surrogacy-born, and assisted reproductive technology** children are considered biological children.
- **Intestate Succession:** Equal rights to property for wife, children, and parents. A specified order of preference for inheritance and disqualifications.

##### Live-in Relationships:

- **Mandatory Registration:** Live-in relationships must be registered within the state's jurisdiction.
- **Termination Procedure:** Relationships can be terminated by submitting a statement to the Registrar.
- **Penalties:** For failure to register or providing false information.
- **Maintenance Claims:** Women deserted by live-in partners can claim maintenance.
- **Legitimacy of Children:** Children born out of live-in relationships are considered legitimate.
- **Prohibitions on Registration:** Relationships involving prohibited degrees, married individuals, minors, or obtained by coercion or fraud cannot be registered.

##### Other Provisions:

- **Tribals Excluded:** The UCC excludes Scheduled Tribes whose customary rights are protected under the Constitution.
- **Religious Customs and Beliefs:** The Bill maintains that it does not tamper with the traditions and customs of any religion, caste, or sect.
- **Protection of Children:** This UCC abolishes the concept of illegitimate children, providing legal recognition to children born in void

or voidable marriages and live-in relationships.

## 5) HIV/AIDS control program in India

*(GS-II: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.)*

### Context:

- Twenty years ago, on April 1, 2004, the Indian government had launched Free Antiretroviral Therapy (ART), for Persons living with HIV (PLHIV), a decision which has proven one of the successful and a key intervention in the fight against HIV/AIDS.
- At present, with changed goals and priorities, it becomes necessary to look into the journey of AIDS control and to make it better.

### What is HIV?

- **HIV (human immunodeficiency virus)** is a virus that attacks the body's immune system.
- It is spread by contact with certain bodily fluids of a person with HIV, most commonly during unprotected intercourse, from mother to foetus during pregnancy, or through sharing injection /drug equipment.
- If HIV is not treated, it can lead to AIDS (acquired immunodeficiency syndrome). There is currently no effective cure. But with proper medical care, HIV can be controlled.

### What is AIDS?

- AIDS is the late stage of HIV infection that occurs when the **body's immune system is badly damaged because of the virus.**
- People with AIDS can get an increasing number of **opportunistic infections.**
  - Opportunistic infections are illnesses that occur more frequently and are more

severe in people with HIV. This is because they have damaged immune systems.

### Evolution of the AIDS Control Journey:

- In the early 1980s, HIV/AIDS emerged as a global health crisis, marked by fear, stigma, and discrimination. The initial response was limited due to the lack of effective treatment options.
- **Development of Antiretroviral Therapy (ART):** The **first antiretroviral drug, AZT (zidovudine)**, was approved by the US FDA in 1987. Subsequent developments led to the introduction of **combination therapies like HAART (highly active antiretroviral therapy)** in 1996, but access remained limited, especially in low-income countries like India.
- **Global Initiatives:** In 2000, at the UN Millennium Summit, world leaders set specific goals to combat HIV/AIDS, leading to the creation of the Global Fund to Fight AIDS, Tuberculosis, and Malaria in 2002. These initiatives aimed for universal access to HIV prevention, treatment, care, and support services.
- **Introduction of Free ART in India:** In 2004, the Indian government launched Free Antiretroviral Therapy (ART) for Persons Living with HIV (PLHIV). Initially, access to ART was limited due to high costs and geographical barriers.
- **Expansion and Modification of ART Program:** Over the years, India's ART program evolved to include children, relax eligibility criteria, and adopt a **"Treat All" approach** irrespective of **CD4 count**. This expansion aimed to increase access and adherence to treatment.

- **CD4** count is the number of CD4 cells (CD4 T lymphocytes or "helper T cells") in the blood.
- These cells help fight infection by triggering your immune system to destroy viruses, bacteria, and other germs that may make you sick.
- HIV attacks and destroys CD4 cells. Without treatment, HIV may destroy so many CD4 cells that the immune system will have trouble fighting off infections.
- **Complementary Initiatives:** In addition to free ART, India implemented complementary initiatives such as free diagnostic facilities, prevention of parent-to-child transmission of HIV (PPTCT) services, and management of opportunistic infections like tuberculosis.
- **95-95-95 Strategy:** The **National AIDS Control Programme (NACP) phase 5** calls for the attainment of ambitious targets of 95-95-95 by 2025, where **95% of all people living with HIV know their HIV status; 95% of all people diagnosed with HIV infection receive sustained antiretroviral therapy (ART), and 95% of all people receiving antiretroviral therapy achieve viral suppression by 2025.** These targets are aligned with global targets agreed by the UN.
- The **annual new HIV infections in India have declined by 48%** against the global average of 31% (the baseline year of 2010).
- The **annual AIDS-related mortalities have declined by 82%** against the global average of 47% (the baseline year of 2010).
- These are significant achievements considering that many of the other government-run public health programmes in India have failed to achieve or sustain good coverage.

#### Reasons for this Success:

- **Free and Treat All approaches:** ART services has been given free to certain patients from 2004 and was gradually widened to cover all types of patients with HIV infection.
- **Patient-Centric Approach:** The program adopted a patient-centric approach by providing free ART, reducing patient visits through longer medication supplies, and offering free viral load testing.
- **Continuous Expansion and Adaptation:** The program continuously expanded services and adapted to changing circumstances, such as introducing new, more potent drugs and relaxing eligibility criteria.
  - In two decades of free ART initiative, the facilities offering ART have expanded from less than 10 to around 700 ART centres. 1,264 Link ART centres have provided, and are providing, free ART drugs to approximately 1.8 million PLHIV on treatment.
- **Community Engagement:** The program engaged communities and stakeholders, ensuring their participation and support.
- **Political Will and Government Support:** Successive governments showed political will and provided

#### Current Status:

- **India's share** in PLHIV globally had **come down to 6.3%** (from around 10% two decades ago).
- As of the end of 2023, of all PLHIV, an estimated 82% knew their HIV status, 72% were on ART and 68% were virally suppressed.

sustained funding for the HIV/AIDS control program in India.

#### Measures to streamline the process:

- **Addressing Delayed Enrollment:** Efforts should focus on addressing delayed enrollment to ART facilities, perhaps through increased awareness campaigns and improved accessibility.
- **Enhancing Adherence:** Patients stop or become irregular once they see small relief from the symptoms. This results in the development of resistance as well. This 'loss to follow up' needs to be addressed.
  - Strategies should be devised to enhance adherence to treatment, including counselling services, support groups, and reminders for medication.
- **Ensuring Supply Chain Management:** Ensuring sustained supply and availability of ART across all regions of the country, particularly in remote areas, is crucial.
- **Private Sector Engagement:** Encouraging private sector engagement in care provision for PLHIV could expand service coverage and options.
- **Integration with Other Health Programs:** Strengthening integration with other health programs, such as those addressing hepatitis and non-communicable diseases, could improve overall health outcomes for PLHIV.
- **Focus on Preventable Mortality:** Adopting a focused approach to reduce preventable mortality, including systematic death reviews and advanced diagnostics, can improve survival rates among PLHIV.
- **Continuous Training and Capacity Building:** Continuous training and capacity building for

healthcare staff are essential to keep up with evolving scientific knowledge and maintain service quality.

#### Conclusion

- The success of the AIDS control program is a testament to the point that if there is a will, the government-run public health programme can deliver quality health services free, and available and accessible to everyone. The 20 years of free ART and subsequent steps under the NACP have the potential to guide other public health programmes in the country.

### 6) Defence Ecosystem in India- Moving towards Atma Nirbhar:

*(GS-III: Achievements of Indians in Science & Technology; Indigenization of Technology and Developing New Technology.)*

- India's defence ecosystem has undergone transformations in several key areas in recent years. Key institutional and policy changes have spurred defence indigenisation, domestic capital procurement and defence exports.

#### Steps towards Defence Indigenisation:

- **Defence Acquisition Procedure (DAP) 2020:** Mandates 50% indigenous content in procurement contracts, encouraging domestic production. It also Introduced "Buy (Global-Manufacture in India)" to incentivize foreign OEMs to establish manufacturing facilities in India.
- **Positive Indigenisation Lists:** Released by the Ministry of Defence, specifying items to be procured only from domestic sources.
- **Srijan Indigenisation Portal:** Facilitates the indigenisation process by listing imported items

and promoting their domestic production.

- **Establishment of Defence Industrial Corridors:** In Tamil Nadu and Uttar Pradesh, attracting significant investments. Initiatives like the SAAB project demonstrate foreign investment into these corridors.
- **Naval Development:** Notable progress in building naval platforms such as the INS Vikrant aircraft carrier and Project 17A for development of Frigates. These were worked on by the Indian Navy's Warship Design Bureau, showcasing advancements in naval capabilities.
- **Holistic Review of DRDO:** A committee is constituted to review the functioning of the Defence Research and Development Organisation. The goal is to make DRDO, build "fit to purpose" domestic capabilities in defence R&D and innovation, commensurate with the challenges of the 21st century.
- **Collaboration with Private sector:** Private sector contribution increases, with joint ventures playing a significant role.
- **Initiatives to Foster Innovation:** iDEX, iDEX Prime framework, Technology Development Fund (TDF) scheme, and Dare to Dream Innovation contest aim to promote innovation in defence.
- **Focus on Defence Exports:** India aims to increase defence exports, targeting Rs 35,000 crore by 2025. Policies such as Atmanirbhar Bharat and Make In India are also promoting indigenous defence production to mitigate risks associated with supply chain disruptions.

### Conclusion

- The goal of a Viksit Bharat (developed India) by 2047 requires the defence sector to be more resilient and self-reliant. The transformation underway in the defence industrial complex has set the stage for multiple stakeholders to rally and promote domestic technological innovation while cementing strategic partnerships around the world. The day is not far when India will become an integral part of the global defence value chains.

### 7) Green Hydrogen- Opportunities and Challenges:

*(GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.)*

#### Definition:

- Green hydrogen refers to hydrogen that is **produced from the electrolysis of water splitting it into hydrogen and oxygen** using an electrolyser powered by **renewable energy**.
- This is considered to be a **virtually emission-free pathway** for hydrogen production — it is 'end-to-end' green because it is powered by green energy, uses water as feedstock, and emits no carbon on consumption.
- Currently, most hydrogen produced for industrial consumption and applications is 'grey' hydrogen, which is produced from natural gas through energy-intensive processes, and has high carbon emissions.
- Except for a difference in the production pathway and emissions, green hydrogen is essentially the same as grey — or hydrogen categorised by any other colour.

#### Opportunities Provided by Green Hydrogen:



- **Reduced Emissions:** Green hydrogen offers a pathway to significantly reduce greenhouse gas emissions in the transportation sector, contributing to global efforts to mitigate climate change.
- **Energy Independence:** By producing hydrogen from renewable sources, countries can reduce their dependence on fossil fuels and enhance energy security. Hydrogen can also serve as a form of energy storage, complementing intermittent renewable energy sources like solar and wind, and enabling grid stabilisation and balancing.
- **Job Creation and Economic Growth:** The development of green hydrogen infrastructure and technologies can create new job opportunities and stimulate economic growth in sectors such as manufacturing, construction, and energy.
- **Diversification of Energy Sources:** Incorporating green hydrogen into the energy mix diversifies energy sources, reducing reliance on finite fossil fuels and enhancing resilience to supply disruptions.
- **Export Potential:** Countries with abundant renewable resources can become exporters of green hydrogen, tapping into international markets and boosting trade.
- **Technological Innovation:** The transition to green hydrogen drives innovation in renewable energy, electrolysis technologies, storage solutions, and hydrogen applications, fostering technological advancements and competitiveness.
- **Energy Storage: Decarbonization of Hard-to-Electrify Sectors:** Green hydrogen can decarbonize

sectors that are difficult to electrify directly, such as heavy industry, aviation, and shipping, offering a versatile solution for emissions reduction across various sectors.

### Challenges in Increasing Green Hydrogen Adoption in the Transportation Sector:

- **High Production Cost:** Currently, green hydrogen production is expensive due to the cost of renewable energy sources and electrolysis equipment.
- **Storage and Transportation Infrastructure:** Building infrastructure for storing and transporting green hydrogen at scale is challenging and costly.
- **Competitive Pricing:** Green hydrogen needs to be priced competitively with other fuels like diesel and petrol to incentivize adoption, which requires significant cost reduction efforts.
- **Lack of Supporting Infrastructure:** Developing refuelling stations for hydrogen-powered vehicles is crucial, but the infrastructure is currently limited, hindering widespread adoption.
- **Technical Challenges:** Specialised equipment, such as high-pressure storage cylinders, is needed for hydrogen transportation, which adds to the cost and complexity.
- **Safety Concerns:** Hydrogen is highly flammable, requiring robust safety standards and infrastructure to handle it safely at refuelling stations and during transportation.
- **Technological Maturity:** Hydrogen fuel cell technology needs further refinement and development to improve efficiency and reduce costs.

### Solutions to Address These Challenges:

- **Investment in Research and Development:** Governments and industry players should invest in

R&D to develop more efficient electrolysis technologies and cheaper renewable energy sources to lower production costs.

- **Infrastructure Investment:** Governments can incentivize the development of hydrogen refuelling stations and invest in the infrastructure needed for hydrogen storage and transportation.
- **Economic Incentives:** Subsidies, tax breaks, or carbon pricing mechanisms can help make green hydrogen more competitive with traditional fuels.
- **Standardisation and Regulation:** Developing standardised safety protocols and regulations for hydrogen handling and transportation can mitigate safety concerns and build consumer confidence.
- **Hydrogen Supply Chains:** Building integrated hydrogen supply chains can streamline production, storage, and distribution, reducing costs and increasing efficiency.
- **Hydrogen Certification and Training:** Providing certification programs and training for personnel involved in hydrogen handling can ensure proper safety protocols are followed.
- **Long-Term Planning:** Governments and industry should adopt long-term strategies and commitments to support the growth of the hydrogen economy, providing stability and confidence for investment and development.

### Conclusion

- Focusing on Green hydrogen can help in achieving India's ambitious targets in the nationally determined contributions (NDCs) under the UN Framework Convention on Climate Change.

## 8) Issues in Indian Prisons:

*(GS-II: Structure, Organization and Functioning of the Executive and the Judiciary—Ministries and Departments of the Government; Pressure Groups and Formal/Informal Associations and their Role in the Polity.)*

### Context:

- Imprisonment of Delhi's Chief Minister raised curious questions about the special facilities made available to him in the Tihar prison complex.
- These "special facilities" such as access to medication for diabetes, a pen, paper, a television, medical staff, books, are at best classified as "basic", not "special".
- This idea brings up the following question 'Why are other prisoners denied such basic amenities and what are the other issues in prisons which affect the dignified life of a prisoner?'

### Issues faced by prisoners in Indian prisons:

- **Lack of Basic Amenities:** Many prisoners, especially those from weaker socio-economic backgrounds, could not access basic necessities such as medication for illnesses, pens, paper, books, and television.
- **Overcrowding:** Indian prisons suffer from severe overcrowding, with national average occupancy rates of 131.4% (Prison Statistics India 2022 by National Crime Records Bureau). Some central jails in Delhi have occupancy of more than 300%.
  - 75.8% of all the inmates are undertrials.
  - This leads to a host of problems including limited access to facilities, increased stress on resources, and compromised living conditions.

- **Unhygienic Conditions:** Overcrowding exacerbates issues of hygiene, with prisoners living in unclean environments that can lead to health problems.
  - **Custodial torture** is one another problem faced by the prisoners. This had even led to the death of many prisoners.
  - **Unequal Access to Legal Rights:** Many prisoners, particularly those who cannot afford good legal representation, struggle to secure permissions from the court for basic necessities. This results in a disparity in access to rights based on socio-economic status.
  - **Lack of Rehabilitation Services:** Prisons often fail to provide adequate rehabilitation and reformation services to inmates, which are essential for their successful reintegration into society as law-abiding citizens.
  - **Normalising Inhumane Treatment:** There is a societal tendency to normalise inhumane and degrading treatment of prisoners, perpetuating a cycle of suffering rather than viewing prisons as institutions for rehabilitation and reform.
- Government Measures:**
- **Model Prisons Act 2023:** Prison is a State subject and so the Union Government has come up with this model to act as a framework for prison management. The salient features of this act are,
    - Provision for security assessment and segregation of prisoners, individual sentence planning,
    - Grievance redressal, prison development board, attitudinal change towards prisoners.
  - Provision of separate accommodation for women prisoners, transgender, etc.
  - Provision for use of technology in prison administration with a view to bring transparency in prison administration.
  - Provision for video conferencing with courts, scientific and technological interventions in prisons, etc.
  - Provision of punishment for prisoners and jail staff for use of prohibited items like mobile phones etc. in jails.
  - Provision regarding establishment and management of high security jail, open jail (open and semi open), etc.
  - Provision for protecting the society from the criminal activities of hardened criminals and habitual offenders, etc.
  - Provision for legal aid to prisoners, provision of parole, furlough and premature release etc. to incentivise good conduct.
  - Focus on vocational training and skill development of prisoners and their reintegration into the society.
- **Legal aid for Undertrials:** The State Legal Services Authorities have established Legal Service Clinics in jails, which provide free legal assistance to persons in need.
    - These clinics have been established to ensure that no prisoner remains unrepresented and legal aid and advice is provided to them.
    - The National Legal Services Authority had prepared a

Standard Operating Procedure (SOP) for Under-Trial Review Committees, which has been circulated by MHA to all States/Union Territories for making best use of the same and providing relief to prisoners.

- National Legal Services Authority also holds awareness generation camps in jails to generate awareness about availability of free legal aid, plea bargaining, Lok Adalats and legal rights of inmates, including their right to bail, etc.

### Conclusion

- It is time that we view prisons and prisoners from a lens of reformation and rehabilitation. Prisons are not the “end” but the beginning for those who find themselves entangled with the criminal justice system, and seek to set a path on the road to reform.

## 9) Household Consumption Expenditure Survey (HCES) 2022-23:

*(GS-III: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.)*

### Context:

- The National Sample Survey (NSS) Office released the key results of the Household Consumption Expenditure Survey (HCES) 2022-23 in late February, 2024.
- These primarily include all-India estimates of the average household monthly per capita consumption expenditure (MPCE) for rural and urban areas, its distribution by broad item groups for food and non-food categories, the variation in the average MPCE of households

with different standards of living and the trend in the composition of MPCE since the 1999-2000 survey (55th round of the NSS).

### Methodology updates in the current survey:

- **Updated item coverage:** The survey now includes updated items to reflect current consumption behaviour.
- **Splitting of questionnaire:** The single questionnaire has been divided into three parts covering food items, consumables and services items, and durable goods. Each part is administered during separate monthly visits to selected households.
- **Change in strata for sampling:** Instead of considering every district as a basic stratum for rural and urban areas, the new methodology considers a State/UT as the basic stratum.
- **Change in household strata:** In rural areas, households are classified based on possession of land, while in urban areas, possession of four-wheeler cars for non-commercial use is used as the criterion.

### Issues in the New Methodology:

- **Non-comparability with past estimates:** The changes in methodology have led to non-comparability of current estimates with those of the past, making it difficult to track trends over time.
- **Under-reporting possibility:** The previous method of a single visit with a single questionnaire might have led to under-reporting of consumption expenditure, especially for items like durable goods.
- **Potential bias in household strata:** Using possession of four-wheeler cars as a criterion for urban household strata might

result in inadequate representation of rich households in certain states.

- **Concerns about sample representation:** The new method might not ensure adequate representation of rich households, which could affect the accuracy of estimates, particularly in states with a low proportion of urban households possessing four-wheelers.

#### Conclusion:

- Addressing these issues through suggestions such as replicating the traditional approach of one schedule with a one-time visit to households, as well as to develop a frame of rich households based on administrative data for better representation can help in streamlining the HCES process.

### 10) Climate Crisis and Women:

*(GS-II: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.)*

#### Context:

- The Supreme Court of India has just ruled that people have a right to be free from the adverse effects of climate change, and the right to a clean environment is already recognised as a fundamental right within the ambit of the right to life.
- These rights of Women and girls are affected as they experience disproportionately high health risks, especially in situations of poverty, and due to existing roles, responsibilities and cultural norms. This calls for an examination into problems faced by women due to the climate crisis.

#### Impacts of climate crisis on women:

- **Disproportionate health risks:** Women and girls, especially those in poverty, face higher health risks

due to climate change-induced disasters.

- **Higher likelihood of mortality in disasters:** Women and children are 14 times more likely than men to die in a disaster, according to UNDP.
- **Increased food insecurity:** Climate-driven crop yield reductions exacerbate food insecurity, particularly impacting poor households where women often bear the responsibility of ensuring food security.
- **Worsened domestic work burdens:** Women in drought-prone areas experience higher domestic work burdens, leading to poorer physical and mental health outcomes.
- **Higher vulnerability to gender-based violence:** There's a correlation between extreme weather events and an increase in gender-based violence against women.
- **Health risks from air pollution:** Exposure to pollutants affects women's health, as well as the health of unborn children, leading to respiratory and cardiovascular diseases.

#### Measures to reduce these impacts could include:

- **Empowering women:** Providing women with equal access to resources and opportunities can enhance their resilience to climate change and improve agricultural productivity.
- **Supporting women-led initiatives:** Encouraging women's participation in decision-making processes and supporting women-led environmental conservation efforts can lead to more effective local solutions.
- **Improving disaster preparedness:** Developing and



implementing gender-responsive disaster preparedness plans can help mitigate the disproportionate impact of disasters on women and children.

- **Addressing water scarcity:** Investing in rainwater harvesting and storage systems, as well as improving water access through local planning and government schemes, can alleviate water scarcity issues.
- **Urban planning for heat resilience:** Implementing urban planning strategies such as increasing green spaces, improving tree cover, and designing heat-resilient housing can reduce the impact of heatwaves on vulnerable populations, including pregnant women and the elderly.
- **Applying a gender lens to climate action:** Ensuring that climate change policies and action plans recognize and address the specific vulnerabilities of women, and empowering women to lead climate adaptation efforts, can lead to more equitable and effective responses to climate change.

#### Conclusion:

- Climate action plans should lay stress on the need to move beyond stereotypes, recognise the vulnerabilities of all genders, and implement gender-transformative strategies, ensuring a comprehensive and equitable approach to climate adaptation. Instead of being labelled as victims, women can lead the way in climate action.

## 11) Increasing Women labour Force Participation Rate- Lessons from Japan:

*(GS-II: Welfare Schemes for Vulnerable Sections of the population by the Centre and States and the Performance of these*

*Schemes; Mechanisms, Laws, Institutions and Bodies constituted for the Protection and Betterment of these Vulnerable Sections.)*

#### Context:

- Women's labour force participation rate (WLFPR) in Japan has grown by ten percentage points, from 64.9 percent in 2013 to 75.2 per cent in 2023. This is not only the fastest growth in Japan's WLFPR in the past few decades, but also the highest amongst the G7 countries in the last decade.
- As India embarks on a path towards women-led development, a few clear lessons emerge from Japan's experience in enhancing WLFPR to push the country's GDP.
- India and Japan share several cultural similarities — one that stands out relates to the social norms surrounding domestic work. Among the G20 countries, India and Japan have the widest gender gaps in unpaid care.

#### Lessons from Japan:

- **Long-term public investments in care infrastructure:** First, interventions for bridging the gender gaps in domestic and care work have a significant impact on WLFPR. Japan saw its highest gains in WLFPR when it committed to long-term public investments in care infrastructure and services, especially childcare.
- **Breaking Gender stereotypes in childcare:** Second, changing people's mindsets around social norms is as important as formulating progressive regulations. As is evident from the Japanese experience, legal entitlement to gender-neutral parental leave is not sufficient. Enhancing uptake among men requires an employer-led approach

that dispels gender stereotypes around care work.

- Japan made disclosures of paternity leave uptake mandatory, introduced flexible work, and encouraged companies to demonstrate that taking paternity leave would not hamper career progression have helped in boosting **paternity leave uptake from 2 per cent in 2012, to 17 per cent in 2023.**
- **Investment in Elderly care infrastructure:** Third, it is essential to invest in a wide range of care infrastructure and services solutions — covering not only childcare, but also elder care, domestic work, and long-term care for highly dependent adults to reduce dependency and access the silver economy.
  - For instance, Japan has leveraged some private sector partnerships for investments in affordable senior living and care services.
  - As the share of elderly persons in India's population is expected to rise from 10 per cent currently to 20 per cent by 2050, India, too will need to prioritise elder care infrastructure and service investments.
- A five-pillar strategy has been developed by leading organisations based on best practices from the world to unlock business opportunities in India's care economy, with a focus on the following:
  - Gender neutral and paternity leave policies;

- subsidies for availing/providing care services;
- enhancing investments from both the public and private sector in care infrastructure and services;
- skill training for care workers; and
- quality assurance for care services and infrastructure.

#### **Conclusion:**

- After nearly declining continuously for five decades, India's WLFPR has begun showing a rising trend, increasing from 23 per cent in 2017-18 to 37 per cent in 2022-23. To keep this momentum going, we will require a continued long-term focus on the care economy for unleashing NariShakti to achieve a Viksit Bharat @2047.

## **12) Human Animal Conflict: Issues with rescuing animals: (GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.)**

### **Context:**

- In February 2024, an elephant captured from a coffee plantation in what was ostensibly a 'rescue', was radio-collared and released 200 km away in a landscape unknown to the animal.
- This resulted in it straying into the neighbouring State days later. There was yet another attempt to 'rescue' him which led to its death.
- This incident calls for an understanding of the issues associated with rescuing animals in a Human-Animal conflict situation.

### **Issues in Rescuing Animals in Human animal Conflict situation:**

- **Blurry lines between rescue and capture:** There is often confusion between what constitutes a true "wildlife rescue" and a mere

capture. This ambiguity can lead to inappropriate interventions that may harm animals rather than help them.

- **Ignoring expert advice:** Guidelines issued by the central government for managing human-wildlife conflict often advise against immediate capture and relocation of animals. However, these recommendations are frequently disregarded in the field, leading to ineffective or harmful outcomes.
- **Poor handling and relocation practices:** In the case of snake rescue, there is a tendency towards poor handling, unnecessary removal from habitats, and relocation to unfamiliar environments. These practices can increase stress and reduce survival prospects for the animals involved.
- **Unsustainability of capture and relocation:** Relocating animals can disrupt ecosystems and lead to increased conflict in the destination area. It may not always be the most ethical or effective solution to human-wildlife conflict situations.
- **Villainization and divisiveness:** Viewing rescue as a solution to conflict can villainize either humans or animals, creating divisiveness rather than fostering holistic community integration and conservation efforts.
- **Need for proactive mitigation:** Effective conflict resolution should prioritise proactive measures such as early warning systems, public education, and better waste management to reduce human-wildlife interactions before they escalate into conflict situations.
- **Consideration of animal welfare:** Any intervention in human-animal conflict situations should prioritise the welfare of both humans and animals involved, considering the

ethical implications of capture, relocation, and other management strategies.

#### **Measures to address concerns of animals and humans:**

- **Adherence to expert guidelines:** Follow guidelines issued by relevant authorities, which may recommend prioritising preventative measures over immediate capture and relocation.
- **Proper training and equipment:** Ensure that rescue teams are properly trained in wildlife handling techniques and equipped with necessary tools for safe capture and handling of animals.
- **Assessment and planning:** Conduct a realistic assessment of the situation before initiating a rescue operation, considering factors such as the species involved, the nature of the conflict, and potential risks to both humans and animals.
- **Ethical considerations:** Prioritise the welfare of animals and minimise stress and harm during rescue operations. Avoid unnecessary removal from habitats and relocation to unfamiliar environments whenever possible.
- **Clear communication:** Communicate effectively with local communities to educate them about wildlife behaviour and the importance of coexistence. Encourage reporting of wildlife sightings and conflicts to facilitate early intervention.
- **Use of non-lethal deterrents:** Explore the use of non-lethal deterrents such as fencing, lighting, and noise devices to prevent conflicts and minimise the need for rescues.
- **Collaboration and research:** Collaborate with local communities, wildlife experts, and government

agencies to develop and implement innovative strategies for conflict resolution. Invest in research to better understand human-wildlife interactions and identify effective mitigation measures.

- **Post-release monitoring:** Monitor rescued animals post-release to assess their well-being and survival in their natural habitats. Provide necessary support and intervention if animals encounter difficulties adjusting to their environment.
- **Transparency and accountability:** Maintain transparency in rescue operations and ensure accountability for actions taken. Evaluate the outcomes of rescue efforts to learn from successes and failures and improve future interventions.

#### Conclusion:

- The system followed by Karnataka State Forest Department is one of the promising approaches. It includes early warning systems, regular monitoring, fencing, better lighting, public education, and improved waste management to reduce, or better prepare communities for potential interactions with wildlife. Improvising the existing systems and innovations can help in better management of Human-Animal conflicts.

### 13) India and the Arctic:

*(GS-II: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.)*

#### Background:

- In **December 2023**, India's **maiden winter expedition at the Arctic** began and in March 2024, it successfully came to an end.
- **Himadri, India's research station in the International Arctic Research Base at Svalbard** in

Norway, had until then hosted missions only in the summer.

- India has a historical involvement in the Arctic, dating back to the signing of the **Svalbard Treaty in 1920**.
- Its scientific research initiatives in the region, focusing on areas such as microbiology, atmospheric sciences, and geology, contribute to global understanding of climate change and its impacts.
- In 2008, India became the only developing country, aside from China, to establish an Arctic research base.
- **India was granted 'observer' status by the Arctic Council in 2013**. India commissioned a **multi-sensor moored observatory** in Svalbard in 2014 and **an atmospheric laboratory** in 2016.
- The work at these stations focuses on examining Arctic ice systems and glaciers and the consequences of Arctic melt on the Himalayas and the Indian monsoon.

#### Significance of India's growing interest in Arctic region:

- **Climate Change Awareness:** India's recognition of the Arctic's warming trend and its potential impact on **catastrophic climatic occurrences** in the country underscores the need for active participation in Arctic research and policy-making.
- **Trade Routes and Economic Opportunities:** India sees the opening up of Arctic sea routes, particularly the **Northern Sea Route**, as an opportunity to reduce shipping costs and time for trade, which could have substantial economic benefits for the country.
- **Geopolitical Concerns:** India's interest in the Arctic is also fueled by geopolitical factors, including concerns about **China's growing**

**investments** and access to Arctic resources, as well as **Russia's strategic decisions** in the region. India aims to maintain constructive relations with both Western nations and Russia amidst heightened tensions, making its engagement in Arctic affairs strategically significant.

- **Resource Exploitation:** Exploitation of Arctic resources, particularly in terms of **seabed mining for fossil fuels**, holds huge potential for India and the World. India's engagement in Arctic affairs necessitates the articulation of a clear economic strategy while **considering environmental consequences**.
- **Collaboration and Partnerships with Arctic countries:** India can develop collaboration with different Arctic countries to address its different problems.
  - **Partnership with Norway** has been growing from the 1980s to investigate changing conditions in the Arctic and Antarctic, as well as their impact on South Asia. As climate change ends up more deeply affecting the Arctic and the South Asian monsoon, these efforts have accelerated over time.
  - Partnership with Norway can also help India for greater Indian participation in the **Arctic Council's working groups**, tackling issues such as the blue economy, connectivity, maritime transportation, investment and infrastructure, and responsible resource development.
  - With **Denmark and Finland**, Indian

collaboration has come in areas such as **waste management, pollution control, renewable energy, and green technology**.

#### Conclusion:

- As global geopolitical tensions are also mounting in the Arctic, finding constructive ways to collaborate and develop will be in the interest of both India and the region.

#### 14) Persons with disabilities as Consumers:

*(GS-II: Welfare Schemes for Vulnerable Sections of the population by the Centre and States and the Performance of these Schemes; Mechanisms, Laws, Institutions and Bodies constituted for the Protection and Betterment of these Vulnerable Sections.)*

#### Background:

- Every single day, persons with disabilities (PwDs) face the struggle of seeking help for the most basic human activities, and the consequent loss of dignity, independence, and privacy.
- The pervasive inaccessibility that they encounter as consumers not only undermines their right to lead an independent life but also prevents them from equally participating in society as others.

#### Broad Categories of Issues faced by PwDs:

- **Inaccessibility of Goods and Services:** Many products and services are not designed with accessibility features, making it difficult for persons with disabilities to use them independently.
- **Inaccessibility of Customer Support:** Customer support options, such as contact information and complaint procedures, are often inaccessible



to persons with disabilities, hindering their ability to seek assistance or resolve issues effectively.

### Remedies available for improving the consumer rights of persons with disabilities:

- **Legal Protections:** Legislation such as the **Rights of Persons with Disabilities Act (RPWDA), 2016**, and the **Consumer Protection Act (CPA), 2019**, provide rights and avenues for redressal for consumers with disabilities.
  - The primary legislation in this regard is the Rights of Persons with Disabilities Act (RPWDA), 2016, which grants different rights including the rights to equality, accessibility, and reasonable accommodation.
  - In particular, the Act includes provisions for universally designed consumer goods and accessible services (Sections 43 and 46).
  - The Rules notified under the RPWDA also require all Information and Communications Technology (ICT) goods and services to be accessible in accordance with the BIS standards laid down by the government.
  - In case of a violation of these rights, a consumer with disability can file a complaint with the Disability Commissions established under the Act.
- **Disability Commissions:** Consumers with disabilities can file complaints with Disability Commissions **established under the RPWDA** to address violations

of their rights related to accessibility and discrimination.

- These Commissions can only issue recommendatory directions.
- **Consumer Commissions:** The **Consumer Protection Act (CPA)** empowers Consumer Commissions to impose penalties and award compensation for consumer complaints.
  - Unlike the RPWDA, the CPA has **strong enforcement and compliance mechanisms**. However, it lacks any dedicated rights for consumers with disabilities contrary to the RPWDA, which may deter them from filing complaints with Consumer Commissions.
  - Nevertheless, in *S. Suresh v. The Manager i/c, Gokulam Cinemas*, a person with locomotor disability who encountered inaccessibility at a cinema hall was awarded a compensation of ₹1,00,000.

### Changes needed to improve the experience of disabled persons as consumers:

- **Business Sensitisation:** Businesses should prioritise accessibility in their products and services to cater to the needs of persons with disabilities, thereby broadening their customer reach.
- **Government Policy Measures:** The government can bridge the gap in sensitization among businesses through effective policy measures, such as comprehensive accessibility guidelines for all goods and services.
- **Legal Reforms:** Alignment of consumer protection laws like the Consumer Protection Act with

disability rights legislation like the RPWDA is essential to ensure that persons with disabilities have effective avenues for seeking redressal for consumer rights violations.

- **Awareness Campaigns:** Raising awareness about the existing rights and resources available to consumers with disabilities is crucial to ensuring their full participation in the consumer market. This could include tailored campaigns and educational initiatives specifically targeting consumers with disabilities.

#### Conclusion:

- In India, persons with disabilities account for 5-8% of the population (World Bank, 2009). Implementation of changes recommended can help in improving the lives of this vulnerable section.

### 15) India's Changing approach towards the South China Sea Region:

*(GS-II: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.)*

#### Context:

- India's position on the South China Sea has changed significantly in recent years, mirroring its broader strategic and economic aspirations on the global stage through a more clearly articulated stance backing the provisions of international maritime law, sovereignty, and sovereign rights in the South China Sea.
- India's joint statements with the Philippines showing full support for the Philippines in upholding its national sovereignty and asking China to adhere to the rules-based maritime order and acknowledge the International Court of Justice

ruling of 2016 in favour of Manila are examples of this change.

#### India's Changing approach towards South China Sea:

- **Shift from Look East to Act East Policy:** India has transitioned from a primarily economically driven "Look East Policy" to a **more strategically oriented "Act East Policy"** under Prime Minister Narendra Modi's administration. This signifies a move towards more active engagement in the Indo-Pacific region.
- **Increased Strategic and Active Engagement:** India's Act East Policy emphasises not only economic integration but also strategic partnerships and **expanded security cooperation** with countries in the Indo-Pacific, including Vietnam, Malaysia, Singapore, and the Philippines.
- **Support for International Maritime Law and Sovereignty:** India has increasingly backed the provisions of international maritime law, sovereignty, and sovereign rights in the South China Sea. This includes supporting the **principle of freedom of exploration and exploitation of maritime resources** within the bounds of international law, specifically **UNCLOS**.
  - This stance indirectly challenges China's expansive territorial claims and activities in the South China Sea, positioning India as a responsible stakeholder committed to regional stability and security.
- **Strengthening of Regional Security Engagements:** India has strengthened its regional security engagements, including regular naval exercises and military cooperation with Southeast Asian

nations. These actions underscore India's commitment to regional security and act as a counter to China's assertive posture in the South China Sea.

- **Nuanced Positioning and Less Caution:** India's stance on the South China Sea has become more nuanced and less cautious. This shift can be attributed to escalating tensions in the region, particularly due to China's assertive territorial claims and militarization efforts.

### Conclusion:

- India's nuanced approach in the South China Sea, therefore, is emblematic of its broader strategy aiming to safeguard its interests while contributing to a collective effort to maintain peace, stability, and respect for international law in the Indo-Pacific region.

## 16) Water Security:

*(GS-I: Important Geophysical Phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features and in flora and fauna and the effects of such changes)*

### Context

- Water security refers to the sustainable management and equitable distribution of water resources to ensure access to safe and reliable water for human needs, economic activities, and ecosystem health, both in the present and future generations.
- Water is also a key component of the world's clean energy transition helping in the Climate resilience process.
- Securing and saving this precious resource is important and requires the following strategy.

### Water Security and Climate resilience:

- **Comprehensive Policymaking:** Effective water governance needs policies that **recognise its interactions with food and energy systems**. However, analysis shows that although India has adopted several policies, most do not recognise this nexus while planning or at the implementation stage.
  - For instance, the impact of **scaling up solar irrigation pumps on groundwater levels** must be analysed to deploy the technology where there is an optimal mix of solar resource and higher groundwater levels.
  - Policies should incorporate the food-land-water nexus through localised evidence and community engagement.
- **Increasing Water use efficiency:** India needs to focus on the judicious use of blue and green water through water accounting and efficient reuse. **The National Water Mission targets increasing water use efficiency by 20% by 2025.**
  - Water accounting is essential for promoting water use efficiency and creating incentives for investments in treated wastewater reuse.
- **Enhanced Financial support:** Following global trends, India's climate action has been largely focused on mitigation in the industrial, energy, and transport sectors.
  - **Financial commitments for climate change adaptation in the water and agriculture sectors are still relatively small.** In 2019-20, for which

aggregate estimates are available, the per capita annual spending on climate change mitigation was about ₹2,200, whereas for adaptation, it was only ₹260.

- More funding is needed for **adaptation-specific interventions** such as strengthening wastewater management, providing incentives to promote climate-resilient agricultural practices (micro irrigation and crop diversification), and scaling up desalination plants as an alternative water source for thermal plants and green hydrogen production.

### Conclusion:

- Expectations that systemic change will occur overnight are unrealistic. But it is possible to make a start by pursuing more coherence in water, energy and climate policies, creating data-driven baselines to increase water savings, and enabling new financial instruments and markets for adaptation investments. A water-secure economy is the first step towards a climate-resilient one.

### 17) Issues in Indian Food Sector:

*(GS-III: Food Processing and Related Industries in India- Scope' and Significance, Location, Upstream and Downstream Requirements, Supply Chain Management.)*

#### Context:

- News articles about high levels of added sugar in Nestle's baby food had raised questions about the healthiness of various processed and packaged foods in Indian markets.

#### Issues in Indian Food market:

- **Rapid Nutrition Transition:** There's a significant shift from traditional, fibre-rich diets to processed, high-calorie Western diets due to economic progress and urbanisation.
- **Rise in Lifestyle Diseases:** Unhealthy diets contribute to an increase in lifestyle diseases like diabetes, hypertension, and obesity.
- **Aggressive Marketing of Unhealthy Foods:** Aggressive advertising of "tasty" and "affordable" junk foods, particularly targeting younger consumers, exacerbates unhealthy eating habits.
- **Lack of Clear Definition for HFSS Foods:** There's a need for a clear definition of **High Fat, Salt, and Sugar (HFSS)** foods to enable better regulation by FSSAI.
- **Inadequate Nutrition Labelling:** Current nutrition labelling on food packages is not easily understandable or noticeable by consumers.
- **Insufficient Regulation Enforcement:** Despite regulations, there are gaps in enforcement, allowing unhealthy foods to remain prevalent, especially in schools. The **Food Safety and Standards Authority of India (FSSAI)** lacks the resources to tackle the large food industry.
- **Limited Availability and Affordability of Healthy Foods:** Healthy foods like fruits, vegetables, and whole foods are often less accessible and more expensive compared to junk foods.
- **Need for Behavioural Change:** There's a lack of awareness and education on the health impacts of junk foods, requiring a shift in consumer behaviour towards healthier eating habits.

#### Ways to address these issues:

- **Clear Definition and Regulation of HFSS Foods:** FSSAI should define HFSS foods and enforce stricter regulations on their production, sale, and marketing.
- **Front-of-Pack Labelling (FOPL):** Implement clear and easy-to-understand FOPL like warning labels indicating high salt, sugar, or fat content to help consumers make informed choices.
- **Promotion of Healthy Subsidies:** Government policies should incentivize the production and consumption of healthy foods through subsidies, making them more affordable and accessible.
- **Behavioural Change Campaigns:** Launch multimedia campaigns to raise awareness about the health risks of junk foods and promote the consumption of nutritious, locally sourced foods.
  - Recognising the need to promote people's health and well-being, the Government of India has prioritised the promotion of healthy foods and an active lifestyle through its initiatives such as **Eat Right India and the Fit India Movement**.
- **Strengthened Enforcement of Regulations:** Ensure strict enforcement of existing regulations, through strengthening FSSAI and limit the availability of unhealthy foods and promote healthier alternatives.
- **Integration of Nutrition Education:** Integrate nutrition education into school curriculums and community programs to instil healthy eating habits from a young age.
- **Public-Private Partnerships:** Collaborate with food industry stakeholders to develop and promote healthier food options

while discouraging the marketing of unhealthy foods, especially to children.

#### Conclusion:

- A ruling by the Supreme Court of India, in 2013, said, "We may emphasise that any food article which is hazardous or injurious to public health is a potential danger to the fundamental right to life guaranteed under Article 21 of the Constitution of India." This sums up the need to address the issues in the food sector.

## 18) Time to engage with Left Wing Extremists

*(GS-III: Linkages between Development and Spread of Extremism.)*

#### Context

- Left Wing Extremism (LWE) has become weaker in the last 15 years. Now, they are in their weakest position and this is the right time to initiate peace dialogue with them.

#### Indications of Weakening of LWE:

- **High Casualties:** The April 2024 operation resulted in a significant loss for the Maoists, including the killing of senior commanders and a large number of fighters. This suggests that they may be struggling to maintain their strength and influence.
- **Decrease in Violence and Deaths:** According to Minister of State for Home Affairs Nityananda Rai, there has been a consistent decline in violence related to Left-wing extremism (LWE), with a **73% reduction in violence and deaths since 2010**. This decline could indicate a weakening capability of the Maoists to carry out attacks.
- **Reduction in Geographical Spread:** The geographical spread of Maoist influence has constricted over the years, with a significant decrease in the number of districts



reporting LWE-related violence. This reduction in territory controlled or influenced by the Maoists is a sign of their weakening position.

- The number of police stations reporting LWE-related violence had reduced from 465 police stations across 96 districts in 2010 to 171 across 42 districts in 2023.
- **Large Number of Surrenders:** The significant number of Naxalite surrenders over the years, totaling over 16,000, suggests that disillusionment or weakening resolve within the Maoist ranks may be prompting individuals to lay down arms and reintegrate into society.

#### Ways to engage with these extremists:

- **Peace Dialogue:** Initiate peace talks with the Naxal leadership, signalling a willingness to address grievances and conflicts through negotiation rather than solely through military means. This approach could help in addressing underlying issues and grievances that fuel the insurgency.
- **Mainstreaming Tribals:** Focus on mainstreaming tribal communities that have been marginalised or displaced due to various factors, including forest land diversion and economic inequality. Providing avenues for education, employment, and development in tribal areas can reduce support for the Maoists.
- **Addressing Root Causes:** Address fundamental problems such as **forest degradation, displacement of tribal communities, and economic inequality**. Policies aimed at sustainable development, environmental protection, and equitable distribution of resources

can address grievances and reduce support for extremist ideologies.

- **Whole-of-Government Approach:** Adopt a comprehensive approach involving not just security forces but also administration, development agencies, and civil society organisations. This approach should focus on not only clearing areas of Maoist presence but also on establishing infrastructure and governance to prevent re-occupation by insurgents.
- **Political Will and Consistency:** Avoid fluctuations in strategy based on political considerations, and instead, maintain a long-term commitment to resolving the conflict through dialogue, development, and inclusive governance.

#### Conclusion:

- The Government of India has been having peace talks with several insurgent groups in the Northeast. There should be no hesitation in taking a similar initiative in Central India which can lead to a lasting peace and development.

### 19) Indian Seafarers- Threats faced in current geopolitical situation:

*(GS-II: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.)*

#### Context:

- Recent attacks on commercial ships in sensitive geographical areas such as the Red Sea and the Strait of Hormuz raise the concern of safety among Indian seafarers. As Indian seafarers constitute 9.35% of the global seafaring population, India's stakes are high in this
- In this situation, India submitted three papers to the 111th Session

of the International Maritime Organization's (IMO) Legal Committee (LEG).

- These submissions address crucial issues such as seafarers' security, contract terms, and broader maritime security challenges. India has stressed the need for a comprehensive approach to maritime security and advocated improved contractual conditions for seafarers.

#### Threats faced by Indian seafarers:

- **Safety and Security Concerns:** Indian seafarers face safety threats due to recent attacks on commercial ships in sensitive geographical areas such as the Red Sea and the Strait of Hormuz. Piracy, armed robbery, extremist attacks, and regional conflicts pose significant risks to their safety.
- **Unlawful Recruitment Practices:** Indian seafarers are vulnerable to exploitation through unlawful recruitment practices, including false promises of high salaries, inadequate working conditions, and forced transportation of illegal cargo.
- **Inadequate Rights and Legal Representation:** Despite their commitment to their careers, Indian seafarers lack adequate rights and protection. Also, many of them lack legal representation and are unaware of their rights. This leaves them vulnerable to unfair treatment and exploitation.
- **Detention and Kidnapping:** Indian seafarers face the risk of detention and kidnapping, as highlighted by incidents such as the detention of MT Heroic Idun in Nigeria and the kidnapping of 20 Indian nationals from the MT Duke off the western coast of Africa.
- **Poor Working Conditions:** Seafarers often face overwork,

insufficient food, and other poor working conditions, especially when exploited by shipping companies.

- **Impact of Geopolitical Tensions:** Geopolitical tensions in regions where Indian seafarers operate, such as the Gulf of Guinea and the Middle East, further exacerbate their safety concerns and risks.

#### Solutions to address the concerns:

- **Enhanced Maritime Security Measures:** Implementing enhanced maritime security measures in piracy-prone regions such as the Red Sea, the Strait of Hormuz, and the Gulf of Guinea can help protect Indian seafarers. This may involve increased patrols, cooperation with international naval forces, and the deployment of private security personnel on merchant vessels.
- **Regulation and Oversight of Recruitment Practices:** Implementing stricter regulations and oversight mechanisms for recruitment agencies can help prevent unlawful recruitment practices. This includes ensuring transparency in recruitment processes, enforcing fair labour standards, and penalising agencies that engage in exploitative practices.
- **Legal Assistance and Awareness Programs:** Providing Indian seafarers with access to legal assistance and awareness programs can help empower them to assert their rights and address grievances. This may involve establishing legal aid centres, conducting training sessions on seafarers' rights, and facilitating communication channels for reporting abuses.
- **International Cooperation to Combat Piracy:** Strengthening international cooperation among

maritime stakeholders, including governments, shipping companies, and international organisations like the IMO, can enhance efforts to combat piracy. This may involve information sharing, joint patrols, and coordination on legal and operational responses to piracy incidents.

- **Improvement of Working Conditions:** Enforcing regulations to improve working conditions for seafarers, including adequate rest periods, access to quality food, and fair wages, can help enhance their well-being and reduce vulnerability to exploitation.
- **Accountability Mechanisms for Ship Owners:** Establishing accountability mechanisms to hold ship owners accountable for violations against seafarers' rights can deter exploitative practices. This may involve strengthening regulatory frameworks, conducting regular inspections, and imposing sanctions on non-compliant companies.
- **Government Support and Advocacy:** Governments, including the Indian government, can provide support to seafarers through advocacy efforts, diplomatic initiatives, and the provision of welfare services. This includes raising awareness about seafarers' issues, advocating for their rights on international platforms, and providing assistance to seafarers in distress.

#### Conclusion:

- India aims to increase its share of the seafaring population to 20% in the next 10 to 20 years. Achievement of this goal requires concerted efforts from all the stakeholders in a sustainable direction.

## 20) Impacts of Climate Change on human health:

*(GS-II: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.)*

#### Context:

- There is scientific consensus that 2023 was the hottest year ever in the planet's recorded history.
- The consequences of climate change, mostly mediated through global warming, adversely affect human, animal and plant health in several ways.

#### Impacts:

- **Direct effects of heat exposure:** Increased risk of heat exhaustion, heat stroke, and circulatory failure, particularly among vulnerable populations such as infants, the elderly, and those with preexisting health conditions.
- **Non-communicable diseases (NCDs):** Exacerbation of conditions like strokes, heart attacks, diabetes, respiratory diseases, and cancers due to prolonged heat exposure.
- **Vector-borne and water-borne infections:** Changes in climate patterns can affect the distribution and prevalence of disease-carrying vectors like mosquitoes and waterborne pathogens, increasing the risk of diseases such as malaria, dengue and cholera.
- **Mental health disorders:** Increased stress, anxiety, and trauma resulting from extreme weather events, displacement, and loss of livelihoods due to climate change impacts.
- **Air pollution:** Collaboration between air pollution and heat can worsen respiratory conditions and cardiovascular health, leading to an increased risk of lung and heart diseases.

- Wildfires triggered by excessive heat release particulate matter (PM 2.5) and toxic chemicals (ozone, carbon monoxide, polycyclic aromatic compounds and nitrogen dioxide) can cause extensive inflammation, increasing the risk of cardiovascular disease (heart attacks, strokes, heart failure), respiratory disease, diabetes and pre-diabetes.
  - Chemicals like **benzene and formaldehyde** (also present in wildfire emissions) increase the **risk of cancer**.
  - **Food and nutrition insecurity:** Reduced crop yields, decreased nutrient quality of crops, and disruptions to food systems can lead to malnutrition, deficiencies in essential nutrients like zinc, protein, and iron, and an increased risk of cardiovascular diseases and diabetes.
    - Countries in South Asia and sub-Saharan Africa currently grow staples (like rice and wheat) at the highest levels of heat tolerance.
    - A further increase of 1 degree centigrade will lower their yield by 10 per cent. The crops will also be more deficient in zinc, protein and iron.
    - The Data Sciences Centre of Columbia University has estimated that if global warming continues unabated, India of 2050 will have 49 million more zinc deficient persons and 38.2 million new protein deficient persons, while 106.1 million children and 396 million women would be iron deficient.
  - Protective foods like fruit, vegetables and fish would be depleted. These foods reduce the risk of cardiovascular disease and diabetes.
  - Rising ocean temperatures will flood coastal agriculture and also reduce fish yields. This can further reduce the protein intake.
  - **Water scarcity:** Changes in precipitation patterns and increased evaporation due to higher temperatures can lead to water scarcity, impacting hygiene, sanitation, and access to clean drinking water, thus increasing the risk of water-borne diseases.
  - **Displacement and migration:** Climate-related events such as extreme weather events and sea-level rise can lead to displacement and migration, putting pressure on healthcare systems and increasing the risk of disease outbreaks in refugee populations.
  - **Increased healthcare demands:** Extreme weather events and heat waves can strain healthcare infrastructure, supply chains, and personnel, leading to increased demand for healthcare services, especially during emergencies.
- Way Forward:**
- Even as we must try energetically to mitigate the drivers of climate change and global warming, we must **prepare adaptation plans**.
  - These will include **heat action plans** designed specifically for urban and rural areas, climate smart and climate resilient food and healthcare systems, education of public and healthcare providers and anticipatory planning to meet the increased healthcare demands

that heat waves will bring in their wake.

- **Heat shelters, water stations, heat reflective roofs** and wall paints for housing, well ventilated homes and an increase in green spaces must become part of urban planning.
- **Personal protection** through light coloured, loose fitting clothes, umbrellas or caps are helpful. The most important personal protection measure is to **drink lots of water**.

## 21) Curative Jurisdiction:

*(GS-II: Structure, Organization and Functioning of the Executive and the Judiciary—Ministries and Departments of the Government; Pressure Groups and Formal/Informal Associations and their Role in the Polity.)*

### Definition:

- Curative jurisdiction refers to a **special power granted to a court, particularly the Supreme Court of India**, to correct its own judgments after they have become final.
- This power allows the court to revisit and potentially overturn its previous decisions if it finds them to be fundamentally flawed or unjust.
- Unlike the power of review, which allows courts to rectify errors apparent from their records, curative jurisdiction involves a deeper reconsideration of the case, often involving issues of interpretation and application of law.
- In *Delhi Metro Rail Corporation Ltd. ("DMRC") vs Delhi Airport Metro Express Pvt Ltd ("DAMEPL")*, for the first time ever, in a curative petition, the Supreme court set aside an arbitral award.

### Problems associated with curative jurisdiction:

- **Undermining finality:** Curative jurisdiction undermines the finality of court decisions, which is essential for ensuring legal certainty and closure in disputes. By allowing courts to continuously revisit and revise their judgments, curative jurisdiction erodes the principle of finality, potentially leading to prolonged litigation and uncertainty for the parties involved.
- **Risk of judicial overreach:** The exercise of curative jurisdiction raises concerns about judicial overreach, as it allows courts to intervene in cases where there may be no clear error or injustice. This risk is particularly significant in arbitration cases, where courts are expected to show deference to the decisions of arbitral tribunals and minimise interference.
- **Impact on judicial credibility:** Reversing its own decisions through curative jurisdiction can undermine the credibility of the judiciary, as it may create the perception that the court is indecisive or susceptible to external influences. A judiciary that appears inconsistent or easily swayed by changing trends may lose the trust and confidence of the public.
- **Conflict with legislative intent:** The exercise of curative jurisdiction may conflict with the legislative intent behind arbitration laws, which emphasise minimal judicial interference and promote the finality of arbitral awards. By overturning arbitral awards based on its own interpretation of the law, the court may undermine the legislative policy favoring



arbitration as a means of dispute resolution.

#### Conclusion:

- The Supreme Court is the beacon of law. A Supreme Court which swings back and forth based on changing trends lacks the constancy and gravitas which we believe to be fundamental to a court of last resort. To borrow Justice Robert H Jackson's words, the Supreme Court is not final because it is infallible but infallible because it is final.

## 22) Senior Citizen Care in India:

*(GS-I: Role of Women and Women's Organization, Population and Associated Issues, Poverty and Developmental issues, Urbanization, their problems and their remedies.)*

#### Context:

- The number of persons above 60 years is set to more than double from 100 million in 2011 to 230 million in 2036, making up nearly 15 percent of the total population. This is projected to further rise to 319 million by 2050, nearly one-fifth of the total population.
- Declining fertility rates and increasing life span are driving this transition. The average household size in India has reduced from 5.94 in 2011 to 3.54 in 2021. Households with smaller families and a growing number of older people, who may suffer from chronic illnesses, call for a reset of the health and social care system.

#### Issues faced in Senior Citizen Care:

- **Rising Population of Older People:** The population of senior citizens in India is rapidly increasing, but the health and social care system is not adequately prepared to meet their needs.
- **Lack of Well-Defined and Standardised Care Practices:**

Care practices for senior citizens at home are not well-defined or standardised, leading to inconsistencies in the quality of care provided.

- **Shortage and High cost of Trained and Empathetic Caregivers:** There is a shortage of caregivers who are well-trained and possess an empathetic outlook. This leads to an increase in cost to hire caregivers.
- **Dominance of Private Sector in Home-Based Care:** Currently, the private, for-profit sector dominates the provision of home-based care services, leading to affordability issues for many families.
- **Lack of Grievance Redressal Mechanisms:** Caregivers often complain of mistreatment by families. There are no specific grievance redressal mechanisms for either the users or the caregivers in the home-based care sector.
- **Gender Disparities:** Women, who typically outlive men, often spend their later years as widows and are more vulnerable and dependent. The policy should cater to the needs of older single women to ensure they can live respectable and independent lives.

#### Solutions to address these issues:

- **Comprehensive Policy :** To meet the growing demand for trained caregivers, all aspects related should be brought together under a comprehensive policy on home-based care, incorporating aspects such as a **registry of providers** of such services; ensuring transparency and accountability; establishing **grievance redressal mechanisms**; and **insurance coverage**, among others.
- **Training and Vocational Programs:** Streamline vocational

training for caregivers, define their roles and career progression, and ensure adequate supply of well-trained caregivers with an empathetic outlook.

- **Government Collaboration and Legislation:** The Ministry of Health and Family Welfare, Ministry of Social Justice and Empowerment, and Ministry of Skill Development and Entrepreneurship should collaborate to enact legislation and reforms to regulate home-based care for older people, ensuring minimum standards are met.
- **Passage of Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill** which seeks to regulate home-based care for older people. It proposes the registration of institutions providing home care services and prescribing minimum standards for them. However, it has not been passed since being introduced in Parliament in 2019.
- **Gender-Sensitive Policies:** Develop gender-sensitive policies that cater to the specific needs of older single women, ensuring they can live independently and with dignity in their later years.

#### Conclusion:

- The **experience of countries like Japan** shows that systems to care for older people are essential for the younger population to contribute to the country's economy. Besides, it is a society's moral and ethical responsibility to care for its people beyond their prime, reciprocating their lifetime of physical, social, emotional, and economic investment in the society.

### 23) Model Code of Conduct- Challenges and Reforms:

*(GS-II: Appointment to various Constitutional Posts, Powers, Functions*

*and Responsibilities of various Constitutional Bodies.)*

#### Definition:

- The **Model Code of Conduct (MCC)** refers to a set of **guidelines and ethical standards** that political parties, candidates, and other stakeholders are expected to adhere to during the electoral process.
- The MCC aims to ensure a **level playing field**, promote **fair competition**, and maintain the integrity of elections.
- It covers various aspects of electioneering, **including campaign practices, public behaviour, role of ruling party and the use of resources.**
- MCC has evolved gradually from the 1960s and **currently the Election Commission of India faces a variety of challenges in ensuring proper** conduct of elections.

#### Challenges faced in implementing MCC:

- **Legal Ambiguity:** The MCC is not legally enforceable, which sometimes leads to ambiguity in its interpretation and implementation. Lack of legal teeth can weaken its effectiveness, as parties may not feel compelled to adhere to its provisions.
- **Enforcement Capacity:** Ensuring compliance with the MCC requires sufficient human and logistical resources. However, the **Election Commission of India (ECI)** may face challenges in monitoring and enforcing the code effectively, especially in remote or densely populated areas.
- **Political Pressure:** Political parties and candidates may attempt to circumvent the MCC or influence its enforcement through various means, including coercion, bribery, or lobbying. This can undermine

the independence and impartiality of the ECI and hinder its ability to enforce the code impartially.

- **Technological Challenges:** With the proliferation of **social media and digital campaigning**, regulating online content and monitoring compliance with the MCC becomes increasingly complex. Rapid dissemination of information and the potential for misinformation pose challenges for the ECI in maintaining the integrity of the electoral process.
- **Resource Inequality:** Parties with greater financial resources or access to resources may have an advantage in adhering to the MCC, such as organising elaborate campaigns or mobilising supporters. This can create inequalities in the electoral playing field and undermine the principle of fair competition.
- **Cultural and Regional Variations:** India's diverse cultural and linguistic landscape presents challenges in ensuring uniform adherence to the MCC across different regions. Practices and norms regarding electioneering may vary widely, making it challenging to establish standardised guidelines and enforcement mechanisms.
- **Delayed Resolution of Complaints:** Delays in the resolution of complaints related to MCC violations can diminish public confidence in the electoral process. Inadequate mechanisms for addressing grievances or a backlog of cases may result in prolonged uncertainty and undermine the credibility of the ECI.

#### Updates necessary in MCC:

- **Clear Consequences for Violations:** While the MCC outlines norms of behaviour, there is a need

to specify the consequences for violations more explicitly. This could involve **implementing graded penalties for different types of infractions**, including bans on campaigning, fines, or disqualification from participating in future elections.

- **Accountability of Political Parties:** Holding political parties accountable for the actions of their members or leaders can strengthen the enforcement of the MCC. Introducing **penalties for parties** found to be complicit in violations would encourage internal discipline and discourage unethical practices.
- **Swift and Transparent Enforcement:** Establishing streamlined procedures for addressing MCC violations and ensuring prompt enforcement can enhance its effectiveness. This includes timely investigation of reported cases, publicising information on the status of complaints, and taking action within a specified timeframe to maintain public trust in the electoral process.
- **Incorporating Modern Challenges:** With the evolving political landscape and advancements in technology, the MCC should address new challenges such as the **misuse of social media, the influence of money in politics**, and the spread of disinformation. **Updating the code** to address these issues would help safeguard the integrity of elections in the digital age.
- **Enhanced Oversight and Coordination:** Strengthening the **role of the Election Commission of India (ECI)** in enforcing the MCC and coordinating with law enforcement agencies can improve

its implementation. This involves closer monitoring of electoral activities, collaboration with relevant authorities to address violations, and ensuring consistent application of the code across different regions.

#### Conclusion:

- This kind of a MCC would also bind the Election Commission to publicly proceed against cases of transgression in a time-bound and credible manner, which will inspire greater public confidence in its commitment to conducting free and fair elections.

## 24) Coral bleaching in Great Barrier Reef

*(GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)*

#### Context

- The **Great Barrier Reef** is in the grip of a mass **coral bleaching event** driven by rising global temperatures.

#### About Coral reefs

- Coral reefs are large underwater structures composed of the skeletons of colonial **marine invertebrates called coral**.
- The coral species that build reefs are known as **hermatypic, or "hard," corals** because they extract **calcium carbonate (CaCO<sub>3</sub>)** from seawater to create a hard, durable exoskeleton that protects their soft, sac-like bodies. Other species of corals that are not involved in reef building are known as "soft" corals.
- Most reef-building corals contain photosynthetic algae, called **zooxanthellae**, that live in their tissues. The corals and algae have a **symbiotic relationship**.
- The coral provides the algae with a protected **environment** they need for photosynthesis. In return, the

algae produce **oxygen** and provide **coloured pigments** to corals,

#### Findings

- Covering less than **one percent** of the ocean floor, coral reefs support an estimated **25 percent** of all known **marine species**.
- Between **2009** and **2018**, some **14 percent** of the world's **hard coral population** was lost.
- On the other hand, between **2011** and **2019**, **algal cover** in coral reef systems saw a **20 percent** increase.

#### About Coral Bleaching

- When corals are **stressed** by changes in conditions such as **temperature, light, or nutrients**, they **expel** the **symbiotic algae** living in their tissues, causing them to turn completely white. This is called **coral bleaching**.
- When a coral bleaches, it is not dead. Corals can survive a bleaching event, but they are under more stress and are subject to mortality.

#### Causes for coral Bleaching

- Change in ocean temperature, such as **high temperatures** caused by climate change is the leading cause of coral bleaching.
- Various pollutants, including **agricultural runoff, sewage discharge, and industrial waste**, can harm coral reefs and trigger bleaching.
- **Overexposure** to **sunlight** can contribute to bleaching in shallow-water corals.
- Exposure to the air during **extreme low tides** can cause bleaching in shallow corals.'

#### Implications of coral bleaching events

- Healthy corals have a **symbiotic relationship** with microscopic algae called zooxanthellae. During bleaching, stressed corals expel

these algae, losing their **primary source of energy**.

- **Bleached corals** are weakened and more susceptible to **diseases**.
- **Coral reefs** are regarded as **foundational species** and support food chains in the marine ecosystem. Coral bleaching events can disrupt existing food chains in oceans.
- Bleached and degraded reefs increase the **vulnerability of coastlines** to storms and floods unlike healthy coral reefs which act as natural barriers in protecting coastlines from erosion.

### Conclusion

- Thus there is an urgent need to limit the impacts of **climate change** and reduce **greenhouse gas emissions** and strengthen **monitoring** of potential **coral bleaching** events.

## 25) Soil Health

*(GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)*

### Context

- According to the **UN Food and Agriculture Organization**, the world will have to increase its **food production** by **60 per cent** by **2050** to feed an ever-increasing population. For this, **soil health** becomes vital.

### Soil and its components

- **Soil**, also commonly referred to as **earth** or **dirt**, is a mixture of organic matter, minerals, gases, liquids, and organisms that together support the **life of plants** and **soil organisms**.
- They serve as the backbone of **agriculture**, store **water**, and play an indispensable role in our **ecosystem**.
- **Components of Soil**

- **Minerals** - It is the **largest component** of soil which makes up approximately 45 to 49 per cent of the volume. The **texture** of a soil is based on the percentage of **sand, silt** and **clay** found in that soil.
- **Water** - It makes up approximately 2 to 50 per cent of the soil volume. Water is important for **transporting nutrients** to plants, soil organisms and for facilitating **biological** and **chemical decomposition**.
- **Organic matter** - It is derived from **dead plants** and **animals**, and is found in soil at levels of 1 to 5 percent. The percentage of **decomposed organic matter** in soils is often used as an **indicator of productive soil**.
- **Gases** - They make up approximately 2 to 50 per cent of the soil volume. **Oxygen** is essential for **root** and **microbe respiration**, which helps support **plant growth**.
- **Organisms** - They are found in the soil in very high numbers but make up much less than 1 percent of the soil volume. The **largest** of these organisms are **earthworms** and **nematodes** and the **smallest** are **bacteria, actinomycetes, algae** and **fungi**.

### Soil Health

- It is defined as the **continued capacity of soil** to function as a vital **living ecosystem** that



sustains **plants, animals** and **humans**.

- **Principles of Soil Health** include,
  - Maximize Presence of **Living Roots**
  - Minimize **Disturbance**
  - Maximize **Soil Cover**
  - Maximize **Biodiversity**

#### Soil Health tests

- These tests assess the **physical, chemical** and **biological characteristics** of soil.
- **Physical Properties**
  - **Soil compaction** checks the maximum dry density for a soil sample. Highly compact soil reduces water percolation, nutrient availability.
  - **Structural stability** checks how soil structure resists mechanical and water stress.
  - **Wet Aggregate Stability** measures the soil's ability to resist erosion and check the soil's water filtration ability.
- **Chemical Properties**
  - **pH** measures the soil acidity or alkalinity. If levels are too high or low, it leads to reduced crop yield.
  - **Electrical conductivity** measures the amount of salts in soil. High salt levels can dehydrate plants
  - **Macronutrients** such as nitrogen, phosphorus, carbon are essential for crop production
  - **Micronutrients** such as iron, zinc are needed for plant growth
  - **Active carbon** measures the share of organic matter that can serve as an energy source for microbes .
- **Biological Properties**

- **Microbial biomass** measures the mass of the living component of soil organic matter.
- **Microbial respiration** measures the carbon dioxide (CO<sub>2</sub>) produced by soil microbes. A high rate indicates high biological activities
- **Proteins** are measured to see their share in the organic matter pool.

#### Benefits of Healthy soils

- **Flood Regulation** - Healthy soil helps in better **water absorption, retention** and reduced **erosion**. Soils in **floodplains** also act as temporary **storage areas** during **flood** events.
- **Foundation for Infrastructure** - Soil is used in construction of **infrastructure** because it serves as the **foundation material** for both natural and human-made structures, providing **support** and **stability**.
- **Habitat for organisms** - Several organisms from **macroinvertebrates** like **earthworms, ants** and **termites** to **microorganisms** like **bacteria, archaea, and fungi** inhabit the soil.
- **Carbon Sequestration** - Soils are regarded as effective **carbon sinks** and help in **sequestering carbon dioxide** effectively.
- **Water Purification** - When groundwater and surface water pass through soil, it is cleaned via **physical, chemical** and **biological processes**.
- **Nutrient Cycling** - Soil microbes decompose organic matter to release **nutrients**. They also trap and transform nutrients into the soil, which can be taken up by **plant roots**.

- **Source of Pharmaceuticals and Genetic Resources** - Soil is the major reservoir of microorganisms that produce **antibiotics**, such as **bacterial genera Bacillus** and **Streptomyces** and **fungal genera Penicillium**.

### Conclusion

- Thus, incentivizing **sustainable land management** practices, and fostering **collaboration** across sectors are crucial steps toward building **resilient agricultural systems** and ensuring **food security** for **future generations**.

## 26) Water scarcity

*(GS-III: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)*

### Context

- A recent UN report revealed that in the near future an increase in **water demand** will be generated not by an increasing **population**, but by **economic growth**.

### Water Scarcity

- **Water scarcity** is the lack of **fresh water resources** to meet the **standard water demand**.
- There are two types of water scarcity namely **physical** and **economic water scarcity**.
- **Physical water scarcity** is where there is not enough water to meet all demands, including that needed for ecosystems to function. Arid areas for example **Central Asia**, **West Asia**, and **North Africa** often experience physical water scarcity.
- **Economic water scarcity** on the other hand, is the result of **lack of investment in infrastructure or technology** to draw water from **rivers, aquifers, or other water sources**. It also results from weak human capacity to meet water demand. Much of **Sub-Saharan**

**Africa** experiences economic water scarcity.

### Causes for Water Scarcity

- The main drivers of the increase in **global water demand** are the increasing **world population**, rise in **living conditions**, changing **diets** (to more animal products), and expansion of **irrigated agriculture**.
- **Climate change** (including droughts or floods), **deforestation**, **water pollution** and **wasteful use of water** can also cause insufficient water supply.

### Drought and water scarcity

- A drought is defined as a “**deficiency of precipitation** over an extended period of time, usually a season or more resulting in **water shortage**.”
- The **failure of seasonal rain, long dry spells and gradual drying up of moisture in land** with effects on crops are usual stages that lead to a **drought emergency**.
- In recent times **Drought hazards** have increased around the world leading to **water shortages** and **scarcity**.

### Findings of the report

- The **United Nations World Water Development Report 2024: Water for prosperity and peace** says that every second person on the planet experiences severe water scarcity.
- Over the **last two decades**, from **2002 to 2021**, droughts affected over **1.4 billion people** and killed more than **21,000**.
- With more than **733 million people** currently living in areas of **high or critical water stress** and a **projected 30% increase in global water demand by 2050** compared to 2010.

### Implications of Water Scarcity

- It is estimated that a third of the **world's largest aquifer systems** are in **distress**. In addition, the **redirection, overuse, and pollution** of rivers and lakes for irrigation, industry, and municipal uses can result in significant **environmental harm** and the **collapse of ecosystems**.
- Areas with **chronic water scarcity** are particularly susceptible to **water crises**, where water supplies dwindle to critical levels. In 2018, residents of **Cape Town, South Africa**, were faced with the possibility of "**Day Zero**," the day on which municipal taps would run dry, the first potential water crisis of any major city.
- **Chronic water scarcity** can culminate in **forced migration** and

**domestic or regional conflicts**, especially in **geopolitically fragile areas**.

#### Way Forward

- Addressing water scarcity requires a **multidisciplinary approach** incorporating **policy formulation, research and development** and **investments in technologies**.
- Water resources must be managed with the goal of **equitably maximizing economic and social welfare** without compromising **ecosystem functioning**. This ideal is sometimes referred to as the "**triple bottom line**": **economics, environment, and equity**.

## Model Questions

- 1) Despite its vast potential, rural tourism in India remains underdeveloped. Analyze the factors hindering its growth and suggest measures to promote sustainable and responsible rural tourism in India.
- 2) Discuss the various functions performed by the soil ecosystem and explain its importance for sustainable agriculture. Suggest measures for soil conservation in India.
- 3) Sacred groves have been a traditional form of environmental conservation in India. Discuss the ecological and cultural significance of sacred groves.
- 4) States such as Uttarakhand have come up with a Uniform Civil Code in line with article 44 of the Indian Constitution. In this context, assess the proposal for a nationwide Uniform Civil Code.
- 5) Examine the Acquired ImmunoDeficiency Syndrome (AIDS) control journey of India. Also suggest few reforms to strengthen the process.
- 6) Define defence indigenisation and elaborate on steps taken towards defence indigenisation in India.
- 7) Opportunities provided by Green Hydrogen technologies to contain pollution also have some challenges. Critically analyse and give solutions to navigate these challenges.
- 8) Prisons in India are beset with numerous problems. Analyse the role of Government machinery in addressing these problems.
- 9) Assess the changes introduced in the methodology of Household Consumption Expenditure Survey (HCES) 2022-23.
- 10) Climate Crisis has peculiar impacts on women. Examine.
- 11) Define Labour Force Participation Rate (LFPR). Suggest methods to increase women LFPR with special reference to the Japanese model.
- 12) Rising Human-Animal conflicts have increased the need for rescuing and relocation of animals from human settlements. Elaborate on the issues in this process and suggest solutions to address the problems.
- 13) Discuss India's growing interests in the Arctic region.
- 14) Persons with Disabilities face different problems as consumers of goods and services. Explain.
- 15) Analyse the changing approach of India towards the South China Sea region.
- 16) Define Water security and explain its significance in developing climate resilience.

17) Rapid changes in the consumption patterns of Indians have brought various issues in India's food market. Examine.

18) The number of districts affected by Left Wing Extremism (LWE) has steadily declined in the last 15 years. In this scenario, what measures can be taken to neutralise the problem of LWE.

19) Attacks on ships by state and non-state actors have led to many threats for Indian seafarers. Explain with suitable solutions to address these threats.

20) Elaborate on the impacts of climate change on human health.

21) Define Curative Jurisdiction of the Supreme Court. Are there any problems in using this jurisdiction? Substantiate your stand.

22) In the next 10 years, senior citizens will form 15% of the Indian population. In this context, identify the issues in providing quality care for senior citizens in India. Also provide measures to address the prominent issues.

23) What is the Model Code of Conduct (MCC)? List out the issues in its implementation during the election process. Suggest updates for strengthening it.

24) "Ocean heating, if left unchecked, could turn biodiverse coral reefs into barren deserts." Discuss.

25) Conventional farming practices often rely heavily on tillage and fertilizers to achieve high yields. However, these practices can have negative consequences for soil health. Analyze the trade-offs involved in conventional farming. How can we achieve food security while promoting soil health?

26) Day zero events can have long term implications on the health and functioning of ecosystems. Analyse.