

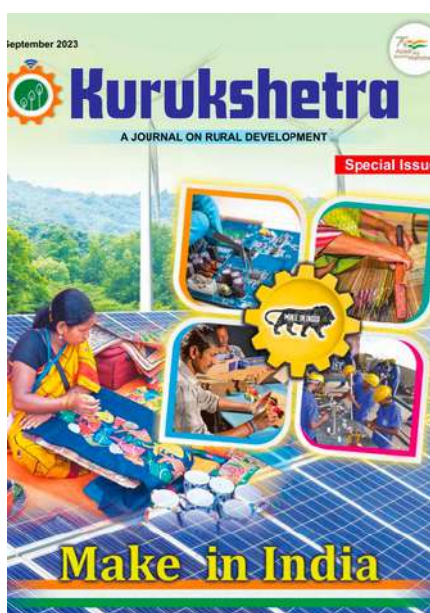
OFFICERS' Pulse

IN-DEPTH

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1) Women Empowerment: Recent Reforms

(GS1: Role of Women and Women's Organization, Population and Associated Issues, Poverty and Developmental issues, Urbanization, their problems and their remedies)

Context

- Given the centrality of women's role in society, it is now well acknowledged that **empowering a man leads to empowering an individual, but empowering a woman empowers an entire generation.**
- Combating violence, ending child marriage and female genital mutilation, promoting political and economic empowerment, safeguarding sexual and reproductive health rights, protecting land rights, and implementing gender-responsive budgeting are crucial steps towards achieving gender equality.

Government Initiatives towards empowerment of women

1. Beti Bachao, Beti Padhao:

- Launched in 2015, this initiative is a **tri-ministerial, convergent effort** of Ministries of Women and Child Development, Health & Family Welfare and Education. The scheme is envisaged to **address the declining Child Sex Ratio** and related issues of women empowerment over a life-cycle continuum.

2. Pradhan Mantri Matru Vandana Yojana (PMMVY):

- Introduced in 2017, it is a direct benefit transfer (DBT) scheme under which cash benefits are provided to pregnant women in their bank account directly to meet enhanced nutritional needs and partially compensate for wage loss. A conditional **cash benefit of Rs. 5,000** in three installments is

provided for the **first living child of the family.**

3. Mahila e-Haat:

- This online platform was launched in 2016 to **facilitate women entrepreneurs and artisans** in showcasing and selling their products. It provides a digital marketplace for women to reach a wider customer base and promote their businesses.

4. Ujjwala Yojana:

- Launched in 2016, this scheme provides **free LPG connections to women** from poor households. It aims to improve their health, reduce indoor air pollution, and empower them by enabling clean cooking fuel access.

5. Stand Up India:

- Introduced in 2016, this scheme **encourages entrepreneurship among women and Scheduled Caste or Scheduled Tribe individuals.** It offers bank loans **between Rs 10 lakh and Rs 1 crore** to set up greenfield enterprises, promoting women's economic empowerment and self-employment opportunities.

6. Pradhan Mantri Kaushal Vikas Yojana (PMKVY):

- While not exclusively for women, this skill development scheme, introduced in 2015, aims to provide **industry-relevant training to enhance employability.** It has benefited many women by offering skill-development courses in various sectors.

Legislations to promote gender equality and protect women rights

1. Criminal Law (Amendment) Act, 2013 (Nirbhaya Act):

- This amendment was passed in 2013, making **significant changes to laws concerning sexual offences.** The Government established the **Nirbhaya Fund** to

support initiatives addressing women's safety and empowerment. The fund has been utilised to set up one-stop centres, women's helplines, and improve infrastructure for women's safety.

2. Maternity Benefit (Amendment) Act, 2017:

- This amendment was enacted in 2017, **extending the maternity leave period** for women working in the organised sector in India from **12 weeks to 26 weeks**. This reform recognises the importance of providing adequate time for maternal health and bonding with the child.

3. The Protection of Children from Sexual Offences (Amendment) Act, 2019:

- This amendment was passed in 2019, strengthening the protection of children from sexual offenses.

4. The Muslim Women (Protection of Rights on Marriage) Act, 2019:

- It aims to provide **legal protection to Muslim women against instant triple talaq (divorce)**. It criminalised the practice of instant triple talaq (divorce) among Muslim men in India. This reform aimed to protect the rights of Muslim women and ensure gender equality within personal laws.

5. Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013:

- This Act mandates the establishment of **internal committees in workplaces** to address complaints of sexual harassment and ensure a safe working environment for women.

Conclusion

- These reforms have played a crucial role in advancing women's rights and empowerment in India, fostering gender equality, and challenging systemic inequalities.

However, it is important to continue working towards creating a society that fully upholds and respects women's rights in all aspects of life.

2) Parliamentary Committees: Strengthening the Scope and Role

(GS2: Parliament and State Legislatures—Structure, Functioning, Conduct of Business, Powers & Privileges and Issues Arising out of these)

Context

- As a key state organ, Parliament performs inherently varied and complex functions. However, it is unwieldy to thoroughly deliberate on issues placed before it.
- To address this, it has formed several Committees that investigate specific issues in detail and report back to Parliament.

Role of Parliamentary Committees

- Parliament **relies on Parliamentary Committees to thoroughly scrutinise matters**. Therefore, Parliament functions in **two modes**: on the **floor of the House** and in **Committees**.
- Reports submitted by the Committees allow for **informed debate in Parliament**.
- Additionally, Committees provide a **forum to build consensus across party lines, develop subject expertise, and consult with experts and stakeholders**.

Types of Parliamentary Committees

- Standing Committees can be broadly categorised into **four types**:
 - **(i) subject,**
 - **(ii) financial,**
 - **(iii) accountability, and**
 - **(iv) administrative.**

Subject Committees

- **Department-related Committees, or subject Committees, ensure oversight over each ministry.**
- **A Minister is not eligible to be a member.** There are **24 subject Committees**, and each Committee has **31 members**, with **21 from the Lok Sabha and 10 from the Rajya Sabha.**
- Membership in Committees is allocated to parties in **proportion to their strength in the House.**
- Subject Committees **review proposed laws, select subjects for closer examination, and scrutinise the allocated budget for each ministry.**

Financial Committees

- Financial Committees consist of **three Committees: Estimates, Public Undertakings, and Public Accounts.** A minister is **not eligible to be a member.**
- The **Estimates Committee** examines prebudget estimates of ministries; the **Committee on Public Undertakings (CoPU)** examines the functioning of public undertakings; and the **Public Accounts Committee (PAC)** reviews the government's spending statement approved by Parliament.

Administrative and Accountability Committees

- There are other Committees that **investigate administrative and accountability matters** related to Parliament and the **House's day-to-day business.**

- These Committees include the **Committee on Privileges**, which examines questions involving breaches of rights, privileges, and immunities enjoyed by Members of Parliament.
- The **Committee on Petitions** examines complaints sent to it in the form of petitions by the public.

Ad hoc Committees

- Additionally, **Ad hoc Committees** are appointed by either House for a specific purpose. They cease to exist when they finish the task assigned to them and submit a report.

Recommendation to improve functioning of Parliamentary Committees

- The **effectiveness of Parliamentary Committees** is crucial to the **effective functioning** of Parliament. There are several areas where Parliamentary Committees need improvement and strengthening.

1. Referring all Bills to Committees:

- Currently, **Bills are not automatically referred** to a Committee. The decision of whether a Bill should be referred to a Committee depends on the **decision of the Speaker or Chairman**, in consultation with the Minister presenting the Bill.
- Referring all Bills to a Committee would ensure that **all laws go through a minimum level of Parliamentary scrutiny.**

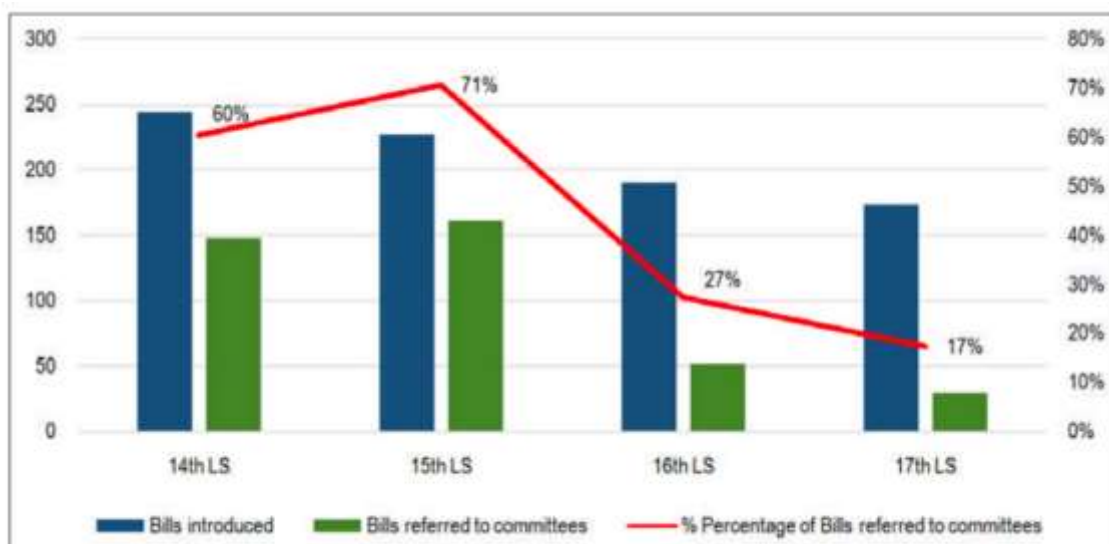


Figure 1: Number of Bills Referred to Committees between the 14th Lok Sabha and the 17th Lok Sabha

- During the **17th Lok Sabha**, until the end of the Monsoon Session of 2023, **17% of Bills have been referred to Committees**. This number has been **declining over the last three Lok Sabhas**.
- **Discussing the recommendations** made by the Committees or **specifying the reasons for rejecting** certain recommendations is also **not mandatory**. However, discussing these details in the House **could help make laws robust**.
- The **National Commission to Review the Working of the Constitution (2002)** noted that **all Bills introduced in Parliament should automatically be referred to subject Committees** for detailed consideration and discussion.
- Further, subject Committees should also **review the implementation of laws passed by Parliament** in their respective subject.
- In some Parliamentary systems, such as the **United Kingdom**, **all Bills other than Money Bills are automatically referred to Committees**.

2. Attendance of MPs:

- The **attendance of MPs** in Parliamentary Committee meetings

is **low**. In the 17th Lok Sabha, the **average attendance for subject Committees meetings was 47%**. The **attendance in financial Committees** drops further to **37%**. In comparison, **attendance in Parliament was 79%** for the same time period.

- The **quorum for a Committee meeting is one-third of the Committee members**, which is around 10 members for a subject Committee.
- The **National Commission to Review the Working of the Constitution Report** noted that there was **large scale absenteeism** in Committee meetings.

3. Shortage of technical staff and experts:

- The role of Committees includes **examining selected matters in greater depth** than is possible in the House and reporting any conclusions of those examinations to the House.
- Parliamentary Committees can **consult with expert witnesses, stakeholders, and the public** to better understand complicated issues and the potential impact of policies or legislation.

- The **National Commission to Review the Working of the Constitution** recommended that **funds be secured to assist these Committees** in conducting inquiries, holding public hearings, and collecting data.

4. Public transparency:

- Committee reports are usually made public, but the **internal workings of the Committee may not be transparent**. While closed door meetings allow for **greater room to reach party consensus**, they may **hinder public awareness** of key findings of Parliamentary Committees.
- Therefore, the National Commission to Review the Working of the Constitution recommended that **major reports of all Parliamentary Committees be discussed in Parliament**, especially where there is a disagreement between any Committee and the Central Government.
- In contrast, some other democracies provide **live webcasts of meetings**. In Canada, Parliament allowed Committees to broadcast their proceedings.

5. Other Recommendation:

- The **National Commission to Review the Working of the Constitution** recommended certain other reforms for Parliamentary Committees.
 - **Establishment of three new Committees:** the **Constitution Committee**, the **Committee on National Economy**, and the **Committee on Legislation**.
 - The Committee noted that it **may not be necessary to continue the existing Committees on Estimates, Public Undertakings and**

Subordinate Legislation as the topic covered by them can be covered by subject Committees or the proposed Committees.

Conclusion

- Parliamentary Committees serve an important role in **scrutinising the work** of the Government and **improving the quality** of Bills brought before Parliament. They enable parliamentarians to **access stakeholder and expert views**, and **forge consensus across party lines** on contentious issues.
- Reforms mentioned above, such as referring every Bill to a Committee and providing expert staff to subject and finance committees, can improve their effectiveness.

3) Accountability and Financial Administration

(GS2: Appointment to various Constitutional Posts, Powers, Functions and Responsibilities of various Constitutional Bodies)

Context

- The institution of the Comptroller and Auditor General (CAG) came into existence in **1860** and later gained **Constitutional status** in **1950**. The founding fathers of the Constitution envisaged an important role for the CAG in keeping a **watch over the expenses voted on by the Parliament**.
- The business of the CAG's institution is conducted through the **Indian Audit & Accounts Department**. Together, the CAG and the IA&AD constitute the **Supreme Audit Institution (SAI) of India**.

Role of CAG

- The CAG plays a key role in the **Public Financial Management space** of the country. It **conducts**

audits of all the receipts and expenditures of the Government.

- The **CAG advises the Government** on the **manner in which the accounts of the Union and State Governments are to be maintained**. While for the **Union Government**, the **Controller General of Accounts** prepares the accounts, for the **State Governments**, the **responsibility is vested with the CAG**.

Jurisdiction

- CAG has a **nationwide audit mandate** encompassing **all three tiers** of the federal structure of governance: the **Union Government**, the **State/UT Governments**, and the **local bodies**, thus, ensuring that **accountability is enforced up to the last mile**.
- The audit jurisdiction includes **attached & subordinate offices, autonomous bodies, Statutory authorities and Public Sector Undertakings (PSUs)**.

Types of Audit

- Audit by the CAG is of **three types**: **financial attest audit** to ascertain the accuracy and correctness of the financial statements of the entity; **compliance audit** to check adherence to applicable rules, regulations, and procedures; and **performance audit** to assess whether systems within the entity operate with economy, efficiency, and effectiveness.
- CAG's audit of receipts has proved **instrumental in ensuring that public funds are realised in accordance with the prevailing laws**.
- Based on an audit of receipts during 2021-22, the Union and State Governments accepted that recoveries of **Rs 25,571 crore** needed to be made.

- The audit observations, along with evidence-based recommendations, have provided **insights to the Government** in steering positive change by means of course corrections, changes in implementation design, and the removal of bottlenecks at the cutting-edge level.

Reforms over the years

- With digitalisation, Governments have moved towards an **Integrated Financial Management System (IFMS)**, which is a comprehensive payment, receipt, accounting, and management information system.
- This has enabled **transparency** in financial administration by **increasing the visibility of all transactions**, including revenue deposits, funds released to Implementing Agencies, payments made to beneficiaries of Government Schemes, etc., and thereby facilitating **better monitoring**.
- **Automation of other governance mechanisms** such as electronic filing of tax returns and assessments, toll collection system (FASTag), Direct Beneficiary Transfers, e-NAM, etc. has further **enhanced transparency** in public financial management and enabled **better accountability mechanisms**.

Conclusion

- The CAG's institution upholds the trust reposed by tax payers in India and investors in Indian enterprises; and continues to contribute constructively towards the goal of establishing a robust financial administration.

4) Renewable Energy: Making India Self-Sufficient

(GS3: Infrastructure: Energy, Ports, Roads, Airports, Railways etc)

Context

"Our dependence on fossil fuels amounts to global pyromania, and the only fire extinguisher we have at our disposal is renewable energy."

- India is the **fastest-growing economy** globally and has **overtaken the UK to become the 5th largest economy** in the world.
- The country **imports more than 80% of its crude oil** for energy requirements from outside sources and is the **4th largest emitter of CO₂**.
- India has a target to **cut carbon emissions by 1 billion tons by 2030, integrate 500 GW of non-fossil fuel-based capacity by 2030 and achieve net-zero emission status by 2070**.
- In this context, Renewable energy sources play a vital role in securing sustainable energy with lower emissions.
- The **primary objectives** for deploying renewable energy in India are to
 - advance economic development, improve energy security, improve access to energy, and mitigate climate change.

Initiatives taken by the Central Government

- The flagship **National Solar Mission**, launched in 2010, aimed at installing 100 GW of solar power by 2022, which was later increased to **450 GW by 2030**.
- The Centre has also launched a **wind energy programme** with the target of achieving a **capacity of 60 GW by 2022**.
- The **Production Linked Incentive Scheme (PLI)** proposes financial

incentives to boost domestic manufacturing and attract large investments in the electronics value chain.

- Further, the **PM-KUSUM** launched in 2019, aims to provide **financial and water security to farmers through harnessing solar energy capacities** of 30,800 MW (Revised in 2020) by 2023.
- The government is also setting up **Ultra Mega Renewable Energy Parks** to provide land and transmission to renewable energy developers on a plug and play basis.

India's Potential

- The **decreasing cost of solar and wind power** has been a significant driving force behind India's renewable energy growth.
- According to a report by the **Institute for Energy Economics and Financial Analysis (IEEFA)**, the **cost of solar power in India has fallen by 84%** since 2010, making it cheaper than coal-based power in most parts of the country. Similarly, the **cost of wind power has fallen by 49%** in the past decade, making it one of the most cost-effective sources of energy in India.
- India's success in renewable energy can also be attributed to the **rapid technological advancements** in the sector. The country is a pioneer in **floating solar technology**, with the **world's largest floating solar power plant** located in Kerala.
- India is also home to the **world's largest solar park**, the **Pavagada Solar Park in Karnataka**, which has a capacity of 2 GW.

Methanol and Biomass:

- India has the **twin challenge of providing more as well as cleaner energy to the masses**. It should focus on getting into the

manufacturing of the solar panels under the AtmaNirbhar Bharat initiative, as the demand is to create jobs as well as supply decentralised energy to all households in India.

- In addition to this, we should look for **other alternatives**, such as **methanol-based economy and biomass**, as it will clean the cities as well as reduce our energy dependence.
- Fuels produced from biomass have a **high calorific value and are cleaner** than traditional biomass.

Challenges

- According to the latest report from the **International Energy Agency (IEA)**, **India's installed renewable energy capacity will reach 174 GW in 2023, accounting for about 37% of the country's total energy supply**.
- However, the country's power distribution companies, known as DISCOMs, have **struggled to integrate renewable energy into the grid** due to a lack of grid infrastructure and limited storage capacity.
- This has led to the **curtailment of renewable energy output**, where power generated by wind and solar projects is wasted due to a lack of demand or transmission infrastructure.

Recommendations

- To realise India's dream of **energy independence**, there is a need for a **dramatic transformation across the entire energy value chain**.
- The country needs to **collaborate with private and government players** and devise the required policies.
- Renewable energy output can be scaled up by introducing **reforms to improve investors' confidence, removing entry barriers** such as

difficulty in land acquisition, **boosting domestic manufacturing** of photovoltaic cells and wind-equipments, and **incentivising the adoption of roof-top solar**.

Conclusion

- If India has to achieve energy security for sustained growth and development and safeguard our interests from global geo-political events, we would need an **Energy Revolution**, something similar to the Green Revolution.
- A **shift towards renewables has to become a Pan-India mass movement**.
- An added benefit of moving towards renewables would be the **positive impact on climate change** and the achievement of **long-term sustainable growth targets** for the global economy.

5) Food Processing in India

(GS3: Food Processing and Related Industries in India- Scope' and Significance, Location, Upstream and Downstream Requirements, Supply Chain Management)

Context

- The **Food and Agriculture Organization (FAO)** roughly estimates **food waste at around 40% of the total annual production** in India. The stated reasons are an **inefficient supply chain and a fragmented food system**.
- The foolproof solution to food wastage, along with taming price volatility and securing food security, is **supplementing the supply chain strengthening with creating a strong food processing industry** with deep penetration in the hinterlands.

Potential of Food Processing Sector

- Food processing is a process through which **agricultural produce is turned into food, or one form of food is turned into another**. This includes many forms of processing foods, from grinding grain to make raw flour to home cooking to complex industrial methods used to make convenience foods.
- The sector already has a mark on the overall development of the Indian economy, with an **18.8% share of GVA (gross value added) in agriculture and allied sectors** of the total economy.
- It generates **12.32% of the total employment** while **contributing 10.4% to India's exports**.
- The Indian Food Processing market is **growing at a compound annual growth rate of 15.2%** and is **estimated to reach \$535 billion by 2025**.

Government Initiatives

- The Government of India recognises the potential of this emerging sector and has launched several initiatives.

1. Pradhan Mantri Kisan Sampada Yojana (PMKSY):

- PMKSY has been envisaged as a comprehensive package that will result in the **creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet**.
- It is supposed to help deliver greater returns to the farmers' income, creating huge employment opportunities, particularly in rural regions, reducing agricultural waste, raising processing levels, and enhancing the export of processed foods.

2. Pradhan Mantri Formalisation of the Micro Food Processing Enterprises Scheme (PMFME):

- This **centrally sponsored scheme** was launched in 2020, under the **Aatma Nirbhar Bharat Abhiyaan**.
- The goal of the scheme is to set up or upgrade **2 lakh micro food processing enterprises** by providing financial, technical, and business support through credit-linked subsidies.

3. Production Linked Incentive Scheme for Food Processing Industry (PLISFPI):

- It is a **central sector scheme** to **assist in the emergence of global food manufacturing champions** commensurate with India's natural resource endowment and to encourage Indian brands of food products in foreign markets.
- It aims to **boost domestic manufacturing** and **increase exports** from India.

Conclusion

- The food processing industry is a sector with tremendous potential, not only for contributing to the **nation's economic growth** but also for **improving food security, reducing post-harvest losses, and enhancing the livelihoods of millions of farmers**.
- However, the path forward is not without obstacles. The food processing industry in India faces issues related to **infrastructure, supply chain inefficiencies, technology adoption, and regulatory bottlenecks** that need to be addressed for the sector to reach its full potential.

6) Make in India: Challenges, Opportunities & Outcomes

(GS3: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment)

Context

- One of the game-changing economic initiatives of the Government of India, 'Make in India' was launched in 2014.
- It aims at encouraging companies and individuals across the globe to **facilitate investment, foster innovation, build world-class infrastructure, and build a hub for manufacturing, design, and innovation in India.**



Pillars of Make in India

- The "Make in India" initiative is based on **four pillars**, which have

been identified to give a **boost to entrepreneurship in India.**

1. New Processes:

- 'Make in India' recognizes '**ease of doing business**' as the single most important factor to promote entrepreneurship.
- A number of initiatives have already been undertaken to ease the business environment. The aim is to **de-license and de-regulate** the industry during the entire life cycle of a business.

2. New Infrastructure:

- Make in India intends to develop **well-equipped industrial corridors** with all necessary facilities for the expansion of industrial activities, build **smart cities** to provide citizen services with ease, and create **world class infrastructure** with state-of-the-art technology, and **high-speed communication network amenities.**

3. New Sectors:

- To identify **economic growth centres** in India, the 'Make in India' initiative identified **27 sectors in manufacturing, infrastructure and service activities.**

4. New Mindset:

- 'Make in India' intends to bring a **paradigm shift in how the Government interacts with industry.** The Government will partner industry in the economic development of the country. The approach will be that of a facilitator and not a regulator.

Advantages of Make in India

- Effective implementation of the initiative will have a positive impact on the **overall socioeconomic growth of India**, especially in manufacturing growth and the creation and provision of employment opportunities both in rural and urban areas.

- A massive increase in employment will enhance the purchasing power of the citizen, expand the consumer base for companies, and address the problem of poverty.
- The Make in India initiative targets **export-oriented growth**. The export-oriented growth model of this initiative will **positively impact India's balance of payments position** and support in **accumulating foreign exchange reserves**.
- The 'Make in India' initiative's propensity to **attract foreign investment** will also ensure **bringing in technical expertise and creative skills**.

Challenges

- There is a need to **facilitate the land acquisition process**, create an **appropriate labour development ecosystem** for efficient and effective enforcement of laws/rules outlining entry and exit guidelines with clarity, **rationalise the taxation regime**, and **enable technology acquisition and dissemination**.
- **Universities and other reputed research organisations** need to **enhance their innovation work** towards creating a healthy business environment in India.

Fostering Balanced Regional Development

- The 'Make in India' initiative has a **special approach on development decentralisation**. The '**One-District One-Product' (ODOP) initiative** is an important manifestation of the 'Make in India' vision.
- The intention is to **facilitate promotion and production of the indigenous products from each district of the country**.

- ODOP envisages **fostering balanced regional development** and aims to **select, brand, and promote at least One Product from each District** of the country for enabling holistic socioeconomic growth across all regions.

Conclusion

- The Make in India initiative has the potential to make India a centre of the manufacturing sector in the world.
- While MSMEs, the services sector and startups, are going to play a critical role in the success of Make in India, there is a lot to do through this initiative to ensure balanced regional growth and address issues of poverty, unemployment, and disparities of income and wealth.

7) Limited Phosphorus Resources: Does The Solution Lie In Our Sewage?

(GS3: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)

About Phosphorus

- **Phosphorus** is commonly found in the Earth's crust in the form of various phosphate minerals, such as **apatite**.
- It is an **essential mineral**, and is naturally present in many foods and available as a **dietary supplement**.
- Phosphorus is a component of **bones, teeth, DNA, and RNA**.
- **Phosphorus compounds**, particularly **phosphates**, are essential components of **fertilizers**, promoting **plant growth** and improving **crop yields**.
- Phosphates are used in **detergents, food additives, water treatment, metallurgy, and flame retardants**.

Indian Scenario

- In India there is a deficit in **Apiate** and **Rock Phosphate** availability.
- India is the **world's largest importer** of phosphorus followed by **Germany**, primarily sourcing it from **West African deposits** contaminated with **cadmium**.
- According to the **Indian Minerals Yearbook 2018**, **Rock Phosphate production** in India is only from two states namely, **Rajasthan** and **Madhya Pradesh**.

Challenges with Phosphorus

- Phosphorus is a **finite resource**, primarily derived from phosphate rock reserves. A few countries, such as **Morocco**, and **Western Sahara region**, control the majority of **global phosphate rock reserves** raising concerns about geopolitical tensions.
- Approximately **only one-fifth** of mined phosphorus is used for **food production**, with the rest being **lost to water bodies** through agricultural runoff due to excessive fertilizer use.
- The excessive use of phosphorus-based fertilizers in agriculture, as well as runoff from agricultural lands, contributes to **eutrophication**, where excessive nutrients cause **algal blooms**, negatively impacting aquatic ecosystems.
- Phosphate rock **mining** poses **environmental challenges**, including **habitat destruction**, **water pollution**, and **energy consumption**.
- Most of the phosphorus that people consume **ends up in the sewage** along with **nitrates**. Nitrates can be digested by **denitrifying bacteria** and released safely as nitrogen gas into the atmosphere, while phosphorus remains trapped in the

sediments and water column and can cause **harmful algal blooms**.

Measures to tackle this problem

- It is important to promote **precision agriculture practices** to optimize the use of **phosphorus-containing fertilizers**. This includes **soil testing** and **nutrient management plans** to ensure that phosphorus is applied at the right rate and time, reducing overuse and minimizing runoff.
- It is important to invest in **wastewater treatment plants** and technologies that can recover phosphorus from sewage and industrial effluents. Recycled phosphorus can then be used as a **nutrient source** in agriculture.
- **Mycorrhizal fungi** form symbiotic relationships with plant roots and enhance phosphorus uptake. Promoting the use of mycorrhizal inoculants in agriculture can help improve nutrient efficiency.
- There is a need to encourage the adoption of **source-separating toilets** that separate urine and feces. Urine is rich in phosphorus and can be collected and processed into a local fertilizer source.

Conclusion

- It is important to establish **comprehensive data collection** and **monitoring systems** to track phosphorus use, loss, and environmental impacts, to enable evidence-based policymaking and interventions.

8) Flood-proof Himalayas

(GS3: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)

Context

- Regions in the Himalayas are frequently prone to flood events triggered by erratic climatic

conditions, thus advocating the need for climate-resilient cities.

Indian Himalayan Region

- The **Indian Himalayan region** is prone to various types of natural disasters, like **earthquakes, floods or flash floods, and glacial lake outbursts**, etc.
- Such events are related to extreme **hydrometeorological conditions** leading to **debris flow, landslides**, etc
- The **Alaknanda flood of 1970, Bhagirathi in 1978, Sutlej in 1993 and 2000 and Teesata in 1968** are examples of flash floods by **cloudburst**.
- **IHR** is highly sensitive to climate change. **Rising temperatures** lead to **glacier retreat**, altering the timing and availability of water resources for downstream communities.



Threats faced in Hindu-Kush Region

- The **Hindu-Kush region** is spread over eight countries across the world and is one of the most disaster-prone regions in the world.
- The Hindu Kush region is **seismically active** and is part of

the complex convergence of the Indian and Eurasian tectonic plates, causing **earthquakes**.

- The steep slopes of this region make it prone to landslides and rockslides, which can be triggered by heavy **rainfall, earthquakes, or rapid snowmelt**.
- The **mountainous terrain** and **heavy snowfall** in the Hindu Kush make **avalanches** a common occurrence, especially during the **winter**.
- **Climate change** is causing **glacial retreat** in the Hindu Kush, leading to changes in **water availability**, and affecting **agriculture, hydropower generation, and ecosystem stability**.

Need of the hour

- **Spatial land-use planning** holds the key to multifaceted benefits such as mitigation against floods, landslides, and climate change, while promoting environmental quality.
- **Strategic infrastructure placement** minimizes susceptibility to disasters. A **land use zone** and **priority determination process** can guide settlement placements away from **flood-prone zones**.
- During floods, **real-time flood inundation data** is a lifeline for disaster response and relief, enabling timely action and reducing casualties. **Satellite-based Earth observation techniques** generate **flood maps** and assess damage to properties, infrastructure, and crops, facilitating **swift disaster management**.
- There is a need for **early warning systems** to mitigate the impact of floods. The **International Centre for Integrated Mountain Development (ICIMOD)** in Nepal, has developed a low-cost

grassroots community-based flood early warning system that empowers local communities to safeguard their lives and livelihoods from the effects of floods.

- There is a need for promoting **Nature-based solutions** such as **planting native trees** along **river banks**, and promoting **mangroves**, **green roofs**, etc to address the issue of **biodiversity loss** and **environmental degradation**.
- It is important to develop plans for **post-flood recovery** and **rehabilitation**, including support for **affected communities**, **reconstruction** of **damaged infrastructure**, etc.

Conclusion

- Tackling floods in the Hindu Kush region requires a **comprehensive** and **integrated approach** that involves government agencies, local communities, international organizations, and regional cooperation.
- **Proactive measures**, **early warning systems**, and **community engagement** are essential components of effective flood management.

9) State of India's Birds 2023

(GS3: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)

Context

- According to the "**State of India's Birds 2023**" report, a large number of bird species in India are either declining or projected to decline in the long term.

Highlights of the report

- Overall, the report analyses **942 bird species** in India and highlights the major threats that they face.

- The report classifies the **942 species** into **three categories** for conservation action:
 - 178 species are high priority;
 - 323 are moderate priority; and
 - 441 are low priority.
- **Generalist species** which do not depend on a habitat or ecosystem like the Indian peafowl and Asian koel are **mostly stable or thriving**.
- **Shorebirds** that breed in the Arctic have **declined by nearly 80% as a whole**.
- **Insectivorous birds** and those that feed on other species, like raptors and vultures, **are in peril**.
- **Migratory birds**, which face extreme weather events, predation, and starvation, are at **greater risk**.

Major threats

- **Monoculture** - It reduces the species diversity of birds in a given area in comparison to natural biome such as a tropical rainforest.
- **Environmental pollutants** - Several toxins and chemicals tend to accumulate in the birds body and also move along food chains, thereby reducing their population size. Environmental pollutants including veterinary drugs such as **nimesulide** still threaten vulture populations in India
- **Forest degradation** - Deforestation of and for need of resources has endangered the survival of several species that are on the brink of extinction.
- **Urbanisation** - As per the report, the most urbanised regions in India have the least number of bird species, the least number of rare species, and the fewest insectivorous species.
- **Energy infrastructure** (wind energy and power lines) - Transmission lines have led to the

death of many large-bodies species because of collision.

- **Avian disease** - It can cause **chronic population declines** and **reduce reproductive success** and **survival of organisms**.
- **Climate change** - The annual global temperatures are on the rise. This affects birds population especially when the timing of annual events like breeding, nesting and migration become out of sync.

Measures to be taken

- The report points out the need to conserve **specific groups** of birds. For instance, the report found that **grassland specialists** have **declined by more than 50%**, indicating the importance of protecting and maintaining grassland ecosystems.
- The report highlights that **Systematic monitoring** of bird populations over long periods of time is critical to understanding small-scale changes in bird populations.
- The report calls for **harmonization of policies** related to **river, water,** and **wasteland development** for widespread conservation of bird species.

- The report also highlights the need for **citizen engagement** for better conservation of India's bird population.

Conclusion

- On the basis of the findings of this report it is important to come up with an action plan for the **conservation of bird populations** and **habitats**.

10) Employment challenge

(GS3: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment)

Context

- This article discusses the **alarming highlights of a recent report by Azim Premji University** which has comprehensively mapped employment conditions over time.

Background of the report

- Despite economic growth accelerating since the mid-1980s, the desired transformation in employment conditions has remained elusive and **employment creation for its young and rising working-age population** continues to be the **biggest policy challenge** for India.

About the Report

| | |
|--------------------|---|
| Report by | <ul style="list-style-type: none"> • Azim Premji University |
| Data source | <ul style="list-style-type: none"> • Periodic Labour Force Surveys, Annual Survey of Industries, Economic Census, and National Family Health Survey |
| Aim | <ul style="list-style-type: none"> • To highlight the structural flaws in employment outcomes |
| Highlights | <ul style="list-style-type: none"> • Significant increase over the years in non-farm sector employment that has not translated into well-paying regular employment however. <ul style="list-style-type: none"> ◦ Between 1983 and 2019, the share of non-farm employment increased by about 20 percentage points, but the share of regular-wage employment increased only by about 3 percentage points and that of the organized sector was less than 2 percentage points. • Drop in female workforce participation rate in rural India from over 40 per cent in the 2000s to about 28 per cent now. • The unemployment rate is above 15 per cent for graduates, it goes up to 42 per cent for young graduates. • Intergenerational mobility has improved, though not for all communities. <ul style="list-style-type: none"> ◦ In 2004, for instance, over 80 per cent of the sons of casual workers were engaged in casual labor. ◦ For non-Scheduled Castes (SC) and non-Scheduled Tribes (ST), the proportion had dropped to 53 per cent by 2018. The decline for SC/ST, however, was much less. ◦ <i>Intergenerational mobility refers to the ability of individuals to move up or down the economic or social ladder in comparison to their parents or previous generations. It measures the extent to which a person's social and economic status is influenced by the social and economic status of their parents.</i> |
| Inference | <ul style="list-style-type: none"> • People moving out of the agriculture sector are mostly engaged in low-paying casual work. • While men moved largely to the construction sector, moving out of the farm sector meant an exit from the labor force for women. • A low female labor force participation rate means that India's overall workforce participation rate remains depressed, with implications for overall growth. • Employment conditions are particularly challenging for young and educated individuals entering the labor force. • High unemployment rate among young individuals indicates that India is not creating enough jobs for educated people or the young graduates likely lack the right kind of skills. |
| Conclusion | <ul style="list-style-type: none"> • The study concludes the higher growth over the years has not been matched by employment growth and it is likely that future growth will have a similar outcome. Reasons for this could be <ul style="list-style-type: none"> ◦ Rise in labor productivity, which cancels the employment |

| | |
|--|---|
| | <p>effect.</p> <ul style="list-style-type: none"> ○ Growth in India has not been driven by low-skilled manufacturing, which has the potential to engage people coming out of agriculture, unlike many other developing countries. |
| <ul style="list-style-type: none"> • Jobless growth will not be sustainable in the long run, the policymakers should step in and | <p>take measures that can address the challenge of unemployment.</p> |

VALUE ADDITION

What is jobless growth?

- Jobless growth, also known as "jobless recovery" or "jobless economic growth," refers to a situation in which an economy experiences economic expansion, such as an **increase in GDP (Gross Domestic Product) and overall economic output, without a corresponding increase in employment opportunities** or a decrease in the unemployment rate.

Key characteristics of jobless growth

- **High Unemployment:** Despite economic growth, the unemployment rate remains stubbornly high, and job creation lags behind the rate of economic expansion. This can result in a situation where many people are **unemployed or underemployed** despite the overall health of the economy.
- **Labor Market Mismatch:** Jobless growth can be attributed to various factors, including a **mismatch between the skills of the available workforce and the skills demanded by employers**. In some cases, the jobs created by economic growth may require different qualifications than the jobs that were lost during a recession.
- **Technological Advancements:** Automation and technological advancements can also contribute to jobless growth as industries become more efficient but require fewer human workers. This can lead to structural unemployment, where workers in declining industries find it challenging to transition to new job opportunities.
- **Economic Policies:** Government policies and economic structures can influence jobless growth. For example, **labor market regulations, taxation policies, and trade policies** can impact job creation and job quality.

Implications of jobless growth

- Jobless growth can have significant **social and political implications**.
- High levels of unemployment or underemployment, especially when they persist over an extended period, can **lead to social unrest, inequality, and dissatisfaction with political leadership**.
- It can also create challenges for individuals and families who struggle to find stable employment and financial security.

How to address jobless growth?

- Efforts to address jobless growth often involve
 - A combination of **economic policies aimed at stimulating job creation**
 - **Workforce development programs** to address skill gaps, and

- **Social safety nets** to support those who are unemployed or underemployed.
- Policymakers and economists closely monitor indicators of job growth and unemployment to assess the overall health and inclusivity of an economy's growth trajectory.

11) Five years of Ayushman Bharat

(GS2: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources)

Context

- As Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (PM-JAY) has completed 5 years of implementation, this article discusses the challenges associated with the scheme.

Sustainable Development Goal (SDG)- 3.8

Achieving Universal Health Coverage

- Universal health coverage implies that all people receive the **quality health services they need, without experiencing catastrophic health spending** due to health care costs.
- Progress towards reaching Sustainable Development Goals Target 3.8 on universal health coverage is tracked using two separate metrics; specifically,
 - **SDG indicator 3.8.1** on the coverage of essential health services and
 - **SDG indicator 3.8.2** on catastrophic health spending.

Challenges associated with the scheme

- **Lower reimbursement rates** and denial of admissions by private hospitals.

- **Significant barriers to enrollment** and the failure of enrollment processes to take structural issues into account.

- Onerous requirements of proof of identity. For instance, matching of names in the SECC list, Aadhaar and ration cards is a must for registration.
 - Informal payments ranging from Rs 100 to Rs 200 per person is universal in slums for enrollment into PMJAY.

- **Exclusion of the poorest of the poor** from the PM-JAY beneficiary list and **insignificant penetration of PM-JAY amongst the poor.**

- After five years of implementation, almost three-fifths of the target (58 per cent) population is still outside the ambit of PM-JAY.
 - According to the National Family Health Survey 2019-21 data, at national level, of the households that reported to have at least one member covered by the publicly-funded health insurance schemes, less than a third (32 per cent) were from the poorer category, whereas two-thirds were actually drawn from the richest 60 per cent of the households.

- **Poorly performing states:**

- The proportion of households with at least one member covered by the

publicly-funded health insurance scheme was only 14 per cent in Uttar Pradesh in 2021 and 15 per cent in Bihar in 2019-20.

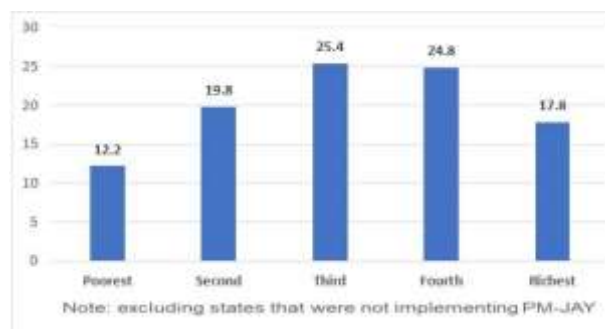
- The enrolment rate was lowest in the poorest quintile in Gujarat, and the leakage to the non-poor was as high as 73 per cent.
- Insurance-based commercialized healthcare systems have **inherent flaws**.
 - The recent report of the Comptroller and Auditor General pointing to **large-scale corruption in PM-JAY** reaffirmed it.
- **The budgetary allocation on PM-JAY went up by 360 per cent** in the last five years which itself has limitations.

Way Forward

- Policymakers must **recognise the limitations of the so-called “strategic purchasing” strategy** to accelerate progress towards UHC.
- **Strengthening the existing public healthcare system** should be made a priority, instead of further experimenting with this type of health insurance/healthcare model, which leads to wasteful spending.

Do you know?

- **"Strategic purchasing"** is a term often used in the context of **healthcare systems and health insurance** to describe a deliberate and systematic approach to procuring healthcare services and resources.



Enrollment share of households covered under PM-JAY and state schemes in 2019-21 by wealth quintile.

VALUE ADDITION

Health Insurance Coverage-Related Statistics

- Approximately 514 million people across India were covered under health insurance schemes in 2021, which merely covers **37% of the people** in the country.
- Nearly **400 million individuals** in India have **zero access** to health insurance.

Health Insurance Cost-Related Statistics

- As per the **Economic Survey 2022-23**, the Indian governments' budgeted expenditure on healthcare nearly touched **2.1 % of GDP in FY23 and 2.2% in FY22**, against 1.6% in FY21.
- The same survey revealed that the rise in the **share of expenditure on healthcare** services has increased from **21% in FY19 to 26 % in FY23**.
- In fiscal year 2019, nearly **48% of the total healthcare spending in India was done from out-of-pocket payments**. This figure has been declined substantially from 64.2 which was witnessed in FY14.

Why Does India Need Better Health Insurance Coverage?

- In India, nearly 5.8 million die from **non-communicable diseases** (NCDs) every year. (top cost drivers of medical claims)
- As per a report, Indian households **spent more than INR 120 billion on healthcare and medical related services** in FY 2022.
- As per the recent data fetched from Niti Aayog Report, the existing health insurance schemes are able to potentially cover **only 95 crores individuals** in India. These schemes consist of government subsidized schemes, social health insurance schemes, and private insurance schemes.

Statistics Related to Covid-19 Pandemic and its Effect on Health Insurance

- The covid-19 pandemic has proved to be a gamechanger for the health insurance segment in India. The more chances of hospitalization and exorbitant medical costs in private hospitals have propelled Indians to take up health insurance coverage.
 - **Health insurance premium collections saw a growth of 40%** in 2020, due to the huge rush by the public to cover themselves from Covid-19 pandemic.
 - During the lockdown, **healthcare insurance increased by 34.2%** in year-to-date in July 2022, compared to 9.9% growth in July 2021.

Statistics And Trends Related to Health Insurance and Digital Technology Usage

- Private players have played a pivotal role in bringing digital transformation in providing health insurance in India.
- Now-a-days there are plenty of plans which cover a huge range of digital benefits such as second opinion, e-consultation, telemedicine, wellness points, online purchase of plans via website or mobile app, etc.
- According to PWC's Health Insurance Consumer Pulse Survey, digital insurance is picking up very fast and has accounted for more than **20-30% of growth in sales**, whereas there has been a **significant drop in the traditional and offline channels**.

12) Expanding the Indian economy, the green way

(GS3: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)

Context

- As India develops its economy to meet the growing needs of its people, the country will confront **serious challenges due to climate change consequences** and the allied necessity to curb carbon emissions.
- This article discusses how a carbon trading framework can help mitigate the challenges and its significance in this backdrop.

Why does the carbon trading network come into picture?

- With the impact of global warming becoming more severe, there is immense urgency to **embrace practices that mitigate greenhouse gas (GHG) emissions**.
- With global temperatures and GHG emissions rising annually, not only governments but investors, consumers and other stakeholders have become conscious of their overall carbon footprint, and the need to control it.
- However, **decarbonisation avenues are extremely limited for some industrial companies and hard-to-abate segments** such as cement, chemicals, iron and steel production and non-ferrous metals.
- They are also a **costly proposition** for them compared to transport, power generation and some other industries.
- Also as some of the biggest contributors to universal GHG emissions, these industrial firms are **mandated to meet emission reduction goals**, either because of **local laws or their in-house policies**.

- Carbon credits can assist companies in meeting sustainability targets. These outfits can purchase credits or fund programmes that create carbon credits.

Carbon trading network- a viable solution

- A vibrant carbon trading network is among the numerous solutions that are being adopted or considered to tackle the emergency.
- **What is a carbon credit?**
 - Carbon credits are a temporary **"license" for an organization to emit a specific quantity of CO₂ that year**.
 - This mechanism allows a company with low or no emissions to **sell credits in the market via a carbon trading framework** or carbon exchange.
 - This offsets the emissions of another entity willing to pay for the credits.

Indian Carbon Market

- The Centre is planning to set up the **Indian Carbon Market (ICM)** by establishing a **national framework** that will help in **decarbonising the domestic economy by pricing GHG emissions via trading in carbon credit certificates**.
- The draft framework for the **Indian Carbon Credit Scheme 2023** was recently notified by the Union government.
- The **Bureau of Energy Efficiency** functioning under the **Ministry of Power** has been tasked to **develop the Carbon Trading Scheme** in tandem with the **Ministry of Environment, Forest & Climate Change**.
- However, the Centre's draft notification has **no provision for procedures, regulations or**

guidelines for the functioning of carbon markets. This responsibility would be vested with a **National Steering Committee chaired by the Secretary, Ministry of Power.**

Significance of the Indian Carbon Market (ICM)

- ICM will help **mobilize investments** for the transition to a low-carbon ecosystem and could help attract finance and technology for sustainable projects that can generate carbon credits.
- It will also **help India lower the emissions intensity of its GDP by 45 per cent by 2030** compared to the 2005 levels, thereby meeting its NDC (Nationally Determined Contribution) target related to its global climate commitments.
- Although India has an energy savings-linked market mechanism, carbon credit trading will give a **fillip to energy transition** due to its greater scope for covering the country's potential energy segments.
- Since the Centre has outlined an **ambitious target of turning net zero by 2070**, the ICM would help in decarbonising the commercial and industrial segments.
- Although the ICM would be regulated, it **will offer flexibility to companies in hard-to-abate segments** to augment their GHG emission efforts through carbon market credits and will also create more awareness, change and innovation across them.

- Placing a **price tag on carbon footprints** would have a direct impact on industries. Enterprises driven by incentives and penalties would begin embedding the **environmental impact as a key parameter in their strategic decisions** which in turn, will encourage investments allowing the shifting of business and manufacturing towards practices with low carbon footprints.

Way forward

- As **carbon-related tariffs such as CBAM (Carbon Border Adjustment Mechanism)** begin influencing trade directly, businesses would need to factor in both national and international implications.
- Regulatory authorities should closely oversee the dynamics of the carbon credit market and devise systems to ascertain its smooth functioning.
- Industry leaders in carbon management solutions and clean energy transition can play a pivotal role in facilitating the transition towards a net-zero future by helping the nation switch from fossil fuel to clean energy systems.

Conclusion

- As India tries to strike a **delicate balance between economic needs and environmental concerns**, a vibrant carbon trading mechanism can be crucial in creating a more sustainable future.

VALUE ADDITION

About Carbon credits

- Carbon credits were **first prominently featured in the Kyoto Protocol**, an international treaty adopted in 1997 in Kyoto, Japan.
- The Kyoto Protocol came into force in 2005 and **set binding emissions reduction targets for developed countries**.
- Under the Kyoto Protocol, carbon credits were introduced **as part of market-based mechanisms to help countries meet their greenhouse gas (GHG) emissions reduction targets**. These mechanisms include:
 - **Emissions Trading (or the Carbon Market)**: This allows countries that emit less than their assigned target to sell the excess allowances as carbon credits to countries that exceed their targets.
 - **Clean Development Mechanism (CDM)**: This allows developed countries to invest in GHG emissions reduction projects in developing countries and earn carbon credits in return. These credits can then be counted towards meeting the developed country's reduction targets.
 - **Joint Implementation (JI)**: This mechanism lets a developed country receive carbon credits by investing in an emissions reduction project in another developed country.
- The concept behind carbon credits is to provide a **financial incentive for reducing GHG emissions**.
- **One carbon credit generally represents the reduction of one metric ton of carbon dioxide** or its equivalent in other greenhouse gasses. These credits can be traded on international markets, effectively setting a price on carbon emissions and incentivizing industries and countries to reduce their carbon footprints.

13) A time for south-south learning

(GS2: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests)

Context

- India's G20 presidency will be remembered as a catalyst in **reshaping the mindset of developed nations and integrating the aspirations of the Global South**, particularly Africa, into the mainstream.
- With Africa's inclusion in G20, the challenges posed by rapid population growth, persistent poverty, and widespread undernourishment become more serious. Initiating a comparative

analysis could foster South-South learning.

Sustainable Development Goal (SDG)-2

Achieving Zero Hunger

- End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Inclusion of African Union in G20

- India's masterstroke with inclusion of the African Union in G20, acknowledges the significance and **potential of Africa as a vital partner** in global development and stability.

- The new G21 will now comprise 84 percent of the world's population, up from about 66 per cent earlier.
- **India and Africa, constituting 36 per cent of the global population, unfortunately, are home to nearly 69.4 per cent (503 million) of the world's undernourished people in 2020-22.**
- These regions together account for 67.0 per cent and 75.8 percent of the world's children under five afflicted with the malnutrition problems of stunting and wasting.

How can the Global South steer the world toward food and nutritional security?

- **Ensure open borders for agricultural trade:**
 - **Keeping international borders open for agricultural trade is the need of the hour.**
 - In the last three years, India exported 85 million tonnes of cereals to the world, contributing to global food security. However, **India's recent restrictions on exports of rice and wheat** will not go very well with G21 as it hurts the African countries the most.
- **Ensure adequate funding and investment:**
 - Developed countries must commit to **providing \$100 billion for the loss and damage caused by climate change.**
 - This commitment will pave the way for large-scale climate mitigation and adaptation efforts in

developing economies.

- Subsequently, the **World Bank could play a catalytic role in mobilizing funds** even from the private sector to address the global challenges of poverty reduction, ensuring food and nutritional security and combating climate change through adaptation and mitigation policies.
- The G20 estimates that an **additional investment of \$3 trillion** will be required annually through 2030 to address these issues, including debt relief for low-income countries.
- **Sustainable agriculture and food systems**
 - Initiating a comparative analysis between India and Africa could **foster South-South learning** and collaboration in the pursuit of **sustainable agriculture and food systems.**
 - **Nutrition-sensitive agriculture policies** are required to address the abnormally high nutritional insecurity in the two regions.
 - **Scaling up bio-fortification of staple crops**, an innovative and cost effective technique, can ensure availability of nutritious diets in areas affected by chronic malnutrition in India and Africa.

About Biofortification

Biofortification refers to the **process of increasing the density of vitamins and minerals** in a crop through **plant breeding, agronomic practices, or biotechnological methods**.

The objective is **to improve the nutritional content of staple crops**, making them more beneficial for consumption, especially in regions where deficiencies of certain micronutrients are prevalent.

The Indian government's **Krishi Vigyan Kendras** (agricultural science centers) have been actively promoting the cultivation and consumption of biofortified crops.

The Consultative Group on **International Agricultural Research (CGIAR)**, with its Harvest-Plus programme, and the Indian Council for Agriculture Research (ICAR) have developed new varieties of **nutrient-rich staple food crops** – these include **iron and zinc biofortified pearl millet, zinc-bio fortified rice and wheat, and iron biofortified beans**.

- **Targeted and Multi-Pronged strategy**

- Tackling the multi-dimensional problem of undernutrition in these regions, requires targeted and multi-pronged strategies to accelerate nutritional security.

- A reduction in percentage of underweight women between 2005-06 and 2019-21 from 35.5 percent to 18.7 percent can be attributed to the increase in higher education of women

from 12 percent to 25.9 percent.

- Thus state governments need to promote schooling and higher education through liberal scholarship for girls that can dramatically reduce dropout rates among women in secondary and higher education.

- Investment in women's higher education is necessary to ensuring a significant increase in the female labor force participation and fostering long-term economic growth.

- An analysis at Indian Council for Research on International Economic Relations (ICRIER) using the latest unit-level NFHS (2019-21) data (with a sample of 205,641 children under five), highlights that **mothers' education, particularly higher education (12 or more years), and mothers with normal BMI index have a strong association with reducing undernutrition among children.**

- **Investment in WASH initiatives:**

- Investments in **Water, Sanitation and Hygiene (WASH) initiatives** could bring about a multiplier effect on nutritional outcomes.

- India, under the **aegis of the Swachh Bharat Abhiyan**,

which aimed to eliminate open defecation and eradicate manual scavenging has significantly increased the coverage of households with improved sanitation facilities from 48.5 percent to 70 percent between 2015-16 and 2019-21.

Conclusion

- The inclusion of the African Union in the G20 (now G21) will have meaning only if India and Africa can **collaborate effectively to deal with their food and nutrition security** in the face of climate change.

14) Digital Public Infrastructure: The story of India's digital revolution

(GS3: Achievements of Indians in Science & Technology; Indigenization of Technology and Developing New Technology)

Context

- Digital Public Infrastructure (DPI), a transformative concept, was championed in G20 deliberations by India.
- The nation's unique DPI initiatives, such as digital ID (Aadhaar) and payment infrastructure (UPI), have been highlighted by the **Digital Economy Working Group (DEWG) under the G20 umbrella**.
- In this backdrop, the article explains what exactly DPI is, and why it is so crucial for India's digital future.

What is Digital Public Infrastructure (DPI)?

- Digital public infrastructure refers to the **foundational digital services, platforms, and tools that serve the public interest** and are built with public funds, either by governments or by non-profit organizations.
- DPI is a **set of technology building blocks** that drive innovation, inclusion, and competition at scale, operating under open, transparent and participatory governance.
 - The **internet, powered by common protocols** like HTTP, HTML, and SMTP, is a prime example of DPI, which ensures global information exchange and interoperability.
 - **Telecom, with standards** like GSM, SMS, CDMA, and IEEE 802.11, is another example.
- Digital public infrastructure aims to provide **equitable access, uphold privacy, and serve the public good**.

Key characteristics of DPIs

- **Openness:** Digital public infrastructure is often built using open-source software to ensure transparency, allow for public scrutiny, and enable adaptation by different communities or entities.
- **Interoperability:** Systems are designed to work together, enabling a seamless exchange and flow of information across different platforms and tools.
- **Equity and Accessibility:** Ensuring that everyone, irrespective of their socio-economic status or abilities, has access to and can benefit from the digital infrastructure.
- **Privacy and Security:** With the rise of data breaches and privacy concerns, digital public

infrastructure places a premium on protecting user data and ensuring secure transactions.

- **Sustainability:** Like physical infrastructure, digital platforms need maintenance. Sustainable funding models and clear governance structures are crucial for the long-term viability of digital public infrastructure.
- **Public-Centric Design:** The platforms and services are designed keeping the user—the public—in mind. This could mean prioritizing user experience, ensuring accessibility, or allowing for public feedback in the design process.

DPIs in India

- Successful DPIs in India include **Aadhaar**, **Unified Payment Interface (UPI)**, **CoWin**, which managed the world's largest vaccination programme and **PM-WANI**, that aims to provide ubiquitous and affordable internet connectivity.
- Others like **Unified Health Interface (UHI)**, **Ayushman Bharat Digital Mission (ABDM)**, and **Open Network for Digital Commerce** are in the rollout stage.

Understanding DPI

- A comprehensive understanding of DPI requires recognition of its three integral layers: **Market, governance, and technology standards**.
 - The **market layer** consists of innovative and competitive players designing inclusive products.
 - The **governance layer** requires legal and institutional frameworks, along with public programmes to drive

adoption, and specific overarching principles and policies.

- **Technology standards**, including those for identity, payments, and data sharing, must be built or adapted to enable interoperability and the adoption of shared standards.
- These layers **collectively define the structure and functionality of DPI**, reflecting the complexity and potential of this transformative concept.

History of DPI in India

- India's history with technology in the public domain began with **disconnected applications** developed in the '80s and '90s.
- State and central governments then developed infrastructure projects like **state-wide area networks**, **Common Service Centres (CSCs)**, and State Data Centres (SDCs), along with several Mission Mode Projects (MMPs), whose objective was to create the necessary infrastructure and software development in various domains.
- In **2009**, the project of creating unique identities for residents of India, **Aadhaar**, was developed as a next-generation digital ID, offering authentication as a service.
 - Being a bonafide proof of identity residing on the cloud, it could be plugged into any service delivery transaction to verify an individual's identity.
 - It soon began to be used for multiple service deliveries, like **opening bank accounts**, **obtaining mobile SIMs**, or **receiving ration**.
- Products like the **Digital Locker**, **electronic KYC (eKYC)** and **digital**

signature on demand (e-Sign) were developed in addition to Aadhaar.

- A massive programme of **Direct Benefit Transfers (DBT)** also began, resulting in huge savings for the government.
 - For instance, Payment of subsidies directly into bank accounts eliminated the black marketing of commodities like LPG cylinders.

Foundation for India's DPI philosophy

Do you know?

- **Minimalism** in the context of Digital Public Infrastructure (DPI) can refer to a design and development philosophy that emphasizes **simplicity, efficiency,** and a reduction in unnecessary complexity.
- **Purpose agnosticism** in the context of authentication refers to the idea that an **authentication system should verify or authenticate an identity without needing to know or process the specific purpose for which that identity verification is being used.**
- **Open APIs**, also known as external or public APIs (Application Programming Interfaces), provide a way for applications to interact with each other and share data and functionalities in a standardized manner. They are designed to be **publicly available to developers and other users with minimal restriction.**
- **Minimalism, federated architecture, purpose agnosticism of authentication, privacy, security, unbundling of functions, open APIs and a layered approach** became the

foundation for India's DPI philosophy with various lessons learnt from Aadhaar.

Significance of DPI ecosystem

- DPI creates a balance between all government and all private digital system development, identifying frameworks consisting of frequently required services and components efficiently managed by the public authority.
 - Two paths to the development of digital systems are common: All government or all private. The former may lead to **quality and maintenance issues**, while the latter may result in **monopolies**.
- It develops **open protocols, shared platforms, and enabling policies** to create an interoperable ecosystem.
- The DPI does not provide the complete solution but makes the job of solution providers easier by **offering readymade components and services.**

Current issue

- The matter of **pricing for services provided by DPI** has stirred a debate. Some argue that accountability and Service Level Agreements (SLAs) can only be enforced when the services are priced.
 - *A service-level agreement is a **contract between a service provider and its customers** that documents what services the provider will furnish and defines the service standards the provider is obligated to meet.*

Solutions ahead

- The operation of DPIs should be entrusted to a professional agency, rather than a government ministry

or department, to ensure Service Level Agreements.

- Since DPIs are funded by public money, and the incremental work done in providing the services is minimal, the **services should not be charged**.
- **Continuous update** must be ensured, as registries are an essential reusable component of DPI and interoperability is at the heart of all DPIs.
- To ensure **robust protection**, secure pipelines must be created to access DPI's services.
 - The Aadhaar experience of creating **Authentication User Agencies (AUAs)** offers an excellent framework in this regard.
- **Certification of the end-user application** is required to ensure the safety of both the infrastructure and the connecting application.
 - **CoWin**, with over a 100 applications connected to it, serves as a robust example of this security model.

Implications of the approach

- This approach ensures **reduced development costs, more modular end-user solutions, a vibrant ecosystem of diverse applications, reduced entry barriers, and a more democratic and non-monopolistic system.**

Conclusion

- The India story of DPI is a testament to the country's commitment to **leveraging technology for the greater, more digitally inclusive good**, setting a precedent for other nations to follow.

VALUE ADDITION

What are digitally inclusive goods?

- **Digitally inclusive goods** refer to **products, services, and initiatives** that aim to ensure that all individuals and communities, including the most disadvantaged and marginalized, have **equal access to digital technologies, tools, and the benefits they bring.**
- The concept is rooted in the broader **principle of digital inclusion**, which encompasses not just access but also the **capability to use digital tools effectively.**
- Key features of digitally inclusive goods include **accessible technologies, affordable devices, localized content, digital literacy programs, public access points, open source tools, gender inclusive platforms, inclusive design** etc.,
- The **goal of promoting digitally inclusive goods** is to **bridge the digital divide** and ensure that everyone, regardless of their socio-economic status, abilities, age, gender, or location, can access and benefit from the vast opportunities the digital world offers.

15) Women's Reservation Bill - 'Imperfect still important'

(GS2: Mechanisms, Laws, Institutions and Bodies constituted for the Protection and Betterment of these Vulnerable Sections)

Context

- In a historic move, both the houses of the Parliament passed the Constitution **(One Hundred and Twenty Eighth Amendment) Bill**, commonly referred to as the women's reservation Bill or **Nari Shakti Vandan Adhiniyam**.

Objective of the bill

- The primary objective of the Women's Reservation Bill is to enhance women's political representation at the national and state levels by **reserving seats (33%) for women in the Lok Sabha and state legislative assemblies.**

What laid the ground for the Bill?

- The enactment of the **73rd and 74th amendments to the Constitution in 1993** (that mandated one-third reservation for women in panchayats and urban local bodies) laid the ground for the women's reservation Bill.

Need for the Bill

- **Low proportion of elected women representatives:** The Economic Survey 2017-18 has acknowledged the abysmally low proportion of elected women's representatives in Lok Sabha and the legislative assemblies.
 - While the global average for lower chamber or unicameral is 25.8%, India stands at **15% percent with 82 out of 543 Lok Sabha representatives** elected in 2019 being women.
 - The average percentage of women MLAs in assemblies across the country is **only 8%.**
- **Committee recommendations:** A committee on the status of women constituted under the Ministry of Women and Child Development constituted in May 2013, recommended ensuring at least 50% reservation of seats for women in the Local bodies, State Legislative Assemblies, Parliament, Ministerial levels and all decision-making bodies of the government
- **Poor global ranking:**

- According to the **Geneva-based Inter-Parliamentary Union (IPU)**, globally India ranks in the bottom quarter, 148th out of 193 UN member nations, when it comes to the proportion of elected women representatives in Parliament.
- According to **Global Gender Gap Report 2022**, India ranks **48th out of 146 in Political Empowerment.**
- **To adhere to constitutional principles:** Increasing women's participation in decision-making is **intrinsic to strengthening women's empowerment** as enshrined by equality of rights and freedoms in the Preamble and Constitution of India.
- **For inclusive law making:** Without women, who constitute around 50% of the population, having a fair share of seats, legislatures lack the perspectives that are essential for inclusive lawmaking.
- **To address gender disparities:** With only 15% of women legislators in India's House of the People, their underrepresentation not only reveals a gender disparity but also constitutes a democratic deficit.
- **To increase policy relevance:** A diverse parliament that includes more women is more likely to consider and pass legislation that addresses gender-specific issues such as women's health, education, economic empowerment, and safety.

Why are women underrepresented in politics?

- Deeply ingrained **patriarchal** society, family and domestic responsibilities, political violence

and harassment, lack of considerate women leaders, hostile environment created by discrimination, stereotyping etc., together contribute to lower representation of women in politics.

Highlights of the Bill

- **Reservation Percentage:** The bill proposes to reserve one-third (33.33%) of the total seats in the Lok Sabha, state legislative assemblies for women and the National Capital Territory of Delhi.
- **Horizontal reservation:** One third of the total number of seats reserved for Scheduled Castes and Scheduled Tribes shall be reserved for women of those groups in the Lok Sabha and the legislative assemblies. The allocation of reserved seats shall be determined by such authority as prescribed by Parliament.
- **Seats on rotational basis:** The seats reserved for women will be allotted by rotation to different constituencies in the state or union territory after each delimitation exercise.
- **Duration of reservation:** Reserved seats may be Reservation of seats for women shall cease to exist 15 years after the commencement of this Amendment Act.

Significance of the bill

- **Ensures greater representation:** Reservation leads to greater representation of women in political bodies and also influences policy making.
 - Its passage leads to a mandated presence of 180 elected women representatives in the Lok Sabha and nearly 15,100

elected representatives across all legislative assemblies, thereby bridging the critical gender gap in political and legislative decision-making.

- **Inclusive decision making:** Women legislators are more likely to champion policies that address issues like gender-based violence, education for girls, healthcare, and women's economic empowerment thereby promoting a political agenda that is more inclusive and representative of the population's needs.
- **Women empowerment:** Some recent studies on panchayats have shown the positive effect of reservation on empowerment of women and on allocation of resources. It provides a platform for women to advocate for their rights and interests.
- **Eradicates gender inequality:** Women's political empowerment is seen as an essential tool for eradicating prejudice and gender inequity.
 - A study in Rajasthan and WestBengal had shown that the presence of a female elected leader also reduces the gender gap in adolescent educational attainment.
- **Balancing Gender Biases:** Reservation ensures that political parties field a significant number of women candidates, thus challenging traditional biases and stereotypes.
- **Role model effect:** Women in high office dispel the myth of politics being unattainable for other women, encouraging them to consider political careers. The direct correlation between women in power and women-centric policies can **heighten the sense of**

political efficacy among female citizens, inspiring more active participation.

- **Fosters an effective system:** Female politicians often bring different styles and priorities, making political settings more welcoming for women and fostering a more effective system.
- **Integral to democratic ethos:** In a world where the contributions of Indian women are being increasingly recognized, from sports to startups, this legislative move is integral to India's democratic ethos and India will also set a unique precedent as the only major democracy in the world to implement such affirmative action.

Key issues and analysis

- **Impact on meritocracy:** It would perpetuate the unequal status of women since they would not be perceived to be competing on merit.
- **Diverts attention from more serious issues:** It is also contended that this policy diverts attention from the larger issues of electoral reform such as criminalisation of politics and inner party democracy.
- **Limited choice:** Reservation of seats in Parliament restricts choice of voters to women candidates.
- **Rotation of reserved seats may be counter effective:** Rotation of reserved constituencies in every election may **reduce the incentive for an MP to work for his constituency** as he may be ineligible to seek re-election from that constituency.
- **Neglected recommendations of 1996 women reservation bill examination report:** Recommendations like providing reservation for women of Other Backward Classes (OBCs) and

extending the reservation to the Rajya Sabha and the Legislative Councils have not been incorporated in the Bill.

- The Rajya Sabha currently has lower representation of women than the Lok Sabha.
- **Linking reservation with delimitation:** Linking of the implementation of women's reservation with the periodical delimitation exercise would mean a prolonged delay in the quota coming into force.
- **No reservation for OBCs:** While there is reservation for SCs and STs in the Lok Sabha and State Legislative Assemblies, there is no separate reservation for OBCs, who constitute more than 40% of the population.
- **No timeline for implementation:** It doesn't specify the cycle of elections from which women will get their due share; rather it says that it will come into effect after an exercise of delimitation is undertaken.
- **Influence of Male Family Members:** In some cases, women elected to reserved seats may be influenced or controlled by male family members or political leaders, which can undermine their independence and effectiveness.

Do you know?

- In 2006, Bihar became the first State to provide 50% reservation for women in panchayat bodies. At present, more than 20 States have 50% reservation for women at the panchayat level.
- Currently, only four of 543, or 0.7 per cent members of the outgoing Lok Sabha are Muslim women, who comprise 6.9 per cent of the general population.

Is there any alternative to reservation?

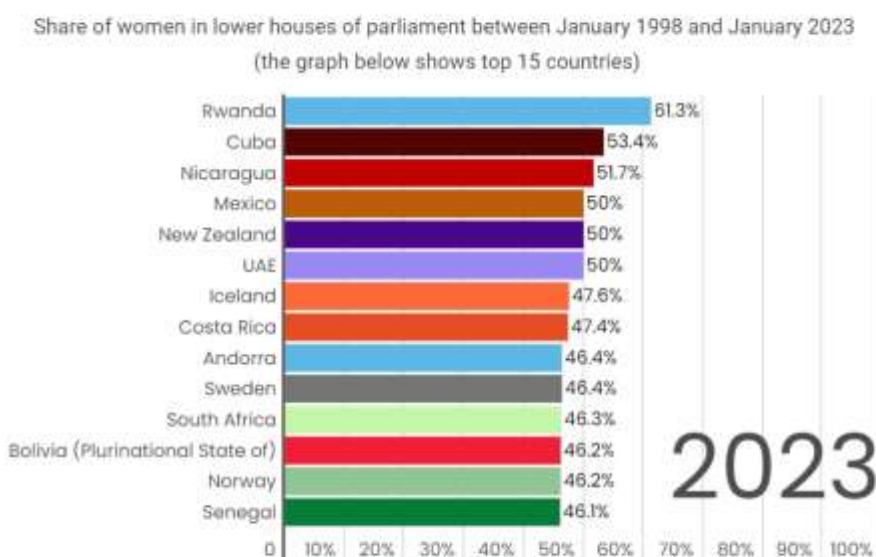
- **Ensuring reservation within political parties:** Countries like Canada, the United Kingdom, France, Sweden, and Norway etc, reserve seats for women within the political parties, but do not have quotas for women in Parliament.
- **Introducing dual-member constituencies:** This means that the constituencies, instead of

reserving seats for women, will nominate two members, one being a woman.

A comparative analysis

- **India's current representation of women in parliament is much lower than its neighbors like Nepal (33%), Bangladesh (20.86%), Pakistan (21%) and China (24.94%).**

Countries with most women in national parliaments



A bar chart showing countries with most women in national parliaments in 2023. Image: United Nations.

- **Five countries with the highest proportion of women in parliaments:** Rwanda (61%), Cuba (53%), Nicaragua (52%), Mexico (50%), New Zealand (50%)
- **Five countries with the least proportion of women in parliaments:** Iran (5.6%), Qatar (4.4%), Nigeria (3.6%), Comoros (3%), The Republic of Yemen (0%), Vanuatu: It has elected only one female lawmaker since 2008.

For effective implementation of Women reservation/representation in politics

- **Gender-Responsive Electoral Laws:** Enact electoral laws that encourage gender equality. For example, introduce provisions that penalize political parties that do

not nominate a minimum number of women candidates.

- **International Collaboration:** Collaborate with international organizations and learn from best practices and experiences in other countries that have successfully implemented women's representation.
- **Supportive Legal Framework:** Enforce and strengthen laws that protect women from violence, harassment, and discrimination in politics, as these are often significant barriers to women's participation.
- **Capacity Building:** Offer training and capacity-building programs for aspiring women politicians to equip them with the skills and knowledge

needed for successful political careers.

- **Gender-Responsive Constituency Delimitation:** Consider constituency delimitation reforms

that create constituencies with a balanced gender ratio to increase the chances of women winning elections.

VALUE ADDITION

Polity Basics

What is Delimitation?

- Delimitation is the **act of redrawing boundaries of Lok Sabha and state Assembly seats** to represent changes in population.
- The main objective of delimitation is to **provide equal representation to equal segments** of a population. It also aims at a fair division of geographical areas so that one political party doesn't have an advantage over others in an election.
- In India, delimitation is carried out by an independent **Delimitation Commission**.

How is delimitation carried out?

- Under **Article 82**, the constitution gives power to the Parliament of India to enact a law for the purpose of Delimitation. The Delimitation commission, a statutory body, is set up under the law enacted by the parliament of India.
- The Delimitation Commission is appointed by the **President of India** which works in collaboration with the Election Commission of India.
- The Delimitation Commission consists of
 - a **retired Supreme Court judge**,
 - **the Chief Election Commissioner** and
 - **the respective State Election Commissioners**.
- The Commission is supposed to determine the number and boundaries of constituencies in a way that the population of all seats, so far as practicable, is the same.
- The Commission is also tasked with identifying seats reserved for Scheduled Castes and Scheduled Tribes.
- All this is done on the basis of the latest Census and, in case of difference of opinion among members of the Commission, the opinion of the majority prevails.

Special powers of the Delimitation Commission

- The orders of the Delimitation Commission have the **force of law and cannot be called in question before any court** as it would hold up an election indefinitely.
- The copies of its orders are laid before the House of the People and the State Legislative Assembly concerned, but **no modifications are permissible** therein by them.

How often has delimitation been done in the past?

- In India, Delimitation Commissions have been constituted **4 times – 1952, 1963, 1973 and 2002** under the Acts of 1952, 1962, 1972 and 2002.
- There was **no delimitation after the 1981 and 1991 Censuses** because the union government had suspended delimitation in 1976 until after the 2001 census so that states' family planning programs would not affect their political representation in the Lok Sabha.
- The fear of losing meaningful political representation was especially great in the southern states which had greater success in controlling populations.

- This freeze on the number of seats in Lok Sabha and Assemblies was postponed until 2026 by another amendment.
- So, the **last delimitation exercise was based on the 2001 Census** and only readjusted boundaries of existing Lok Sabha and Assembly seats and reworked the number of reserved seats (without changing the number of seats in Lok Sabha and Assemblies).

16) The path to biofuel sustainability

Context

- International oil prices are surging, nearing \$100 per barrel once again. India's import dependence on crude oil and products stood at an **all-time high of 87.3 percent in FY2023**, and **25.8 per cent of the country's import bill** was spent on it.
- In this backdrop, a clear research and development plan to scale up ethanol production in India becomes a dire need.

Why not electric vehicles and why biofuels?

What are biofuels?

- Biofuels are **liquid or gaseous fuels produced from biomass** that are generally high in sugar (such as sugarcane, sugarbeet, sweet sorghum), starch (such as corn and cassava) or oils (such as soybeans, rapeseed, coconut, sunflowers, and palms). The two most commonly used biofuels are **ethanol and biodiesel**.
- **First generation Biofuels** are mainly produced from food crop feedstock, such as oil, sugar and starch crops, thus competing for agricultural areas used for food production.
- **Second generation Biofuels** differ in feedstock which, in this case, comes from non-food plants such as

agricultural crops, residues and wood (so-called lignocellulosic biomass).

- **Third generation Biofuels** are produced from micro-organisms like algae. Its production is supposed to be low cost and high-yielding – giving up to nearly 30 times the energy per unit area as can be realized from current, conventional 'first-generation' biofuel feedstocks.
- **Fourth generation Biofuels** use genetically modified (GM) algae to enhance biofuel production. Key to the process is the capture and sequestration of CO₂, a process that renders fourth-generation biofuels a carbon negative source of fuel.
- **Entire replacement of the existing internal combustion engine (ICE) vehicles and the supporting infrastructure** is needed for a transition to Electric Vehicles, which is capital intensive.
- The required batteries and critical minerals used in them need to be **imported**.
- It also **adds to environmental concerns** on how these minerals are mined, among other issues.
- Biofuels, on the other hand, can be **used in existing ICE engines** and infrastructure with little to no modifications (depending on the blending rates) and offer **import independence**.

Government initiatives to promote biofuels

1) Ethanol Blending programme

- The Ethanol Blended Petrol (EBP) programme was launched in January, 2003 by the Ministry of Petroleum and Natural Gas that aims to promote the **use of alternative and environment friendly fuels** and to reduce import dependency for energy requirements.

2) Global Biofuel Alliance

- India along with the leaders of **Singapore, Bangladesh, Italy, USA, Brazil, Argentina, Mauritius and UAE**, launched the Global Biofuel Alliance.
- Aim:** Bringing together the biggest consumers and producers of biofuels to drive biofuels development and deployment, the initiative **aims to position biofuels as a key to energy transition** and contribute to jobs and economic growth.

Do you know?

- Ethanol, is an **anhydrous ethyl alcohol** having chemical formula of C_2H_5OH , can be produced from sugarcane, maize, wheat, etc which are having **high starch content**.
- In India, ethanol is mainly produced from **sugarcane molasses by fermentation process**.
- Ethanol can be mixed with gasoline to form different blends.
- As the ethanol molecule contains **oxygen**, it allows the engine to more **completely combust the fuel**, resulting in fewer emissions and thereby **reducing the occurrence of environmental pollution**.

Implications and issues surrounding ethanol blending programme

- Increased demand for ethanol:** The demand for 20 percent blending is set to increase India's ethanol demand to nearly 1,100 crore liters by 2025. (*Ethanol producers supplied nearly 430 crore liters of ethanol in 2022*).
- Increased dependency on 1st generation ethanol:** Much of India's supply of ethanol for the blending programme comes from first-generation production using underlying sugars in food crops, mostly sugarcane (84 per cent) and grain (16 per cent).
- Inadequate contribution from 2nd generation ethanol:** Second-generation (2G) ethanol, which is made from crop wastes and residues, is unlikely to contribute much to achieving this target due to several challenges related to feedstock supply chain and scaling up.
- Ethanol blending alone is not sufficient:** A NITI Aayog report also indicated a **growth in petrol demand by over 45 per cent** by 2030, compared to 2021. In such a scenario, **blending alone can deliver a small reduction** in the overall demand for petrol and electric vehicles also have their own concerns as stated above..
- Impact of climate change:** While ethanol opens up a new income stream for the farming community by way of assured procurement, climate change considerations suggest that rainfall and yields will both see significant variations and can leave us vulnerable to supply shocks.
- Not a sustainable strategy:** Diverting the surplus produce towards energy or specifically

growing a crop for energy may not be a sustainable strategy because

- India's crop yields have already stagnated, and **global warming is expected to reduce yields.**
- A recent study led by the **University of Michigan** projected that the rates of **groundwater depletion** could triple during 2040-81 compared with the current rate. With such limited resources, food production should be prioritized over fuel.
- Agriculture sector is one of the hardest-to-abate in terms of **direct greenhouse gas (GHG) emissions.** Increasing GHG emissions from this sector for motor fuel production in order to decrease GHG emissions from the transport sector would achieve little net benefit.

Way forward

- Achieving the 2025 target will require investments, and the ability to provide (and divert) the necessary feedstock for the domestic production of ethanol.
- **Biofuels and flex-fuel vehicles** (that can run almost entirely on biofuels) can help meet the increased demand for petrol.
 - For instance, **India's first flex fuel vehicle** was recently unveiled

Flex fuel vehicle?

- The Prototype of World's 1st BS-6 Stage-II, Electrified Flex fuel vehicle, developed by Toyota Kirloskar Motor was unveiled recently.

- An **Electrified Flex Fuel Vehicle** has both a Flex Fuel engine and an electric powertrain.
- This gives it the ability to **provide dual benefit of higher ethanol use and much higher fuel efficiency** as is in case of a Strong Hybrid Electric Vehicle (SHEV), which can provide 30-50% higher Fuel Efficiency as it can run 40-60% in EV mode with engine shut off.
- Various high-level bodies like National Green Tribunal (NGT), Energy Transition Advisory Committee (ETAC) have strongly recommended promotion of all green technologies including SHEVs & Electrified Flex Fuel Vehicle etc for hastening the shift away from fossil fuel and faster decarbonization.
- As Electrified Flex Fuel Vehicle **uses minimal advanced chemistry batteries**, it also **guards against possible Geo-political risks of battery raw material supplies.**
- Given the predominance of first-generation production, the often-discussed **food-energy-water nexus considerations** must be put into practice at the earliest.
- India needs a **robust assessment and a clear research and development plan for 2G technologies**, before it can scale up ethanol production.
- Even in diversifying our fuel base, the primary focus of policy must be to slow down the overall consumption of petrol in the economy and **address the private demand for the fuel.**
 - **Targeted promotion of EVs in public transit and pricing the use of private vehicles in urban settings**

- could ease the transition to higher levels of biofuels.
- The Energy Transitions Commission, in its report on '**Bioresources within a Net-Zero Emissions Economy**', recommended that biomass should be prioritized for use in biofuel production units.
- sectors where there are limited low-carbon alternatives.
- The Global Biofuels Alliance could **help drive innovation and technology development in establishing an efficient biomass supply chain** and smaller-scale decentralized

| VALUE ADDITION |
|--|
| About Ethanol blending Programme <ul style="list-style-type: none"> The Ethanol Blended Petrol (EBP) programme was launched in January, 2003 by the Ministry of Petroleum and Natural Gas that aims to promote the use of alternative and environment friendly fuels and to reduce import dependency for energy requirements. Government of India through Oil Marketing Companies (OMCs) is implementing Ethanol Blended Petrol (EBP) Programme, wherein ethanol is being blended in petrol. The Ministry of Petroleum & Natural Gas in 2019 directed Oil Marketing Companies (OMCs) to sell 10% ethanol blended petrol as per Bureau of Indian Standards (BIS) specifications. It is being implemented throughout the country except Union Territories of Andaman Nicobar and Lakshadweep islands. The National Biofuel Policy 2018 envisages an indicative target of 20% blending of ethanol in petrol and 5% blending of biodiesel in diesel by 2030. In 2022, after a concerted policy push for five years, India's blending programme achieved the significant milestone of 10 per cent ethanol blending in petrol. |
| About Global Biofuel Alliance <ul style="list-style-type: none"> India along with the leaders of Singapore, Bangladesh, Italy, USA, Brazil, Argentina, Mauritius and UAE, launched the Global Biofuel Alliance. It envisions developing an alliance of Governments, International organizations and Industry to facilitate adoption of biofuels. Aim: Bringing together the biggest consumers and producers of biofuels to drive biofuels development and deployment, the initiative aims to position biofuels as a key to energy transition and contribute to jobs and economic growth. GBA will support worldwide development and deployment of sustainable biofuels by <ul style="list-style-type: none"> Offering capacity-building exercises across the value chain, Technical support for national programs and Promoting policy lessons-sharing Intensifying utilization of sustainable biofuels Shaping robust standard setting and certification through the participation of a wide spectrum of stakeholders. |

- It will **facilitate mobilizing a virtual marketplace** to assist industries, countries, ecosystem players and key stakeholders in mapping demand and supply, as well as connecting technology providers to end users.
- It will also facilitate development, adoption and implementation of **internationally recognized standards**, codes, sustainability principles and regulations to incentivize biofuels adoption and trade.
- **Countries and organizations which have already joined GBA:** 19 countries and 12 international organizations have already agreed to join.

Scope of GBA

- The global ethanol market was valued at USD 99.06 billion in 2022 and is predicted to grow at a CAGR of 5.1% by 2032 and surpass USD 162.12 billion by 2032.
- As per IEA, there will be **3.5-5x biofuels growth potential by 2050** due to Net Zero targets, creating a huge opportunity for India.
- GBA Members constitute **major producers and consumers of biofuels. USA (52%), Brazil (30%) and India (3%),** contribute about 85% share in production and about 81% in consumption of ethanol.

Significance of GBA

- It showcases the action oriented nature of India's positive agenda as G20 President and **represents the "Voice of the Global South"**.
- The alliance will focus on collaboration and will provide additional opportunities to Indian industries in the form of **exporting technology and exporting equipment**.
- The alliance will also act as a **central repository of knowledge** and an expert hub.
- It is an **important step towards more research and delivery of alternative energy sources** for a world still dependent on fossil fuels.
- It will help **accelerate India's existing biofuels programs** such as **PM-JIVANYojna, SATAT, and GOBARDhan scheme**, thereby contributing to increased farmers' income, creating jobs and overall development of the Indian ecosystem.

Biofuel related initiatives

- **Pradhan Mantri JI-VAN** (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana extends financial support through Viability Gap Funding (VGF) to Second Generation (2G) Integrated Bioethanol Projects using lignocellulosic biomass and other renewable feedstock.
- **The SATAT** (Sustainable Alternative Towards Affordable Transportation) initiative was launched by the **Ministry of Petroleum and Natural Gas**, Government of India in 2018 for **boosting production and availability of CBG** as an alternative and affordable clean fuel for the transportation sector.
- **Galvanizing Organic Bio-Agro Resources Dhan (GOBARDhan)** is an umbrella initiative of the **Ministry of Jal Shakti**, Government of India launched this scheme as a **national priority project under the Swachh Bharat Mission Gramin-Phase II** program. One of the objectives of the scheme is to convert organic waste, especially cattle waste to biogas and fertilizer for use in rural areas.

17) Protecting floodplains is the need of the hour

(GS3: Disaster and Disaster Management)

Context

- This article discusses the increasing frequency of floods occurring due to various causes which necessitates appropriate flood management and suggests measures to tackle flood.

What are floods?

- Sudden submergence or inundation of land area with water** is called a flood. The occurrence of floods can be due to both natural and human causes.

Devastating flood incidents

- Last year (2022), devastating floods in **Pakistan** claimed 1,700 lives and affected 33 million people.
- The **2013 floods in Uttarakhand, the 2014 floods in the Kashmir Valley, the 2015 floods in Chennai, and the 2017 floods in Gujarat** all caused loss of lives and livelihoods and massive damage to infrastructure.
- In 2023, the devastating effects of rain-induced floods and landslides in several districts of **Himachal Pradesh**.
- The Yamuna water level crossed the 208.5 meter mark, breaking a 45-year-old record.
- All these disasters point to the severity of the situation and the urgent need to tackle it.

How vulnerable is India to floods?

- As per the Geological Survey of India, over **40 million hectares**, which is nearly **12% of the total land area of India**, is prone to floods.

Causes of increasing frequency and intensity of floods

- Climate change:** Climate change induced increased frequency and intensity of extreme precipitation.
- Unplanned urbanization:** Cities expand fast and mostly in a haphazard manner, which makes them vulnerable to floods.
- Occupying floodplains: Reduces water retention:** Illegal construction work in floodplains reduces the capacity of rivers to contain a high level of water within their banks. This is especially the case during heavy rainfall when water flows down from upper catchment areas. This tendency to occupy floodplains results in flooding.
 - A **2018 report of the Comptroller and Auditor General of India** attributed encroachments in the floodplains of the rivers of Tamil Nadu and the failure to act on them as the **prime reason for the Chennai floods of 2015**. The auditor called the deluge a '**man-made disaster**'.

Impact of Case study of Uttarakhand

- Uttarakhand** has been neglecting eco-sensitive floodplains by **allowing the construction of guest houses and hotels** on the riverfront to promote tourism and boost its economy.
- In the wake of the **massive floods in 2013**, the National Green Tribunal virtually barred construction of buildings 200 m along the banks of the Ganga, in a 2015 directive. However, attempts were made to bypass this.
- The **Uttaranchal River Valley (Development and Management) Act, 2005**, is meant to regulate mining and

construction in the river valley. But reports indicate that there is rampant mining and construction activity with little regard for the environment.

What is the issue?

- India primarily relies on the **Disaster Management Act, 2005**, and the rules made in pursuance of the Act, to deal with flood management. But this law is meant to deal with multi-hazard risks and is **not specifically focused on flood risk management**.
- While there are central policy measures to protect floodplains, they are mostly **non-binding on States** and hence no State in India has been able to prevent encroachment on floodplains.

Change in strategy

- A shift in the strategy of flood control in countries such as Germany, the U.K., and the Netherlands to **flood risk management as opposed to flood protection is also needed in India**.
 - Because disaster risks across the world are found to be situated within **environmental and natural resource governance**.
- While the protection strategy includes technical measures such as the laying of dikes, temporary flood defense walls, and polders, the key elements of the management strategy are **retention of water and restoration of floodplains**.

Way forward

Preserve ecosystems

- Protecting and preserving ecosystems such as **wetlands, forests, lakes, and coastal areas** has potential benefits in reducing

physical exposure to natural hazards such as floods, landslides or avalanches by serving as buffers.

Restore floodplains

- Floodplain restoration and water retention of water bodies are considered to be **pillars against flooding**.
 - In 1996, Germany made a fundamental change to its Federal Water Act in the aftermath of a massive flood. The law provides for protecting original retention capacity while reconstructing bodies of water.

Coherent framework

- Climate change adaptation is a **cross-sectoral issue** and hence a **multitude of laws need to be integrated** into a coherent framework.
- It involves laws relating to land use, preservation of water bodies, coastal regulations, and environmental impact assessment.

18) With climate change, tackling new disease scenarios

(GS3: Science and Technology- Developments and their Applications and Effects in Everyday Life)

Context

- In its latest report released this March, the Intergovernmental Panel on Climate Change (IPCC) delivers a stark warning: **Climate change heightens the global risk of infectious diseases**.
- An analysis of 2022 published in **Nature Climate Change** warns that humans now face a broader spectrum of infectious agents than ever before. Over half of all-known infectious diseases

threatening humans worsen with changing climate patterns.

- This article analyzes the relationship between climate change and spread of diseases and suggests measures to overcome the challenge of increasing infectious disease spread.

Relationship between climate change and spread of diseases

- Climate change induced **variability in temperature, precipitation, and humidity disrupt disease transmission cycles** and also **alter the distribution of the vectors** and animal reservoirs that host the parasite.
 - For instance, the periodicity of **mosquito-borne disease** outbreaks no longer follows expected patterns.
 - **Dengue** manifests in two to three peaks throughout the year.
 - Climatic shifts are manifesting in severe health crises, including a **dengue epidemic in Dhaka (Bangladesh) and Kolkata** and the **Nipah outbreak in Kerala**.
- Heat has been proven to **interfere with the genomic structure of pathogens**, changing their **infectivity and virulence**.
- **Habitat loss** forces disease-carrying animals to encroach upon human territory, **increasing the risk of human-animal interaction** and the transfer of pathogens from wildlife to humans.
- Viruses which do not harm animals can be **fatal for humans**.
Eg: Nipah Virus
- Diseases often find **new transmission routes**, including

environmental sources, medical tourism, and contaminated food and water.

- While ecosystems shape local climates, climate change is transforming ecosystems. This dynamic **introduces invasive species and extends the range of existing life forms**.
- Climate change is **not limited to infectious diseases**. It also exacerbates injuries and deaths from extreme weather events, respiratory and cardiovascular diseases, and mental health issues.

Improved Surveillance

- Changed disease scenarios require a revision of strategies to detect and deal with them.
- The **Integrated Disease Surveillance Programme (IDSP)** reported 553 outbreaks in 2008 while it reported 1,714 in 2017. It was phased out in favor of a new, web-enabled, near-real-time electronic information system called **Integrated Health Information Platform (IHIP)**.
- IHIP was launched in seven States in 2018. It added **20 additional disease conditions over IDSP 13**.

Issues with tackling the disease outbreak

Do you know?

- As per the **World Health Organization (WHO)**, "**Disease X** signifies the awareness that a significant global outbreak might arise from a pathogen **currently unrecognized as a cause of human illness**." This expression was introduced in 2018.
- The concept of Disease X was introduced to emphasize the need for preparedness and research in

the face of unforeseen health threats.

- The idea behind Disease X is that there are various pathogens, such as viruses and bacteria, in the world that have the potential to jump from animals to humans, mutate, or evolve into new forms, leading to novel and potentially highly contagious diseases.
- Given the interconnected nature of our global society, such diseases have the potential to rapidly spread internationally, as exemplified by the COVID-19 pandemic caused by the SARS-CoV-2 virus.

1. **Improper surveillance:** IHIP which would have enabled real-time tracking of emerging disease outbreaks, has not delivered on expectations.
2. **Inadequate surveillance design:** The current design of surveillance is not adequate for the emerging disease scenario.
3. Not only “disease X,” but the familiar annual cycles of known agents such as **influenza, measles, Japanese encephalitis, dengue, diarrhoea** among others that will **continue to test the public health system.**

Way forward

- Mitigating the spread of climate change-induced diseases requires **safeguarding ecosystems,**

curbing greenhouse gas emissions, and implementing active pathogen surveillance.

- India must launch **One Health and infectious disease control programmes** by building greater synergies between the Centre and States and their varied specialized agencies. Animal husbandry, forest and wildlife, municipal corporations, and public health departments need to converge and set up robust surveillance systems.
 - A **unified approach, termed One Health** which integrates monitoring human, animal, plant, and environmental health is pivotal in preventing outbreaks, especially those that originate from animals. It encompasses zoonotic diseases, neglected tropical diseases, vector-borne diseases, antimicrobial resistance, and environmental contamination.

Conclusion

- In the face of a changing climate and the growing threat of infectious diseases, **protecting ecosystems, fostering collaboration, and embracing the One Health paradigm** are our best defenses.

| VALUE ADDITION |
|---|
| Integrated Disease Surveillance Programme (IDSP) |
| <ul style="list-style-type: none"> • The Integrated Disease Surveillance Program (IDSP) was initiated under the Ministry of Health and Family Welfare in assistance with the World bank, in the year 2004. • The scheme aimed to strengthen disease surveillance for infectious diseases to detect and respond to outbreaks immediately. • The Central Surveillance Unit (CSU) at the National Centre for Disease Control |

(NCDC), receives disease outbreak reports from the States/UTs on a **weekly basis**.

- State/District Surveillance Units analyze this data weekly, to interpret the disease trends and seasonality of diseases.

Objective:

- To strengthen/maintain decentralized laboratory-based IT enabled disease surveillance systems for epidemic-prone diseases to monitor disease trends and to detect and respond to outbreaks in the early rising phase through trained Rapid Response Team (RRTs).

Programme Components:

- Integration and decentralization of surveillance activities through the establishment of surveillance units at Centre, State and District level.
- Human Resource Development – Training of State Surveillance Officers, District Surveillance Officers, Rapid Response Team and other Medical and Paramedical staff on principles of disease surveillance.
- Use of Information Communication Technology for collection, collation, compilation, analysis and dissemination of data.
- Strengthening of public health laboratories.
- Inter sectoral Coordination for zoonotic disease

Integrated Health Information Platform (IHIP)

- The **Integrated Health Information Platform (IHIP)** is a **digital health initiative** in India that aims to create a unified and comprehensive information system for healthcare data.
- Launched by the **Ministry of Health and Family Welfare**, Government of India, IHIP is designed to provide a single, standardized platform for the storage and exchange of health information.

19) Bridging the malnutrition gap, the Bemetara way

(GS2: Issues relating to Poverty and Hunger)

Context

- This article discusses how counseling people on eating and feeding practices along with **monitoring their progress** can prove to be a **game-changer to ensure nutritional security** citing Bemetara's example.

Government efforts to ensure food security

- **Mid-day-meals scheme** in schools
- Providing monthly rations through an ever-improving **Public Distribution System**.

- Ready-to-eat packets and hot meals are served to mothers and children at Anganwadi Centres (AWCs), under the **Prime Minister's Overarching Scheme for Holistic Nourishment (POSHAN) Abhiyaan**.
- Various add-ons such as egg, banana, protein powders, peanut chikki and jaggery are also being distributed under various special **State-specific schemes**, an example being the **Mukhyamantri Suposhan Yojana** in Chhattisgarh.

What is the issue?

- However nutrition security still remains a distant dream and this could be attributed to the following reasons

- People often lack knowledge of proper eating and feeding practices.
- Myths around food and increased accessibility to highly processed food have compounded the problem.

How to ensure nutritional security effectively?

- Nutrition counseling can potentially be the answer to this problem.
- **Jan Andolan**
 - **"Jan Andolan", or social and behavior change communication (SBCC),** has been a facet of **POSHAN Abhiyaan.**
 - This includes **bicycle rallies, plantation of Poshan Vatikas, celebration of Poshan Maah, Poshan Pakhwaras and Godh Bharaais.**
 - Different States have held various awareness programmes under the SBCC. However, the concept of nutrition counseling has yet to be properly institutionalized and implemented uniformly across States.
 - There is a need for field staff to be properly trained in nutritional counseling and there is a need for it to be implemented, mandatorily and uniformly, by States.

- **Poshan Vatikas:** Poshan Vatikas are gardens or spaces where various nutritious plants and vegetables are grown. These gardens aim to promote the cultivation and consumption of nutrient-rich foods. Poshan

Vatikas are part of the larger effort to combat malnutrition, especially among children and pregnant women.

- **Poshan Mah (Nutrition Month):** Poshan Mah is celebrated in India as Nutrition Month. It typically takes place in September and is a government-led initiative to raise awareness about the importance of good nutrition, especially for mothers and children. During Poshan Mah, various activities and programs are organized to spread knowledge about healthy eating and the prevention of malnutrition.
- **Poshan Pakhwaras:** Poshan Pakhwaras are special weeks dedicated to nutrition and health. These weeks are part of the broader efforts to promote awareness and action to improve nutrition outcomes, particularly among women and children. During Poshan Pakhwaras, activities, workshops, and campaigns are held to address nutritional challenges and educate the community.
- **Godh Bharaais:** "Godh Bharai" or "Godh Bharai" is a traditional Indian ceremony also known as a baby shower. It is celebrated during pregnancy and a banana plant is given to the mother and asked to plant it in her garden or nearby their house. The idea behind this is when the woman gives birth to the child, the plant also start to bear fruits.

Lessons from Bemetara

- **Bemetara in Chhattisgarh** is a puzzling district in the context of its malnutrition status.
- Situated in the fertile plains of Chhattisgarh, it is unaffected by Naxalite activities and is agriculturally rich with relatively affluent inhabitants.
- However, the number of **Severe Acute Malnutrition (SAM) children** there was as high as 3,299 in December 2022.
 - This figure bears a striking resemblance to the situation in tribal-dominated and Naxal-affected districts such as Bastar.
 - It points to the lack of proper knowledge about feeding practices.
 - The problem is not about access but improper knowledge around when, how and what to eat.
- This is why **nutrition counseling combined with robust monitoring** was chosen as the modus operandi for this area.

About Pothh Laika Abhiyaan- "Healthy Child Mission"

- Pothh Laika Abhiyaan which means "**Healthy Child Mission**" in the Chhattisgarhi language is a **nutrition counseling programme** that is being implemented in 72 of the most affected AWCs in the Bemetara sub-division of Bemetara district.
- It has the **technical support of UNICEF, Chhattisgarh**.

Working of the mission

- Ground-level staff from the **Health and Women and Child Development departments** have been **well trained** on how to provide nutrition counseling in the region.

- **Every Friday**, the parents of the targeted **SAM and Medium Acute Malnourished (MAM) children** are summoned and counseled.
- They are taught in **simple Chhattisgarhi language**
 - The importance and the constituents of "**Tiranga Bhojan** " (a **balanced diet**)
 - The need to wash hands regularly and
 - Many other tips in order to lead a healthy lifestyle.
 - Many harmful dietary myths and superstitions are dispelled as well.
- The progress of the targeted children is being monitored.
- Local leaders such as **sarpanchs, panchayat sachivs and religious heads** have also participated in the counseling sessions.
- Door-to-door visits to the houses of targeted children are also done to monitor their progress.

Outcome of the mission

- As a result of **nutrition counseling along with regular monitoring and evaluation**, as many as **53.77% of targeted children** were brought out of malnutrition by the Pothh Laika Abhiyaan, in a span of nine months, i.e., from December 2022 to July, 2023 — 599 out of 1,114 children.
- Further, **61.5% of MAM children and 14.67% of SAM children** have been brought out of malnutrition. These figures are both encouraging and statistically significant.
- When comparing this with a random control group of 20 AWCs where this mission was not being implemented, a total increase of 23% was observed.

Significance of the mission

- Elaborate budgeting and the risk of leakages are not a concern here unlike that of providing meals.
- Requires nothing more than a few training sessions and regular monitoring and hence has shown itself to be cost effective as well.

Conclusion

- Providing food to the poor needs to be supported with nutrition counseling and monitoring in order to truly accelerate the eradication of malnutrition.
- From the experiences highlighted, this model needs to be replicated on a larger scale across districts and States.

20) A clear message to industry on dispute resolution

(GS2: Important Aspects of Governance, Transparency and Accountability, E-governance- applications, models, successes, limitations, and potential; Citizens Charters, Transparency & Accountability and institutional and other measures)

Context

- This article discusses the significance of the recently passed Mediation Act, 2023.

What is Alternate Dispute Resolution (ADR)?

- ADR refers to a bouquet of mechanisms that enables disputing parties to resolve their differences amicably, without the intervention of courts.
- The primary ADR methods include mediation, arbitration, conciliation, negotiation etc.,

Why ADR and why not courts?

- Delays in Indian court proceedings and increasing cost of litigation makes ADR assume significance in India.

- ADR methods are generally faster, less formal, and more cost-effective than going to court.
- Until recently, these discussions largely focussed on arbitration or conciliation of disputes under the **Arbitration and Conciliation Act, 1996 (A&C Act)**.
- In the recent monsoon session of Parliament, both Houses passed The Mediation Bill, 2023, and upon receiving the assent of the President of India, is referred to as the **Mediation Act, 2023**.

Highlights of the Act

- The Indian legal framework already encourages courts to refer the disputing parties to ADR procedures, including mediation, if there were elements of settlement which the parties may accept.
- Irrespective of a prior mediation agreement, it will **obligate each party to take steps to settle their dispute through pre-litigation mediation** before approaching an Indian court.
- To facilitate this process, the **Act will also require courts and relevant institutions to maintain a panel of mediators**.
- The aim is to **create a balanced framework** which encourages the parties to focus more on their commercial dealings and less on their disputes.

Benefits of the Act

- It is expected to **reduce the filing of frivolous claims** before Indian courts.
- Owing to the confidentiality of a mediation, it may also **mitigate the risk of deterioration of the parties' relationship** due to a publicly fought dispute.
- Concerns about the feasibility of a mediation conducted and delays

in settling claims are provided some safeguards against these concerns.

- It will require the mediation to ordinarily be **conducted by an empanelled mediator**, who must always be neutral and have uncompromising expertise.
- Subject to an extension by the parties, they must also **complete the mediation within 180 days** from the parties' first appearance.
- Also, the Act will not remove the refuge of Indian courts entirely. A party may, in exceptional circumstances, seek urgent interim reliefs from a court before the commencement or during the continuation of a mediation.
- These provisions **prioritize expertise and efficiency**, while ensuring that the obligation of pre-litigation mediation is not weaponised.

The aspect of mediation and arbitration

- The Act will effectively position mediation similar to commercial arbitration in India, as there are similarities between their respective supporting pieces of legislation.
 - Both pieces of legislation impose stringent timelines for the conduct of proceedings.
 - Both mandate confidentiality.
 - Both obligate Indian courts to refer the parties to mediation or arbitration
 - Both provide a default mechanism for the

appointment of a mediator or arbitrator, and

- Both prescribe the procedure for the termination of their mandate.
- Both ensure the enforceability of a mediated settlement agreement and an arbitral award, respectively.
- The establishment of a Mediation Council of India equally mirrors the proposal in 2019 to establish an Arbitration Council of India (that is yet to be implemented).
- Similar to how the recent amendments to the A&C Act prioritized institutional arbitration of disputes, the Act also places emphasis on institutional mediation in India. It envisages "mediation service providers" to provide not only the services of a mediator but also all the facilities, secretarial assistance, and infrastructure for the efficient conduct of mediation.
- **Mediation and commercial arbitration are thus made allies**, albeit at different stages of the same journey.

What is the Parliament's message to Indian industry?

- In commercial matters, courts must no longer be the default venue for dispute resolution. Parties are expected to resolve their dispute amicably through mediation, and, alternatively, through commercial arbitration.
- While the doors of Indian courts are open if required, this access

must be perceived as a matter of last resort.

Conclusion

- India is already home to **experienced arbitration institutions**, some of which

provide **mediation services** that are on a par with global best practices. These institutions are, therefore, expected to play a meaningful role in India's mediation journey.

| VALUE ADDITION |
|---|
| Highlights of the Mediation Act, 2023 |
| Pre-litigation mediation: <ul style="list-style-type: none"> Parties must attempt to settle civil or commercial disputes by mediation before approaching any court or certain tribunals. |
| Disputes not fit for mediation: <ul style="list-style-type: none"> The Bill contains a list of disputes which are not fit for mediation. These include disputes: (i) relating to claims against minors or persons of unsound mind, (ii) involving criminal prosecution, and (iii) affecting the rights of third parties. The central government may amend this list. |
| Applicability: <ul style="list-style-type: none"> The Bill will apply to mediations conducted in India: <ul style="list-style-type: none"> involving only domestic parties, involving at least one foreign party and relating to a commercial dispute (i.e., international mediation), and if the mediation agreement states that mediation will be as per this Bill. If the central or state government is a party, the Bill will apply to: <ul style="list-style-type: none"> commercial disputes, and other disputes as notified. |
| Mediation process: <ul style="list-style-type: none"> Mediation proceedings will be confidential, and must be completed within 180 days (may be extended by 180 days by the parties). A party may withdraw from mediation after two sessions. |
| Mediators: <ul style="list-style-type: none"> Mediators may be appointed by: <ul style="list-style-type: none"> the parties by agreement, or a mediation service provider (an institution administering mediation). They must disclose any conflict of interest that may raise doubts on their independence. Parties may then choose to replace the mediator. |
| Mediation Council of India: <ul style="list-style-type: none"> The central government will establish the Mediation Council of India. The Council will consist of a chairperson, two full-time members (with experience in mediation or Alternate Dispute Resolution), three ex-officio members (including the Law Secretary, and the Expenditure Secretary), and a part-time member from an industry body. Functions of the Council include: (i) registration of mediators, and (ii) recognising mediation service providers and mediation institutes (which train, educate, and certify mediators). |
| Mediated settlement agreement: <ul style="list-style-type: none"> Agreements resulting from mediation (other than community mediation) will be |

final, binding, and enforceable in the same manner as court judgments.

- They may be **challenged on grounds of:** (i) fraud, (ii) corruption, (iii) impersonation, or (iv) relating to disputes not fit for mediation.

Community mediation:

- Community mediation may be attempted to **resolve disputes likely to affect the peace and harmony amongst residents of a locality.**
- It will be conducted by a **panel of three mediators** (may include persons of standing in the community, and representatives of resident welfare associations).

Different types of Alternate Dispute Resolution Mechanisms

Mediation:

- Mediation is a voluntary and non-binding process in which a neutral third party, known as a mediator, helps disputing parties reach a mutually acceptable solution. Mediation is widely used for various civil and commercial disputes and is known for its flexibility and informality. It is considered a valuable tool in reducing court backlogs and promoting settlements.

Arbitration:

- Arbitration is a formal and binding ADR process where a neutral third party, the arbitrator, renders a decision after hearing the arguments and evidence from both parties. Arbitration is often chosen for disputes involving complex legal issues or when parties desire a more formal and private process.

Conciliation:

- Conciliation is similar to mediation but typically involves a more active role for the conciliator in proposing solutions to the parties. It is often used in labor and industrial disputes and aims to achieve a settlement that both parties can accept.

Negotiation:

- Negotiation is a fundamental form of dispute resolution in which parties directly communicate to reach an agreement. It can be informal or structured, and it plays a crucial role in both ADR and traditional litigation.

21) Drop the bad idea of simultaneous elections

(GS2: Functions and Responsibilities of the Union and the States, Issues and Challenges Pertaining to the Federal Structure, Devolution of Powers and Finances up to Local Levels and Challenges Therein)

Context

- In recent weeks, there has been increasing discussion about the possibility of having national and State elections at the same time, popularly known as 'one nation, one election'.
- The formation of a committee, helmed by a former President of

India, Ram Nath Kovind, to determine how this might be implemented, and what manner of constitutional changes might be required to make it a legal reality, have generated further debate.

Arguments in favor of simultaneous elections

- It will **decrease the costs of conducting elections** (and of electioneering)
- It will free up political parties from being in 'permanent campaign mode', and allow them to **focus on governance** (and, for that matter, constructive opposition) for a five-year period.

Arguments against simultaneous elections

- The actual **financial savings are relatively minuscule.**
- It becomes a **logistical nightmare** to conduct simultaneous elections in a country of a little over 1.4 billion people.
- Simultaneous elections are likely to see an explosion of horse-trading(defection), where the political parties with the biggest pockets will be the biggest beneficiaries.
- **Incompatibility of a rigid election timetable with some of the fundamentals of parliamentary democracy.**
 - Even if, legally and practically, one is able to synchronize central and State elections for one cycle, this will break down the moment a government falls.(loses its majority).
 - Use of Article 356 of the Constitution, which authorizes the Union to suspend (or even dismiss) State governments in a narrowly-defined range of circumstances disturbs the election schedule.
- The solutions which have been proposed to address the above make the problem worse.
 - The **President's Rule** (i.e., central rule) will be imposed in that State until the **five-year-period is over** which will undermine both federalism and democracy.
 - Elections will be held in that State, but the term of the new Assembly will only be until the next cycle (which could be in a year,

or three years, or four years).

- Apart from undercutting both the justifications for simultaneous elections — cost and an avoidance of continuous campaign, it also leads to perverse incentives.
 - For example, how much 'governance' will a State government be able to do if elections are scheduled in a year?.

Against federalism and democracy

- Simultaneous elections may result in **State-level issues being subsumed** into the national which is against federalism.
- Simultaneous elections risk undermining that plurality of democratic contests and risk the kind of **concentration of power** that federalism is meant to be a bulwark against.
- In the Indian constitutional scheme, elections are the only form of public participation in the public sphere. Given this framework, **relatively regular and frequent elections allow for more extended public participation** and hence simultaneous elections would shrink this scope substantially.

Conclusion

- Thus Simultaneous elections create risks when it comes to protecting and preserving the federal and democratic design of the Constitution and hence should be given considerable thought before implementation.

22) Global dispute settlement, India and appellate review

(GS2: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests)

Context

- The appellate review process at the international level serves as an essential check on the interpretation and application of law and ensures consistency.
- In this backdrop, this article analyzes the need for an appellate review mechanism in investment disputes.

WTO Dispute settlement system

- The recently concluded G-20 Declaration, among its many commitments, reiterated the need to pursue reform of the **World Trade Organization (WTO)** to improve all its functions and conduct proactive discussions “to ensure a fully and well-functioning dispute settlement system accessible to all members by 2024”.
- The WTO's dispute settlement system, conceived as a two-tier panel cum appellate body structure, has been dysfunctional since 2019, because the United States has blocked the appointment of appellate body members.
- The appellate body has been crucial in ensuring coherence and predictability in rulings, ensuring confidence in the WTO dispute settlement process.

Investor-state-dispute settlement (ISDS)

- While the future of the WTO's appellate process is uncertain, another area of international law witnessing the formative stages for an appellate process is **international investment law through investor-state-dispute**

settlement (ISDS), an ubiquitous component of **Bilateral Investment Treaties (BITs)**.

- The ISDS is the principal means to settle international investment law disputes.
 - Till January 1, 2023, 1,257 ISDS cases have been initiated.
 - India has had a history with ISDS, with five adverse awards: four in favor, and several pending claims.
- Discussions on creating an appellate review mechanism are ongoing at the United Nations Commission on International Trade Law or UNCITRAL's working group III, deliberating on ISDS reforms.

Benefits of an appellate review

- An appellate review mechanism **will allow for rectifying errors of law and harmonizing diverging interpretations**.
- It will have the **power to uphold, modify, or reverse the decision** of a first-tier tribunal and thus **bring coherence and consistency**, which, in turn, will infuse predictability and certainty into the ISDS system.
- An **appellate mechanism** will also be **better than existing mechanisms** such as the annulment proceedings, which only apply to arbitrations administered by the International Centre for Settlement of Investment Disputes.
 - International Centre for Settlement of Investment Disputes is an institution in which India is not a member.
- The appellate mechanism will also be **superior to getting an ISDS award set aside on limited**

procedural grounds in a court at the seat of arbitration.

Issues with creation of appellate mechanism

- There are several critical issues in creating an appellate review, such as
 - The **form** it should take — an ad hoc appellate mechanism (a body constituted by the disputing parties on a case-by-case basis) or a standing appellate mechanism
 - The **standards to review the decisions** of the first-tier tribunal.
 - The **time frame and the effect of the decision.**

India's stand

- India has **not made a formal statement** on this issue.
- India, presumably, **supports the idea of an appellate review** in the ISDS because Article 29 of the Indian model BIT talks of it.
- However, India **will have to take a stand** on this issue as part of the ongoing investment treaty negotiations with the European Union, which is championing the creation of an appellate review mechanism for investment disputes.

Way forward

- Since India's quest has always been **to establish a rule-based global order**, it should **support an appellate review** which will usher in greater confidence for states and investors in international investment law.
- India should also push for the **restoration of the WTO appellate body** towards achieving the goal of a fully and well-functioning dispute settlement system at the WTO.

23) A GM crop decision that cuts the mustard

(GS3: Science and Technology- Developments and their Applications and Effects in Everyday Life)

Context

- This article insists that **GM crops with improved traits** are a must in order to mitigate climate change and produce nutrient-dense food.

Need for GM crops

- To address the burgeoning and complex challenge of **achieving global food and nutritional security** under the fast-changing climate.
- To **increase food production and become self-reliant**, we require superior crop varieties and hybrids that provide enhanced yields and wide adaptability across environments, and require fewer inputs of natural resources.

GM crops- a global overview

- According to a report by the **International Service for the Acquisition of Agri-biotech Applications (ISAAA) 2020**, a total of **72 countries have adopted GM crops** either as human food or animal feed, as well as for commercial cultivation.
 - 56% of the global GM crop area is in developing countries compared to 44% in industrial countries.
- GM crops have **benefited more than 1.95 billion people in five countries** (Argentina, Brazil, Canada, India and the United States) or 26% of the current world population of 7.6 billion.
- **Bt cotton was commercialized as the first GM crop in India** more than 20 years ago, and has been viewed globally as a great

success story in terms of economic advantage to farmers and to the nation.

- Globally, genetic modification has expanded its reach, **beyond the major four crops, maize, soybean, cotton and canola**, to other economically important food crops for various traits such as **insect and herbicide resistance, climate resilience and nutritional quality improvement**.
- Global economic gains contributed by GM crops (1996-2018) have amounted to **\$224.9 billion in economic benefits** to more than 16 million farmers, 95% of whom are from developing countries.
- GM food crops, since adoption in 1996 globally have been proven for their biosafety for the last 25 years and more.

Edible oil deficit

- India faces a **major deficit in edible oils**, with 60% of its demand being met by imports. India's edible oil imports were approximately **13 million tonnes**, which touched ₹1.17 lakh crore in value terms.
- The domestic consumption of edible oils is around **25 million tonnes**, while the domestic production of mustard oil was approximately 8.5 million tonnes in the year 2020-21.

A focus on mustard- GM mustard hybrid

- **Mustard** is one of the most important edible oil crops in India; however, its **per hectare yield is very low** when compared to the global average.
- Thus, increasing the productivity of mustard in the country is vital for the economic well-being of farmers and self-sufficiency in edible oil production.

- Using genetic engineering, extensive research has been carried out at the Centre for Genetic Manipulation of Crop Plants (CGMCP), University of Delhi South Campus, to create a **GM mustard hybrid, DMH-11** with higher vigor and yield.
- The GM mustard hybrid is based on the **barnase/barstar system**.
 - It works on the principle of removing male fertility in one parent and restoring it in the offspring.
- The herbicide tolerance gene has been deployed as a selection marker for developing the GM mustard.
- While the use of herbicides in herbicide tolerant (HT) crops has an advantage in terms of **saving soil moisture and nutrients, besides effective weed control**, the herbicide tolerance gene in GM mustard is primarily **used for selecting genetically transformed lines, and for hybrid seed production**.

GEAC's approval for DMH-11

- On October 25, 2022, the **Genetic Engineering Appraisal Committee (GEAC)** of the Ministry of Environment, Forest and Climate Change, Government of India, made a landmark decision of **approving the release of DMH-11 and its parental line for cultivation**.

Significance of the move

- This will help **boost the vibrant genetic engineering research sector** in the country and **enable the generation of new crop varieties with improved traits**.
- As the mustard varieties in India have a **very narrow genetic base**, this move paves the way for the breeding of mustard hybrids not only for **higher yields** but

also to ensure resistance to diseases and improve oil quality.

- Cultivation of these GM mustard hybrids developed indigenously could help **enhance farmers' income, reduce the oil-import burden and help achieve much-needed self-reliance in edible oil production.**

Conclusion

- The environmental release of DMH-11 marks the beginning of a new era in self-reliance and sustainability in agriculture.

24) BRICS is growing

(GS2: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests)

Context

- The recent **BRICS summit in Johannesburg, South Africa**, which witnessed inclusion of new members has led to exaggerated expectations of the grouping's rising influence on the global economy and on the restructuring of global governance regimes.

BRICS Expansion

- BRICS brings together five major emerging economies- **China, Brazil, Russia, India and South Africa**. These 5 countries host 41% of the world population, contributing 31% of the world GDP and over 16% share in world trade.
- During the 15th BRICS summit in Johannesburg, the grouping had invited six new members — **Iran, Saudi Arabia and the United Arab Emirates (UAE)** from West Asia; **Egypt and Ethiopia** from Africa, and **Argentina** from Latin America to join as full members from January 1 next year.

Significant developments of BRICS

New Development Bank

- The New Development Bank (NDB) was established by the BRICS countries. It formally came into existence at the Ufa Summit (Russia) in 2015.
- It was established with the objective of financing infrastructure and sustainable development projects in BRICS and other emerging economies and developing countries, complementing the efforts of multilateral and regional financial institutions toward global growth and development.
- In 2018, the NDB received observer status in the UN General Assembly.
- The Bank's membership is open to members of the United Nations.

Contingency Reserve

- The BRICS Contingent Reserve Arrangement (CRA) is a framework for the provision of support through liquidity and precautionary instruments in response to actual or potential short-term balance of payments pressures.

- Several other developing countries have reportedly conveyed their interest in joining the group and there could be more rounds of expansion.

Why have so many countries of the Global South shown such unusual interest in BRICS?

- Increasingly uncertain world with **shifting political and security equations** necessitates them to join BRICS like organizations.
- There is widespread anxiety about their **vulnerability to US sanctions** of the kind that froze a

significant part of Russia's foreign exchange reserves.

- There may also be an expectation of the Chinese leading a shift to an **alternative global currency**.
- The interest in BRICS also reflects a **growing frustration among developing countries** that their interests and aspirations continue to be ignored by the developed countries.
 - For instance, International institutions like the UN and multilateral financial institutions such as the IMF and the World Bank continue to be dominated by the G7.

Issues surrounding BRICS






- **BRICS New Development Bank (NDB)**, which has become a modest source of **development finance for developing countries** conducts its **business in US dollars**, even though diversifying away from the dominant US currency is a stated objective of the grouping.
- BRICS has set up a **contingency reserve** which may be drawn upon by a member who may be **facing balance of payments problems**. It has **not been used so far**.
- There has been more recent progress in promoting the use of local currencies for trade settlement, but the talk of **creating an alternative BRICS currency rivaling the US dollar** has **remained just talk**.



Implications of BRICS expansion




- The presence of additional middle powers which are exercising greater agency than in the past, would balance China's influential role.

- The role of BRICS will expand as the economic, technological and military capabilities of its members continue to increase and **narrow the gap with the G7 advanced countries**.
- The expanded membership will make **BRICS an energy superpower**, with **Saudi Arabia, Iran and Russia** dominating the global energy market.
- While in terms of GDP, trade and investment volumes, BRICS has caught up with the G7, its members have sharper internal contestations. **Example: The India-China rivalry** is an example.
- The expansion presents an enlarged BRICS as a **way for the global south to have a stronger voice in world affairs**.
- **BRICS challenges this West-led world order**: it promotes intra-BRICS economic and political cooperation, builds institutions outside western control, and agitates robustly for wide-ranging reforms to accommodate the presence and interests of emerging economies.
- The recent expansion of BRICS's membership has shaped a grouping that is **aligned in terms of global perceptions and interests**, and collectively provides considerable economic clout to the enlarged conclave.
- With the proposed expansion, BRICS will have **46% of world population**, while its share of the **global GDP** will go from 31.5% in PPP terms to **37%**, far ahead of the GDP of 30.7% of the G-7.

Key Takeaways From Other Editorials

| S.No | Topics | Content |
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| 1. | Doctrine of Precedent  | <ul style="list-style-type: none"> A decision that has already been taken by a higher court is binding to the lower court and at the same time stands as a precedent to the lower court judgment, which cannot be altered by a lower court. This principle is known as Stare decisis, which means to stand by the decided matters. In India, it is commonly known as the doctrine of precedent. |
| 2. | Article 141  | <ul style="list-style-type: none"> Article 141 of the Constitution stipulates that “the law declared by the Supreme Court shall be binding on all Courts within the territory of India”. |
| 3. | Substantive justice  | <ul style="list-style-type: none"> Substantive justice in the context of political theory and governance relates to the fairness, equity, and ethical principles that underlie the policies, decisions, and actions of a political system. It is concerned with ensuring that government actions and policies result in just and equitable outcomes for all members of society. |
| 4. | Gabon  | <ul style="list-style-type: none"> Gabon is an OPEC member, and is one of the richest countries of Africa in terms of per capita income. Yet, over a third of its 2.4 million people live in poverty, and 40% of those between 15 and 24 years are unemployed, according to the World Bank. <p>Why in the news?</p> <ul style="list-style-type: none"> A group of senior military officers in Gabon have seized power in the capital in order to overturn the results of the recent election and remove a leader whose family has held power for almost 56 years. |
| 5. | State of Food Security and Nutrition in the World report  | <ul style="list-style-type: none"> It is a joint report issued annually by the Food and Agriculture Organization of the United Nations, the International Fund for Agricultural Development, UNICEF, the World Food Programme and the World Health Organization. It presents the latest estimates on food insecurity, hunger and malnutrition at the global and regional levels. Recent findings (2022) <ul style="list-style-type: none"> India is home to 224.3 million undernourished people. According to the Food and Agriculture |

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| | | Organization, the proportion of calorie undernourishment in India has been escalating since 2017, reaching 16.3% in 2020. |
| 6. | Shreya Singhal Vs Union of India (2015)  | <ul style="list-style-type: none"> In Shreya Singhal vs. Union of India (2015) was a landmark judgment that had significant implications for freedom of speech and expression in the digital realm and had set an important precedent for the regulation of online content and speech. . Section 66A of the Information Technology Act, 2000, allowed for the arrest of individuals for posting "offensive" content on the internet. The Supreme Court, in its judgment, declared Section 66A unconstitutional, stating that it violated the fundamental right to freedom of speech and expression guaranteed by Article 19(1)(a) of the Indian Constitution. The court found that the language of the provision was so vague and wide that it had a chilling effect on free speech and could be used to suppress dissent and legitimate criticism. |
| 7. | The deadliest and strongest earthquakes in recorded history  | <p>Earthquakes</p> <ul style="list-style-type: none"> In the last 200 years, China has suffered the highest number of earthquakes 428, according to the National Centers for Environmental Information (NCEI). It is followed by Indonesia (366 quakes), Iran (272), Japan (256), and Turkey (209). India, which recorded 85 quakes in the last 200 years, ranks 16 on the list. <p>Deadliest Earthquake- Bhuj Earthquake</p> <ul style="list-style-type: none"> The deadliest earthquake to have hit India in the last 200 years occurred in 2001 in Gujarat. The Bhuj earthquake, as it is commonly known, is considered to be the deadliest as it killed over 20,000 people. The Bhuj quake measured 7.6. <p>Strongest earthquakes</p> <ul style="list-style-type: none"> While the Bhuj quake is the deadliest in India, it is not the strongest. The 1941 quake in Andaman, poorly recorded due to World War II, and the 1897 quake in Assam, were both considered the strongest with a magnitude of 8 according to NCEI. |
| 8. | Analyzing where India stands in the G20 | <ul style="list-style-type: none"> GDP per capita (\$): While Indonesia lagged behind India in 1970, it moved ahead by 2022, pushing India to the last spot with a GDP per capita of \$2,388.62. Human Development Index: India's HDI improved |

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| |  | <p>from 0.43 in 1990 to 0.63 in 2021. However, despite its progress in absolute terms, India ranked at the bottom of the list.</p> <ul style="list-style-type: none"> • Labour Force Participation Rate(LFPR): In 2021-22, India's rank (49.5%) slipped to 19, only ahead of Italy's (49.4%). • Share of women in Parliament: From 8.1% in 1998, the share almost doubled to 14.9% in 2022. But when compared to the 18 countries and the EU, India's rank slipped from 15 in 1998 to 18 in 2022, just ahead of Japan (9.9%). |
| 9. | Solar Radiation Management (SRM)  | <ul style="list-style-type: none"> • Solar Radiation Management (SRM) is a geoengineering technique that proposes to artificially reduce the amount of solar radiation (sunlight) reaching the Earth's surface in order to counteract or mitigate the effects of climate change, primarily global warming. • SRM methods aim to reflect a portion of incoming solar radiation back into space, thereby reducing the amount of heat absorbed by the Earth's atmosphere. • Stratospheric Aerosol Injection, Marine Cloud brightening are some SRM techniques. |
| 10. | Criminalisation of Politics  | <ul style="list-style-type: none"> • According to the Association of Democratic Reforms' analysis of 763 Lok Sabha and Rajya Sabha MPs, 306 had criminal cases (40%) and 194 (25%) had serious criminal cases pending against them when they filed their affidavits. • Serious criminal cases include non bailable offences, murder, kidnapping, prevention of corruption, rape and other crimes against women. |

Model Questions

- 1) Examine the key initiatives and policy measures taken by the Indian government for the empowerment of women.
- 2) Discuss the significance and functions of Parliamentary Committees in the Indian parliamentary system. Highlight their impact on improving the quality of governance in the country.
- 3) Discuss the constitutional and functional roles of the Comptroller and Auditor General (CAG) in the Indian system of governance.
- 4) "Our dependence on fossil fuels amounts to global pyromania, and the only fire extinguisher we have at our disposal is renewable energy." In the light of the above statement, analyze the challenges and opportunities associated with the widespread adoption of renewable energy in India.
- 5) Elaborate the scope and significance of the food processing industry in India.
- 6) Make in India is considered to be one of the game-changing economic initiatives by the Government of India. In this context, critically examine the performance of Make in India in achieving its objectives.
- 7) What are the threats posed by phosphate rock mining on native ecosystems? Discuss
- 8) In reference to the State of India's Birds 2023, what are the major threats faced by bird populations in India? Suggest measures to be taken to restore viable populations.
- 9) Why is there a need for climate-resilient cities in the Indian Himalayan region? Discuss in light of the recent flood and glacial lake outburst events being witnessed in this region.
- 10) Despite economic growth accelerating in the past decade, the desired transformation in employment conditions has remained elusive. Comment.
- 11) Strengthening the existing public healthcare system is more important than experimenting with Ayushman Bharat like health care schemes. Critically analyze.
- 12) Indian Carbon Market is a step in the right direction to decarbonise the domestic economy. Discuss.
- 13) With Africa's inclusion in G-20, it's high time for India to deal with food and security issues together. Discuss.
- 14) What is digital public infrastructure? Why is it so crucial for India's digital future? Explain with examples.
- 15) Although Women's reservation bill is imperfect, it is still important. Critically analyze.

- 16) Given the challenges, a clear research and development plan to scale up ethanol production in India becomes a dire need. Discuss.
- 17) Discuss the causes of increasing frequency and intensity of floods with examples. Suggest measures for effective flood risk management.
- 18) Climate change heightens the global risk of infectious diseases. Analyze and suggest measures to tackle the same.
- 19) Even after consistent government efforts to address nutritional security, it still remains a distant dream. In this backdrop, explain how Healthy Child Mission of Chhattisgarh can set a precedent.
- 20) Mediation as a mechanism for dispute resolution has numerous advantages. Analyse the statement with respect to the recently passed. Mediation act, 2023.
- 21) Do you think simultaneous elections are against Indian federation and democracy? Discuss.
- 22) Supporting an appellate review will usher greater confidence for states and investors in international investment law. Comment.
- 23) GM crops with improved traits are a must in order to mitigate climate change and produce nutrient dense food. Comment.
- 24) Why have so many countries of the global south shown such unusual interest in BRICS? Also explain the implications of BRICS expansion.