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Contents

1) A retelling of the Indian migrant worker's plight

(GS2: Effect of Policies and Politics of Developed and Developing Countries on India's interests, Indian Diaspora)

Context

- According to the **International Organization of Migration (IOM)'s World Migration Report 2022,** there were 281 million international migrants globally in 2020, with nearly two-thirds being labour migrants.
- While there were 169 million labour migrants in 2019, the figure touched 164 million in 2020.
- In the larger pool of migrants, **South Asia's share is nearly 40%;** further, the **South Asia-Gulf Migratory corridor** is the **world's largest migrant corridor.**

Trends in Migration

- Migration is not uniform across the world and is **shaped by economic, geographic, demographic and other factors, resulting in distinct migration patterns,** such as migration corridors developed over many years.
- India has the **largest diaspora** (**18 million**) with the number of migrant workers in **Gulf countries** alone accounting for **8.4 million.**
- India is also the **largest recipient of remittances** at **USD $89.4 billion** (**World Bank**).
- In recent years, the **low-skilled labour outflows to Gulf countries from relatively poorer states** such as UP, Bihar and West Bengal has **increased substantially** while those from **more prosperous states** like Kerala, Tamil Nadu, and Karnataka have **reduced**.
- Poor wage rates in less prosperous states, persistent wage inequalities between regular and casual workers and lack of formal employment opportunities leads to low-skilled and semi-skilled workers migrating overseas to enhance their economic well-being.

Problems faced by Migrant Labourers

- The recurring problems that migrant labourers face are:
    - irregular payment,
    - poor working conditions,
    - negation of labour rights,
    - absence of a proper grievance redress mechanisms, and
    - access to a transparent judicial system.
- **Irregular payment and non-payment of wages, and abuse at the workplace** have been a long-term problem in the **Gulf Cooperation Council (GCC) countries.** This has been exacerbated during the COVID-19 pandemic.
- The pandemic has resulted in unemployment, under-employment, a reduction in salaries, and, more importantly, in the non-payment of salaries, compensation and residual dues.
- The pandemic has exposed the existing exploitative nature of the **Kafala system** (a 'sponsorship system that regulates the relationship between employers and migrant workers') in GCC countries which has invariably resulted in the mass retrenchment of the labour force.

Policy and Act Governing Migration

- Despite **India being the largest migrant-sending country**, India is **yet to have a tangible and comprehensive migration policy** to ensure decent living and safe movement of migrants.
- India manages or governs Indians migrating abroad using the **Emigration Act, 1983.** In the last 40 years, migration has witnessed sea changes.

- The proposed **Emigration Bill of 2021** is still pending in the Parliament. The bill aims to **reform the process of recruitment for Indians** intending to work overseas.
- The proposed envisions **all-inclusive emigration management** while providing for **welfare committees** as well, establishing a help desk and a three-tier institutional framework.

Focus on Women Workers

- Attention needs to be focussed on the **women migrant workforce**, largely limited to **GCC countries** and also to the **Organisation for Economic Co-operation and Development countries** to some extent.
- Indian nurses and care-givers have been working in the most volatile countries such as Iraq, Syria, Libya, Yemen and Israel, and even remote Papua New Guinea.
- Women workers venture to these countries using the services of recruiting agencies on account of major domestic problems.
- Therefore, the Government should comprehensively assess the situation of migrant women and create **women-centric, rights-based policies.**

Conclusion

- The COVID-19 pandemic has rerouted global migration patterns, restructured migratory corridors, and exposed the untold vulnerabilities and miseries of international migrant labour.
- The United Nations, through its non-binding resolution, **"Global Compact for Safe, Orderly Migration and Regular Migration",** recognises the challenges migrant labour faces across the world.
- In this context, the Government of India has to revisit its policies in the post-pandemic migratory scenario by engaging all stakeholders and by passing the **Emigration Bill 2021** to consolidate and amend the law relating to emigration of citizens of India.

2) The rise of rural manufacturing

(GS3: Inclusive Growth and issues arising from it)

Context

- There is growing evidence to suggest that the most conspicuous trend in the manufacturing sector in India has been a **shift of manufacturing activity and employment from bigger cities to smaller towns and rural areas.**
- This **'urban-rural manufacturing shift'** has often been interpreted as a mixed bag, as it has its share of advantages that could transform the rural economy, as well as a set of constraints, which could hamper higher growth.

Data on Rural Industries

- Recent data from the **Annual Survey of Industries for 2019-20**, shows that the **rural segment is a significant contributor to the manufacturing sector's output.** While 42% of factories are in rural areas, 62% of fixed capital is in the rural side.
- This is the result of a steady stream of investments in rural locations over the last two decades.
- In terms of **output and value addition, rural factories contributed to exactly half of the total sector.**
- In terms of **employment**, it accounted for **44%,** but had **only a 41% share in the total wages** of the sector.

Causes for the Shift

- Studies have documented several causes for the relatively steady rise and presence of rural manufacturing.
- Rural areas have generally been more attractive to manufacturing firms because **wages, property, and land costs are all lower** than in most metropolitan areas.
- Broadly there could be **three explanations** for this shift of manufacturing away from urban locations.
    - First is the **factory floorspace supply constraints.** When locations get more urbanised and congested, the greater these space constraints are.
    - The second explanation hinges on the **production cost differentials.** Many firms experience substantially higher operating costs in cities than in rural areas, with inevitable consequences for the firm's profitability and competitiveness.
    - The third is the **possibility of capital restructuring** — an approach advocated by radical and Marxist geographers. According to this view, there is a tendency for growing capital accumulation and centralisation by large multi-plant corporations. Big firms deliberately shift production from cities to take advantage of the availability of less skilled, less unionised and less costly rural labour.

Significance

- The shift in manufacturing activities from urban to rural areas has helped maintain the importance of manufacturing as a **source of livelihood diversification in rural India.**
- In the aftermath of trade liberalisation, import competition intensified for many Indian manufacturers, forcing them to look for cheaper methods and locations of production.
- One way to cut costs was to move some operations from cities to smaller towns, where **labour costs are cheaper.** This trend helped to make up for the loss of employment in some traditional rural industries.
- The growth of rural manufacturing, by generating new jobs, thus provides an **economic base for the transition out of agriculture.**

Challenges Ahead

- The shift towards rural manufacturing faces two major challenges. First, though firms reap the benefits of lower costs via lower rents, the **cost of capital seems to be higher for firms operating on the rural side.**
- Second, there exists an **issue of "skills shortage"** in rural areas as manufacturing now needs higher skilled workers to compete in the highly technological global 'new economy'.
- Manufacturers who depend only on low-wage workers simply cannot sustain their competitive edge for longer periods as this cost advantage vanishes over time.
- Manufacturers who need higher skilled labour find that **rural areas cannot supply it in adequate quantities.**
- This suggests the need for clear solutions to the problems of rural manufacturing and the most important is the provision of **more education and skilling for rural workers.**

Way Forward

- Rural development and prosperity is deeply integrated to any nation's growth.
- A **more educated and skilled rural workforce** will establish rural areas' comparative advantage of low wages, higher reliability and productivity and hasten the process of the movement out of agriculture to higher-earning livelihoods.

3) Towards a robust triumvirate

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

Context

- A five-judge Constitution Bench of the Supreme Court is examining a bunch of petitions recommending **reforms in the process of appointment of members of the Election Commission.**

Matter of appointments

- One of the critical issues is **whether Election Commissioners should be selected by the executive or by a collegium.**
- **Article 324(2)** of the Constitution stipulates that the appointment of the Chief Election Commissioner and the Election Commissioners shall be made by the **President "subject to the provisions of any law made in that behalf by Parliament".**
- The Parliament enacted the **Election Commission (Conditions Of Service Of Election Commissioners And Transaction Of Business) Act in 1991,** which deals with the salary, term of office, pension and other perks for Election Commissioners, but **does not prescribe a selection procedure for their appointment.**
- In the absence of statutory provisions, the **responsibility of appointing Election Commissioners has rested solely with the executive.**

Criticisms

- The petitioners argue that the practice of appointment of ECI members solely by the executive as **being violative of Article 324(2),** which imposes an expectation on the Parliament to make a law in that regard.
- It is further argued that the appointment of the Chief Election Commissioner and Election Commissioners by the executive alone may allow the **biases of the ruling party to reflect in appointments.**

Recommendations

- The **National Commission to Review the Working of the Constitution,** under **Justice M.N. Venkatachaliah,** said that the Chief Election Commissioner and other Election Commissioners should be appointed on the **recommendation of a body comprising the Prime Minister, the Leaders of the Opposition in the Lok Sabha and the Rajya Sabha, the Speaker of the Lok Sabha and the Deputy Chairman of the Rajya Sabha.**
- The **255th Report of the Law Commission**, chaired by **Justice A.P. Shah,** said the appointment of all the Election Commissioners should be made by the **President in consultation with a three-member collegium** consisting of the Prime Minister, the Leader of the Opposition of the Lok Sabha (or the leader of the largest opposition party in the Lok Sabha), and the Chief Justice of India.

- None of these recommendations gained traction in the governments to whom they were submitted.

Providing Security of Tenure

- Another issue is to **afford the same security from arbitrary removal to Election Commissioners** that the Constitution affords to the Chief Election Commissioner.
- The Chief Election Commissioner and the two other Election Commissioners **stand at an equal footing**, in terms of disposal of business of the ECI. As per the **Election Commission Act**, all disputes of opinion amongst the Election Commisioners shall be resolved according to the **opinion of the majority.** All three ECI members also draw the **same salary and enjoy the same perks.**
- However, in regard to **security of tenure**, the Chief Election Commissioner and the two other Election Commissioners are governed by different rules.
- While the Chief Election Commissioner enjoys the **same security against removal as a judge of the Supreme Court** (that is, they can only be removed through resolution passed by a majority of Lok Sabha and Rajya Sabha members) and the **conditions of service of the Chief Election Commissioner cannot be varied to their disadvantage** after their appointment, the **two Election Commissioners do not enjoy such security.**
- The Election Commissioner can be removed from office on the **recommendation of the Chief Election Commissioner to the President,** as laid down under **Article 324(5)** of the Constitution.

Concerns

- In the absence of full constitutional security, Election Commissioners might feel they **should remain within the ambit favoured by the government.**
- The **255th Report of the Law Commission**, also **suggested measures to safeguard Election Commissioners from arbitrary removal,** in a manner similar to what is accorded to the Chief Election Commissioner.

Way Forward

- While the Chief Election Commissioner should be appointed by a collegium, this must apply equally to the Election Commissioners. The **collegium should be wide based.**
- The Election Commission must equally be **protected from arbitrary removal** by a constitutional amendment that would ensure a removal process that currently applies only to the Chief Election Commissioner.

4) An Indian recipe to quell micronutrient malnutrition

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

Context

- When it comes to nutrition, or more specifically micronutrient malnutrition, there is an urgent need to address the maladies that poor nutrition can inflict on the masses, especially given the diverse populations in India.

Data on Malnutrition

- Malnutrition exacerbates the magnitude of the public health crises we face, and is India's most serious challenge and concern.
- As in **National Family Health Survey-5** data, **every second Indian woman is anaemic, every third child is stunted and**

malnourished, and every fifth child is wasted.

- According to the **Global Hunger Index 2022, India ranks 107th out of 121 countries** with a score of 29.1.

Food Fortification

- Since the 1920s, developed countries and high-income countries have successfully tackled the issue of malnutrition through food fortification.
- Of late, the low-and middle-income countries, such as **India**, have pursued food fortification as one of the strategies to tackle micronutrient malnutrition.
- Fortification is the **practice of deliberately increasing the content of one or more micronutrients (i.e., vitamins and minerals)** in a food or condiment to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.
- For instance, rice and wheat are fortified with **iron, folic acid and vitamin B 12,** and salt fortified with **iron and iodine.** Iodised salt has been in use for the past few decades.

Rice Programme & Anaemia

- Pilot projects on the distribution of fortified rice have been taken up in select States, including **Maharashtra (Gadchiroli district)** as part of a targeted Public Distribution programme for the masses.
- The programme has been a **success in terms of preventing cases of anaemia — from 58.9% to 29.5% — within a span of two years**, prompting the central government to declare the scaling up of the distribution of fortified rice, the major staple diet of 65% of the population, through the existing platform of social safety nets such as the PDS and ICDS.
- Experiences from the different States on the fortified rice project, so far tally with the results of global programmes that use fortified food as a **cost-effective strategy.**
- The government aims to provide fortified rice under all the state-run food schemes in three stages by 2024 to improve nutritional outcomes.

Noon Meal Scheme in Gujarat

- In Gujarat, an eight-month long study on **multiple micronutrient fortified rice intervention for schoolchildren (6-12 years)** in 2018-2019, as part of the Midday Meal Scheme, found **increased haemoglobin concentration, 10% reduction in anaemia prevalence, and improved average cognitive scores (by 11.3%).**
- **Iron deficiency anaemia** is a major public health concern, because it is **responsible for 3.6% of disability-adjusted life years or DALYs** (years of life lost due to premature mortality and years lived with disability) according to the World Health Organization (WHO) - i.e., a loss of 47 million DALYs, or years of healthy life lost due to illness, disability, or premature death (2016).
- According to **NITI Aayog**, a rice fortification budget of around ₹2,800 crore per year can **save 35% of the total or 16.6 million DALYs per year with no known risk of toxicity,** resulting in a **cost-benefit ratio of 1:18.**
- Rice fortification, which **costs less than 1% of the food subsidy bill**, has the **potential to prevent 94.1 million anaemia cases, saving ₹8,098 crore over a five-year period.**

Need for Precautions

- Despite the programme's proven efficacy, activists have expressed concern that excess iron overload from fortified rice has been **dangerous for Jharkhand's tribal population suffering from sickle cell anaemia and thalassaemia.**
- In some instances, fortified rice packets were distributed **without any mandatory labels**. According to the Food Safety and Standards Authority of India, state-run food agencies and commercial manufacturers of fortified food must carry the **"+F" logo** along with a **health warning on packaging** for people with blood disorders such as sickle-cell anaemia and thalassaemia.

Way Forward

- Food fortification is a **cost-effective complementary strategy to address multiple micronutrient deficiencies.**
- Thus, given its proven efficacy and cost-effectiveness, food fortification can help us in **reducing micronutrient deficiencies and address overall health benefits.**
- The intervention, carried out with precautions, is the key to the malnutrition issue which the nation continues to grapple with.

5) Poor soil management will erode food security

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

Context

- World Soil Day is annually observed on December 5 to raise awareness on the importance of maintaining healthy soils, ecosystems and human well-being by addressing the growing challenges in soil management, encouraging societies to improve soil health, and advocating the sustainable management of soil.

Degradation and Consequences

- Today, **nutrient loss and pollution** significantly threaten soils, and thereby undermine nutrition and food security globally.
- The **main drivers contributing to soil degradation** are **industrial activities, mining, waste treatment, agriculture, fossil fuel extraction and processing and transport emissions.**
- The reasons behind soil nutrient loss range from **soil erosion, runoff, leaching and the burning of crop residues.**
- **Soil degradation** in some form or another affects around **29% of India's total land area.** This in turn **threatens agricultural productivity, in-situ biodiversity conservation, water quality and the socio-economic well-being** of land dependent communities.
- Further, **excessive use of fertilizers and pesticides, and irrigation with contaminated wastewater** are also polluting soils.
- Impacts of soil degradation are far reaching and can have irreparable consequences on human and ecosystem health.

India's Conservation Strategy

- The Government of India is implementing a **five-pronged strategy for soil conservation.**
- This includes:
    - making soil chemical-free,
    - saving soil biodiversity & enhancing soil organic matter,
    - maintaining soil moisture,
    - mitigating soil degradation and
    - preventing soil erosion.

Government Initiatives

- Earlier, farmers lacked information relating to soil type, soil deficiency and soil moisture content. To address these issues, the Government of India launched the **Soil Health Card (SHC)** scheme in 2015.
- The SHC is used to **assess the current status of soil health**, and when used over time, to **determine changes in soil health.**
- The SHC displays **soil health indicators and associated descriptive terms**, which guide farmers to make necessary soil amendments.
- Other pertinent initiatives include the **Pradhan Mantri Krishi Sinchayee Yojana**, to **expand cultivated area with assured irrigation, reduce wastage of water and improve water use efficiency.**
- In addition, the **National Mission for Sustainable Agriculture (NMSA)** has schemes **promoting traditional indigenous practices** such as organic farming and natural farming, thereby reducing dependency on chemicals and other agri-inputs, and decreasing the monetary burden on smallholder farmers.
- The **Food and Agriculture Organization** (FAO) undertakes multiple activities to support the Government of India's efforts in soil conservation towards **fostering sustainable agrifood systems.**
- The FAO is collaborating with the **National Rainfed Area Authority** and the **Ministry of Agriculture and Farmers' Welfare** to **develop forecasting tools** using data analytics that will aid vulnerable farmers in making informed decisions on crop choices, particularly in rainfed areas.

Way Forward

- There is a need to **strengthen communication channels** between academia, policymakers and society for the identification, management and restoration of degraded soils, as well as in the adoption of anticipatory measures.
- These will facilitate the **dissemination of timely and evidence-based information** to all relevant stakeholders.
- **Greater cooperation and partnerships** are central to ensure the availability of knowledge, sharing of successful practices, and universal access to clean and sustainable technologies, leaving no one behind.
- As consumers and citizens, we can contribute b**y planting trees to protect topsoil, developing and maintaining home/kitchen gardens, and consuming foods that are mainly locally sourced and seasonal.**

6) BIMSTEC as key to a new South Asian regional order

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

Context

- December 8 is commemorated as SAARC Charter Day. It was on this day, 37 years ago, that the South Asian Association for Regional Cooperation (SAARC), an intergovernmental organisation, was established by **Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka** to promote economic growth in South Asia. **Afghanistan** acceded to SAARC later.

Performance of SAARC

- South Asia is important for India's national interests. This is best

captured in **India's Neighbourhood First policy.**

- SAARC has **failed abjectly in accomplishing most of its objectives. South Asia** continues to be an **extremely poor and least integrated region in the world.**
- The intraregional trade and investment in South Asia are very low when compared to other regions such as the Association of South East Asian Nations (ASEAN) and Sub-Saharan Africa.
- Pakistan has adopted an obstructionist attitude within SAARC by repeatedly blocking several vital initiatives. **Deepening hostility between India and Pakistan** has made matters worse.
- Since 2014, no SAARC summit has taken place leaving the organisation practically dead.
- A weakened SAARC also means **heightened instability in other promising regional institutions** such as the **South Asian University (SAU),** which is critical to buttressing India's soft power in the region.

The BIMSTEC promise

- Since South Asia cannot repudiate regionalism, **reviving SAARC by infusing political energy into it and updating its dated Charter** will be an ideal way forward.
- However, in the current scenario, this is **too idealistic.** So, the next best scenario is to look at other regional instruments such as the **Bay of Bengal Initiative for Multi-Sectoral, Technical and Economic Cooperation (BIMSTEC),** an intergovernmental organisation established in 1997.
- BIMSTEC comprises **five South Asian nations** (Bangladesh, Bhutan, Nepal, India and Sri Lanka) and **two ASEAN countries** (Myanmar and Thailand). Importantly, **Pakistan is not a BIMSTEC member.**
- In recent years, India seems to have moved its diplomatic energy away from SAARC to BIMSTEC. This resulted in BIMSTEC, after 25 years, finally **adopting its Charter** in early 2022.
- The BIMSTEC Charter is significantly better than the SAARC Charter. For instance, unlike the SAARC Charter, Article 6 of the BIMSTEC Charter talks about the **'Admission of new members'** to the group. This paves the way for the admission of countries such as the **Maldives.**

Scope for Improvement

- Notwithstanding the improvements, the BIMSTEC Charter, to boost economic integration, **does not contain the flexible participation scheme** of the kind present in the **ASEAN Charter**.
- This flexible scheme, also known as the **'ASEAN Minus X' formula**, allows two or more ASEAN members to initiate negotiations for economic commitments. Thus, **no country enjoys veto power** to thwart economic integration between willing countries.
- Given the experience of SAARC, where Pakistan routinely vetoes several regional integration initiatives, it is surprising that BIMSTEC does not contain such a flexible participation scheme.
- A **flexible 'BIMSTEC Minus X' formula** might have allowed India and Bangladesh or India and Thailand to conduct their ongoing bilateral free trade agreement (FTA) negotiations under the broader BIMSTEC umbrella. India should press for this amendment in the BIMSTEC Charter.

Way Forward

- BIMSTEC should not end up as another SAARC. For this, its member countries should raise the stakes.
- A **high-quality FTA offering deep economic integration** — something that India also advocated at the last BIMSTEC ministerial meeting — would be an ideal step.
- Likewise, India should **explore legal ways to move successful SAARC institutions such as SAU to BIMSTEC.**
- These steps will give stronger roots to BIMSTEC and enable erecting a new South Asian regional order based on incrementalism and flexibility, ushering in prosperity and peace in the region.

7) India's crushing court backlogs, out-of-the box reform

(GS2: Important Aspects of Governance, Transparency and Accountability, E-governance- applications, models, successes, limitations, and potential)

Context

- Chief Justice of India D.Y. Chandrachud recently stated that increasing the number of judges will not demolish the perennial problem of pendency, and that it is difficult enough now to find good High Court judge material.
- Sushil Kumar Modi, Chairman of Parliament's Standing Committee on Personnel, Public Grievances, Law and Justice has called for out-of-the-box thinking to solve the problem.

Losing resources from the High Court, Supreme Court

- Though we have difficulty in finding good talent to be appointed as judges of the High Court, year after year large numbers of experienced and fine judges retire from the High Courts because they have reached the **age of 62.**
- Retired High Court judges can be appointed as **ad hoc judges** under **Article 224A** of the Constitution to deal with the unprecedented situation arising from the backlog of cases pending in the high courts, which has now crossed the figure of **57 lakh** coupled with the **consistent ratio of vacancies of almost 40 per cent.**
- The services of retired **Supreme Court judges** can be used to hear admission of **Special Leave Petitions** filed under **Article 136**.
- These are appeals filed in hundreds every week against all kinds of orders of lower courts and tribunals across the length and the breadth of the country.
- They are the biggest clog to justice in the Supreme Court because they take away half the time of the country's senior most judges in just reading these mountainous files to decide which minute fraction to hear and dismiss the rest.
- And **working hours and schedules can be flexibly designed** for retired judges to operate. This will enable the current judges to take up important cases in adequate Bench strength and composition.
- **Experienced High Court senior advocates can be appointed as judges once a week** to hear matters from another State High Court.

Strengthen online justice and mediation

- The courts responded splendidly to the **COVID-19 shutdown** by harnessing online facilities, and, pretty soon, judges and lawyers were quite well-versed in this new medium and welcomed its ease and flexibility.

- Enabling these ad hoc judges to work online from home with minimum support staff is an excellent harness of human and technology resources. It will enable a vast number of cases to be disposed of.

Mediation

- It is also crucial to employ mediation on a **wide range of cases**, from personal and matrimonial to civil and commercial and property disputes.
- If well planned and executed, this method of method of dispute resolution has the capacity to lift half the load of such cases off court dockets and onto mediation tables.
- An **Indian Mediation Service** can be created on the lines of the judicial service.
- And **both incentives and disincentives** must be devised for existing and prospective litigants to try this consensual method in good faith.

Conclusion

- These suggestions offer a strikingly different approach, one which garners and puts to best use excellent available resources, technological and personal, and can make a telling impact.

8) Strengthening urban local bodies

(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

- Looking at **urbanisation** as merely a process for the shift of population from rural to urban areas makes us lose sight of what actually lies at the core of this process. The **emphasis on making those urban areas liveable and sustainable** for its people is what should guide our understanding of urbanisation in today's world.
- An effective local government at the grassroot level can not only promote healthy urban growth but also ensure ease of living for the population.

Local Governments in India

- In India, local governments in cities are established in accordance with the **74th Amendment Act**, which creates the **ground for democratic decentralization in urban areas.**
- These local bodies are entrusted with functions related to **welfare, public health and safety, infrastructural works and other activities related to city development.**
- Municipal Corporation, Municipality, Notified Area Committee, Town Area Committee, Special Purpose Agency, Township, Port Trust, Cantonment Board are some types of urban local bodies.

Funding of Municipalities

- The 74th Amendment Act envisages the following ways for funding municipalities:
- **<u>Means for creating their own revenue:</u>** The 74th Amendment to the Constitution gives **state legislatures** the authority to enact **levies that support local government budgets.**
    - Accordingly, it is constitutionally required for state governments to establish means for ULBs to raise money. They should provide ULBs authority to impose taxes on behalf of municipalities and collect funds on their behalf.
    - This covers **taxes, duties, fees, and other assessments that local**

governments may levy and collect in accordance with the rules outlined in state law.

- **Distributing the created revenue:** The state government may also levy and collect taxes, duties, fees, and other similar charges, of which a portion is then distributed to the municipalities.
- **State grants-in-aid:** State grants-in-aid are also provided to support municipalities.

Issues and Challenges

- **Lack of adequate resources:**
  - According to the **Reserve Bank of India**, **financially starved Indian cities are unable to create the resources** needed to offer their residents high-quality facilities and services.
  - As a result, India's **access to basic urban infrastructure falls short** of what has been accomplished in the OECD and other BRICS countries.
- **Financial paucity:**
  - The **transfer of duties** from the national and subnational governments to local governments has **not always been accompanied by a corresponding transfer of financial authority.**
  - Municipal corporations in India **rely heavily on subsidies** from the Central and state governments to cover their spending needs because they have few other sources of income.
  - **Over-reliance on property taxes** has prevented local governments from fully utilizing other revenue streams such as trade permits, entertainment taxes, mobile tower taxes, solid waste user fees, water fees, and value capture finance.
  - The **proportion of municipal corporations' own sources of income decreased** from 89.1 per cent of total earnings in 1960-1961 to roughly **65 per cent** in 2012-2013.

Way Forward

- **Financially Independence:**
  - According to the third State Finance Commission Report of Uttarakhand (2018-19), the **ULBs in India must increase their efficiency in collecting parking fees, advertisement taxes, user fees, lease rentals, and property taxes.**
  - The **14th Finance Commission** recommended that **municipalities be enabled to levy vacant land tax.**
- **Ease Resource Restrictions:**
  - The focus should be on **easing resource restrictions for the operation of ULBs** when developing capacity for sustainable urbanization.
- **Digitization:**
  - A **web-based e-governance system** can be **participatory and improve the effectiveness** of local governments' operations. The range of e-services must be much expanded.
  - Recent initiative of municipal corporations to establish **web-based property tax payments** is a significant milestone in this direction.

- **Ensuring greater citizen participation:**
    - Greater public participation and better public service delivery will be made possible by modernizing local governance systems and getting them to **work closely with local communities** in accordance with a clear and effective administrative structure.
- **National Development Strategies:**
    - As noted in the **Sustainable Development Goal (SDG) 11: Sustainable Cities and Communities**, an effective city government is essential for sustainable development.
    - In order to create inclusive, secure, resilient, and sustainable cities, **national development strategies** must be put in place.

9) Five years on, examining the cost of GST

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

About GST

- Goods and Services Tax (GST) is an **indirect tax (or consumption tax)** used in India on the supply of goods and services.
- It is a **comprehensive, multistage, destination-based tax:**
    - Comprehensive because it has subsumed almost all the indirect taxes except a few state taxes.
    - Multi-staged as it is, the GST is imposed at every step in the production process, but is meant to be refunded to all parties in the various stages of production other than the final consumer and
    - Destination-based tax, it is collected from point of consumption and not point of origin like previous taxes.
- The tax came into effect from **1 July 2017** through the implementation of the **One Hundred and First Amendment of the Constitution of India** by the Indian government.
- The GST **replaced existing multiple taxes** levied by the central and state governments.
- The tax rates, rules and regulations are governed by the **GST Council.**

Benefits of GST implementation

1. **To MSMEs:**
    1. The **e-invoice system,** under which B2B invoices are authenticated electronically, has now become an integral part of doing business in India.
    2. The **GST number** that can track every supply chain transaction has helped to **address fraudulent claims and fake invoicing.**
    3. **Compliance burden of MSMEs has reduced significantly** with option of quarterly return filing for taxpayers having annual turnover of Rs 5 crore.
2. **To the logistics sector:**
    1. GST ended long queues of trucks & goods carriers at highway toll plazas freeing goods movement across states.
    2. The **E-way bill system** has helped to facilitate free movement of goods in the country.

Shortcomings of GST

- **Revenue Losses:**
    - GST harms producer states and rewards consumer

states in terms of revenues. **States** like Tamil Nadu, **which have invested highly in their manufacturing ecosystem, are facing new problems.** With GST, their major source of income from the viewpoint of production is at stake.
    - Though the government decided to roll out **compensations for five years of revenue losses for such states**, many states are demanding an **extension** because of their deteriorating finances owing to COVID pandemic.
- **Federal disputes:**
    - State governments have **lost most of their independent taxation powers**, which has increased their **dependence on the Centre.**
    - In the GST Council, **states have only 2/3 of the voting rights and the Centre is vested with the remaining third.**
    - Many states have expressed reservations because **any decision can only be made in the GST council if it gets 75 per cent of the votes** — a proportion that gives a **veto power to the Centre** which on the contrary can prevail if it gets the support of only 19 states.
    - The decisions of the council are **binding on Parliament** — in **contravention to the principle of parliamentary sovereignty.**
- **Delay in adjudication process:**
    - Delay in establishment of an appellate tribunal related to GST is increasing the burden on the judiciary.

Way Forward

- As state revenues are suffering, there is an urgent need for the **inclusion of gasoline, diesel, jet fuel, real estate and electricity under GST.**
- Certain **structural level changes** to the GST law may help overcome the above challenges.

10) Scale up R&D expenditure

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

Context

- To become a world leader in scientific research, a foremost requirement is a dynamic R&D ecosystem, which India lacks today.
- The **Sustainable Development Goals (SDGs) Agenda 2030** aims to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation".
- In particular, **SDG Target 9.5** calls upon nations to encourage innovation and substantially increase the numbers of researchers as well as public and private spending on R&D.

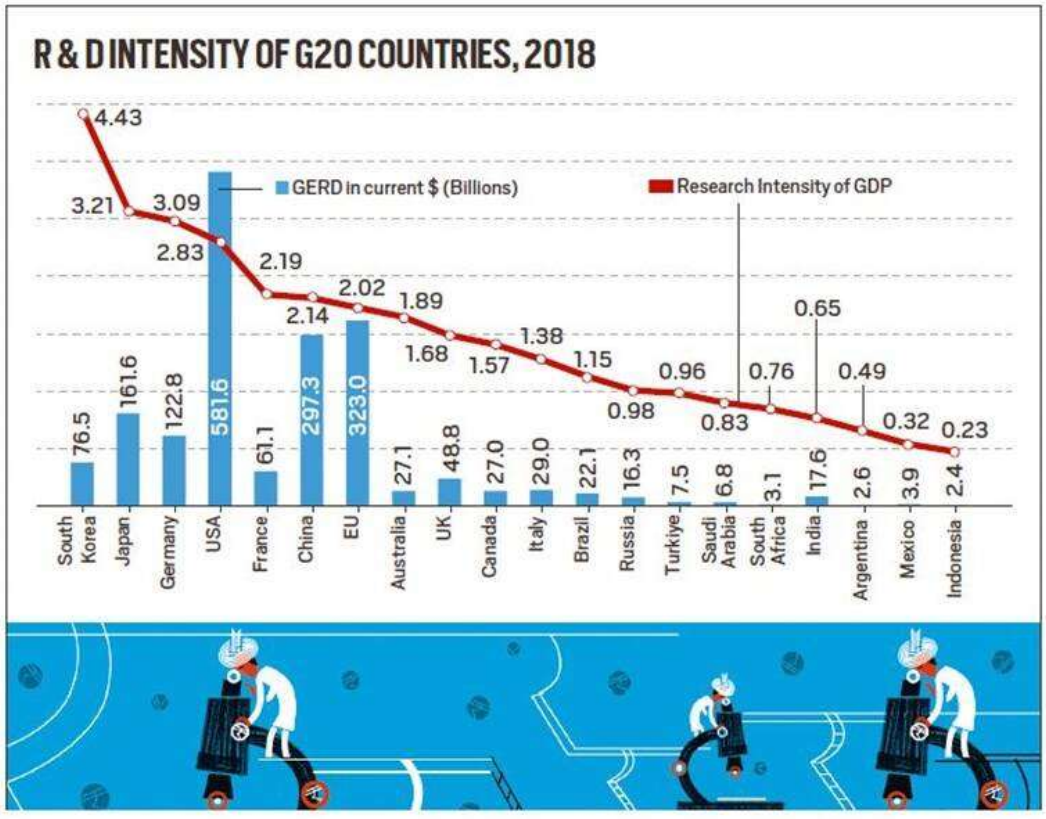
Global Trends

- According to **UNESCO's Institute for Statistics latest report**, the **G20 nations accounted for 90.6 per cent of global Gross domestic expenditure on R&D (GERD)** (current, PPP$) in 2018.
- Global R&D expenditure has reached a record high of about **2.2 trillion current PPP$ (2018),** while **Research Intensity** (R&D expenditure as a percentage of GDP) has **gradually increased** from 1.43 per cent in 1998 to **1.72 per cent** in 2018.

- **The US leads the G20** by spending $581.6 billion on R&D followed by the **European Union** ($323 billion), and **China** ($297.3 billion) in 2018. **India lags way behind** with a paltry R&D expenditure of only **$17.6 billion** in 2018.
- In terms of their **relative shares in G20 R&D expenditure, the US** is way ahead with **36 per cent**, followed by the **EU (20 per cent),** and **China (18 per cent). India's share is less than 1 per cent** of G20 R&D expenditure in dollar terms.

Research Intensity

- While the absolute expenditure on R&D provides a sense of scale, their **percentage to the respective GDP** provides the **research intensity (RI).**
- **South Korea** has the highest RI at 4.43 per cent, followed by **Japan** (3.21 per cent), **Germany** (3.09 per cent), **the US** (2.83 per cent), **France** (2.19 per cent), **China** (2.14 per cent) and **EU** (2.02 per cent).
- **India is ranked 17th** in the G20, with a **RI of 0.65 per cent.**



Israel Model

- There are many non-G20 countries that have a **higher RI than even the countries in the G20.** But their absolute expenditure on R&D is relatively very small.
- One of these non-G20 countries is **Israel**, which, while having an **R&D expenditure of just $18.6 billion**, a population of only 9.3 million and a per capita income of around $51,430, has the **highest RI of over 5 per cent.**
- It is a major reason why **Israel is known as a land of innovations**, be it in defence or agriculture. The innovation system in Israel is a fundamental driver of its economic growth and competitiveness.
- The **government has played an important role in financing innovation**, particularly in Small and Medium Enterprises (SMEs),

and in providing well-functioning frameworks for innovation, such as venture capital (VC), incubators, strong science-industry links, and high-quality university education.

- Israel builds a strong case to show that **despite being a smaller nation, sustainable growth can be achieved by prioritising investments in R&D.** A lesson India can learn.

Way Forward

- To boost the research ecosystem in the country, it is essential to **repurpose massive expenditures on various subsidies** such as on food, fertilisers, PM Kisan and free power towards a **multi-fold increase in expenditure on research and innovation.**
- India needs not only technological development and brilliance in various sectors ranging from defence to agriculture to manufacturing, but it desperately needs innovations that can safeguard its basic environment — land, water, and air.

11) Making healthcare accessible, the digital way

(GS2: Important Aspects of Governance, Transparency and Accountability, E-governance- applications, models, successes, limitations, and potential)

Context

- Digital health solutions played a crucial role during the COVID pandemic in bridging the gap in healthcare delivery as systems moved online to accommodate contactless care.
- Some examples of Digital public goods (DPGs) developed during the pandemic include
    - **Covid Vaccine Intelligence Network (CoWIN)** - propelled India to adopt a completely digital approach to its vaccination strategy.
    - **Aarogya Setu application** - provided real-time data on active cases and containment zones to help citizens assess risk in their areas.
    - **Telemedicine "e-sanjeevani" -** saw a steep increase in user acquisitions, as 85 percent of physicians used teleconsultations during the pandemic.

Need for digital healthcare ecosystem

- A **comprehensive digital healthcare ecosystem** is necessary to bring together existing siloed efforts and move toward proactive, holistic, and citizen-centric healthcare.
- The **G20 Global Initiative on Digital Health** calls for the creation of an institutional framework for a connected health ecosystem to bring together global efforts for digital health. It also calls for the **scaling-up of technologies such as global DPGs to accelerate Universal Health Coverage.**

About ABDM

- Recognising the need for the digital healthcare ecosystem the government has created **Ayushman Bharat Digital Mission (ABDM)** for promoting digitization of healthcare and creating an open interoperable digital health ecosystem for the country.
- ABDM aims to do so by prescribing **common health data standards** and developing **registries of health facilities and healthcare professionals** required for interoperability, so that various digital health systems can interact with each other by enabling seamless sharing of data.

Significance of the mission

- ABDM has established a robust framework to provide **accessible, affordable, and equitable healthcare through digital highways.**
- The ABDM has implemented **vital building blocks to unite all stakeholders** in the digital healthcare ecosystem.
- The **Ayushman Bharat Health Account (ABHA)** creates a standard identifier for patients across healthcare providers. With the ABHA and its associated **Personal Health Record (PHR) app**, citizens can link, store, and share their health records to access healthcare services with autonomy and consent.
- The **Health Facility Registry (HFR)** and the **Health Professional Registries (HPR)** provide verified digital identities to large and small public and private health facilities and professionals which enables them to connect to a central digital ecosystem while serving as a **single source for verified healthcare provider-related information.**
- HFR and HPR **improve the discovery of healthcare facilities** and help health professionals **build an online presence** and **offer services more effectively.**
- The **Drug Registry** is a crucial building block designed to create a single, up-to-date, centralized repository of all approved drugs across all systems of medicine.
- ABDM uses a **QR code-based token system to manage queues** at hospital counters by making use of the foundational elements of ABHA and PHR to streamline the outpatient registration process in large hospitals.

Conclusion

- The ABDM has proven to be a valuable asset that aims to build the foundation for a sustainable digital public infrastructure for health, enabling India to achieve universal health coverage.
- The mission embodies G20's theme of **"Vasudhaiva Kutumbakam"** or **"One Earth. One Family. One Future".**

12) Enfranchising migrant voters

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

Context

- One of the significant features of India's electoral record has been its **progressive betterment on two major counts** — in **registering eligible citizens as electors**, and achieving **increased participation of electors in voting**.
- While only 17 per cent were registered and 45 per cent of them turned out to vote in 1951 in India's first general election, in **2019**, India's latest general election, **over 91 per cent of its eligible citizens were registered with 67 per cent of them coming out to vote**, which is the highest voter turnout in the nation's history.
- It is, however, worrying that **a third of the eligible voters,** a whopping 30 crore people, **do not vote**.
- Among the many reasons, including **urban apathy and geographical constraints**, one prominent reason is the **inability of internal migrants to vote** for different reasons.

Status of Internal Migration

- According to the **2011 Census**, the **number of internal migrants**

stands at 450 million, a **45 per cent surge** from the 2001 census.
- Among these, **26 per cent** of the migration (117 million) occurs **inter-district** within the same state, while **12 percent** of the migration (54 million) occurs **inter-state.**

Hurdles in Voting

- Individual's inalienable right to vote is conditioned by a rather **strict residency qualification** which disenfranchises the migrant population.
- Most migrant voters have **voter cards for their home constituency — 78 per cent**, according to a 2012 study and **most cannot commute to their home states on polling day.**
- Although electoral laws let people register at their place of "ordinary residence", most **face difficulties to get residence proof.**
- Many migrant voters may not be as intensively involved in the political affairs and interests in their host locations as they are in their home locations.

Available Options

- **Section 60(c) of the Representation of People Act, 1951** empowers the Election Commission of India, in consultation with the government, to **notify "classes" of voters** who are unable to vote in person at their constituencies owing to their physical or social circumstances.
- Once notified, the voters are eligible for the **ETPB system (Electronically Transmitted Postal Ballot System).** ETPB is now limited to **service voters.** The Government should consider extending the ETPB facility to the migrant workers.
- The Election Commission has proposed the **use of remote voting** for migrant workers wherein a modified version of the existing model of EVMs will be placed at remote polling stations.
- The Electronic Corporation of India Ltd. has already developed a prototype of a **Multi-constituency Remote EVM (RVM)** — a modified version of the existing EVM which can handle 72 constituencies in a single remote polling booth.

Way Forward

- The **Supreme Court,** in a series of cases, has conclusively interpreted the **freedom to access the vote** as within the ambit of **Article 19(1)(a).**
- The Indian migrant worker deserves the secured right to have access to vote through some mechanism.

13) Securing cyberspace for children

(GS3: Challenges to Internal Security through Communication Networks, Role of Media and Social Networking Sites in Internal Security Challenges, Basics of Cyber Security; Money-Laundering and its prevention)

Context

- With the increasing popularity of social media platforms, utilization of education apps and shift to online classes, children these days have a much higher chance of being exposed to harmful content. Hence, the need to secure children's welfare and safety online is more urgent than ever.

What is Online child sexual abuse and exploitation (OCSEA)?

- Online child sexual abuse and exploitation refers to activities such as the **production and distribution of child sexual abuse material (CSAM), live streaming sexual assault of minors, obtaining sexually explicit**

material, exhibitionism and meeting the abuser in-person.

Consequences of OCSEA

- OCSEA poses **serious harm to children** who experience **psychological stress** such as anxiety, trauma, and depression.
- It can also lead to **behavioral changes** like drug and alcohol abuse, self-harm, and lower motivation for academics.
- Consequences of online sexual abuse in childhood **may well extend into adulthood —** bringing forth issues with intimacy and affecting interpersonal relationships.

Challenges in dealing with OCSEA

- **Better encryption services and the dark net**, provide a **safe cover of anonymity** to offenders, allowing them to engage in child sexual abuse.
- **Administrative challenges** when dealing with OCSEA are **limited law enforcement capacities, gaps in legislative framework, and a lack of awareness and urgency** around the issue.
- The **workforce in relevant social welfare organizations is understaffed.**

Government Measures

- The government has not only **improved the mechanism for reporting online offences against children**, but it has also developed **new tools and software** to control and remove the presence of CSAM on social media and other platforms.
- Efforts have also been made to **sensitise schools** and **boost the technological capacity of law enforcement agencies** to further deal with the issue.
- Although this four-pronged model has shown some promising results, it is surpassed by the exponential rise in cases across the country.

Recommendations

- According to the **Model National Response**, a joint review launched by UNICEF and WeProtect Global Alliance, there are **six key domains** for a country to focus on to effectively address this issue — **policy and governance, criminal justice, industry, society and culture, research and victim support.**
- Keeping these in mind, there are a number of ways India can better its response to child sexual abuse material.
    - It is imperative to evaluate and improve the effectiveness of **cross-sectoral governance mechanisms** that are set up to systematise the national response to child sexual abuse material.
    - The **huge backlog** for cases of OCSEA in India must also be **fast-tracked.**
    - Development of **clear mandates** and creation of a **logical framework of roles and duties of all relevant stakeholders** within standard operating procedures for investigation has to be done.
    - **Continuous dialogue** between the industry, government and other collaborators, with a **distinct agenda and division of responsibilities** is necessary.
    - Industry partners, in particular the IT industry, must be provided with **suitable training and awareness** of the magnitude

of OCSEA, along with **proper toolkits and guidance.**
    - Promoting a systematic and constant approach to **training the judiciary and prosecution on CSAM** can prove beneficial.
    - **Comprehensive remedies or reparations for victims** are just as important and need to be handled by a **specialized workforce.**
    - Provisions should be in place to **prevent future cases and safeguard the victims or survivors.**
    - **Basic online safety measures, parental support initiatives and community awareness training** can be **integrated into existing education programmes** for violence prevention, and sensitizing the most vulnerable audience.
    - Dedicated effort must be made to aid **ethical and informed media reporting** on relevant cases.

Conclusion

- A collaborative effort of various institutions across the nation is required to build a safer cyberspace.
- The highest priority is **assessment of current OCSEA response systems and reporting mechanisms, stricter implementation of prevention laws, and adequate resources** to sustain these efforts.
- The end goal must be to ensure long-term safeguards for online platforms that allow secure navigation for minors and a disruption of the actions of offenders.

14) Current Account Deficit and the need to boost exports

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

Context

- Over the past year, the post-pandemic normalisation has caused India's current account deficit (CAD) to swell to exceptional proportions.
- At home, normalisation has spurred a **renewed demand for imported inputs.** But abroad, it has had the **opposite effect**, leading to a **decline in demand for several goods** from India**.**
- **Foreign demand will slow further** as advanced countries slip into what now seem like inevitable recessions.
- In that case, India's CAD could widen even further, possibly to **four per cent of GDP in 2022-23 — double the level that RBI traditionally regards as "safe".**

How should India respond?

- One possibility would be to **attract foreign capital inflows worth at least four per cent** of GDP.
- However, the world is currently facing **unprecedented levels of uncertainty:** COVID pandemic, land war in Europe, high levels of inflation in the developed world, the fastest pace of interest rate hikes in the history of the US Federal Reserve, an energy crisis in Europe, and a slowdown in China.
- In such an uncertain environment, **foreign investors prefer to invest in safe assets such as US government bonds rather than emerging markets like India.** As a result, **India** has witnessed **large outflows of foreign capital** in 2022-23.

Depleting Forex

- If India cannot attract the required amount of capital inflows, the **RBI's foreign exchange reserves could be deployed to pay for imports.** But this strategy is **neither appropriate nor sustainable.**
- The country's reserves are meant to **tide the country over short-term problems,** such as commodity price spikes.
- The large CAD, however, is a **long-term problem requiring a long-term solution.**
- In particular, **India's merchandise exports have been structurally weak,** stagnating for the past decade, until the pandemic induced a short-lived boom.

Depreciation of Rupee

- India's CAD reflects a **mismatch between the demand and supply of foreign exchange;** we are demanding more dollars than we have access to because **we are importing more than we are exporting.**
- To restore balance, first and foremost, the **price needs to adjust**, that is, the **rupee needs to depreciate.**
- When this happens, **exporting becomes more profitable, inducing more and more firms to explore foreign markets.**
- Meanwhile, foreign demand improves, because the rupee depreciation makes **India's products more price-competitive.** As a result, **exports increase** — and the **CAD falls.**

Export-oriented Policy

- Exchange rate depreciation is helpful for another reason. It can **help sustain growth**. India's share in global exports is very small and there is ample scope to expand this share.
- Over and above rupee depreciation, this will require **structural policies.** Policy needs to become significantly **more export-oriented and less protectionist.**
- Over the last few years, **average import tariffs have gone up**. In a world where manufacturers are dependent on global supply chains, **levying stiff import duties hampers exports**. And this obstacle cannot be overcome by providing subsidies to a selected few producers.

Way Forward

- In sum, the need of the hour is four-fold:
    - Allow the rupee to **depreciate**,
    - **encourage foreign firms to produce in India** by letting them access their supply chains,
    - **encourage domestic firms** to step up to the competition, and
    - create a **level playing field** for all players.
- By adopting this strategy, India could potentially solve its two most important macroeconomic problems — **reducing the large CAD** and **securing rapid, sustained growth.**

15) Why did methane emissions spike in 2020?

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

Context

- According to a new study, **low nitrogen oxide pollution and warming wetlands** likely drove global methane emissions to record high levels in 2020.

Methane

- Methane is the **simplest hydrocarbon**, consisting of **one**

carbon atom and four hydrogen atoms (CH4).

- Methane is an **odorless, colorless, flammable gas** and is used as a **fuel** worldwide.
- It is nearly **80-85 times more potent than carbon dioxide in terms of its global warming capacity.**

Sources of Methane

- It is emitted from a variety of **human as well as natural sources.**
- Some of these sources are **landfills, oil and natural gas systems, agricultural activities, coal mining, stationary and mobile combustion, wastewater treatment and certain industrial processes.**

Top Methane emitting Countries

- The **United States and the European Union (EU)** account for more than a third of global consumption of natural gas followed by **Brazil, Russia, China, Indonesia, Nigeria, Mexico and India.**

Findings

- Global methane emissions reached roughly **15 parts per billion (ppb) in 2020** from 9.9 ppb in 2019. This increase occurred **despite the COVID-19 lockdown**, which brought the world to a standstill.
- In 2020, **methane emissions from human activities decreased by 1.2 teragrams (Tg) per year.** It was expected that the overall atmospheric methane growth rate would slow down. However, the **growth rate in 2020 is the highest** during the period 1984–2020.

Why methane increased when many GHGs decreased during 2020?

- The study concludes that **low nitrogen oxide pollution** and **warming wetlands** likely drove global methane emissions to record high levels.
- **Nitrogen oxide (NOx)** enters the atmosphere from **exhaust gases of cars and trucks** as well as **electrical power generation plants. Nitrogen oxide levels fell by 6 per cent** in 2020 from 2019, mainly from March-May. During this time, many countries in the northern hemisphere imposed COVID-19 lockdown measures.
- **NOx can impact methane levels.** In the **troposphere** — the upper part of the atmosphere — **NOx combines with ozone to form hydroxyl radicals**. These radicals, in turn, **remove 85 per cent of methane annually from the atmosphere.**
- **Hydroxyl radicals** in the **troposphere react with methane to form water and CO2.** Less **nitrogen oxide pollution means less hydroxyl and more methane.**

Role of Wetlands

- Further, **methane emissions from the agricultural sector and wetlands rose multifold in 2020.**
- Also, 2020 was wetter than usual. Precipitation over global wetlands showed a 2-11 per cent annual increase relative to 2019.
- **Water-logged soils make conditions ripe for soil microorganisms, allowing them to produce more methane.**
- The study concluded that roughly **53 per cent of the methane growth** can be attributed to **lower hydroxyl sink**, and the **remaining 47 per cent from natural sources, predominantly wetlands.**
- The results have significant implications for our ability to reliably predict methane changes in a future world with lower anthropogenic emissions of pollutants like nitrogen oxides.

Global Initiatives to Reduce Methane Emissions

- At the **Glasgow climate conference (UNFCCC COP 26)** in **2021,** nearly **100 countries** had come together in a **voluntary pledge,** referred to as the **Global Methane Pledge,** to cut methane emissions by **at least 30%** by **2030** from the **2020** levels.
- The **Methane Alert and Response System (MARS)** is a new initiative of the UN for tracking methane and alerting governments and corporations to respond.
- The **Global Methane Initiative** is an **international public-private partnership** focused on reducing methane gas emissions and advancing methane recovery and use as a clean energy source.

India's Initiatives

- **Indian Council of Agricultural Research (ICAR)** has developed an **anti-methanogenic feed supplement 'Harit Dhara'** which can cut down cattle methane emissions by **17-20%** and result in higher **milk production.**

Way Forward

- The researchers call for **more ambitious efforts to reduce methane emissions** to achieve the Paris Agreement target of restricting global warming to 1.5 degrees Celsius above pre-industrial levels.

16) Geo Engineering & Ozone layer depletion

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

Context

- According to a new U.N. report, the **ozone layer is slowly but noticeably healing** at a pace that would fully mend the hole over Antarctica in about **43 years.**

Ozone Layer

- Ozone is a **triatomic molecule of oxygen**. It occurs in **two layers** in the atmosphere.
- Ozone is present throughout the atmosphere although there are concentration peaks at **two levels**, the **stratosphere** (a layer of the atmosphere between 10 and 40 km above us) and **troposphere** (the atmospheric layer from the surface up to about 10 km).
- **Stratospheric ozone** forms a **protective layer** that shields us from the sun's harmful ultraviolet rays. **Ozone at ground level** (troposphere) is a **harmful air pollutant**, because of its effects on people and the environment, and it is the main ingredient in **"smog."**

Mechanism of Ozone Depletion

- **UV radiation** from the sun breaks down oxygen molecules in the upper levels of the earth's atmosphere there by **releasing free atoms which bond with other oxygen molecules to form ozone.**
- There should be a **balance between production and degradation of ozone in the stratosphere.**
- In recent times, due to **increased use of Chlorofluorocarbons (CFCs),** there has been an **enhancement in Ozone degradation.**
- CFCs discharged in the lower parts of the atmosphere reach up to the stratosphere, where they are acted upon by UV rays, resulting in the **release of Cl (Chloride) atoms.** These atoms **degrade ozone releasing molecular oxygen.**
- Ozone depletion results in the formation of a **large area of thinned ozone layer,** referred to as **Ozone hole.**

- The first ozone hole was discovered in the stratospheric layers over the **Antarctic** in **1985**, which allowed harmful UV radiation to pass into the troposphere where humans live.
- UV radiation is linked with health hazards such as **skin cancer, cataracts and other conditions in the eye and reduced immunity.**

Recent Findings

- The concentration of ozone depleting substances that peaked in the 1990s has been on a decline since the implementation of the **Montreal Protocol,** an international environmental treaty that regulates the production and consumption of **ozone depleting substances (ODS)** including chlorofluorocarbons (CFCs), halons and hydrochlorofluorocarbons (HCFCs).
- If current policies remain in place, the ozone layer is expected to **recover to 1980 values** (before the appearance of the ozone hole) by **around 2066** over the Antarctic, by **2045 over the Arctic** and by **2040 for the rest of the world.**
- While this is an achievement, scientists warned of the **detrimental effects of geoengineering technologies** on the ozone layer.

Geo Engineering

- It refers to **deliberate, large-scale intervention** carried out in the Earth's natural systems to **reverse the impacts of climate change.**
- This involves techniques to **physically manipulate the global climate to cool the planet.**

Solar Radiation Management

- It is a geoengineering technique which aims to **reflect a small proportion of the Sun's energy back into space.** This counters the temperature rise caused by increased levels of greenhouse gasses in the atmosphere which absorb energy and raise temperatures. Some proposed techniques include:
    - **Albedo enhancement:** It refers to increasing the reflectiveness of clouds or the land surface so that more of the Sun's heat is reflected back into space.
    - **Space reflectors:** They can help block a small proportion of sunlight before it reaches the Earth.
    - **Stratospheric Aerosol Injection:** SAI refers to introducing small, reflective particles into the upper atmosphere to reflect some sunlight before it reaches the surface of the Earth.

Concerns

- Recent studies have shown that **geoengineering experiments** such as stratospheric aerosol injection to reduce global warming **can damage the ozone layer.**
- SAI can increase sunlight reflection, thereby lowering the amount of heat that enters the troposphere. But this method **could also affect stratospheric temperatures, circulation and ozone production and destruction rates and transport.**
- Aerosol sprays, like other commonly used substances such as dry cleaning solvents, refrigerants and fumigants, contain **ozone depleting substances.**
- Further, aerosol injections can cause **rapid warming, disrupting the water cycle and leading to massive biodiversity loss.**

Way Forward

- It is essential to understand that geoengineering cannot be used as a

license to continue to emit more GHGs.
- A lot more research is required to understand the impacts of geoengineering on the broader regional ecosystem.

17) Net zero emissions

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

Context

- India has pledged to reach **net zero emissions by 2070** which can only be met with urgent actions in this decade.
- Reaching net-zero could benefit India through **lower-cost energy, greater energy security and the growth of futuristic industries.**

Challenges in achieving Net Zero emissions

- India's **per capita emissions are relatively low** (1.8 tons of CO_2e per person), but is still the **world's third-largest single emitter.**
- On its current trajectory, India's emissions are **set to grow** from 2.9 $GtCO_2e$ a year to 11.8 $GtCO_2e$ in 2070.
- **Deeper decarbonisation** — an "accelerated scenario" that would reduce emissions to just 0.4 $GtCO_2e$ by 2050, or close to net zero — would require **$12 trillion in total green investments by 2050.**
- **Decarbonisation will drive many changes**, from how we source energy to how we manufacture materials; from how we grow food to how we move around; from how we treat waste to how we use our land.

Untapped Potential

- An **orderly transition to net zero** could help India **decarbonise** while **creating an engine for growth.**
    - For example: If India shifted to a predominantly renewable based energy and materials system, it could **save as much as $3 trillion in foreign exchange by 2070** (largely crude oil and coking coal).
- This is because India is in a special place. **Three-quarters of the buildings, infrastructure, and industrial capacity of India in 2050 is yet to be built**.
- Futuristic investment will need India to take urgent actions in this decade — on regulation, technology development, and on technology adoption — to make the right investments.
- India also has **other advantages**. For example, its **high taxation on automotive fuels translates to an imputed carbon tax** of $140 to $240 per tonne of carbon dioxide.
- This makes **electric vehicles competitive against petrol or diesel ones**, explaining the recent rapid growth of electric two-wheelers.
- Such an "orderly" transition for India is **not just desirable, but necessary.**

Recommendations

- India should set out **five-year, 10-year, and 25-year national decarbonisation plans.**
    - A national decarbonisation plan would enable timely investment decisions.
- The government should define a **national land use plan.**
    - India would need to maximize the use of barren land for renewable power, urbanize vertically, improve agricultural productivity, and increase forest density.
    - A **national authority** has to be established in consultation with the states, to set land-use guidelines.

- Accelerate **compliance with carbon markets.**
    - Pricing carbon creates demand signals that accelerate emissions reductions.
- Companies can aim to play on the front foot, **investing in opportunities** like recycling, hydrogen, biomass, electrolysers, rare earths, battery materials and battery making.
- Companies could **invest in opportunities opened up by decarbonisation of other countries,** such as **exporting green hydrogen derivatives like ammonia.**

Conclusion

- To embark on an orderly path to net zero, India needs imagination, realism, determination — and a sense of urgency. We must take steps this decade to set things up, to establish momentum, and to build India right for generations to come.

18) E-governance in India

(GS2: Important Aspects of Governance, Transparency and Accountability, E-governance- applications, models, successes, limitations, and potential)

Context

- As per **World Bank**, "e-Governance refers to the use of **information and communication technologies (ICTs)** at various levels of the government and the public sector and beyond, for the purpose of enhancing governance."
- According to the **Ministry of Electronics and Information Technology**, e-governance is the application of Information and Communication Technology to promote **'Simple, Moral, Accountable, Responsive and Transparent (SMART)' governance.**

Significance of e-Governance

- e-Governance is a mechanism through which **public services are made available and accessible to the common man** at their doorstep at ease, through common services delivery outlets.

Benefits of e-Governance

- **Better access to quality services for citizens**
- **Simplicity, efficiency and accountability**
- **Expanded reach of e-governance**
- **Citizen empowerment through access to information**
- **More efficient government management**
- **Less corruption**
- **Increased transparency**
- **Greater convenience**
- **Minimising interface between government and public**
- **Revenue growth, and/or cost reductions.**

Scope of E-Governance

1. Government-to-Government (G2G):

- G2G is the electronic sharing of data between and among government organisations. The goal of G2G is to support e-government initiatives by improving communication, data access and data sharing.
- Using G2G e-governance, government offices can be more efficient and streamline procedures, allowing citizens to access information over the Internet.

2. Government to Citizens (G2C):

- The goal of G2C e-governance is to offer a variety of ICT services to citizens in an efficient and economical manner and to strengthen the relationship between government and citizens using technology.

3. Government to Employees (G2E):

- G2E is the online interactions through instantaneous communication tools between government units and their employees.
- The objective of G2E is to improve effectiveness and efficiency, eliminating delays in processing and improving employee satisfaction and retention.

4. Government to Business (G2B):

- G2B refers to business-specific transactions (such as payments, selling and acquisition of goods and services, etc.) and the provision of business-focused services online.

Government Initiatives e-Governance

1. Digital India:

- The Ministry of Electronics and Information Technology (MeitY) launched the **"Digital India" programme** in 2015 to **transform India into a knowledge-based society and economy.**
- It aims at **ensuring digital access, digital inclusion and bridging the digital divide.**

2. Unified Mobile Application For New-age Governance (UMANG):

- UMANG is a Government of India's all-in-one single unified secure platform for **accessing over 1,200 central and state government services in multiple Indian languages.**
- It includes services such as AADHAAR, Digi Locker, Bharat Bill Payment System, PAN, EPFO services, PM- KVY services, AICTE, CBSE, tax and fee or utilities bills payments, education, job search, tax, business, health, agriculture, travel, Indian railway tickets bookings, birth certificates, e-District, e-Panchayat, police clearance, passport, other utility services from private companies and much more.

3. Common Service Centres (CSCs):

- CSCs are shops/Kiosks that **deliver various government services online** like public utility services, social welfare schemes, healthcare, financial, education and agriculture services to citizens in rural and remote areas of the country.
- CSCs have been trying to **bridge the gaps in digital literacy and skills of rural citizens** through a range of literacy initiatives focused on digital, financial and legal literacy and e-learning and skill development courses.

4. DigiLocker:

- DigiLocker eliminates the use of physical documents as part of the government's Digital India drive, since **all data is stored in the cloud.**
- One can upload scanned copies of their documents (PDF, JPEG or PNG format) and access it anywhere they want. One can also **e-sign** these uploaded documents, which works like self-attestation of physical documents.
- The issued documents in DigiLocker system are **deemed to be at par with original physical documents** as per the Information Technology (Preservation and Retention of Information by Intermediaries providing Digital Locker facilities) Rules, 2016.

5. Unified Payment Interface (UPI):

- UPI is India's mobile based, 'fast payment' system that facilitates customers to make round the clock payments instantly using a **Virtual Payment Address** created by the customer. This eliminates the risk of sharing bank account details by the remitter.
- UPI supports both **Person to Person and Person to Merchant payments** as also it enables a user to send or receive money.

- It was developed by the **National Payments Corporation of India (NPCI),** an RBI regulated entity.

6. MyGov:

- MyGov portal has been established as **Government of India's Citizen Engagement Platform** which collaborates with multiple Government bodies/ Ministries to engage with citizens for policy formulation and seeks the opinion of people on issues/ topics of public interest and welfare.
- MyGov platform is designed, developed and hosted by the **National Informatics Centre** under the Ministry of Electronics & Information Technology (MeitY).

7. Diksha:

- Diksha is a national-level educational platform that helps students and teachers to participate, contribute and leverage a common platform to achieve learning goals at scale for the country.
- More than 7000 courses are available and more than 15 crore enrolments have been done.

State Government Initiatives

- The **Government of Andhra Pradesh** in collaboration with **Microsoft** has deployed a **combination of artificial intelligence and machine learning to predict the possible drop-outs** in schools.
- The algorithm helps in identifying students who are likely to dropouts and immediate interventions in the form of governmental support, counselling, academic support, etc. are offered to stop the drop-outs.
- In the states of **Telangana and Tamil Nadu, blockchain technology has been successfully utilised for digitising land records.** Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. Since the ledger is immutable, there are no chances of disputes as no one can alter the records in an unlawful way.

Way Forward

- While e-government focuses on creating online services, the future will center on how digital government may change governance by harnessing societal creativity and resilience to advance Sustainable Development Goals.

Model Questions

1) Indian Migrants are the source of the largest remittances in the world. Discuss the problems faced by them and enumerate the measures for their welfare.

2) Will the shift of manufacturing sector to rural areas lead to skilling of workers in near term? Critically analyse the statement.

3) Electoral reforms at the structural level are the need of the hour. Critically analyse in view of the appointment and security of tenure of the Election Commissioners.

4) Food fortification is the panacea that India is searching for in tackling malnutrition among the population. Comment.

5) Successful soil management practices are the need of the hour to mitigate climate change and its related impacts on the earth. Critically analyse.

6) Is BIMSTEC the new SAARC? Comment

7) Discuss the major reasons for pendency of cases in India and suggest steps to rectify them.

8) An effective local government at the grassroot level can be established only when various hindrances to it are overcome. Comment.

9) Discuss the key benefits of GST implementation and highlight the major challenges associated with the GST system.

10) With the G20 presidency, India has an opportunity to set the global agenda for research and development. In this context discuss why spending on research and development has to be increased and the ways through which it can be accomplished.

11) Ayushman Bharat Digital Mission (ABDM) is transforming the healthcare sector and bringing revolutionary changes to the lives of all citizens. Comment.

12) The Election Commission's initiative to enfranchise migrant voters is a step in the right direction. Comment.

13) The threat of online child sexual abuse is increasing in recent times. In this backdrop, enumerate the measures taken by the government to tackle the issue and the steps to be taken to prevent online child sexual abuse.

14) What are the reasons for increasing current account deficit and in what ways can India address the same?

15) Why are methane emissions a cause of worry? List global initiatives to tackle the effects of methane emissions.

16) What is meant by geoengineering technologies? What are the issues associated with using them?

17) India has set itself a target to achieve net zero by 2070. Discuss the challenges in attaining it.

18) Explain the concept of e-Governance and its benefits in governance.