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Schemes

1) NashaMukt Bharat Abhiyaan

About the Campaign

- The 'Nasha Mukt Bharat Abhiyaan' or the 'Drugs-Free India Campaign' was flagged off on 15th August 2020 by the **Ministry of Social Justice and Empowerment**.
- The Nasha Mukt Bharat Annual Action Plan for 2020-21 focuses on **272 districts in 32 states & UT's which are identified as most vulnerable in terms of usage of drugs** and launches a **three-pronged attack** combining efforts of the Narcotics Bureau, Outreach/Awareness by Social Justice and Treatment through the Health Department.

Components of the action plan

- Awareness generation programmes;
- Focus on Higher Educational institutions, University Campuses and Schools;
- Community outreach and identification of dependent population;
- Focus on Treatment facilities in Hospital settings; and
- Capacity Building Programmes for Service Providers.

Need of the programme

- The Ministry of Social Justice and Empowerment has conducted the **first National Survey on Extent and Pattern of Substance Use in India** through the National Drug Dependence Treatment Centre (NDDTC) of the All India Institute of Medical Sciences (AIIMS), New Delhi during 2018.
- As per the report, **Alcohol** is the most common psychoactive substance used by Indians followed by **Cannabis** and **Opioids**.
- About 16 Crore persons consume alcohol in the country; more than 5.7 Crore individuals are affected by harmful or dependent alcohol use and need help for their alcohol use problems.

- 3.1 Crore individuals use cannabis products; about 25 lakh suffer from cannabis dependence.
- 2.26 Crore use opioids; approximately 77 lakh individuals are required help for their opioid use problems.

Why in the news?

- The Minister for Social Justice & Empowerment has launched the **website for the Nasha Mukt Bharat Abhiyaan** on the occasion of International Day Against Drug Abuse and Illicit Trafficking on 26th June 2021.
- The Day is observed worldwide to strengthen action and cooperation in achieving the goal of a **sustainable world free of substance abuse**.

Similar initiatives by the Ministry

- The Ministry of Social Justice and Empowerment has been mandated to **reduce drug demand**.
- It coordinates and **oversees all aspects of drug abuse prevention** including assessment of the extent of the problem, preventive action, treatment and rehabilitation of addicts, dissemination of information, and public awareness and is mandated to run de-addiction centers.
- The Ministry undertakes intervention programmes in vulnerable districts across the country with the objective to:
 1. Reach out to Children and Youth for **awareness** about ill effect of drug use;
 2. Increase **community participation** and public cooperation;
 3. Supporting Government Hospitals for **opening up De-addiction Centers** in addition to existing Ministry Supported De-addiction Centers (IRCAs); and
 4. Conducting **Training programme** for participants.

2) Integrated Power Development Scheme

About IPDS

- **Integrated Power Development Scheme (IPDS)** was launched in the year 2014 by the **Ministry of Power**.
- It has following components:
 1. **Strengthening of sub-transmission and distribution networks** in the urban areas;
 2. **Metering** of distribution transformers / feeders / consumers in the urban areas;
 3. **IT enablement of the distribution sector** and strengthening of the distribution network;
 4. Schemes for **Enterprise Resource Planning (ERP) and IT enablement** of urban towns;
 5. **Underground cabling** to include additional demand of States and **smart metering** solution and Solar panels on government buildings with **net-metering** are also permissible under the scheme.
 - *ERP refers to software and systems used to plan and manage all the core supply chain, manufacturing, services, financial and other processes of an organization.*
 - *Net metering is a mechanism which allows domestic or commercial users who generate their own electricity using solar panels or photovoltaic systems to export their surplus energy back to the grid.*

Broad Objective of the Scheme

- 24x7 Power supplies for consumers;
- Reduction of Aggregate technical and commercial losses (AT&C losses);
- Providing access to power to all households;

Eligible Utilities

- All Discoms are eligible for financial assistance under the scheme.

Funding pattern

- Government of India Grant = 60% (85% for special category States).

- Additional Grant = 15% (5% for special category States) - linked to achievement of milestones.
 - *Special category states include all North Eastern States, Sikkim, J&K, Himachal Pradesh and Uttarakhand.*

Nodal Agency

- **Power Finance Corporation (PFC)**, under the ownership of Ministry of Power, is the Nodal Agency for operationalization and implementation of the scheme under the overall guidance of the Ministry of Power.

Why in News?

- A 50 kWp Solar roof top was inaugurated in Solan, Himachal Pradesh under the Integrated power development scheme.

3) Nutrient Based Subsidy Scheme

Background

- Fertilizers are crucial productivity augmenting inputs. To meet the challenge of rising demand for food, feed, and fibre with limited land and water resources, it is imperative to augment land productivity and one way to do this is to make fertilisers easily accessible to farmers.
- With this end in view, the fertiliser sector in the country is subsidised.

Issues

- Crops require the right mix of three nutrients viz. **nitrogen, phosphorus, and potassium or NPK** (N helps in plant growth and development, P not only accelerates blooming and the growth of roots but also helps plants to withstand stress and K helps the process of photosynthesis and is essential to plant growth).
- Imbalanced use of N, P and K leads to the loss of fertility of the soil over a period of time, which affects efficiency of fertilizer use and crop productivity.
- In India, **urea** (a nitrogen based fertiliser) is the most commonly used

fertiliser because it is highly subsidised. The excessive use of nitrogenous fertilisers has led to a **distortion in the soil nutrient ratio**. Against the ideal NPK (Nitrogen-Phosphorus-Potassium) consumption ratio of **4:2:1**, the actual ratio in 2017-18 was **6.1:2.5:1**.

- Indiscriminate use of nitrogenous fertilizers is **detrimental to the soil and the crop**.
- It also **pollutes the groundwater**. The nitrogen from fertilizers, which is converted to nitrate by the bacteria in the soil, leaches into the groundwater and washes out of the soil surface, entering streams and rivers.

About NBS Scheme

- In order to promote balanced fertilization of soil, Nutrient Based Subsidy (NBS) programme for fertilizer was initiated in the year 2010. Under the scheme, a **fixed amount of subsidy decided on an annual basis** is provided on **each grade of subsidized Phosphatic and Potassic (P&K) fertilizers based on its nutrient content**.
- The scheme aims at ensuring **balanced nutrient application to the soil**.
- It also aims at improving agricultural productivity and promoting the growth of the indigenous fertilizers industry.
- The scheme is being implemented by the **Department of Fertilizers** under the **Ministry of Chemicals and Fertilizers**.

Fertiliser subsidy in India

- In India, the fertiliser subsidy accounts for the **second largest subsidy** after food.
- Currently, **Urea** is the **only controlled fertilizer and the government fixes the maximum retail price (MRP)**. The difference between the production cost and the MRP is reimbursed to manufacturers.
- Retail prices of **non-urea fertilisers** such as Di-ammonium Phosphate

(most widely used one after urea), Muriate of Potash (MoP) are **decontrolled and are determined by manufacturers, while the Centre gives a fixed subsidy each year**.

Why in the News?

- The Cabinet Committee on Economic Affairs has approved the proposal to hike subsidy rates for phosphorus and potassium-based fertilisers by 140% under the Nutrient Based Subsidy scheme.
- The estimated additional subsidy burden is around ₹14,775 crore, with the Centre emphasising that this is a one-time measure as part of COVID-19 relief.

Why was the subsidy given?

- In order to ensure farmers are not burdened with price rise, the government announced a subsidy.

Why did the price rise?

Heavily import dependent

- India's annual consumption of chemical fertilisers is around **60 million tonnes**, of which 32-33 million tonnes (about **55 per cent**) is **urea** and 9-10 million tonnes or about **15 percent** of the total chemical fertilisers consumed in the country is **Di-ammonium Phosphate**.
- While **domestic production** meets 75 percent of the country's urea requirement, it caters to only **40 to 50 per cent of the DAP needs**.
- The actual output of DAP is even lesser: though its domestic installed capacity is reported to be 10 million tonnes, annual output has veered around 4-5 million tonnes.
- Even for domestic production of DAP, India largely depends on imports of intermediate inputs, such as phosphoric acid, as the country does not have substantial extractable reserves of rock phosphates (except for Rajasthan)
- Thus India is heavily dependent on imports to meet its DAP requirement.

- The **price movements in the global markets exerted pressure on the domestic market**, which led to the price rise.

Initiatives

1) RAMP Program

What's in the news?

- The **World Bank** has approved a \$500 million program to **support MSMEs in India to increase liquidity access for viable small businesses impacted by COVID-19.**
- Known as the **Raising and Accelerating Micro, Small and Medium Enterprise (MSME) Performance (RAMP) Program**, the new initiative targets improvements in the performance of 5,55,000 MSMEs.
- The RAMP program will intensify efforts to support firms to return to pre-crisis production and employment levels, while laying the foundations for longer-term productivity-driven growth and generation of much-needed jobs in the MSME sector.

Significance

- The MSME sector is the backbone of India's economy, contributing around **30% of India's GDP and 50% of exports.**
- Out of some 58 million MSMEs in India, **more than 40 percent lack access to formal sources of finance.**
- The RAMP Program is the World Bank's second intervention in this sector, the first being the **\$750 million MSME Emergency Response Program**, approved in July 2020 to address the immediate liquidity and credit needs of millions of viable MSMEs severely impacted by the ongoing COVID-19 pandemic.

2) SAGE portal

What is in the news?

- The **Ministry of Social Justice and Empowerment** has launched the SAGE (Seniorcare Aging Growth Engine) portal for elderly persons.

About the Portal

- The SAGE portal will be a “**one-stop access**” of elderly care products and services by credible start-ups.
- It has been launched with a view to help such persons who are interested in entrepreneurship in the field of providing services for elderly care.
- The SAGE project aims to identify, evaluate, verify, aggregate, and deliver products, solutions and services directly to the stakeholders.
- The **Ministry will act as a facilitator**, enabling the elderly to access the products through these identified start-ups.
- The start-ups will be selected by an **independent screening committee** of experts. The selection would be on the **basis of innovative products and services**, which they should be able to provide across sectors such as health, housing, care centers, apart from technological access linked to finances, food and wealth management, and legal guidance.
- A **fund of upto Rs.1 crore as one-time equity** will be granted to each selected start-up.
- An allocation of Rs 25 crore has been made for the SAGE project in the current financial year i.e 2021-22.

Significance

- The **share of elders**, as a percentage of the total population in the country, is expected to increase from around **7.5% in 2001 to almost 12.5% by 2026**, and surpass **19.5% by 2050.**
- There is an urgent need to create a more robust elder care ecosystem in India, especially in the post-COVID phase.
- Keeping this need in mind, an amount of **Rs 100 crore** has been assigned by the government for the promotion of the **silver economy.**
 - *Silver Economy is defined as the market that is being developed*

around the needs of an ageing population, with a focus on innovation.

3) ADI PRASHIKSHAN portal

What's in the news?

- The **Ministry of Tribal Affairs** has launched the ADI PRASHIKSHAN portal recently.
- The portal aims to provide comprehensive information on training programmes conducted by Tribal Research Institutes (TRIs), different divisions of Tribal Ministry, National Society for Education of Tribal Students (NESTS), Centre of Excellences funded by Ministry of Tribal Affairs and National Tribal Research Institute.
- It is an initiative to **reach the remotest area using information technology so that tribal communities are able to have access to their rights and benefits.** It is an effort to bring Training Institutions, Organizations, Experts and Trainers together.
- The Ministry has developed the portal **in collaboration with the United Nations Development Programme.**

Related Information

About UNDP

- As the United Nations lead agency on international development, UNDP works in 170 countries and territories to eradicate poverty and reduce inequality.
- UNDP helps countries to develop policies, leadership skills, partnering abilities, institutional capabilities, and to build resilience to achieve the Sustainable Development Goals.
- UNDP's work is concentrated in **three focus areas: sustainable development, democratic governance and peace building, and climate and disaster resilience.**

4) Towards a stronger mental health strategy

CONTEXT

- Mental health issues are a major health challenge in the world today.
- According to the World Health Organization (WHO), there is a 10-25 year life expectancy reduction in patients with severe mental disorders.

INDIA'S POLICIES TO TACKLE MENTAL HEALTH ISSUES

- India introduced the **National Mental Health Policy (NMHP) in 2014** and a rights-based **Mental Healthcare Act in 2017**, which replaced the Mental Healthcare Act of 1987.
- The **NMHP, National Health Mission, National Adolescent Health Programme and Ayushman Bharat** have the necessary components to address the mental health issues of all sections of the population.
- Despite all above policies existing, there is a need for more to be done in the context of COVID-19, which has exacerbated mental illnesses everywhere.

MENTAL HEALTH INDICATORS

Globally

- Studies in **The Lancet Public Health (2019)** revealed that **median mental health spending across the world was around 2% of the total government health expenditure** in 2015.
- There was higher allocation in developed countries than in developing countries.

India

- In India, **the share of mental hospitals per 1,00,000 population is as low as 0.01** in line with developing countries, according to the WHO. This may possibly be due to the lack of focussed attention given to mental health compared to other major diseases in India.
- In the **distribution of mental health units** in general hospitals globally,

India was **ranked 114 with just 0.03 units per 1,00,000 population.**

- India was also at the **64th position in the distribution of mental health day treatment facilities.**
- **Nurses, social workers and psychologists working in the mental health sector** (per 1,00,000 population) in India are 0.796, 0.065, and 0.069, respectively. While, leading countries in each of these three areas have 150.3, 145.4, and 222.6 per 1,00,000 population.

MENTAL ILLNESS

- **Mental illnesses include anxiety disorders, psychotic disorders, mood disorders, substance use disorders, personality disorders and eating disorders.**
- The majority of suicides in the world are related to psychiatric problems or to the illnesses listed above.
- Death by suicide is a complex phenomenon and not fully reported. **Globally, the suicide rate was 10.6 per 1,00,000 population whereas in India, it was 16.3 per 1,00,000 in 2016.**
- The suicide rate was **higher among males compared to females.**

CHALLENGES IN INDIA

- There are several challenges regarding mental health in India like- **funding, delivery of mental health packages, lack of trained staff, etc.**
- Although mental health may not be the primary concern in developing economies like India (as here other communicable and non-communicable diseases may be more prevalent), in **recent times mental health issues have become widely prevalent among the Indian population due to lockdowns and related issues.**
- Recent reports published in Lancet revealed that **one in seven people in India had a mental disorder ranging from mild to severe** in 2017.

- Also, the proportional contribution of mental disorders to the total disease burden had doubled between 1990 and 2017.
- This **situation is worse in the southern States** compared to the northern States due to the nature of development, modernisation, urbanisation and other factors not understood yet.
- Depressive disorders were more prevalent among females than males which could be due to sexual abuse, gender discrimination, stress due to antenatal and postnatal issues and other reasons.

WHAT NEEDS TO BE DONE?

- India needs to **reduce the treatment gap** for mental disorders.
- There is a need to **increase the number of personnel** in the mental health sector.
- There is also a need to **reduce discriminatory attitudes, and devise an integrated approach** for detecting, treating, and managing patient needs.
- **More counselling facilities**, especially in rural areas, with special support for women through the provision of women doctors are needed.
- **More telemedicine, telephone-based helpline numbers**, and mental health apps could help.
- **Communities and families** have an important role in this regard and so do community-based programmes.
- **School-based programmes on mental health** can improve the mental health of children.
- **More fund allocation** for treatment of mental health, especially to those States in need of funds, could do wonders.
- There needs to be a **road map for mental health awareness.** This should include the traditional media, government programmes, the education system, industry, and social media.

- **Media awareness and government involvement** is already happening in India but both can improve.
- The **pandemic may be the best time to explore various policy options** including creating online mental health awareness.
- The application of **big data and crowdsourcing** ideas may help us in informed decision-making.

5) PENCiL Portal

About the portal

- The Platform for Effective Enforcement for No Child Labour (PENCiL) Portal is an electronic platform organised by the **Ministry of Labour and Employment** involving Centre, State,



- At district level **District Nodal Officers (DNOs)** are nominated to take action on the complaints of their respective districts. Complaints about child labour filed on PENCiL are forwarded to the DNOs for further action. Rescue measures are undertaken in coordination with police.
- Rescued children are sent to centres where they get an **education or are**

District, Governments, civil society and the general public in achieving the **target of child labour free society.**

- The portal was launched in 2017 under the Ministry of Labour and Employment's **National Child Labour Project (NCLP)**.
 - *NCLP is a Central Sector Scheme launched in 1988 to rehabilitate children indulged in child labour. Under the scheme District Project Societies (DPS) are set up at the district level under the Chairmanship of the Collector/District Magistrate for overseeing the implementation of the project.*

Rehab Route

Three levels of schooling provided for rescued children

Less than 8 years

Enrolled in schools under the Sarva Shiksha Abhiyan

8-14 years

Enrolled in special training centres

14-18 years

Enrolled in vocational training centres (non-hazardous industries)

imparted vocational training.

Children less than 8 years are enrolled in schools under the Sarva Shiksha Abhiyan; children in the 8-14 year bracket are sent to special training centres (STCs) and 14-18-year-olds are enrolled in vocational (skill) training centres.

- **India has 1.01 crore child labourers**, according to Census 2011, against 1.26 crore in 2001.

Why in the News?

- The government has appealed to citizens to report the instances of Child Labour on PENCIL Portal or by calling on **Childline-1098**, India's first 24 - hour, free, emergency phone outreach service for children in need of care and protection.
- The true extent of the impact of the COVID-19 pandemic on child labour is yet to be measured but all indications show that it would be significant as children are unable to attend school and parents are unable to find work.
- With increased economic insecurity, lack of social protection and reduced household income, children from poor households are being pushed to contribute to the family income with the risk of exposure to exploitative work.

Other related measures

The Child Labour (Prohibition & Regulation) Amendment Act, 2016

- The Act amends the Child Labour (Prohibition and Regulation) Act, 1986. It **completely prohibits the employment of children below 14 years**.
- The amendment also **prohibits the employment of adolescents in the age group of 14 to 18 years in hazardous occupations and processes** and regulates their working conditions where they are not prohibited.

Exceptions

- While the Act prohibits the employment of children below 14 years in any occupation or process, they are **allowed to work in two cases**.
 1. They can **help their families or family enterprises** if the work is not hazardous and only after school hours or during vacations.
 2. They can also **work as artists in an audio-visual entertainment industry** (including in

advertisements, films and television serials, or in sports activities other than circuses) if such work follows appropriate safety measures. Children can only do this kind of work if it does not affect their education.

Punishment

- Anyone who employs a child or adolescent or permits him/her to work without following the regulations mentioned in this Act and the Child Labour (Prohibition and Regulation) Act, 1986, can be **imprisoned from six months to two years or fined between Rs. 20,000 and Rs. 50,000, or both**.
- A person who has been convicted of a similar offence before can be imprisoned for 1-3 years. The parents or guardians of children or adolescents thus employed cannot be punished unless they violate the regulations mentioned in these Acts.

ILO Conventions

- Indian government further demonstrated its commitment to the elimination of child labour, by **ratifying International Labour Organization Conventions No. 138 and 182 in 2017**.

Convention No. 138

- The aim of ILO Convention No.138 (Minimum Age Convention, 1973) is the effective abolition of child labour by requiring countries to:
 1. Establish a minimum age for entry into work or employment; and
 2. Establish national policies for the elimination of child labour.

Convention No. 182

- Convention No. 182 (Worst Forms of Child Labour Convention, 1999) calls for the prohibition and elimination of the worst forms of child labour, including slavery, forced labour and trafficking. It prohibits the use of children in armed conflict, prostitution, pornography and illicit activities such

as drug trafficking, and in hazardous work.

6) 'Tying reforms, incentives helped widen adoption'

Background

- In May 2020, under the Aatmanirbhar Bharat package, the Central government allowed state governments to **hike their borrowing limits from 3% to 5% of Gross State Domestic Product (GSDP)**. However, the Centre attached conditions for the increased borrowing space, permitting **only 0.5 per cent of GSDP as an unconditional increase**.
- Rest, 1 per cent will be in four tranches of 0.25 per cent, with each tranche linked to expenditure on **'One Nation One Ration', urban local body revenues, power distribution, and ease of doing business reforms**.
- The last 0.5 per cent to be permitted if at least three of four milestones are reached.
- Twenty three States availed of additional borrowings of ₹1.06 lakh crore out of a potential ₹2.14 lakh crore.

Why in News?

- Prime Minister Narendra Modi recently said that India has moved from a model of 'reforms by stealth and compulsion' to a new model of 'reforms by conviction and incentives', referring to States being granted additional borrowing limits last year under a reform-linked window.
- Seventeen States that facilitated **ration-card portability** (Refer Pulse September 2020 edition) and installed **electronic point-of-sale devices at fair price shops** were granted additional borrowings amounting to ₹37,600 crore. Similarly, 20 States completed **reforms to ease the red tape** faced by businesses to avail borrowings of ₹39,521 crore.

- The third reform required States to **notify floor rates of property tax and of water & sewerage charges**, in consonance with stamp duty guideline values for property transactions and current costs respectively, in urban areas. 11 states completed these reforms and were granted additional borrowing of ₹15,957 crore.
- The least traction was seen for the Union government's reform idea of **replacing free electricity for farmers with a Direct Benefit Transfer**. States were asked to frame a scheme with actual implementation in one district on a pilot basis by the end of 2021, for an additional borrowing limit of 0.15% of GSDP. Loans worth another 0.10% of GSDP were linked to reducing the gap between revenues and costs and reducing technical and commercial losses in the power sector.
- 13 States implemented at least one component, while 6 States implemented the DBT component. As a result, ₹13,201 crore of additional borrowings was permitted.

7) NISHTHA

What is it?

- **National Mission to improve Learning Outcomes at the Elementary level- NISHTHA** is a national initiative for school heads and teachers' holistic advancement.
- It was launched in 2019 by the **Ministry of Education**.
- The basic objective of the training programme is to **build the capacities of more than 50 lakh participants** covering all teachers and heads of schools at the elementary level in all Government schools, faculty members of State Councils of Educational Research and Training (SCERTs), District Institutes of Education and Training (DIETs) as well as Block Resource Coordinators and Cluster

Resource Coordinators in all States and UTs.

- Teachers will get awareness and **develop their skills on various aspects** related to
 1. Learning Outcomes
 2. Competency-Based learning and Testing
 3. Personal-social qualities
 4. Inclusive Education
 5. Information and Communications Technology (ICT) in teaching-learning including Artificial Intelligence
 6. Initiatives in School Education including library, eco-club, youth club, kitchen garden, etc.
- The aim of this training is to motivate and equip teachers to encourage and foster critical thinking in students, handle diverse situations and act as first level counsellors.

Why in News?

- The Ministry of Tribal Affairs and the National Council of Educational Research and Training (NCERT), recently collaborated on a joint mission for the NISHTHA capacity-building programme for **Eklavya school teachers and principals**.
- Under the programme, teachers and principals from 120 Eklavya Model Residential Schools (EMRSs) from 3 States (Himachal Pradesh, Madhya Pradesh, and Chhattisgarh) participated in the first batch of the programme.

About EMRS

- The scheme of Eklavya Model Residential Schools (EMRSs) was introduced in the year 1997-98 with an objective **to provide quality middle and high-level education to Scheduled Tribe (ST) students in remote areas** in

order to enable them to avail of reservation in high and professional educational courses and get jobs in government and public and private sectors.

- The schools focus not only on academic education but on the **all-round development of the students**. Each school has a capacity of 480 students, catering to students from **Class VI to XII**.
- It has been decided that by the year 2022, **every block with more than 50% ST population and at least 20,000 tribal persons**, will have an EMRS.
- EMRS are set up in States/UTs with grants under **Article 275(1)** of the Constitution of India.
- The scheme is being implemented by the **Ministry of Tribal Affairs**.

8) SATAT Initiative

About SATAT Initiative

- The SATAT (Sustainable Alternative Towards Affordable Transportation) initiative was launched by the **Ministry of Petroleum and Natural Gas** in 2018 for **boosting production and availability of Compressed BioGas (CBG)** as an alternative and affordable clean fuel for the **transportation sector**.
- The scheme envisages setting up of **5000 CBG plants by FY 2023-24**.

Expected Benefits

- SATAT aims to establish an ecosystem for the production of Compressed BioGas from various waste and biomass sources in the country leading to multiple benefits viz. **reduction of natural gas import, reduction of GHG emission, reduction in burning of agriculture residues, remunerative income to farmers, employment generation, effective waste management etc.**

Impacts

- If 5000 plants targeted by 2023-24 are achieved, 15 million tonnes of CBG will be produced, which is enough to **reduce the country's CNG import bill by 40 per cent.**
- Over 70 CBG plants under construction across Punjab, Haryana and Uttar Pradesh, notorious for stubble burning, will **consume 1.3 million tonnes of crop residues a year, mostly paddy stubble.**
- CNG's **solid by-products can be used as bio-manure.**
 - Estimates show the 5,000 planned CBG plants will generate **50 million tonnes of bio-manure a year.**
 - According to the Punjab Agricultural University, **bio-manure** produced using paddy straw can result in a 20 per cent increase in crop yield. Bio-manure produced from paddy straw also has a **high water retention capacity** that helps reduce irrigation requirements.
- The **other by-product is CO₂.** It can be tapped while purifying the

biogas and used to produce liquid or solid CO₂, which have **high demand for food preservation** or to be used in **fire extinguishers.**

How is Compressed BioGas (CBG) produced?

- Producing CBG from biomass involves a two-pronged approach: **Anaerobic decomposition and Purification.**
 - First, Biogas is produced through anaerobic decomposition of biomass. Since biogas contains 55 to 60 per cent **methane**, 40 to 45 percent **carbon dioxide (CO₂)** and trace amounts of **hydrogen sulphide**, the second process involves purifying the gas to remove carbon dioxide and hydrogen sulphide gases to prepare CBG.

Why in News?

- The Ministry of Petroleum and Natural Gas signed a Cooperation Agreement with Oil and Gas majors including IndianOil, HPCL, BPCL, GAIL and IGL, for the promotion and development of the SATAT scheme.

Environment

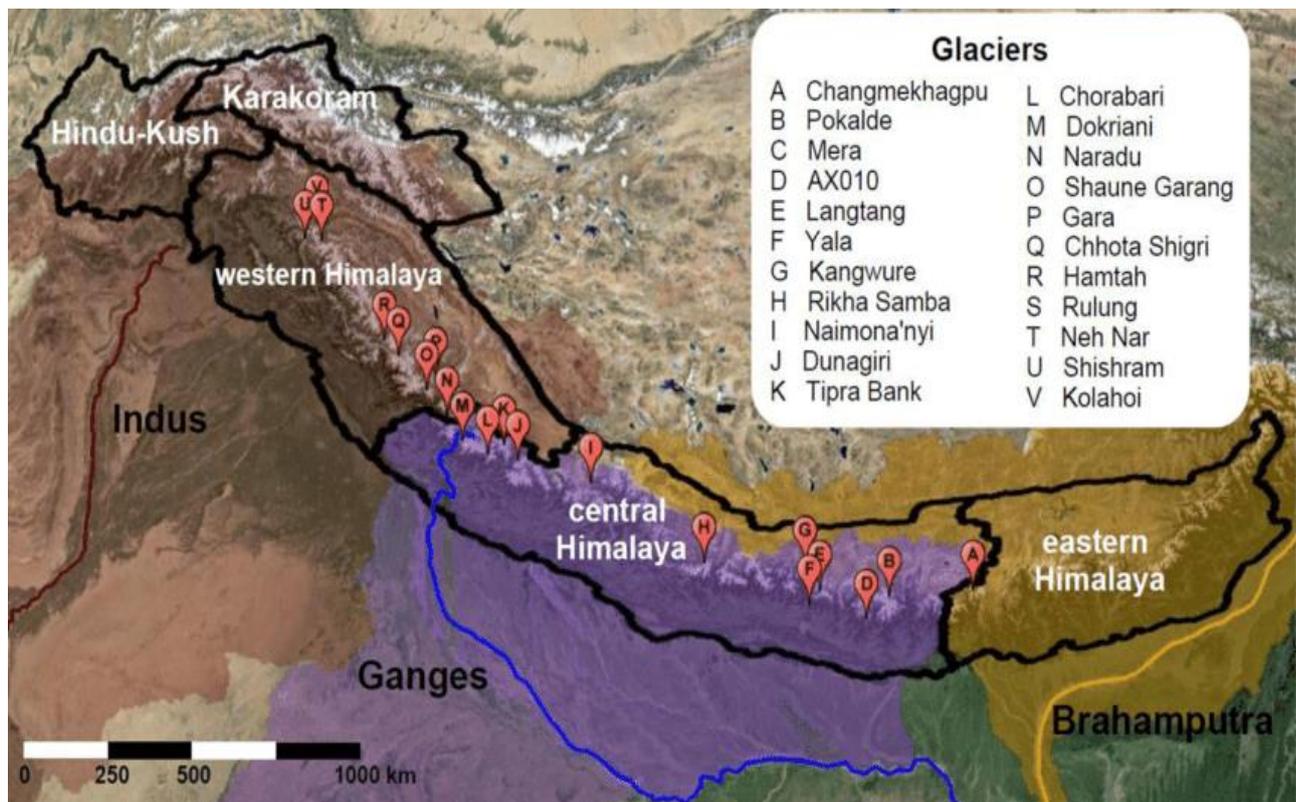
1) Black carbon

About Black Carbon

- Black carbon, or soot, is part of fine particulate air pollution (PM2.5) and contributes to climate change.
- Black carbon (BC) is **formed by the incomplete combustion** of fossil fuels, wood and other fuels. Complete combustion would turn all carbon in the fuel into carbon dioxide (CO₂), but combustion is never complete and CO₂, carbon monoxide, volatile organic compounds, and organic carbon and black carbon particles are all formed in the process.

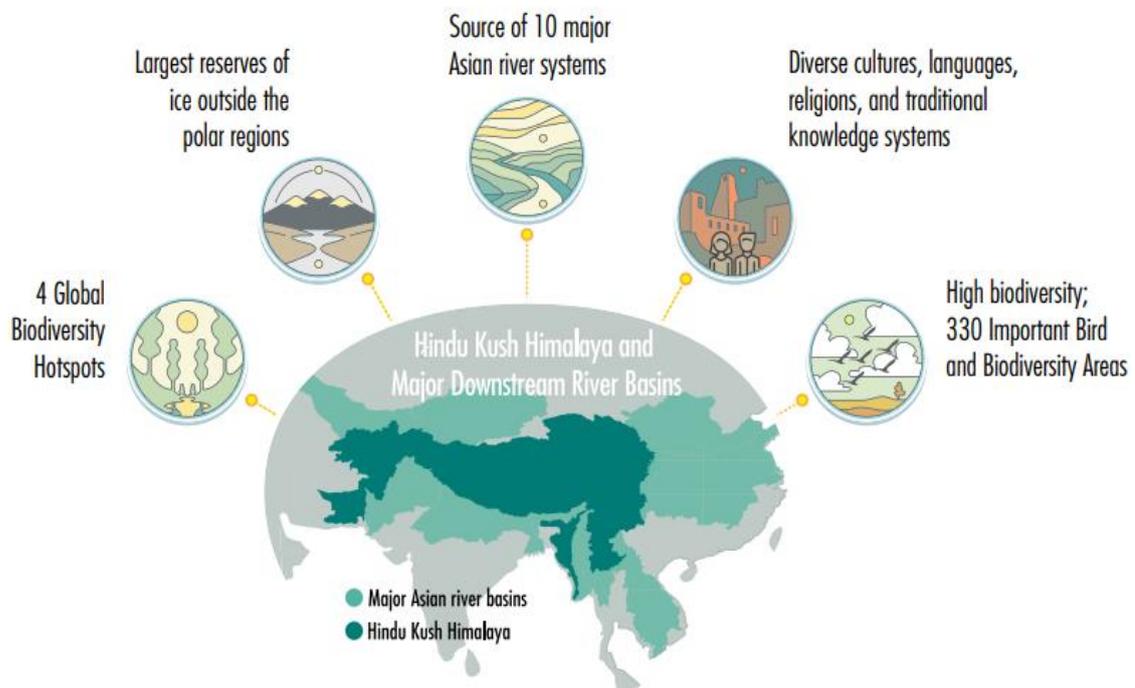
- Black carbon is a **short-lived climate pollutant** with a lifetime of only days to weeks after release in the atmosphere. During this short period of time, black carbon can have **significant direct and indirect impacts on the climate, the cryosphere (snow and ice), agriculture and human health.**
- Both **India and China** are the largest emitters of black carbon in the world, with emissions of up to 25-35 per cent. These figures are expected to increase dramatically in the coming decades.

About Himalaya, Karakoram and Hindu Kush (HKHK) mountain ranges



- The HKHK mountain ranges span 2,400 kilometers across **six nations** (Afghanistan, Bhutan, China, India, Nepal, and Pakistan).
- There are almost 55,000 glaciers in the HKHK mountains, and they **store**

more freshwater than any other region outside the North and South Poles.



240 million

people depend directly on the HKH for their lives and livelihoods

1.9 billion

people depend on the HKH for water, food, and energy

> 35%

of the world population benefits indirectly from HKH resources and ecosystem services

- The glaciers contain estimated ice reserves of 163 cubic kilometres, of which almost **80% feeds the Indus, the Ganges and the Brahmaputra**. Snow and glacier melt from the HKHK play an important role in the timing and magnitude of water availability within the region.

How black carbon is affecting the glacier melt?

- Deposits of BC act in two ways hastening the pace of glacier melt:
 - ✓ By decreasing surface reflectance of sunlight (albedo effect)
 - ✓ By raising the air temperature.

Sectors contributing Black carbon in Himalayan region

- Industry** [primarily brick kilns] and **residential burning of solid fuel** together account for 45–66% of regional anthropogenic [man-made] BC deposition, followed by **on-road diesel fuels** (7–18%) and **open**

burning (less than 3% in all seasons) in the region.

Impacts

- Glacier melt produces **flash floods, landslips, soil erosion, and glacial lake outburst floods (GLOF)**, and in the short run, the higher volumes of melt water could replace receding groundwater downstream. But in the long run, decreased water availability would aggravate water shortage.
- Changes in the atmospheric composition of the high Himalayas will **affect rain and snow precipitation patterns**. Accordingly, **natural resources and socio-economic activities** of Himalayan communities will also be affected.
- The **rate of retreat of HKHK glaciers is estimated to be 0.3 metres per year in the west to 1.0 metre per year in the east**.
- Black carbon also **adds to the impact of climate change**.

Why in News?

- The World Bank's South-Asian Development Forum has recently published a report titled "**Glaciers of the Himalayas Climate Change, Black Carbon, and Regional Resilience**".
- The report has pointed out that with collaborative approach of all regional governments the effects of Black Carbon in the Himalayan region can be reduced by 50% from current levels.

Measure to decrease black carbon emission given in the report

- Enhancing fuel efficiency standards for vehicles;
- Phasing out diesel vehicles and promoting electric vehicles;
- Accelerating the use of liquefied petroleum gas for cooking and through clean cookstove programmes;
- As well as upgrading brick kiln technologies;
- Reducing black carbon emissions from cookstoves, diesel engines, and open burning;
- Greater knowledge sharing in the region and regional governments coming together on the policies of water management.

Way Forward

- BC is a short-lived pollutant that is the **second-largest contributor to warming the planet behind carbon dioxide (CO₂)**.
- Unlike other greenhouse gas emissions, BC is quickly washed out and can be eliminated from the atmosphere if emissions stop.
- Even a minor change of 1 degree Celsius will result in a major decrease in the area under snow cover along Himalayan glaciers, along with a major loss to flora and fauna. Hence, the action of **banning fossil fuels or the introduction of glacier tax** can be a deterrent in these high altitude areas.

2) Why do mangroves matter?

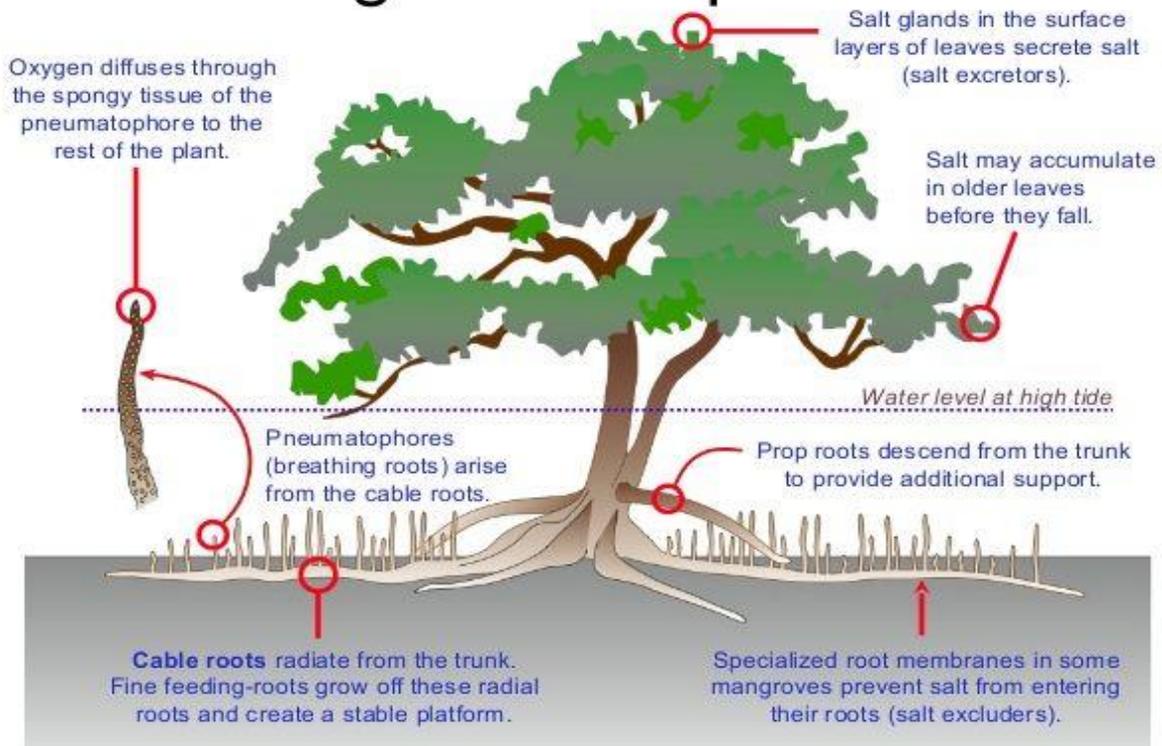
What is Mangrove?

- Mangrove swamps are coastal wetlands found in **tropical and subtropical regions**.
- Mangroves belong primarily to the families **Rhizophoraceae, Acanthaceae, Lythraceae, Combretaceae, and Arecaceae**.
- They are characterized by **halophytic** (salt loving) trees, shrubs and other plants growing in **brackish to saline tidal waters**.
- These wetlands are often found in **estuaries**, where fresh water meets salt water.

Adaptation mechanisms

- Many mangroves characteristically have **prop roots** descending from the trunk and branches, providing a stable support system in the submerged conditions.
- Many mangrove species survive by **filtering** out as much as 90 percent of the salt found in seawater as it enters their roots. Some species excrete salt through glands in their leaves.
- Some mangroves have pencil-like roots called **pneumatophores** that grow out from the water surface. Pneumatophores facilitate the aeration necessary for root respiration in mangroves.
- Mangroves, like desert plants, store fresh water in thick **succulent leaves**. A **waxy coating** on the leaves seals in water and minimises evaporation.
- **Mangroves are viviparous**, their seeds germinate while still attached to the parent tree. Once germinated, the seedling grows into a propagule. The mature propagule then drops into the water and gets transported to a different spot, eventually taking root in a solid ground.

Mangrove Adaptations



Significance of mangroves

- A **wide diversity of plants and animals** are found in mangrove swamps. Since these estuarine swamps are constantly replenished with nutrients transported by fresh water runoff from the land and flushed by the ebb and flow of the tides, they support a bursting population of bacteria and other decomposers and filter feeders.
- Because mangroves create dense foliage and close proximity of trees, they **protect shorelines from damaging winds and waves**. A series of studies in the early 2000s discovered that mangroves with an average height of 6-10 metres could shorten a cyclone's waves by 60%.
- Their protective role has been widely recognized especially after the devastating **Tsunami of 2004**.
- Mangrove forests **stabilize the coastline**, and help **prevent erosion** by stabilising sediments with their tangled root systems.

- Mangroves also have a **big impact on climate**. Mangroves are powerhouses when it comes to carbon storage. Studies indicate that mangroves can **sequester greater amounts of carbon** than other trees in the peat soil beneath. They store this carbon for thousands of years.
- The intricate root system of mangroves also makes these forests attractive to fish and other organisms seeking food and shelter from predators.
- Many people living in and around mangroves **depend on them for their livelihood**. The trees are a source of wood for construction and fuel. The ecosystem provides local fishermen with a rich supply of fish, crabs and shellfish. The ecosystem also supports tourism.

Where are mangrove ecosystems found?

- Mangroves can be found in more than 120 countries and territories in the tropical and subtropical regions of the

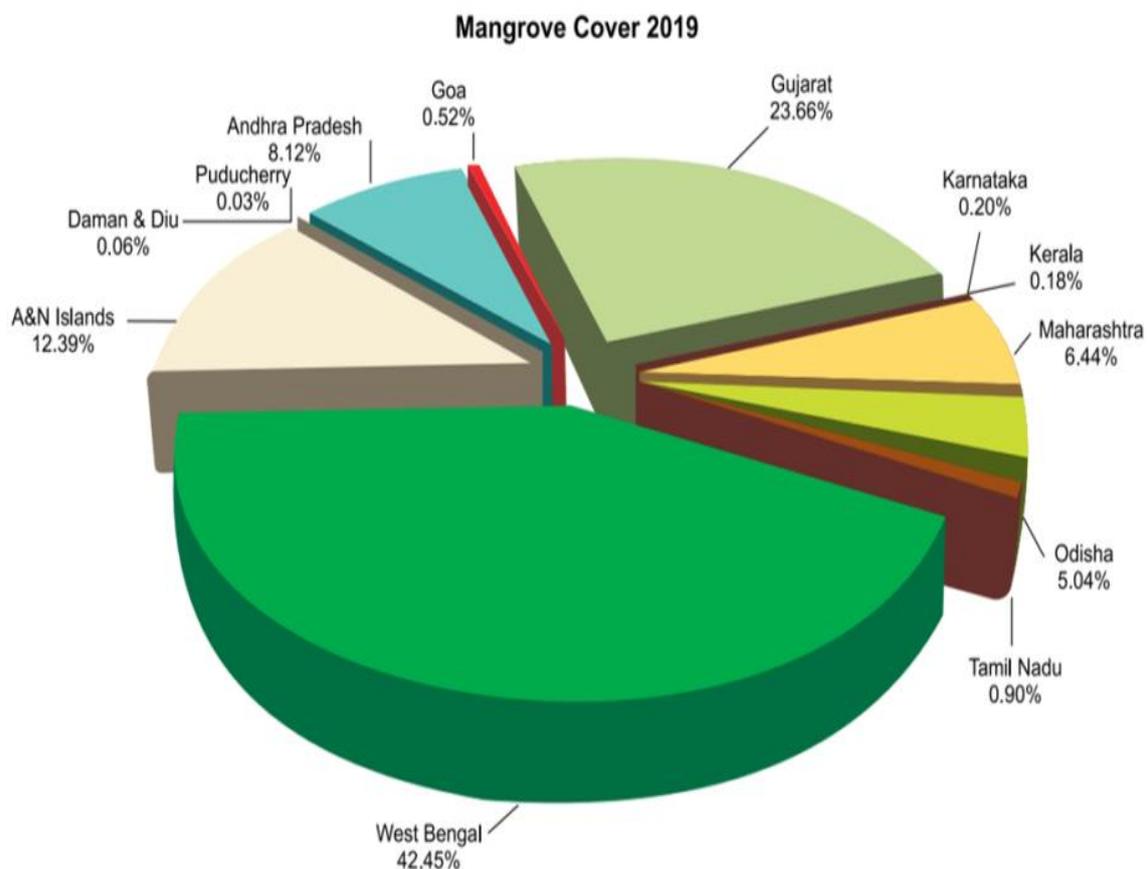
world. The **largest extent of mangroves is found in Asia (42%)** followed by Africa (20%), North and Central America (15%), Oceania (12%) and South America (11%).

- In India, the **deltas of the Ganges, Mahanadi, Krishna, Godavari, and the Cauvery rivers** contain mangrove forests.
- The **Sundarbans in West Bengal is the largest mangrove region in the world** and a **UNESCO World Heritage**

Site. It spans from the Hooghly River in West Bengal to the Baleswar River in Bangladesh.

- **Gulf of Kachchh** harbours one of the major mangrove formations of India. **Pichavaram in Tamil Nadu** has a vast expanse of water covered with mangrove forests. It is home to many aquatic bird species.
- The **backwaters in Kerala** also have a high density of mangrove forest.

FIGURE 3.1 Pie Chart showing Mangrove Cover in different States & UTs



What are the threats to mangroves?

- Scientists estimate that **at least one third of all mangrove forests has been lost during the last few decades.** Coastal development, including construction of shrimp farms, hotels, and other structures, is the primary threat to mangroves.

- Mangrove forests are cleared to make room for agricultural land and human settlements.
- Mangrove trees are used for firewood, construction wood, charcoal production, and animal fodder. In some parts of the world, there has been overharvesting which is no longer sustainable.

- Overfishing, pollution, and rising sea levels are the other threats to mangrove forests and their ecosystem.

Why in the news?

- In the wake of back-to-back cyclones, experts highlight the importance of mangrove forests in protecting the coastal regions against the damaging effects of storms.
- India was hit by back-to-back cyclones in May 2021. While Cyclone Tauktae formed in the Arabian Sea and affected coastal districts in Kerala, Karnataka, Goa, Maharashtra and Gujarat, Cyclone Yaas formed in the Bay of Bengal and ravaged parts of Odisha and West Bengal.
- Scientists highlighted the **impact of climate change in the intensification and frequency of tropical storms that hit India**. And they also brought attention to the **role played by mangrove forests in reducing the impact in Odisha, West Bengal and Mumbai**.
- Although there were losses to lives and property, mangroves safeguarded people and the inland against the severe storm surges of the cyclones.

3) Two new National Parks for Assam

National Parks and wildlife sanctuaries

- Wildlife sanctuaries and National Parks are areas of significant ecological, floral, faunal or natural significance.
- They are **notified by State Governments** after consultation with the **State Board for Wildlife**.
- The **Central Government can also declare** a sanctuary anywhere in India after consultation with the **National Board for Wildlife**.
- They are protected under the provisions of the **Wildlife (Protection) Act, 1972**.

- There are around 104 national parks and 566 wildlife sanctuaries in India (as of December 2020).
- While most of the provisions are common for Sanctuaries and National Parks, there are **three key differences**:
 1. People within a National Park are not allowed to live, while in a Sanctuary **certain rights** can be allowed.
 2. **Livestock grazing** is prohibited in a National Park but can be allowed in a regulated manner in Sanctuaries
 3. A Sanctuary can be upgraded to a National Park but a National Park cannot be downgraded as a Sanctuary.

Why in News?

- The Assam government has notified two new national parks for the state namely - **Dihing Patkai National Park and Raimona National Park**.
- Assam had five national parks — **Kaziranga, Nameri, Orang, Manas and Dibru-Saikhowa**. With the above two, Assam ranks third in the country with 7 national parks.
- **Madhya Pradesh** has 12 national parks (highest in the country), followed by **Andaman and Nicobar Islands (UT)**, which has 9 National Parks.

Dihing Patkai National Park

- It encompasses the erstwhile Dehing Patkai Wildlife Sanctuary, the Jeypore Reserve Forest and the western block of the Upper Dihing Reserve Forest.
- Dehing is the name of the river that flows through the reserve and Patkai is the hill at the foot of which the sanctuary lies.
- The Dehing Patkai forest area is often referred to as "**The Amazon of the east**" owing to its large area and thick wet tropical evergreen forests.
- Apart from the fact that it is a contiguous patch of rainforest, it is also

the place with the highest concentration of the rare endangered **White Winged Wood Duck**. It is also a **major elephant habitat** and has 310 species of butterflies.

- The Dehing Patkai Forest is one of the most important forests of Assam in terms of **orchid diversity**. So far, 101 species of orchids within 45 genera have been recorded there.

Raimona National Park

- This National Park adjoins the Buxa Tiger Reserve in West Bengal to its west, Phipsoo Wildlife Sanctuary in Bhutan to its north and Manas National Park to the east.
- Raimona is home to the golden langur, elephant, tiger, clouded leopard and Indian gaur besides sustaining several species of orchids, more than 150 species of butterflies, 170 species of birds and 380 species of plants.
- **Sankosh and Saralbhanga Rivers** flow through this park.

4) United Nations Convention to Combat Desertification

What is Desertification?

- Desertification is a **gradual process of land degradation** in arid, semi-arid and dry sub-humid regions resulting from various factors, including human activities and climatic variations such as prolonged droughts and floods.
- The concept does not refer to the physical expansion of existing deserts but rather to the various processes that threaten all dryland ecosystems.

Land Degradation & Land Desertification

- Land degradation is caused by multiple forces, including extreme weather conditions particularly drought, and human activities that pollute or degrade the quality of soils and land utility negatively affecting food production, livelihoods, and the

production and provision of other ecosystem goods and services.

- Desertification is defined as “a **type of land degradation** in which a relatively dry land region becomes increasingly arid, typically losing its bodies of water as well as vegetation and wildlife.”

Causes for desertification

- Overgrazing
- Indiscriminate urbanization
- Overdrafting of groundwater
- Deforestation
- Tillage practices in agriculture
- Insecticide and pesticide overuse

Impacts of desertification

- As land is degraded, **food production is reduced**.
- As water sources dry up, populations are pressured to move to more hospitable areas resulting in **large scale migration** to urban centres putting pressure on limited resources in urban areas.
- Forests, Trees, Vegetation Cover, Soil Organic Compounds are important sinks of Carbon dioxide – Land degradation **reduces the amount of Carbon dioxide absorbed**.

Impacts on Health

- Higher threats of **malnutrition** from reduced food and water supplies.
- More **water- and food-borne diseases** that result from poor hygiene and a lack of clean water.
- **Respiratory diseases** caused by atmospheric dust from wind erosion and other air pollutants.
- The **spread of infectious diseases** increases as populations migrate.

More on desertification

- The **International Resource Panel**, a scientific body hosted by the UN Environment Programme, said **about 25% of the World's Land area is degraded**.
- 40% of the world's population is impacted negatively because of land degradation.

- It said the rate of soil erosion is 100 times faster than the rate of soil formation.
- Annual area of drylands has increased at more than 1% every year in the last 50 years.

Status in India

- India faces a severe problem of land degradation, or soil becoming unfit for cultivation.
- As per ISRO, **nearly 30% of land in the country is degraded.**
- India hosted the **14th session of Conference of Parties (COP 14)** of United Nations Convention to Combat Desertification (UNCCD) in September 2019.
- India is striving towards achieving the national commitments of **Land Degradation Neutrality (LDN)** and **restoration of 26 Million ha of degraded land by 2030** which focus on sustainable and optimum utilisation of land resources.
 - *LDN is a state whereby the amount and quality of land resources, necessary to support the ecosystem functions and enhance food security, remain stable or increase within specified temporal and spatial scales and ecosystems.*
- The government of India has adopted a collective approach for making progress towards achieving the national commitments related to land restoration.

What is UNCCD?

- The United Nations has three major Conventions: **the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD).**
- These conventions were the result of the 1992 UN Conference on Environment and Development in Rio de Janeiro, also called the **Earth Summit.**

- Established in **1994**, the UNCCD is the **sole legally binding international agreement linking environment and development to sustainable land management.**
- The Convention **specifically addresses the arid, semi-arid and dry sub-humid areas, known as the drylands**, where some of the most vulnerable ecosystems and peoples can be found.
- The Convention has 197 parties including **India.**

Why in the news?

- The Minister of State for Environment, Forest and Climate Change released the latest version of **Desertification and Land Degradation Atlas of India.** It has been published by **Space Application Centre, ISRO, Ahmedabad.**
- The Atlas provides a state wise area of degraded lands for the time frame 2018-19. It also provides the change analysis for the duration of 15 years, from 2003-05 to 2018-19.
- This will be helpful in achieving land restoration targets by providing important baseline and temporal data and technical inputs.

5) Initiative to conserve sacred groves

What are sacred groves?

- Sacred groves comprise patches of forests or natural vegetation – from a few trees to forests of several acres – that are **usually dedicated to local folk deities.**
- These spaces are **protected by local communities** because of their religious beliefs and traditional rituals that run through several generations.
- A strong concentration of these groves is found in **Himachal Pradesh and Kerala.**

Significance

- **Conservation of Biodiversity:** The sacred groves are important

repositories of floral and faunal diversity that have been conserved by local communities in a sustainable manner. They are often the last refuge of endemic species in the geographical region.

- **Recharge of aquifers:** The groves are often associated with ponds, streams or springs, which help meet the water requirements of the local people. The vegetative cover also helps in recharging the aquifers.
- **Soil conservation:** The vegetation cover of the sacred groves improves the soil stability of the area and also prevents soil erosion.
- **Source of local medicine:** The local tribal population rely upon some plants in the sacred groves to heal themselves.
- **Carbon sink:** The groves act as an effective carbon sink and are also a self-sustainable ecosystem, which reinforce scientific reasons for conservation.

Threats

- Increasingly, the sacred groves are facing threats from the biotic pressure due to **weakening of traditional taboos and belief systems and invasion of exotic weeds.**
- **Indiscriminate grazing** in the last few decades, **uncontrolled felling of trees** for firewood and **urbanization** have also contributed to the dwindling of groves.

Why in the news?

- A Puducherry based non-profit, Indigenous Biodiversity Conservation has started an initiative called 'Uyir Moochu' towards eco-restoration of the sacred grooves around Puducherry.
- As a part of the initiative, the organisation is collecting the seeds of the vulnerable plants of sacred groves and raising them in the nursery.
- The local communities are made aware about the sacred groves and their

importance, further the nursery grown plants are distributed among the communities. Their main objective is to strengthen the bond that the local communities shared with the sacred groves.

6) Gross Environment Product

What is GEP?

- Gross Environment Product (GEP) is a measure that allows **monitoring of ecological growth parallel to economic growth** which is measured using the gross domestic product or GDP.

GEP and GDP

- GDP is the sum of whatever we produce every year within a boundary of a state or a nation.
- Gross Ecosystem Product is the **total value of products and services that are produced within a functional living ecosystem** and are essential for human welfare and sustainable development.
 - For example, a tree is a source of oxygen, timber, shade, fodder, shelter, it regulates water, fixes nitrogen, controls flood, improves soil quality, and so on. All these are invisible services offered by the living ecosystems throughout the year and can be captured using specific indicators.

Why is GDP not sufficient?

- **GDP is not adjusted for pollution costs.** If two economies have the same GDP per capita, but one has polluted air and water, it will have a disparate impact on people's well-being. Yet GDP won't capture it.

How will GEP help?

- It will update us about the growth of forest, soil and water, and quality of air, in any given year, parallel to GDP.
- Therefore, it will **help understand if development is happening at the cost of ecology.**

- This will help maintain a **balance between economy and ecology**. Currently, we are unaware how long natural resources will support us.

Why in News?

- Uttarakhand is set to become the first state in the country to measure Gross Environment Product for quantifying ecological growth measurement.
- GEP would be computed by assigning monetary value to four critical natural resources -- **air, water, forest and soil**.
- The quality and quantity of these natural resources would determine the GEP of the state which would be used in evaluating the state's Gross Domestic Product.

7) Heatwaves

About heat waves

- A Heat Wave is a **period of abnormally high temperatures**, more than the normal maximum temperature that occurs during the summer season in the **North-Western parts of India**.
- Heat Waves typically occur between **March and June**, and in some rare cases even extend **till July**.

Criteria for heat waves

- The **Indian Meteorological Department (IMD)** has given the following criteria for Heat Waves :
 - Heat wave is considered if the maximum temperature of a station reaches **at least 40°C or more for Plains and at least 30°C or more for Hilly regions;**
 - **Based on Departure from Normal**
 - ✓ Heat Wave: Departure from normal is 4.5°C to 6.4°C
 - ✓ Severe Heat Wave: Departure from normal is >6.4°C
 - **Based on Actual Maximum Temperature**

- ✓ Heat Wave: When actual maximum temperature $\geq 45^\circ\text{C}$

- ✓ Severe Heat Wave: When actual maximum temperature $\geq 47^\circ\text{C}$

- **For coastal regions**, when maximum temperature departure is 4.5°C or more from normal, Heat Wave may be described provided the actual maximum temperature is 37°C or more.
- Higher daily peak temperatures and longer, more intense heat waves are becoming increasingly frequent globally due to climate change. India too is feeling the **impact of climate change** in terms of **increased instances of heat waves which are more intense in nature with each passing year**, and have a devastating impact on human health thereby increasing the number of heat wave casualties.
- The health impacts of Heat Waves typically involve dehydration, heat cramps, heat exhaustion and/or heat stroke. The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they cause physiological stress, sometimes resulting in death.

Duration of a heatwave spell

- A heatwave spell generally lasts for a minimum of four days and on some occasions, it can extend up to seven or ten days.
- The longest recorded heat wave spell, in recent years, was between 18 – 31 May 2015. This spell had severely affected parts of West Bengal along with Odisha, Andhra Pradesh, and Telangana.

Does all of India experience heatwave conditions?

- **No**. Heat waves are common over the **Core Heatwave Zone (CHZ)** — Rajasthan, Punjab, Haryana,

Chandigarh, Delhi, West Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Orissa, Vidarbha in Maharashtra, parts of Gangetic West Bengal, Coastal Andhra Pradesh and **Telangana, as categorised by India Meteorological Department.**

- Several recent studies indicate that the CHZ experiences more than **six heatwave days per year** during these four months.
- Many places in the northwest and cities along the southeastern coast report **eight heatwave days per season.**
- However, the regions in the **extreme north, northeast and southwestern India are less prone to heatwaves.**

Why in the news?

- The India Meteorological Department has projected severe heatwave conditions in the northwest part of the country during June.

8) Sea snout outbreak in Marmara Sea

What's in the news?

- Amid the growing environmental concerns in regards with global warming, Turkey has witnessed some unprecedented sludge in its sea water.
- The **Sea of Marmara**, which **connects the Aegean Sea and Black Sea**, has witnessed **marine mucilage accumulation** (commonly known as **sea snout**) and become a cause of grave concern for Turkey as it has blanketed harbors and shorelines.



What is Sea snout?

- Sea snout is a slimy layer of grey/green sludge that is formed by dead and living organic material. It is formed when **algae present in the water becomes overloaded with nutrients.** The increase in these nutrients is a **result of water pollution as well as climate change impact.**
- Water pollution through **uncontrolled dumping of household and industrial waste** adds to the problem.
- Global warming causes water to be warm and algae feast on it, resulting in more nutrients. Phytoplankton are overproduced leading to formation of thick and slimy layers of organic matter.
- It is to note that this is not the first time a 'sea snout' outbreak has taken place. The formation was first recorded in 2007 in the **Aegean Sea** near Greece. However, the current outbreak is **much more severe** when compared to the previous one.

Threats

- The mucilage is problematic as it poses a **threat to the marine ecosystem of Turkey.** It has been found that fishes in masses have been killed along with other aquatic organisms like corals and sponges.
- Initially, the mucilage was covering the sea surface and now it has spread 80-100 feet below the water surface as well. If this collapses to the bottom and stagnates on the seafloor, a major damage can be caused. After some time, it **can poison all aquatic life** there including crabs, fishes, oysters, mussels and sea stars.
- Apart from this, the **livelihoods of fishermen** have also been impacted. The sludge keeps getting

in their nets, due to which they are not able to catch fishes.

Marmara Sea

- The Sea of Marmara **connects the Black Sea to the Aegean Sea**, which is an important trade route for the region.
- The sea was formed as a result of crustal movements that occurred about 2.5 million years ago. It is an area of frequent earthquakes.



Important Straits:

- **Dardanelles Strait:** Joins Aegean sea with Marmara Sea.
- **Bosphorus Strait:** Joins Black sea with Marmara Sea.

Species in News

1) Pact signed to conserve rare turtle in Assam

Black softshell turtle



- The Black Softshell Turtle (*Nilssonina nigricans*) is a **Critically Endangered freshwater** species native to **Bangladesh and India**.
- But it **does not enjoy legal protection** under the Indian Wildlife (Protection) Act of 1972, although it has traditionally been hunted for its meat and cartilage, traded in regional and international markets.
- Until recently, it was considered **Extinct in the Wild** on account of no known wild populations. The International Union for Conservation of Natures (IUCN), however, changed the status to '**critically endangered**' after surveys found a few remnant populations inhabiting the Brahmaputra River basin of Northeast India.
- The majority of this species' population resides **amongst sacred temple ponds** in its two native countries.

Why in News?

- Two green NGOs and the Kamrup district administration of Assam have signed a memorandum of understanding (MoU) with **Hayagriva Temple** of Kamrup district to work for a conservation project to protect black softshell turtles.
- This temple is **sacred to both Hindus and Buddhists**.

Hayagriva Temple

- Constructed in the 16th century, it is located in the city of Hajo, near the northern bank of the Brahmaputra River in western Assam. It is a Vishnu temple.
- Some Buddhists, particularly those in parts of Tibet and China, believe this is where the Buddha attained parinirvana, or the passing away from earthly life, and not in Kushinagar in India.
- **Need to protect:** The turtles are conserved in temple ponds only based on religious grounds, many biological requirements for building a sustainable wild population have since long been overlooked.

What does this project include?

- It aims to **rehabilitate black softshell turtles back to the wild**.
- **Undertake husbandry tasks** to increase the number of turtles.
- Conduct **mass awareness programs** on the conservation issues of all species of turtles in the region while working on threats and opportunities to strengthen the black softshell turtle population in Assam.

2) Blue Whales

About

- The blue whale is the **largest animal** on the planet, weighing as much as 200 tons. They are also the **loudest animals** on Earth.
- Blue whales live within all of the major oceans of the world, primarily in **temperate and polar waters**.
- Blue whales primarily feed almost exclusively on tiny crustaceans known as krill.

Protection status

- The IUCN Red List of Threatened Species lists Blue Whale as "**Endangered species**".

- It is listed under **Appendix I** of the Convention of International Trade in Endangered Species of Wild Fauna and Flora. It falls in **Schedule I** of the Wildlife (Protection) Act, 1972.

Threats

- Despite the ban on hunting, blue whales face a number of threats, all of which are caused by humans. These threats include **entanglement in fishing gear, collisions with ships, and habitat impacts**.
- Another form of threat is **noise pollution**. Whales' primary means of communication, navigation, locating food, locating mates, and avoiding predators and other threats is through their sense of hearing, which is much more highly developed than that of humans. Noise pollution created by ship traffic or offshore construction negatively impacts whales by disrupting otherwise normal behaviours associated with migration, feeding, alluding predators, rest, breeding, etc.

Why in News?

- For the first time, researchers have detected the presence of blue whales off **Lakshadweep**.

Significance

- Whales are at the top of the food chain and have an important role in the overall health of the marine environment.
- Blue whales are endangered and efforts to protect them are underway. Now that their presence in Lakshadweep is confirmed, the island must be included in all whale conservation plans.

Related information

International Whaling Commission (IWC)

- The IWC is the global body charged with the conservation of whales and the management of whaling (the process of hunting of whales for their usable products).
- It was set up in **1946** under the **International Convention for the Regulation of Whaling (ICRW)**.
- The IWC currently has 88 member governments from countries all over the world (including **India**).
- The main duty of the IWC is to keep under review and revise as necessary the measures laid down in the Schedule to the Convention which govern the conduct of whaling throughout the world.

Agriculture

1) Kisan Rail services

About

- Kisan Rail service was announced in the Union Budget 2020-21 to **provide better market opportunity by transporting perishables and agri-products**, including milk, meat, and fish.
- This is a multi-commodity, multi-consignor/consignee, multi-loading/unloading transportation product which is aimed at providing a wider market to Kisan.
- This service helps in bringing perishable agricultural products like vegetables, fruits to the market in a short period of time. The trains with **frozen containers** are expected to build a seamless national cold supply chain for perishables, inclusive of fish, meat and milk.
- The primary objective of running Kisan Rail trains is to increase the income in the farm sector by connecting production centers to markets and consumption centers. It is a step towards realizing the **goal of doubling farmers' incomes by 2022**.
- The first Kisan Rail train was flagged-off on 07.08.2020 between Devlali (Maharashtra) and Danapur (Bihar).

Why in News?

- The Ministry of Railways said that introduction of Kisan Rails has given farmers wide access of Indian markets and it has so far carried 2.7 lakh tonnes of consignment.
- Till now, **60 routes have been operationalised for Kisan Rail**.
- Kisan Rail enables movement of perishables including fruits, vegetables, meat, poultry, fishery and dairy products from production or surplus regions to consumption or deficient regions. It also enables farmers to utilize the vast railway

network to gain access to distant, bigger and more lucrative markets.

2) Sub-Mission on Agricultural Mechanization

About the scheme

- The Ministry of Agriculture and Farmers' Welfare launched the Sub-Mission on Agricultural Mechanization (SMAM) in 2014-15.
- Under the scheme, **subsidy is provided for purchase of various types of Agricultural implements and machinery** used for tillage, sowing, planting, harvesting, reaping, threshing, plant protection, inter cultivation and residue management.
- It is a sub mission under the umbrella scheme of '**Green Revolution-Krishonnati Yojana**'.

Aim

- To **increase the reach of farm mechanization** to small and marginal farmers and to the regions & difficult areas where farm power availability is low.

Objectives

- To **promote 'Custom Hiring Centres' and 'Hi-tech Hubs of High-Value Machines'** to offset the adverse economies of scale arising due to small and fragmented landholding and high cost of individual ownership;
- **Creating awareness among stakeholders** through demonstration and capacity building activities;
- **Ensuring performance testing and certification** of agricultural machines at designated testing centres located all over the country.

Significance of farm mechanisation

- To boost up mechanization in the agriculture sector, improved agricultural implements and machinery are essential inputs for modern agriculture that will **enhance the productivity** of crops besides

reducing human drudgery and cost of cultivation.

- Mechanization also helps in **improving the utilization efficiency of other inputs** therefore considered to be one of the most important segments of the agriculture sector to **boost the income of farmers and growth of the agricultural economy.**
- The impact evaluation studies highlight the overall positive impact of mechanisation on farming as it was reported that mechanisation helped in overall increase of **17.9% in productivity** and 14.1% in seed germination.
- Mechanisation also helped in saving nearly 1/3rd of the time of operations, 30% reduction in labour requirements, 11% reduction in seed rate, 26.6% reduction in weed instances, 22.4% reduction in diesel consumption and 12.7% reduction in fertiliser requirements.

Why in the news?

- To empower the farmers through the Sub-Mission on Agricultural Mechanization scheme, Government of India has released funds for various activities of Farm Mechanization like Establishment of Custom Hiring Centres, Farm Machinery Bank, High-tech Hubs and distribution of various agricultural machinery etc to different states.

Related Information

About Green Revolution- Krishonnati Yojana

- It is an Umbrella Scheme comprising both Central Sector as well as Centrally Sponsored Schemes/Missions.
- These schemes look to **develop the agriculture and allied sector in a holistic and scientific manner** to increase the income of farmers by enhancing production, productivity and better returns on produce.
- This Umbrella Scheme has the following 12 Schemes/Missions:

1. Mission for Integrated Development of Horticulture (MIDH)
2. National Mission on Oilseeds and Oil Palm (NMOOP)
3. National Food Security Mission (NFSM)
4. National Mission for Sustainable Agriculture (NMSA)
5. Sub-Mission on Agriculture Extension (SMAE)
6. Sub-Mission on Seeds & Planting Material (SMSP)
7. Sub-Mission on Agricultural Mechanization (SMAM)
8. Sub-Mission on Plant Protection and Plant Quarantine (SMPPQ)
9. Integrated Scheme on Agricultural Census, Economics and Statistics
10. Integrated Scheme on Agricultural Cooperation
11. Integrated Scheme on Agricultural Marketing (ISAM)
12. National e-Governance Plan in Agriculture (NeGP-A).

3) India and Pakistan's battle over basmati

Why are India and Pakistan fighting over basmati?

- India, the **world's largest exporter of basmati rice**, has applied for **protected geographical indication (PGI)** status from the European Union's Council on Quality Schemes for Agricultural Products and Foodstuffs.
- This would give it **sole ownership of the basmati title in the European Union (EU).**
- **Pakistan, which is the only other basmati rice exporter in the world**, has opposed this move as it would adversely impact its own exports, especially as the EU is a major market for its basmati.

What is the dispute?

- India and Pakistan have long been claiming to be the origins of Basmati rice, which is largely produced in both

countries. They are the **only two countries which produce Basmati in the world.**

- The **Punjab province**, which was divided into East Punjab (India) and West Punjab (Pakistan) in 1947, is the origin of Basmati rice.
- Pakistan annually earns \$2.2 billion compared to India's \$6.8 billion from Basmati exports.

Where does basmati actually grow?

- In India, historically, the long-grained, aromatic rice has been cultivated in **Indo-Gangetic plains** at the foothills of the Himalayas.
- In modern India, this region is spread over **Himachal Pradesh, Punjab, Haryana, Uttarakhand, Uttar Pradesh, Delhi and Jammu and Kashmir**. Basmati has also been grown for centuries in the **Kalar tract**, which lies between the Ravi and Chenab rivers in Pakistan's Punjab province.

Why does the basmati title need protection?

- Given the high premium that basmati, an export-oriented product, fetches in the international market, there have been frequent disputes over granting the protected status to rice that may have been bred from basmati varieties and has the same qualities, but isn't grown in the historical basmati-growing belt.
- In India, for example, the **Madhya Pradesh government** has been lobbying the central government for its basmati rice varieties to be granted the **GI status**, even taking the matter to the Supreme Court. The All India Rice Exporters' Association (AIREA) is opposed to this, on the basis that it compromises basmati's integrity.
- The **Agricultural and Processed Food Products Export Development Authority (APEDA)** itself had stated that **GI status is strongly linked to a particular geographical region** and, based on this, AIREA has argued that

granting MP's request would open the door to other regions within India as well as rival rice exporters like China and Pakistan to grow basmati varieties anywhere in their territories, thus diluting the power of the basmati brand.

Related Information

About GI Tag

- A geographical indication (GI) is a sign used on products that have a **specific geographical origin** and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place.
- It is used for **agricultural, natural and manufactured goods**. **Darjeeling tea** became the first GI tagged product in India.
- The registration of GI is valid for **10 years** after which it needs to be renewed.
- It should be noted that registration of a product is **not compulsory**.
 - ✓ Registration affords better legal protection to facilitate an action for infringement
 - ✓ The registered proprietor and authorised users can initiate infringement actions
 - ✓ The authorised users can exercise the exclusive right to use the geographical indication.

Legislations

- In India, GI is given under the **Geographical Indications of Goods (Registration and Protection) Act, 1999**.
- The Act is administered by the **Controller General of Patents, Designs & TradeMarks, GI (CGPDTM-India)** under the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.
- India enacted its GI legislation to comply with India's obligations under the Trade-Related Aspects of

Intellectual Property Rights (TRIPS) agreement.

- GI registration gives to the registered proprietor and its authorized users, the legal right to the exclusive use of the GI and also the right to obtain relief in case of its infringement.
- GI is a **collective intellectual property right** and is thus owned by all the producers within the defined GI territory unlike intellectual properties like patent and trademark which are owned by an individual or a business entity.

Benefits of registration of Geographical Indications

- It confers **legal protection** to Geographical Indications in India
- **Prevents unauthorised use** of a Registered Geographical Indication by others
- It provides legal protection to Indian Geographical Indications which in turn **boost exports**.
- It **promotes economic prosperity** of producers of goods produced in a geographical territory.

4) NAFED

About NAFED

- National Agriculture Cooperative Marketing Federation of India (NAFED) was established in 1958 under the **Ministry of Agriculture & Farmers' Welfare**.
- Its objective is to promote Cooperative marketing of agricultural produce to benefit the farmers.
- It is registered under the **Multi State Co-operative Societies Act**.
- NAFED is now one of the largest procurement as well as marketing agencies for agricultural products in India.

Objectives of NAFED

- Organize, promote and develop marketing, processing and storage of

agricultural, horticultural and forest produce;

- Distribution of agricultural machinery, implements and other inputs;
- Undertake inter-state, import and export trade;
- Act and assist for technical advice in agricultural production.

Why in the news?

- Government of India's NAFED has launched **Fortified Rice Bran Oil to boost healthy living**.
 - *Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.*

News in detail

- Rice Bran oil from NAFED will be fortified and it will be ensured that it will contain additional nutrients and vitamins.
- NAFED Fortified Rice Bran Oil will be available at all NAFED Stores and also on various online platforms.

Significance of the initiative

- This initiative by NAFED will significantly **reduce the country's consumption dependence on imported edible oil in future**.
- This will provide opportunities for Indian edible oil manufacturers further, and also will give an **impetus to the Prime Minister's Atma Nirbhar Bharat initiative**.

Importance of Rice Bran Oil

- Rice Bran oil has multiple health benefits. It helps in **lowering cholesterol level** due to its low trans-fat content and high monounsaturated and polyunsaturated fat contents.
- It also acts as a booster and **reduces the risk of cancer** due to the high amount of Vitamin E it contains.
- This oil is recommended by The American Heart Association and the

World Health Organization (WHO) as one of the **best substitutes for other edible oils**.

- According to the FSSAI, fortified oil can help a person **fulfil 25-30% of the recommended dietary intake for vitamins A and D**.

5) Floating raft agriculture

What is it?



- Floating agriculture is a **way of utilising areas which are waterlogged for long periods of time in the production of food**. The technology is mainly aimed at adapting to more regular or prolonged flooding.
- The approach employs **beds of rotting vegetation, which act as compost for crop growth**. These beds are able to float on the surface of the water, thus creating areas of land suitable for agriculture within waterlogged regions. Scientifically, floating agriculture may be referred to as **hydroponics**.
- Floating raft farming had been taken up as a **measure of improving adaptability and resilience in the background of climate change**.

Where can it be used?

- Floating agriculture can be used in areas **where agricultural land is submerged for long periods**.
- The practice is similar to hydroponic agriculture whereby plants can be grown on the water on a floating bed of

water hyacinth, algae or other plant residues.

- A typical example of floating agriculture involves a **floating layer of water hyacinth, straw or rice stubble** to which is added upper layers of small and quick-rotting waterworts (water plants) which make for good manure.
- India has many brackish water bodies which are conducive for such agriculture.

Advantages

- **Food Security:** Mitigate land loss through flooding, by allowing cultivation of these areas to continue. In this way, the total cultivable area can be increased and communities can become more self-sufficient.
- **Increase in productivity:** In addition to this, the area under floating cultivation is up to 10 times more productive than traditionally farmed land and no additional chemical fertilisers or manure is required.
- **Organic manure:** When the crops have been harvested and floating rafts are no longer required, they can be used as organic fertilisers in the fields or incorporated into the following years floating beds as a fertiliser.
- **Turning a curse to boon:** The approach uses water hyacinth, a highly invasive weed with prolific growth rates, in a highly beneficial way.
- **Elimination of harmful insects:** By harvesting water hyacinth, areas covered by the weed are cleared, with the beneficial side-effect of reducing breeding grounds for mosquitoes and improving conditions for open-water fishing
- **Pisciculture:** By cultivating crops in water, it is also possible to simultaneously harvest fish populations which reside in the beds.
- **Additional income:** The practice of floating agriculture also helps supplement the income of local

communities and contributes to alleviation of poverty .

- **Helps Landless farmers:** It also provides greater food security by increasing the land output and supporting capacity for poor and landless people .
- **Employment opportunities:** The capacity to provide employment opportunities within communities and as both men and women can carry out the floating agriculture practices, it can also lead to improvements in gender equity.

Why in News?

- Floating agriculture experiments in the Alappuzha-Cherthala Canal in Kerala with amaranthus has shown success.
- These showed that crops like vegetable cowpea, chillies and tomatoes are suited for the floating farming method.

6) NPOP & PGS

Organic Farming in India

- Organic products are grown under a system of agriculture **without the use of chemical fertilizers and pesticides with an environmentally and socially responsible approach.**
- This is a method of farming that works at grass root level preserving the reproductive and regenerative capacity of the soil, good plant nutrition, and sound soil management, produces nutritious food rich in vitality which has resistance to diseases.
- India is bestowed with a lot of potential to produce all varieties of organic products due to its various agro climatic conditions. In several parts of the country, the inherited tradition of organic farming is an added advantage. This holds promise for the organic producers to tap the market which is growing steadily in the domestic and export sector.
- **India's rank 8th in terms of World's Organic Agricultural land and 1st in**

terms of total number of producers as per 2020 data.

Area

- As on 31st March 2020, total area under organic certification process (registered under National Programme for Organic Production) is **3.67 million Hectare**. This includes 2.299 million ha cultivable area and another 1.37 million Hectare for wild harvest collection.
- Among all the states, **Madhya Pradesh** has covered the largest area under organic certification followed by Rajasthan, Maharashtra, Gujarat, Karnataka, Odisha, Sikkim and Uttar Pradesh.
- During 2016, **Sikkim** has achieved a remarkable distinction of converting its entire cultivable land (more than 75000 ha) under organic certification.

Production

- Among different states **Madhya Pradesh** is the largest producer followed by Maharashtra, Karnataka, Uttar Pradesh and Rajasthan.
- In terms of commodities **Oil seeds** are the single largest category followed by Sugar crops, Cereals and Millets, Tea & Coffee, Fiber crops, fodder, Pulses, Medicinal/ Herbal and Aromatic plants and Spices & Condiments.

Exports

- The total volume of export during 2019-20 was 6.389 lakh MT. The organic food export realization was around INR 4,686 crore (689 million USD). The major export destinations are EU, USA, Canada, Switzerland, Pakistan, New Zealand and Australia.
- In terms of export value realization Processed foods including soya meal, Oilseeds, Plantation crop products such as Tea and Coffee, Cereals and millets, Spices and condiments, Dry fruits , Sugar and Medicinal plants lead among the products.

National Programme for Organic Production

- The **Agricultural and Processed Food Products Export Development Authority (APEDA)** under the Ministry of Commerce & Industries is implementing the National Programme for Organic Production (NPOP).
- The programme involves the accreditation of Certification Bodies, standards for organic production, promotion of organic farming and marketing etc.
- All types of agriculture, horticulture and non-food crops are grown under organic certification process.
- Livestock, aquaculture, animal feed processing and handling, mushroom production, sea weeds, aquatic plants and green house crop production have also come under the ambit of organic certification.
- **Organic products are currently exported from India only if they are produced, processed, packed and labelled as per the requirements of the NPOP.**
- As per the established norm of organic production systems, the areas having chemical input usage history are required to undergo a **transition period of a minimum 2-3 years** to qualify as organic. During this period, farmers need to adopt standard organic agriculture practices and keep their farms under the certification process. On successful completion, such farms can be certified as organic after 2-3 years. The certification process also requires elaborate documentation and time to time verification by the certification authorities.

Global Recognition

- The NPOP standards for production and accreditation system have been **recognized by European Commission and Switzerland** for unprocessed plant products as equivalent to their country standards.

It enables India to export unprocessed plant products to these countries without the requirement of additional certification. The equivalency with the EU also facilitates the export of Indian organic products to the **United Kingdom** even in the post Brexit phase.

- Similarly, **The United States Department of Agriculture (USDA)** has recognized NPOP conformity assessment procedures of accreditation as equivalent to that of the National Organic Program (NOP) of the US.
 - With these recognitions, Indian organic products duly certified by the accredited certification bodies of India are accepted by the importing countries. APEDA is also in the process of Bilateral equivalence with South Korea, Taiwan, Canada, Japan etc.
- #### **PGS-India**
- Participatory Guarantee Systems (PGS) for India programme for local and domestic market was launched by the **Ministry of Agriculture and Farmers Welfare** with an aim to make the certification system affordable and accessible without the need for third party certification agencies.
 - PGS-India is a quality assurance initiative that is **locally relevant, emphasizes the participation of stakeholders**, including producers and consumers and operates outside the frame of third party certification.
 - In the PGS framework, people in similar situations (in this case smallholder producers) assess, inspect and verify the production practices of each other and take decisions on organic certification.
 - The certification is in the form of a documented logo or a statement.

Difference between NPOP and PGS India Certifications

- Both the programmes (NPOP and PGS-India) are independent of each other and products certified under one system cannot be processed or labeled under another system. While **NPOP certified products can be traded in export and in the domestic market, PGS-India certified products can be traded only in the domestic market.**
- Under the NPOP framework, **Accredited certification agencies** authorized under the programme are certifying organic producers. PGS-India programme was launched with an aim to make the certification system affordable and accessible **without the need for third party certification agencies.** Under the PGS, farmers in a group inspect each other's land and vouch for its organic credentials.
- While NPOP is implemented by **APEDA** under the **Ministry of Commerce & Industries**, PGS-India is facilitated by the **Ministry of Agriculture and Farmers' Welfare** through **National Centre of Organic Farming (NCOF)** as its Secretariat.

Advantages of PGS

- Procedures are simple, documents are basic, and farmers understand the local language used.
- All members live close to each other and are known to each other. As practising organic farmers themselves, they understand the processes well.
- Because peer appraisers live in the same village, they have better access

to surveillance; peer appraisal instead of third-party inspections also reduces costs.

- Mutual recognition and support between regional PGS groups ensures better networking for processing and marketing.

Limitations of PGS

- PGS certification is only for farmers or communities that can organize and perform as a group within the village or in close-by villages with continuous territory and is applicable on, on-farm activities comprising of crop production, processing and livestock rearing (including bee keeping) and off-farm processing "by PGS farmers of their direct products".
- **Individual farmers or group of farmers smaller than five members are not covered** under PGS. They either have to opt for third party certification or join the existing PGS local group.
- PGS ensures traceability only up to the end till it is in the custody of the PGS group. Once the product leaves the custody of PGS group there is no control of PGS on its integrity.

Why in News?

- The Ministry of Food Processing Industries recently announced that India's organic food market is growing at 17 per cent annually and has the potential to grow at a faster pace on rising demand for health and wellness food products across the world.

Organisations

1) UN Secretary General election

What's in the news?

- UN Secretary General Antonio Guterres has been re-elected as chief of the world body after the Security Council adopted by acclamation a resolution recommending his name to the General Assembly for a second five-year term beginning January 1, 2022.
- India had expressed its support for re-election of Guterres as UN Chief and welcomed the adoption of the resolution recommending his name.

Role of Secretary General

- The UN Charter describes the Secretary-General as "**chief administrative officer**" of the Organisation, who shall act in that capacity and perform "such other functions as are entrusted" to him or her by the Security Council, General Assembly, Economic and Social Council and other United Nations organs.
- The Charter also empowers the Secretary-General to "bring to the attention of the Security Council any matter which in his opinion may threaten the maintenance of international peace and security".

Election Process

- The Secretary-General is **appointed by the General Assembly, on the recommendation of the Security Council.**
- To be selected as Secretary-General, a candidate must receive the votes of at least 9 members of the United Nations Security Council, with no vetoes from permanent members. The Secretary-General is then appointed by a majority vote of the United Nations General Assembly.
- Although there is technically no limit to the number of five-year terms a Secretary-General may serve, none so far has held office for more than two terms.

- **Informal rules** influence the selection process. For example, **nationals of permanent members of the Security Council** - China, France, Russia, the United Kingdom or the United States - **cannot be considered for the post**, because of possible undue influence.

2) ASEAN Defence Ministers' Meeting-Plus

About ADMM

- The ASEAN Defence Ministers' Meeting (ADMM) is the **highest defence consultative and cooperative mechanism in ASEAN.**
- The ADMM aims to promote mutual trust and confidence through greater understanding of defence and security challenges as well as enhancement of transparency and openness.
- **All ASEAN Member States**, namely Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam are members of the ADMM.
- The Chairman of the ADMM is the ASEAN Chair and its rotation follows the ASEAN chairmanship.

About ADMM-Plus

- The ADMM-Plus is a platform for **ASEAN and its eight Dialogue Partners** namely Australia, China, **India**, Japan, New Zealand, South Korea, Russian Federation, and the United States to strengthen security and defence cooperation for peace, stability, and development in the region.
- The Inaugural ADMM-Plus was convened in Ha Noi, Viet Nam, in **2010.**
- The Chairmanship of the ADMM-Plus shall follow the Chairmanship of the ADMM.

Why in News?

- Defence Minister Rajnath Singh participated in the 8th ASEAN Defence Ministers Meeting (ADMM) Plus and called for an open and inclusive order in Indo-Pacific based upon respect for sovereignty and territorial integrity of nations.
- On the 'Act East Policy', announced by Prime Minister Narendra Modi in 2014, Mr. Singh stated that the key elements of the policy aim to promote economic cooperation, cultural ties and develop strategic relationships with countries in the Indo-Pacific region through continuous engagement at bilateral, regional and multilateral levels.

Related information About ASEAN



Image: ASEAN

- The Association of Southeast Asian Nations, or ASEAN, is a regional & intergovernmental organisation of 10 countries of southeast Asia.
- ASEAN was established in 1967 in Bangkok, Thailand, with the signing of the **ASEAN Declaration (Bangkok Declaration)**.
- Its members are **Thailand, Malaysia, Laos, Cambodia, Indonesia,**

Singapore, Myanmar, Philippines, Brunei and Vietnam.

- The organisation aims to accelerate the economic growth, social progress and cultural development in the region through joint endeavours in the spirit of equality and partnership. They work towards the progress of the southeast Asia region.

3) ECOSOC

About ECOSOC

- The United Nations Economic and Social Council (ECOSOC) is **one of the six principal organs of the United Nations**.
- It is responsible for the **direction and coordination of the economic, social, humanitarian, and cultural activities carried out by the UN**.
- ECOSOC was established by the UN Charter (1945), which was amended in 1965 and 1974 to increase the **number of members from 18 to 54**. ECOSOC membership is based on **geographic representation**.
- ECOSOC is responsible for promoting higher standards of living, full employment, and economic and social progress; identifying solutions to international economic, social and health problems; facilitating international cultural and educational cooperation; and encouraging universal respect for human rights and fundamental freedoms.

Why in News?

- India has been elected to the United Nations Economic and Social Council for a three-year term (2022-24).
- The ECOSOC is at the centre of the United Nations development system and brings together people and issues to promote collective action for a sustainable world.

Science and Technology

1) Nutrient depletion in rice

What's in the news?

- A study conducted by various institutes under the **Indian Council of Agricultural Research (ICAR)** found that **rice and wheat grown today do not have the same density of essential nutrients as those cultivated 50 years ago.**

Falling nutrients

- The study found **depleting trends in grain density of zinc and iron in rice and wheat cultivated in India.**
- The team noted that **zinc and iron concentrations in grains of rice cultivars** released in the 1960s were 27.1 mg/kg and 59.8 mg/kg. This **depleted** to 20.6 mg/kg and 43.1 mg/kg, respectively in the 2000s. In **wheat**, the concentrations of zinc and iron --- 33.3 mg/kg and 57.6 mg/kg in cultivars of the 1960s, dropped to 23.5 mg/kg and 46.4 mg/kg, respectively in cultivars released during the 2010s.
- There could be several possible reasons for such depletion: one is a '**dilution effect**' that is caused by decreased nutrient concentration in response to higher grain yield. This means the rate of yield increase is not compensated by the rate of nutrient take-up by the plants.
- Also, the **soils supporting plants could be low in plant-available nutrients.**

Impacts

- **Zinc and iron deficiency** affects billions of people globally and the countries with this deficiency have diets composed mainly of rice, wheat, corn, and barley.
- Iron deficiency is a common cause of **too few healthy red blood cells in the body.** Zinc deficiency is characterized by **growth retardation, loss of appetite, and impaired immune function.**

- Though the Indian government has taken initiatives such as providing **supplementation pills** to school children, **Mid-Day Meal scheme**, etc., it is not enough. The researchers noted that we need to concentrate on other options like **biofortification**, where we breed food crops that are rich in micronutrients.

Related Information

Biofortification

- Biofortification is the process by which the **nutrient density of food crops is increased** through **selective breeding, improved agronomic practices or modern biotechnology.**
- It's **not the same as 'fortified' foods** that have **micronutrients added to them during processing.**

Focus Areas

- The **most common micronutrient deficiencies are iron and zinc**, with 2 billion people affected worldwide with **anaemia** (30% of the world's population), says the World Health Organization.
- **Vitamin A** deficiency is not far behind. **This triad**, vital to our health, especially for the development of children, women, and other vulnerable sections (seniors or those who have low immunity), is the **focus of biofortification research.**
- **Children** are especially vulnerable to micronutrient deficiencies. Lack of zinc in childhood leads to poor growth and stunting, vitamin A deficiency can cause night blindness and poor immunity, while iron deficiency leads to poor mental and physical development.
- In India, the **focus is on six staples.** These are pearl millet (iron), wheat (zinc), sorghum (iron), rice (zinc), cowpeas (iron) and lentils (iron and zinc). Currently, **biofortified pearl**

millet, rice, and wheat are available to farmers in India.

Measure by Government

- The Government of India has given a strong endorsement to staple crop biofortification as a **sustainable and cost-effective solution to alleviate malnutrition**.
- On World Food Day 2020 (October 16), Prime Minister Narendra Modi dedicated to the nation 17 recently-developed biofortified seed varieties of eight local and traditional crops, including wheat and paddy rice, that are being made available to Indian farmers.
- Further, to encourage biofortification amongst farming communities, **Indian Council for Agricultural Research (ICAR)** has started the **Nutri-Sensitive Agricultural Resources and Innovations (NARI)** programme for promoting family farming linking agriculture to nutrition, nutri-smart villages for enhancing nutritional security.
- Under NARI, location-specific nutrition garden models are being developed and promoted by **Krishi Vigyan Kendras** (agricultural extension centers in India) to ensure access to locally available, healthy and diversified diets with adequate macro and micronutrients.

Impacts on Health

- After a decade of testing, the first iron-rich pearl millet named *Dhanashakti* was released in 2012 in Maharashtra, and in 2013 across India. Studies also show that iron-deficient women can absorb twice the amount of iron from this variety, when compared to non-biofortified grain.
- In fact, consumption of 200 grams of *Dhanashakti* every day can provide women with more than 80% of their daily iron needs.

Way Forward

- India needs a comprehensive, integrated plan for scaling up the development and consumption of biofortified crops striving at nutrition security for its citizens. It needs a multi-year integrated approach for ensuring a well-performing biofortification ecosystem.

2) Antibodies against Nipah virus

About Nipah infection

- It is a **viral infection** caused by the Nipah virus (NiV).
- **Fruit bats of the Pteropodidae family** are the natural host of Nipah virus.
- The disease was first identified in **1998** during an outbreak in **Malaysia** and it was named after a village in Malaysia, Sungai Nipah. Later, Nipah outbreaks have been reported in **Singapore, Bangladesh and India**.
- Till date, **India has experienced four episodes of NiV outbreaks** with Case Fatality Rate (CFR) ranging from 65% to 100%. The first evidence of NiV infection was reported in Siliguri district, West Bengal in 2001. The last outbreak was reported in Kerala state in 2019.
- A study in 2018 has identified many **South East Asian countries including Indian states as potential hotspots** for the NiV disease.
- NiV is on the **top-10 priority list pathogens** identified by the World Health Organization.

Transmission

- It is a **zoonotic virus** (transmitted from animals to humans) which can also be transmitted through **contaminated food or directly between people**.
- **Consumption of fruits or fruit products (such as raw date palm juice) contaminated with urine or saliva from infected fruit bats** is the most likely source of infection.

- In infected people, it causes a range of illnesses from asymptomatic (subclinical) infection to acute respiratory illness and fatal encephalitis.
- The virus can also cause severe disease in animals such as pigs, resulting in significant economic losses for farmers.

Treatment

- There are currently **no drugs or vaccines** specific for Nipah virus infection.
- The primary treatment for humans is supportive care.

Why in News?

- A cross-sectional survey by Indian Council of Medical Research- National Institute of Virology to study the prevalence of Nipah virus in bats of India has picked up samples with the **presence of antibodies against the Nipah virus in some bat species** from a cave in Mahabaleshwar.
- Mahabaleshwar is a popular hill station in Satara district, Maharashtra.

News in detail

- **Pteropus medius** bats, which are large fruit-eating bats, are the incriminated reservoir for NiV in India as both NiV RNA and antibodies were detected in the samples of these bats collected during previous NiV outbreaks. Studies on other species of bats as potential NiV reservoirs in India are very limited.
- The new study has found the virus and antibodies in different species. During March 2020, from a cave in Mahabaleshwar, two species of bats, **Rousettus leschenaultii** (medium-sized fruit eating bats) and **Pipistrellus pipistrellus** (tiny insectivorous bats), were trapped by researchers using mist nets.
- RNA was extracted from samples and Anti-NiV IgG antibodies were detected in a number of the samples. One bat each from *R. leschenaultii* and *P.*

pipistrellus species tested positive for both NiV RNA and anti NiV IgG antibodies.

- This is the first report of possible NiV infection in *R. leschenaultii* bats in India, which was demonstrated by the presence of both NiV RNA and anti-NiV IgG antibodies in bats.

Significance

- In earlier investigations during the last decade, NiV activity could not be detected in *R. leschenaultii*, despite processing several hundred bats including bats from the same location.
- More studies in bats and humans are therefore needed to understand the prevalence of the virus in the state.

3) H10N3 bird flu

About Bird Flu

- Bird flu, also called **avian influenza**, is a viral infection caused by **Influenza Type A viruses** which spreads from bird to bird. These viruses occur naturally among wild aquatic birds worldwide and can infect domestic poultry and other bird and animal species.
- There are **several subtypes** of the avian influenza virus. Currently, a particularly deadly strain of bird flu -- **H5N1** -- continues to spread among poultry in Egypt and in certain parts of Asia. The H5N1 virus can cause severe flu with a high mortality rate.
- Avian influenza viruses **do not normally infect humans**. However, there have been instances of certain highly pathogenic strains causing severe respiratory disease in humans. In most cases, the people infected had been in close contact with infected poultry or with objects contaminated by their faeces.
- However, the **World Health Organization** had expressed concern that the virus could mutate to become more easily transmissible between

humans, raising the possibility of an influenza pandemic.

What's in the news?

- China has confirmed the first human case of infection with a **rare strain of bird flu known as H10N3**.
- H10N3 is a low pathogenic or relatively less severe strain of the virus in poultry and the risk of it spreading on a large scale is very low.
- Human infections with bird flu have been rare since a larger outbreak of the H7N9 strain killed around 300 people in 2016 and 2017.

4) European Space Agency's EnVision mission to Venus

What is in the news?

- Following NASA's footsteps, the **European Space Agency (ESA)** has announced that it has selected **EnVision** as its next orbiter that will visit Venus sometime in the 2030s.
- Recently, **NASA** selected two missions to the planet Venus, Earth's nearest neighbour. The missions called **DAVINCI+ and VERITAS** have been selected based on their potential for scientific value and the feasibility of their development plans. NASA is expected to allot \$500 million to each of these missions that will launch between 2028-2030.

What is EnVision?

- EnVision is an ESA led mission with **contributions from NASA**. It is likely to be launched sometime in the 2030s. The earliest launch opportunity for EnVision is 2031, followed by 2032 and 2033.
- Once launched on an **Ariane 6 rocket**, the spacecraft will take about 15 months to reach Venus and will take 16 more months to achieve orbit circularisation.
- The spacecraft will carry a range of instruments to study the planet's atmosphere and surface, monitor trace gases in the atmosphere and analyse

its surface composition. A radar provided by NASA will help to image and map the surface.

- EnVision will follow another ESA-led mission to Venus called '**Venus Express**' (2005-2014) that focussed on atmospheric research and pointed to volcanic hotspots on the planet's surface. Other than this, **Japan's Akatsuki spacecraft** has also been studying the planet's atmosphere since 2015.

Why are scientists interested in studying Venus?

- At the core of the ESA's mission is the question of **how Earth and Venus evolved so differently from each other** considering that they are roughly of the same size and composition. **Venus is the hottest planet** in the solar system because of the heat that is trapped by its thick cloud cover.
- On the other hand, the results from DAVINCI+ are expected to reshape the understanding of terrestrial planet formation in the solar system and beyond. Taken together, both missions are expected to tell scientists more about the planet's thick cloud cover and the volcanoes on its surface.
- Further, scientists speculate about the **existence of life on Venus** in its distant past and the possibility that life may exist in the top layers of its clouds where temperatures are less extreme.
- Last year, a team of scientists reported that they had found **phosphine gas** (a chemical produced only through biological processes) in the atmosphere of Venus that triggered excitement in the scientific community that some life forms might be supported by the planet.
- But the **existence of life on the planet is nearly impossible** given the high temperatures of Venus and its acidic atmosphere. Even so, this discovery could mean that life forms could have

existed on Venus before when it was habitable. As per this theory, the discovery of phosphine could simply be remnants from the past.

About Venus

- For those on Earth, Venus is the **second-brightest object** in the sky after the moon. It appears bright because of its thick cloud cover that reflects and scatters light.
- But while Venus, which is the second closest planet to the Sun, is called the **Earth's twin** because of their similar sizes, the two planets have significant differences between them.
- For one, the planet's thick atmosphere traps heat and is the reason that it is the **hottest planet in the solar system**, despite coming after Mercury, the closest planet to the Sun. Surface temperatures on Venus can go up to 471 degrees Celsius, which is hot enough to melt lead.
- Further, Venus moves forward on its orbit around the Sun but **spins backwards around its axis slowly**. This means on Venus the Sun rises in the west and sets in the East. One day on Venus is equivalent to 243 Earth days because of its backward spinning, opposite to that of the Earth's and most other planets. Venus also **does not have a moon and no rings**.

Have humans visited Venus?

- Because of the planet's harsh environment, **no humans have visited it and even the spacecraft that have been sent to the planet have not survived for a very long time**.
- Venus' high surface temperatures overheat electronics in spacecraft in a short time, so it seems unlikely that a person could survive for long on the Venusian surface.
- So far, spacecraft from several nations have visited the planet. The first such spacecraft was the **Soviet Union's Venera series** (the spacecraft,

however, could not survive for long because of the planet's harsh conditions), followed by **NASA's Magellan Mission** that studied Venus from 1990-1994. As of now, **Japan's Akatsuki mission** is studying the planet from Orbit.

Which missions did NASA announce?

- Both missions called DAVINCI+ and VERITAS are **part of NASA's Discovery Program**, which began in 1992 to give scientists the chance to launch some missions that use fewer resources and have shorter developmental times. The two selections are a part of the ninth Discovery Program and were made from proposals submitted in 2019.

What do these missions plan to achieve?

- DAVINCI+ is short for '**Deep Atmosphere Venus Investigation of Noble gases, Chemistry, and Imaging**' and is the first US-led mission to the planet's atmosphere since 1978. It will **try to understand Venus' composition to see how the planet formed and evolved**. This mission also consists of a descent sphere that will pass through the planet's thick atmosphere and make observations and take measurements of noble gases and other elements.
- Significantly, this mission will also **try to return the first high resolution photographs of a geological feature that is unique to Venus**. This feature, which is called "**tesserae**" may be comparable to Earth's continents. The presence of tesseraes may suggest that Venus has tectonic plates like Earth.
- The second mission called VERITAS is short for '**Venus Emissivity, Radio Science, InSAR, Topography, and Spectroscopy**' and will **map the planet's surface to determine its geologic history and understand the reasons why it developed so differently from Earth**.

- VERITAS will orbit Venus with a radar that will help to create a three dimensional reconstruction of its topography which might be able to tell scientists if processes such as plate tectonics and volcanism are still active there.
- This mission will also map the emissions from Venus's surface that may help in determining the type of rocks that exist on Venus—a piece of information that is not exactly known yet. It will also determine if active volcanoes are releasing water vapour into the atmosphere.

5) Rare Earth Metals

What's in the news?

- The U.S. Senate passed a law aimed at improving American competitiveness in the rare earth elements sector.

What are rare earth elements?

- The rare earth elements (REE) are a set of **seventeen metallic elements**. They are called 'rare earth' because **earlier it was difficult to extract them from their oxides forms technologically**.
- They are an **essential part of many high-tech devices**. The 17 Rare Earths are cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).
- Despite their name, **rare-earth elements are not rare**. All the metals except **radioactive promethium** are actually more abundant in Earth's crust than silver, gold, and platinum.

Why are they important?

- These elements are important in technologies of consumer electronics, computers and networks, communications, clean energy, advanced transportation, healthcare,

environmental mitigation, and national defence, among others.

- Rare earth minerals are crucial to the manufacture of magnets used in industries of the future, such as wind turbines and electric cars.
- REEs are needed in high-temperature superconductivity, safe storage and transport of hydrogen for a post-hydrocarbon economy, reduce sulphur oxide emissions and hence it has abundant value.
- According to the Rare Earth Technology Alliance (RETA), the estimated size of the Rare Earth sector is between \$10 billion and \$15 billion. About 100,000-110,000 tonnes of Rare Earth elements are produced annually around the world.

Who is the top producer?

- **China** has over time acquired global domination of rare earths. At one point, China produced 90 per cent of the rare earths the world needs.
- Today, however, it has come down to 60 per cent. The remaining is produced by other countries.

What is India's position?

- **India** has the **world's fifth-largest reserves** of rare earth elements, **but it imports** most of its rare earth needs in finished form **from China**.
- With adjustments to the existing policy, India could emerge as a rare earths supplier to the world and use these resources to power a high-end manufacturing economy.

India's Current Policy on Rare Earths

- India has granted government corporations such as **Indian Rare Earths Limited (IREL)** a monopoly over the primary mineral that contains REEs: **monazite beach sand**, found in many coastal states.
- IREL produces **rare earth oxides** (low-cost, low-reward "upstream processes"), selling these to foreign firms that extract the metals and manufacture end products (high-cost,

high-reward “downstream processes”) elsewhere.

Reforms and Solutions

- The key challenge for India today is to **scale up upstream and downstream processes** in the rare earths value chain. **India must open its rare earth sector up to competition and innovation**, and attract the large amounts of capital needed to set up facilities to compete with, and supply to, the world.
- The best move forward might be to create a **new Department for Rare Earths (DRE) under the Ministry of Petroleum & Natural Gas**, drawing on its exploration, exploitation, refining, and regulation capabilities.
- This DRE should oversee policy formulation and focus on attracting investment and promoting R&D, with its first move being to **allow private sector companies to process beach sand minerals within appropriate environmental safeguards**. It should also create an autonomous regulator, the **Rare Earths Regulatory Authority of India (RRAI)**, to resolve disputes between companies in this space and check compliance.
- There are three possible approaches to maximising India’s rare earth potential. First, the DRE could secure access to REEs of strategic importance by offering **viability gap funding** to companies to set up facilities in the upstream sector. This could make Indian Rare Earth Oxides (REOs) globally competitive.
- Alternatively, it could **focus on downstream processes and applications**, such as manufacturing magnets and batteries; this would require a **focus on port infrastructure and ease of doing business measures** to allow Indian manufacturers to import REOs from producers cheaply.

- Finally, it could **coordinate with other agencies to partner directly with groupings** such as the Quad, **building up a strategic reserve as a buffer** against global supply crises.

Way Forward

- India has already missed one global wave of industrial manufacturing. Its rare earth reserves and the post-pandemic economic situation offer it an opportunity to ride the next wave towards high-tech manufacturing. It must be sure not to miss this chance.

6) Bitcoin as legal tender

What’s in the news?

- **El Salvador**, a small coastal country in Central America, has become the first sovereign nation to **adopt bitcoin as legal tender**.
 - ‘Legal tender’ is the money that is recognised by the law of the land, as valid for payment of debt. It must be accepted for discharge of debt.



About Bitcoin

- Bitcoin was the first decentralized cryptocurrency introduced in 2009. **Etherium, Tether, and Binance Coin** are some of the many others cryptocurrencies that have emerged after Bitcoin.

- Cryptocurrencies are built on the back of **blockchain technology** which is a system of distributed, cryptographically-secured account keeping.
- A defining feature of cryptocurrencies is that they are generally **not issued by any central authority**, rendering them theoretically immune to government interference or manipulation.
- In this system, the users keep a tab on every digital 'coin' and transaction rather than a banking system with a governing body at its centre.
- Blockchain technology makes it **difficult or impossible to change, hack, or cheat the system** as it is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain.
- Due to their core nature that **shuns centralised control**, governments globally have been wary of cryptocurrencies.
- China, a hub of cryptocurrency activity, has issued a **digital Yuan on blockchain** while it cracks down on other cryptocurrencies. The Bank of England has also proposed a **digital Sterling**.
- Cryptocurrencies as commodities are **highly volatile** with massive swings in their values.
- Another problem is the **increasing energy use associated with cryptocurrencies**. The 'mining' of Bitcoin, where individuals or companies set up powerful systems to support the blockchain network, for which they are rewarded in the currency, is estimated to generate between 22 and 22.9 million metric tonnes of carbon dioxide emissions a year.

Cryptomining

- Cryptocurrency mining, or cryptomining, is a process in which **transactions for various forms of cryptocurrency are verified and added to the blockchain digital ledger**.
- During the cryptocurrency mining process, volunteer coders called cryptominers compete with each other to solve complicated mathematical problems using high-performance computers.
- The first miner to crack each code is **rewarded** by being able to authorize the transaction, and in return for the service provided, **cryptominers earn small amounts of cryptocurrency of their own**. Once the cryptominer successfully completes the mathematical problem and verifies the transaction information, they add the data to the public blockchain ledger.
- In 2018, the RBI issued a circular banning all regulated banks from holding or facilitating cryptocurrency transactions. However, this circular was declared unconstitutional by the Supreme Court in 2020.

7) CRISPR Cas-9

What is Gene editing?

- Gene editing (also known as genome editing) is a group of technologies that give scientists the **ability to change an organism's DNA**. These technologies allow genetic material to be added, removed, or altered at particular locations in the **genome**.
 - *A genome is the complete set of genetic information in an organism. It provides all of the information the organism requires to function. In living organisms, the genome is stored in long*

Concerns

molecules of DNA called chromosomes.

- Genome editing is of great interest in the **prevention and treatment of human diseases**. Currently, most research on genome editing is done to understand diseases using cells and animal models.
- Gene editing is being explored in research on a wide variety of diseases, including single-gene disorders such as cystic fibrosis, haemophilia, and sickle cell disease. It also holds promise for the treatment and prevention of more complex diseases, such as cancer, heart disease, mental illness, and human immunodeficiency virus (HIV) infection.

CRISPR-Cas9

- Several approaches to genome editing have been developed. A recent one is known as CRISPR-Cas9, which is short for clustered regularly interspaced short palindromic repeats and CRISPR-associated protein 9.
- This method of genome editing is **faster, cheaper, more accurate, and more efficient** than other existing methods.
- In essence, the technology works in a simple way — it locates the specific area in the genetic sequence which has been diagnosed to be the cause of the problem, cuts it out, and replaces it with a new and correct sequence that no longer causes the problem.
- The technology **replicates a natural defence mechanism in some bacteria** that uses a similar method to protect itself from virus attacks.

How does it work?

- An **RNA molecule** is programmed to locate the particular problematic sequence on the DNA

strand, and a special protein called **Cas9**, which now is often described in popular literature as '**genetic scissor**', is used to break and remove the problematic sequence.

- A DNA strand, when broken, has a natural tendency to repair itself. But the auto-repair mechanism can lead to the re-growth of a problematic sequence. Scientists intervene during this auto-repair process by supplying the desired sequence of genetic codes, which replaces the original sequence.
- It is like cutting a portion of a long zipper somewhere in between, and replacing that portion with a fresh segment.

Concerns

- **Unwanted mutations:** The application of CRISPR-Cas9 in the **germline** is considered more problematic because of the risk of causing various mutations and side effects and transferring undesirable changes to future generations. The germline refers to the specialized cell lineage containing and transmitting genetic information from generation to generation.
- **Human clinical trials** have not been carried out anywhere in the world to test whether disabling genes completely prevents diseases and what the side-effects of doing so would be.
- **Unethical practices:** The concept of designer babies may start. A Chinese doctor in 2018 claimed to use CRISPR-Cas9 technology to alter the genes of a human embryo that eventually resulted in the birth of twins.
- Following a global outcry, the **World Health Organization (WHO)** formed a panel of gene-editing experts which called upon WHO to set up a **central registry**

of all human genome editing research to create an open and transparent database of ongoing work.

- The idea of a classless society may not exist in the future as some may claim **genetic superiority** like the Aryan Theory of Hitler.

Why in News?

- A gene-editing tool based on the CRISPR technology is now helping scientists to identify different types of Chinook salmon (an important species of the Pacific Northwest) in the USA.
- **Sherlock**, which stands for **Specific High-sensitivity Enzymatic Reporter Unlocking**, identifies them using their genomic sequence. By identifying the species, researchers believe they can better monitor population sizes and habitats.
- The current method to identify the different types is based on what length they are at a particular age and it's not very accurate.

Reports and Indices

1) World Investment Report 2021

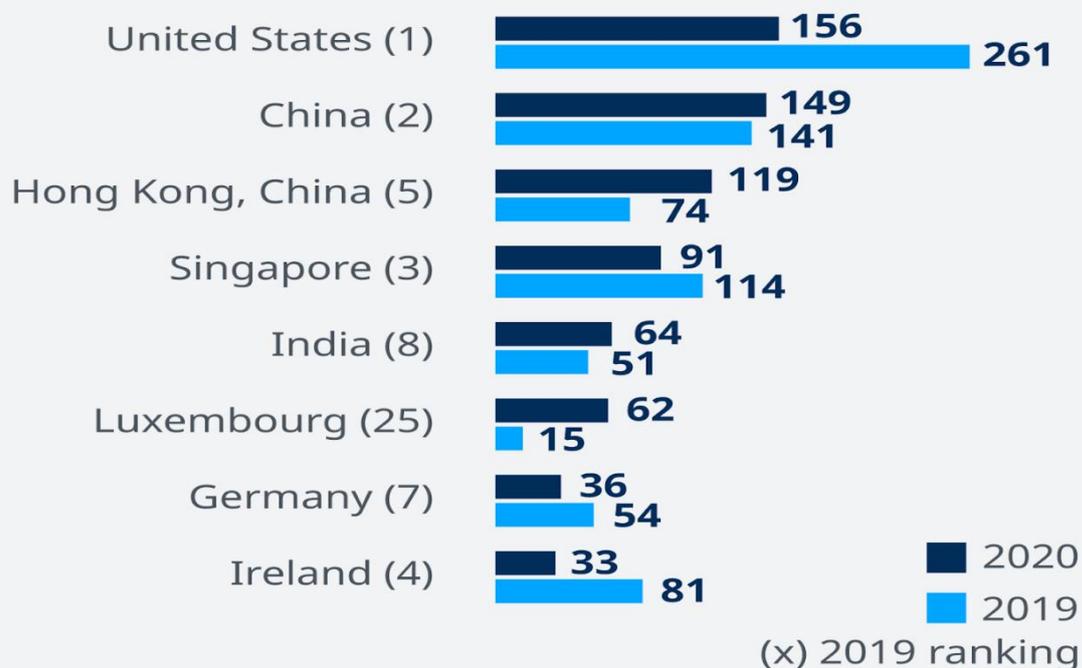
What's in the news?

- The UN Conference on Trade and Development (UNCTAD) has released its World Investment Report 2021.
- The Report supports policymakers by monitoring global and regional investment trends and national and international policy developments.
- This year's report reviews investment in the Sustainable Development Goals (SDGs) and shows the influence of investment policies on public health and economic recovery from the pandemic.
- **India** received USD 64 billion in Foreign Direct Investment in 2020, the **fifth largest recipient of inflows in the world.**
- In India, **Foreign Direct Investment increased 27 per cent**, to USD 64 billion in 2020, from USD 51 billion in 2019, pushed up by acquisitions in the information and communication technology (ICT) industry.
- The pandemic boosted demand for digital infrastructure and services globally. This led to higher values of greenfield FDI project announcements targeting the ICT industry, rising by more than 22 per cent to \$81 billion.

Highlights of the Report

FDI inflows, top 8 host economies

In billion dollars



Source: UNCTAD

- **Global Foreign Direct Investment** flows have been severely hit by the pandemic and they **plunged 35 per cent in 2020**, to USD 1 trillion from USD 1.5 trillion the previous year.
- While some of the largest economies in developing Asia such as China and

India recorded FDI growth in 2020, the rest recorded a contraction.

- FDI outflows from South Asia fell 12 per cent to \$12 billion, driven by a drop in investment from India. **India ranked 18 out of the world's top 20 economies for FDI outflows**, with 12 billion dollars of outflows recorded from the country in 2020 as compared to 13 billion dollars in 2019.
- The report noted that the second wave of the COVID-19 outbreak in India weighs heavily on the country's overall economic activities but its strong fundamentals provide "optimism" for the medium term.

Related Information

UNCTAD

- Established in 1964 as a permanent intergovernmental body, UNCTAD is the principal organ of the United Nations General Assembly dealing with trade, investment and development issues.
- It is also the United Nations focal point for the least developed countries.

Other reports released by UNCTAD

- Trade and Development Report
- World Development Report
- The Least Developed Countries Report
- Technology and Innovation Report
- Investment Trends Monitor Report

2) AISHE-2020

What's in the news?

- The **Union Ministry of Education** has released the **All India Survey on Higher Education (AISHE) 2019-20**.
- The report provides **key performance indicators on the current status of Higher education** in the country.
- Indicators of educational development such as Institution Density, Gross Enrolment Ratio, Pupil-teacher ratio, Gender Parity Index, Per Student Expenditure are calculated from the data collected through AISHE. These are useful in making informed policy

decisions and research for the development of the education sector.

- This report is the **10th in the series** of AISHE which is annually released by the Department of Higher Education.
- The survey **covers all the Institutions in the country engaged in imparting higher education**.

Highlights of the Survey

Total Enrolment

- Total Enrolment in Higher Education stands at 3.85 crore in 2019-20 as compared to 3.74 crore in 2018-19, registering a **growth of 11.36 lakh (3.04 %)**.

Gross Enrolment Ratio (GER)

- GER, which measures the percentage of students belonging to the eligible age group (18-23 years) enrolled in Higher Education, in **2019-20 is 27.1%** against 26.3% in 2018-19 and 24.3% in 2014-2015.

Gender Parity Index (GPI)

- GPI, a ratio of proportional representation of female and male, in higher education is **1.01 in 2019-20** against 1.00 in 2018-19. It shows that females are accessing higher education more than males.

Pupil Teacher Ratio

- Pupil Teacher Ratio in higher education is **26** in 2019-20.
- The Total Number of Teachers stands at 15,03,156 comprising 57.5% male and 42.5% female.

Female enrolment

- There has been an overall **increase of over 18% in female enrolment** in higher education from 2015-16 to 2019-20.

Major Disciplines

- 3.38 crore Students enrolled in programmes at under-graduate and postgraduate level.
- Out of these, nearly **85% of the students** (2.85 crore) were enrolled in the six major disciplines such as **Humanities, Science, Commerce,**

Engineering & Technology, Medical Science and IT & Computer.

- The total number of students pursuing PhD in 2019-20 is 2.03 lakh against 1.17 lakh in 2014-15.

3) Performance Grading Index

What's in the news?

- The **Ministry of Education** has released its Performance Grading Index for 2019-20.
- The index monitors the **progress that States and Union Territories have made in school education** with regard to learning outcomes, access and equity, infrastructure and facilities, and governance and management processes.
- This is the **third edition** of the index and states are scored on a total of **1,000 points across 70 parameters**, which are grouped under **five broad categories**:
 1. Access (eg. Enrolment ratio, transition rate and retention rate);
 2. Governance and management;
 3. Infrastructure;
 4. Equity (difference in performance between scheduled caste students and general category students) and
 5. Learning outcomes (average score in mathematics, science, languages and social science).
- The PGI exercise aims at encouraging states and Union territories to undertake multipronged interventions that will bring about optimal education outcomes.

What does the grading system reflect?

- The PGI grading system has **10 levels**. Level 1 indicates top-notch performance and a score between 951 and 1,000 points. Level II, also known as Grade 1++, indicates a score

between 901 and 950. Those with Grade 1+ (or Level III) have scored between 851 and 900. The lowest is Grade VII, and it means a score between 0 and 550 points.

How have states performed this time?

- In PGI 2019-20, **no state or Union Territory could achieve the highest grade, that is Level I**. Even in the 2017-18 and 2018-19 editions, no state had reached Level 1 and Grade 1++.
- **Chandigarh, Punjab, Tamil Nadu, Andaman and Nicobar and Kerala** have scored more than 90% and obtained Grade 1++ (or Level II), which makes them the best performing states. This is the first time that any state has reached Level II.
- Only the UT of **Ladakh** has been placed in the lowest grade, that is Grade VII, but that's because it was the first time it was assessed after it was carved out of Jammu and Kashmir in 2019.
- **Madhya Pradesh and Chhattisgarh** saw a glaring drop in their governance scores, pushing both States to an overall performance that was worse than in the previous edition.

How does their performance compare with that in the last two editions of PGI?

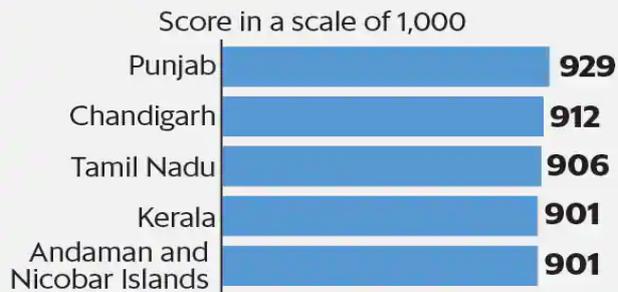
- A total of **33 States and UTs have improved their total PGI score** in 2019-20 as compared to 2018-19, indicating a general upward shift.
- However, there are **still 31 states and UTs placed in Level III (Grade 1) or lower**, showing that they still have a lot of ground to cover.
- The biggest improvement in PGI this year has been shown by **Andaman and Nicobar Islands, Punjab, and Arunachal Pradesh**. All three have improved their score by 20%.

Improved performance

Andaman & Nicobar Islands, Arunachal Pradesh, Manipur, Puducherry, Punjab and Tamil Nadu have improved overall score in the performance grading index by 10%.

Score of states in school performance index

Top 5 states/UTs



Bottom 5 states/UTs



Source: Union education ministry

What are the areas where the states still have to improve?

- According to the report, states and UTs mainly need to improve their performance in terms of **governance processes**. This domain carries several parameters, including teacher availability, teachers training, regular inspection, and availability of finances.
- The second area that requires attention is the Domain for **Infrastructure and facilities**, where twenty States/UTs have scored less than 120 (80% of maximum possible score in this domain). This is a cause for concern as a proper school building with adequate facilities is a must to improve the overall quality of school education.

4) SDG India Index 2020-21

What is SDG India Index?

- The Index for Sustainable Development Goals (SDGs) evaluates progress of states and Union Territories (UTs) on various parameters including health, education, gender, economic growth, institutions, climate change and environment. It is released by the **NITI Aayog**.

- First launched in **December 2018**, the index has become the primary tool for **monitoring progress on the SDGs in India**. It has also fostered competition among the states and UTs by ranking them on the global goals.
- The SDG India Index scores range between 0-100, higher the score of a State/UT, the greater the distance to target achieved. States and UTs are classified in four categories based on their SDG India Index score — **aspirant**: 0-49; **performer**: 50-64; **front-runner**: 65-99, **achiever**: 100.

What is the significance of the SDG India Index?

- The index is developed in **collaboration with the United Nations in India**. It tracks the progress of all states and UTs on **115 indicators** aligned with the **National Indicator Framework (NIF) of the Ministry of Statistics and Programme Implementation**.
- The index is a key tool for focused policy dialogue, formulation and implementation through development actions, in line with the global SDG framework. It helps in identifying crucial gaps related to tracking the SDGs and the need for India to develop its statistical systems.

Why in News?

- NITI Aayog has released its SDG India Index 2020-21.
- From covering 13 Goals with 62 indicators in its first edition in 2018,

the third edition of the index covers **16 Goals on 115 quantitative indicators**. The 115 indicators incorporate 16 out of 17 SDGs, with a qualitative assessment on Goal 17.



Highlights of the latest report Top Performers

- While **Kerala** has retained the top rank in 2020-21 Index, **Mizoram, Haryana,**

and **Uttarakhand** are the top gainers in terms of improvement in their rankings from 2019, with an increase of 12, 10 and 8 points, respectively.

- **Bihar, Jharkhand and Assam** were the worst performing states in this year's India index.

Overall Score

- The country's **overall SDG score improved by 6 points** — from 60 in 2019 to 66 in 2020-21 — on accounts of improvement in performance in providing facilities including clean water and sanitation, affordable and clean energy among others.
- While Kerala retained its rank as the top with a score of 75, **Himachal Pradesh** and **Tamil Nadu** both took the second spot with a score of 74.
- **Chandigarh** maintained its top spot among the UTs with a score of 79, followed by **Delhi** (68).

Categories

- While in 2019, 10 states/UTs belonged to the **category of front-runners** (score in the range 65-99, including both), 12 more states/UTs find

themselves in this category in 2020-21.

- Uttarakhand, Gujarat, Maharashtra, Mizoram, Punjab, Haryana, Tripura, Delhi, Lakshadweep, Andaman and Nicobar Islands, Jammu and Kashmir and Ladakh graduated to the category of front-runners (scores between 65 and 99, including both).
- Currently, there are **no states in the aspirant and achiever category**; 15 states/UTs are in the **performer category** and 22 states/UTs in the **front runner category**.

Related Information

SDGs & 2030 Agenda for Sustainable Development

- The **Sustainable Development Goals** are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The **17 Goals** were adopted by all UN Member States in 2015, as part of the **2030 Agenda for Sustainable Development** which set out a 15-year plan to achieve the Goals.



- Through the pledge to **Leave No One Behind**, countries have committed to

fast-track progress for those furthest behind first. That is why the SDGs are

designed to bring the world to several life-changing 'zeros', including zero poverty, hunger, AIDS and discrimination against women and girls.

- Today, progress is being made in many places, but, overall, action to meet the Goals is not yet advancing at the speed or scale required.

About NIF

- The Ministry of Statistics and Programme Implementation has

developed a National Indicator Framework (NIF) consisting originally of 306 national indicators following a consultation process with other stakeholders.

- NIF is the backbone of monitoring of SDGs at the national level and provides appropriate direction to the policy makers and the implementing agencies of various schemes and programmes.

Polity

1) Inland Vessels Bill, 2021

What's in the news?

- The Union Cabinet has given its approval to the Inland Vessels Bill, 2021, which will replace the Inland Vessels Act, 1917. The new bill looks at streamlining vessels running on inland waterways in the country.
- The bill will now be presented in the Parliament.

Highlights of the Bill

- A total of 4,000 kilometres of inland waterways are operational in the country. The Bill will regulate safety, security and registration of inland vessels.
- A key feature of the Bill is a **unified law for the entire country**, instead of separate rules framed by the States.
- The **certificate of registration** granted under the proposed law will be deemed to be **valid in all States and Union Territories**, and there will be no need to seek separate permissions from the States
- The Bill provides for a **central database** for recording the details of vessel, vessel registration, crew on an electronic portal.
- It requires **all mechanically propelled vessels to be mandatorily registered**. All non-mechanically propelled vessels will also have to be enrolled at district, taluk or panchayat or village level.

Related Information

Inland waterways of India

- India has an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks. These long waterways provide a good mode of transport across the cities as well as towns, like backwaters of Kerala, Canals in Gujarat and few waterways in Goa, West Bengal and Assam.
- The **total navigable length is 14,500 km**, out of which about 5,200 km of the

river and 4,000 km of canals can be used by mechanized crafts. Still these **inland waterways are underutilized** in India as compared to other countries in the world.

- Its operations are currently restricted to a few stretches in the Ganga-Bhagirathi-Hooghly rivers, the Brahmaputra, the Barak river, the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari - Krishna rivers.
- **Freight transportation by waterways is highly under-utilized** in India compared to other large countries and geographic areas like the United States, China and the European Union. The total cargo moved (in tonne kilometres) by the inland waterway was **just 0.1% of the total inland traffic in India**, compared to the 21% figure for the United States. Cargo transportation in an organised manner is confined to a few waterways in Goa, West Bengal, Assam and Kerala.
- Water transportation is receiving significant attention in recent times since **logistics cost in India is one of the highest among major countries** – it is 18% in India versus 8-10% in China and 10-12% in European Union.
- While inland waterways are recognised as a **fuel efficient, cost effective and environment friendly mode of transport**, it has received lesser investment as compared to roads and railways. Since inland waterways are lagging behind other modes of transport, the **Inland Waterways Authority of India (IWAI)** is working on new projects for waterways and better water transportation in India.

About IWAI

- The Inland Waterways Authority of India came into existence in 1986 for

development and regulation of inland waterways for shipping and navigation.

- It is a **Statutory Body under the Ministry of Shipping**.
- The Authority primarily undertakes projects for development and maintenance of Inland Water Transport (IWT) infrastructure on national waterways through grants received from the Ministry of Shipping.

National Waterways Act 2016

- As per constitutional provisions, only those waterways which are **declared as National Waterways** come under the purview of the **Central Government** while the rest of waterways remain in the purview of respective **State Governments**.
- The National Waterways Act 2016 has **declared 111 rivers or river stretches, creeks, estuaries in India as National Waterways** for the promotion of Inland waterways in the country.
- The National Waterways Act **mandates the Central Government to regulate these waterways** for systematic and orderly development of shipping and navigation activities.
- It intends to create large-scale, commercial shipping and navigation systems in all these 111 waterways. These are expected to **realise the potential of cargo and passenger traffic**, including tourism and cruise, offer **seamless connectivity at lower per-unit cost and make transportation more efficient**.
- Spread across the Eastern, Western, Southern and Central regions of the country, these waterways cover nearly 15000 kilometers across 24 states and two union territories.
- The project would generate a series of **forward and backward linkages** with prospects to penetrate deep into the economy. The **multiplier effect** of the

investment and its linkages can result in a virtuous cycle of all-round growth.

2) Sedition

CONTEXT

- A Supreme Court Bench led by Justice D.Y. Chandrachud recently flagged indiscriminate use of the sedition law against critics, journalists, social media users, activists and citizens for airing their grievances about the governments COVID-19 management.
- The apex court also said that it is **time to define the limits of sedition**.

LAW ON SEDITION (Section 124A)

- **Section 124A of the Indian Penal Code (IPC)**, deals with sedition. It was drafted by **Thomas Babington Macaulay** and included in the IPC in **1870**.
- It states that 'Whoever, by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into **hatred or contempt, or excites or attempts to excite disaffection towards, the Government established by law**, shall be punished with imprisonment which may extend to **three years**, to which fine may be added.'
- Sedition is a **non-bailable offence**. Punishment under the law varies from imprisonment up to three years to a life term and fine.

PREVIOUS JUDGEMENTS ON SECTION 124A

- In **Kedar Nath Singh v. State of Bihar (1962)**, the Supreme Court upheld the constitutional validity of sedition and noted it as being a **reasonable restriction on free speech** as provided in **Article 19(2)** of the Constitution.

- It made clear that a **citizen has the right to say or write whatever she likes about the government**, or its measures, by way of criticism or comments, **as long as she does not incite people to violence** against the government established by law or with the **intention of creating public disorder**.
- Following the Kedar Nath case, the **Bombay High Court**, in the **case of cartoonist Aseem Trivedi (2012)**, issued **guidelines** which the police must follow prior to invoking the provisions of sedition.
- These include an **objective evaluation of the material** to form an opinion on whether the words and actions cause disaffection, enmity and disloyalty to the government as they must be of the magnitude that they **incite violence or tend to create public disorder**.
- The Court also directed obtaining a **legal opinion in writing from a law officer of the district** who must give reasons on how the pre-conditions are met.
- This needs to be followed by a **second opinion from the State's public prosecutor**.

WHY THE LAW NEEDS RELOOK?

- The sedition law has been in debate ever since it was brought into force by the colonial British rulers in the 1860s. Several top freedom movement leaders including **Mahatma Gandhi and Jawaharlal Nehru were booked under the sedition law**.
- **Mahatma Gandhi** described it as the "prince among the political sections of the Indian Penal Code designed to suppress the liberty of the citizen."
- Despite being cautioned by courts on numerous occasions, law enforcement agencies continue to

misuse the provisions on sedition and ignore court directions. The problem therefore lies in the **poor implementation of the law and guidelines**.

- Based on data from the **National Crime Records Bureau**, between 2016 and 2019, the number of cases of sedition under Section 124A increased by 160%, while the rate of conviction dropped to 3.3% in 2019 from 33.3% in 2016.
- Notably, out of these cases, **many charges fell outside the ambit of sedition**. Consequently, the staggering numbers have got people saying that "the aim is not to punish or convict anyone but to incarcerate them... the process itself is the punishment."
- This data and the gross misuse of the legal provisions compel one to state that even though a Constitution Bench upheld the vires of the law of sedition, the **circumstances now require a complete relook at the provision**.
- When the situation changes, the statute calls for a change as law cannot afford to remain static.
- **The U.K.** has repealed the offence of sedition in 2010 and India is holding onto a relic of the British Empire.
- In its consultative paper on sedition, the **Law Commission of India** said **dissent and criticism of the government are essential ingredients of a robust public debate in a vibrant democracy**.
- The Commission, headed by former Supreme Court judge, Justice B.S. Chauhan suggested **it was time to rethink or even repeal Section 124A**.

WAY FORWARD

- Till the law on sedition continues to remain on our statute book, courts must adopt an **effect-based test**

followed in the west. The test **examines the effects of the seditious text rather than a content-based test which reviews the text alone.**

- It is not the alleged seditious acts that are creating fragments in our society; it is in fact the persecution

of individuals and labelling them that are really creating cracks in our socio-politico ecosystem.

- In the words of **Martin Luther King, Jr.** “**We must learn to live together as brothers or perish together as fools.**”

Economy

1) India's first maritime arbitration centre

What's in the news?

- The Gujarat Maritime University has signed a Memorandum of Understanding (MoU) with the **International Financial Services Centres Authority in GIFT City** to promote the **Gujarat International Maritime Arbitration Centre (GIMAC)**.
- This will be the first centre of its kind in the country that will manage arbitration and mediation proceedings with disputes related to the maritime and shipping sector.

Where is the GIMAC being set up?

- The GIMAC will be part of a maritime cluster that the Gujarat Maritime Board (GMB) is setting up in GIFT City at Gandhinagar. The Maritime Board has rented about 10,000 square feet at GIFT House which is part of the Special Economic Zone (SEZ) area with the clearance from the development commissioner.
- The centre is expected to be ready by the end of August.

Why is such a centre needed?

- There are **over 35 arbitration centres in India**. However, **none of them exclusively deals with the maritime sector**.
- The idea is to create a world-class arbitration centre focused on maritime and shipping disputes that can help resolve commercial and financial conflicts between entities having operations in India.
- It is required because, for instance, the ship owners belong to a different country and the person leasing the ship is from another country. Any dispute arising between them can be resolved within this centre.

- Globally, London is the preferred centre for arbitration for the maritime and shipping sector.

Related Information

About IFSC

- An International Financial Services Centre (IFSC) is a jurisdiction that provides **world class financial services to non-residents and residents**, to the extent permissible under the current regulations, in a currency other than the domestic currency (Indian Rupee) of the location where the IFSC is located.
- **Services provided by an IFSC:**
 - ✓ Fund-raising services for individuals, corporations and governments
 - ✓ Asset management and global portfolio diversification undertaken by pension funds, insurance companies and mutual funds
 - ✓ Wealth management
 - ✓ Merger and acquisition activities among trans-national corporations, etc.

GIFT City

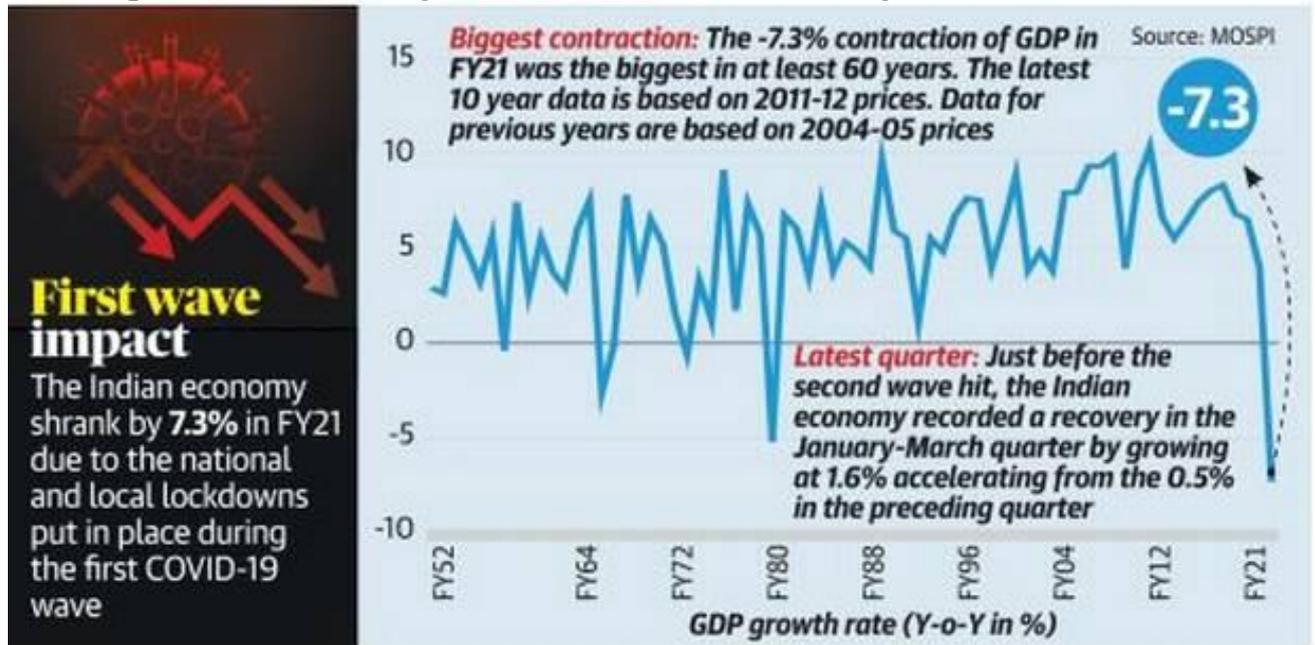
- India's 1st IFSC was set up at the **Gujarat International Finance Tec-City (GIFT City)** in Gandhinagar in 2011.
- It is intended to provide Indian corporates with easier access to global financial markets, and to complement and promote the further development of financial markets in India.

2) GDP shrinks by 7.3%

What's in the news?

- As per provisional National Income estimates released by the **National Statistical Office, India's Gross Domestic Product (GDP) contracted by 7.3% in 2020-21**, marginally better than the 8% contraction in the economy projected earlier.

- GDP growth in 2019-20, prior to the COVID-19 pandemic, was 4%.



GVA

- The **Gross Value Added (GVA) in the economy shrank 6.2% in 2020-21**, compared to a 4.1% rise in the previous year.
- Only two sectors bucked the trend of negative GVA growth — **agriculture, forestry and fishing**, which rose 3.6%, and **electricity, gas, water supply and other utility services** (up 1.9%).
- Though this is the **worst performance on record for the economy**, the fourth quarter (Q4) of 2020-21 helped moderate the damage, with a higher-than-expected growth of 1.6% in GDP.
- This marked the second quarter of positive growth after the country entered a **technical recession** in the first half of the year.
- GDP had contracted 24.4% in the April to June 2020 quarter, followed by a 7.4% shrinkage in the second quarter. It had returned to positive territory in the September to December quarter with a marginal 0.5% growth.

Fiscal Deficit

- India recorded a **fiscal deficit of 9.2% of GDP in 2020-21**, narrower than the revised estimate of 9.5%, as per data from the Controller General of

Accounts (CGA) and official GDP figures.

- The Centre had revised its **fiscal deficit target** in the Budget from **3.5 per cent to 9.5 per cent** due to increased expenditure on various schemes announced by the government to tide over the Covid-19 pandemic.
- The CGA projected the **revenue deficit at 7.42% of GDP**, which had been assumed at ₹194.82 lakh crore in the Union Budget.
 - *Fiscal deficit is the difference between total expenditure and total receipts except borrowing and other liabilities.*
 - *Revenue deficit is defined as the difference between revenue expenditure and revenue receipts.*

Related Information

National Statistical Office

- The National Statistical Office (NSO) is the Statistics Wing of the **Ministry of Statistics and Programme Implementation**.
- In 2019, the central government merged the Central Statistical Organisation (CSO) and National Sample Survey Organisation (NSSO)

into the National Statistical Organisation.

- NSO is mandated with the following responsibilities:-
 - Acts as the nodal agency for planned development of the statistical system in the country
 - Compiles and releases the **index of industrial production (iip)** every month and conducts the **annual survey of industries (asi)**;
 - Organizes and conducts periodic **all-india economic censuses**
 - Prepares national accounts as well as publishes annual estimates of national product, government and private consumption expenditure, capital formation, savings, etc. As also the state level gross capital formation of supra-regional sectors and prepares comparable estimates of state domestic product (sdp) at current prices;

What is a technical recession?

- A technical recession is a term used to describe **two consecutive quarters of decline in output**. In the case of a nation's economy, the term usually refers to back-to-back contractions in real GDP.
- The most significant difference between a '**technical recession**' and a '**recession**' is that while the former term is mainly used to **capture the trend in GDP**, the latter expression encompasses an **appreciably more broad-based decline in economic activity** that covers several economic variables including employment, household and corporate incomes and sales at businesses.
- Another key feature of a technical recession is that it is **most often caused by a one-off event** (in this case, the COVID-19 pandemic and the lockdowns imposed to combat it) and is **generally shorter in duration**.

3) National Anti-Profiteering Authority

About National Anti-Profiteering Authority (NAA)

- Soon after the GST was rolled out from 1 July 2017, the government had approved setting up of the NAA for two years.
- NAA is a **statutory body** constituted under the Central Goods and Services Tax Act, 2017 to **check the unfair profit-making activities by the trading community**.
- The Authority's core function is to **ensure that the benefits of the reduction in GST rates on goods or services made by the GST Council is passed on to the ultimate consumers** by way of a reduction in prices by traders.
- NAA examines and checks such profiteering activities and recommends punitive actions including cancellation of Registration.
- In 2019, the GST Council has **extended the tenure of the NAA by two years**.

Why in News?

- The National Anti-Profiteering Authority has directed GST officials across the country to ensure that the tax rate cuts notified on some COVID-19-related essentials are passed on to consumers.

4) RBI keeps policy rates unchanged

About MPC

- The Monetary Policy Committee (MPC) is a committee of the RBI which is entrusted with the task of fixing the benchmark policy interest rate (**repo rate**) to **contain inflation within the specified target level**.
- The 2016 amendment of the Reserve Bank of India Act, 1934 provides for a **statutory and institutionalised framework** for the MPC.

- The MPC has **six members**
 - **RBI Governor (Chairperson)**, RBI Deputy Governor in charge of monetary policy, one official nominated by the RBI Board and remaining 3 members would represent the Government.
- The MPC makes decisions based on **majority vote**. In case of a tie, the **RBI governor will have a second or casting vote**.

Why in News?

- The Monetary Policy Committee, in its latest meeting, voted to keep the **policy repo rate unchanged at 4%**.
- The MPC also decided to continue with the **accommodative stance** as long as necessary to revive and sustain growth to mitigate the impact of COVID-19 on the economy.
- The **Marginal Standing Facility (MSF) rate** remains unchanged at **4.25%**. The **reverse repo rate** also remains unchanged at **3.35%**.

Related information

Repo Rate & Reverse Repo Rate

- Repo rate is the rate of interest which is applied by RBI to commercial banks when the latter borrows from RBI. Reverse Repo rate is the rate at which RBI borrows money from commercial banks by lending securities.
- Both the Repo rate and Reverse Repo rate are used to **control inflation and money supply in the economy**.
- In the event of rising inflation, the RBI increases the repo rate which will act as a disincentive for banks to borrow from the central bank.
- This ultimately reduces the money supply in the economy and thus helps in arresting inflation. Similarly, if it wants to make it

cheaper for banks to borrow money, it reduces the repo rate.

About MSF

- Marginal Standing Facility is an **overnight liquidity support** provided by RBI to commercial banks with a higher interest rate over the repo rate.
- MSF can be used by a bank after it exhausts its eligible security holdings for borrowing under other options. Under MSF, banks can borrow funds from the RBI by pledging government securities within the limits of the Statutory Liquidity Ratio (SLR).
- MSF, being a penal rate, is **always fixed above the repo rate**.

Objectives

- The MSF scheme was introduced by RBI with the main aim of **reducing volatility in the overnight lending rates** in the inter-bank market and to enable **smooth monetary transmission** in the financial system.
- In 2020, the RBI increased the cap for liquidity available under the marginal standing facility, **from 2 per cent to 3 per cent of their Net Demand and Time Liabilities (NDTL) — or deposits**.

Monetary policy stance

- The Central Banks use different terms to indicate its monetary policy stance on deciding policy rates like repo rate.
- **“Accommodative”** indicates that the central bank is telling the market to expect a rate cut anytime, **“neutral”** means that RBI could either increase or reduce repo rates as per liquidity conditions, **“calibrated tightening”** means that a cut in the repo rate is unlikely in the current rate cycle.

5) Model Tenancy Act

What's in the news?

- The Model Tenancy Act, 2021 has been approved by the Union Cabinet for adoption by states and union territories.
- It aims to create an **effective regulatory ecosystem in India to govern landlord-tenant relationships**. The relationship between landlord-tenants has been tainted due to trust issues in the past as there was no uniform rental housing law in the country.
- It seeks to:
 - Establish a speedy adjudication mechanism for dispute resolution,
 - Regulate renting of premises, and
 - Protect the interests of landlords and tenants.

Purpose of the Model Act as mentioned in the draft

- Balancing interests and rights of the landlord and tenant
- Creating adequate and affordable rental housing stock,
- Enabling formalisation of the rental housing market,
- Encouraging private participation in the sector, and
- Unlocking vacant premises for rental purposes.

Key Features

Written agreement

- The Model Act **requires the landlord and tenant to sign a written agreement which must specify:**
 1. the rent payable,
 2. the time period for the tenancy,
 3. terms and period for revision of rent,
 4. the security deposit to be paid in advance,

5. reasonable causes for entry of landlord into the premises, and

6. responsibilities to maintain premises.

- This will apply to all premises used for **residential, commercial, and educational purposes**.

Capping security deposit

- Security deposit is capped at **two months' rent for residential premises, and six months' rent for non-residential premises**.
- The security deposit will be refunded by the landlord to the tenant at the time of taking over vacant possession of the premises, after making due deductions.

Condition for eviction of tenant

- Conditions for eviction of tenant under the Model Act include:
 1. **refusal to pay** agreed upon rent;
 2. **failure to pay** rent for more than two months;
 3. **occupation** of part or whole of premises without written consent; and
 4. **misuse** of premises despite a written notice.

Dispute adjudication mechanism

- The Model Act establishes a **three-tier quasi-judicial dispute adjudication** mechanism consisting of:
 1. **Rent Authority;**
 2. **Rent Court; and**
 3. **Rent Tribunal.**
- These regulatory institutions will reduce the burden of tenancy disputes from the civil courts and help in speedy dispute resolution.
- **No civil court** will have jurisdiction over matters pertaining to provisions under the Model Act.
- Rent Authorities and Rent Courts may be established by the **District**

Collector with the approval of the state government.

- The **state or union territory government** may establish a Rent Tribunal after consulting with the jurisdictional High Court.

Balance the tenant-landlord relationship

- The Act seeks to provide rights and obligations to both landlord and the tenant.
 - The **landlord** must carry out structural repairs and whitewashing of walls and doors,
 - The **tenants** must be responsible for drain cleaning, geyser repairs, and repairing kitchen fixtures.

Challenges

Non-applicability for certain types of premises

- The Model Tenancy Act, 2021 has largely kept properties owned by Central/State government, Union Territory administration, local authorities, government enterprises; any property owned by some religious or charitable institutes, away from its purview. This will keep a large inventory of leasable properties away from the regulatory framework.

Real Estate - State subject

- Since **real estate** is a state subject under the Seventh Schedule of the Constitution, for states where old Rent laws have to be repealed or amended, it may take even longer. There may be a few states which may not implement the Act at all.

International Relations

1) Tigray crisis

What's in the news?

- The conflict that began between Ethiopia's federal government and the ruling party in the Tigray region in the country's north last year has since blown up into a full scale crisis in the **Horn of Africa**.
 - *The Horn of Africa (alternatively Northeast Africa, and sometimes Somali Peninsula) is a peninsula of East Africa that includes Djibouti, Eritrea, Ethiopia, and Somalia. In its widest sense it could also include Kenya, Sudan, South Sudan and Uganda.*
- *It lies along the southern side of the Gulf of Aden and forms the easternmost projection of the African continent.*
- UN agencies have said that hundreds of thousands in Tigray are facing **famine**, and millions more are at risk. Around 2.2 million people had been displaced by the fighting and many forced to flee to neighbouring countries.
- Reports have emerged of sexual violence against girls and women in the region. The UN said investigations by news organisations and independent observers had revealed that sexual violence was being used as a "weapon of war".



What is the cause of the strife?

- The conflict started in November 2020 when Ethiopian Prime Minister Abiy Ahmed ordered a military offensive against regional forces in Tigray.
- He said he did so in response to an attack on a military base housing government troops in Tigray.
- The escalation came after months of feuding between Abiy's government and leaders of Tigray's dominant political party.
- For almost three decades, the party was at the centre of power, before it was sidelined by Nobel Peace Prize-winning Abiy, who took office in 2018 after anti-government protests.
- Abiy pursued reforms, but when Tigray resisted, a political crisis ensued.

Art and Culture

1) Yoga

What is Yoga?

- Yoga is an ancient physical, mental and spiritual practice that originated in ancient India.
- Yoga is also the name of **one of the six schools of Hindu philosophy**, the other five being **Sankhya, Nyaya, Vaisheshika, Mimansa and Vedanta**.
- Yoga is mentioned in the **Rigveda**, and also referenced in the **Upanishads**, though it most likely developed as a systematic study around the 5th and 6th centuries BCE, in ancient India's ascetic and Śramaṇa movements.
- The science of yoga has its origin thousands of years ago, long before the first religions or belief systems were born. In the yogic lore, **Shiva is seen as the first yogi or Adiyogi, and the first Guru or Adi Guru**.
- The Number of seals and fossil remains of Indus valley civilization with Yogic motives and figures performing Yoga Sadhana suggest the **presence of Yoga in ancient India**. The phallic symbols, seals of idols of mother Goddess are suggestive of **Tantra Yoga**.
- Presence of Yoga is available in folk traditions, Indus valley civilization, Vedic and Upanishadic heritage, Buddhist and Jain traditions, Darshanas, epics of Mahabharat and Ramayana, theistic traditions of Shaivas, Vaishnavas, and Tantric traditions.
- Today it is practiced in various forms around the world and continues to grow in popularity.
- Recognizing its universal appeal, the **United Nations proclaimed 21 June as the International Day of Yoga**. It aims to raise awareness worldwide of the many benefits of practicing yoga.

Yoga as Soft Power

- 'International Yoga Day' is seen as the **projection of India's soft power**. It

also showed the popularity of the ancient Indian practice of Yoga all over the world.

- There are over 300 million practitioners of Yoga worldwide which shows that Yoga is popular in Europe, USA etc.
- Yoga can be a **big tourist boost** for the country as tourists can focus on learning and practicing yoga in its birthplace.
- By showing India's contributions to the world in the field of health, well-being and spirituality, India can project itself as a soft power and ultimately become a strong voice in global matters.

Why in News?

- International Yoga Day was celebrated on June 21.

2) National Maritime Heritage Complex

What's in the news?

- A memorandum of understanding (MOU) has been signed between the Ministry of Ports, Shipping and Waterways and Ministry of Culture for Cooperation in Development of **National Maritime Heritage Complex (NMHC) at Lothal in Gujarat**. This complex would be developed as an international tourist destination.
- The museum is expected to play a big role in highlighting the cultural heritage of the country.

About the complex

- The heritage complex will be **dedicated to the country's 5,000-year maritime history**. NMHC would be developed as an international tourist destination where the maritime heritage of India -- from ancient to modern times -- would be showcased and an edutainment approach using the latest technology would be adopted

to spread awareness about the country's maritime heritage.

- NMHC would be developed in an area of about 400 acres with various unique structures such as the National Maritime Heritage Museum, lighthouse museum, heritage theme park, museum-themed hotels, maritime-themed eco-resorts and maritime institute among others which would be developed in a phased manner.
- The unique feature of NMHC is the recreation of ancient Lothal city, which

was one of the **prominent cities of the Indus valley civilization.**

- Lothal was also a vital and thriving **trade Centre** in ancient times, with its trade of beads, gems, and valuable ornaments reaching the far corners of West Asia and Africa.
- The Lothal site has been nominated as a **UNESCO World Heritage Site**, and its application is pending on the **tentative list of UNESCO** (*Refer Pulse May 2021 edition*).

Defence

1) Negative Import List

What's in the news?

- The Defence Ministry has notified the second negative import list of 108 items — now renamed as the '**positive indigenisation list**'— which can be only purchased from indigenous sources.
- This is the second list issued after the government came out with a list of 101 negative import lists in August last year. The new list takes the total number on the list to 209. It is planned to be implemented progressively with effect from December 2021 to December 2025.
- The 'second positive indigenisation list' comprises complex systems, sensors, simulator, weapons and ammunitions like helicopters, next generation corvettes, Air Borne Early Warning and Control (AEW&C) systems, tank engines, medium power radar for mountains, Medium Range Surface to Air Missile (MRSAM) weapon systems and many more such items to fulfil the requirements of Indian armed forces.

What is a Negative Import List (positive indigenisation list)?

- The negative list essentially means that the Armed Forces—Army, Navy and Air Force, will only **procure such items from domestic manufacturers**.
- The manufacturers could be private sector players or Defence Public Sector Undertakings (DPSUs).

Significance

- Not only does the list **recognise the potential of the local defence industry**, it will also **invigorate impetus to domestic Research and Development** by attracting fresh investment into technology and manufacturing capabilities.
- The list also provides an **excellent opportunity for 'start-ups' as also**

Micro, Small and Medium Enterprises (MSMEs).

- As per **Stockholm International Peace Research Institute**, India has been the **second largest importer** between 2014 and 2019 with US\$ 16.75 billion worth of imports during this period.
- The government wants to reduce the dependence on imported items in defence and promote the domestic defence manufacturing industry.
- By denying the possibility of importing the items on the negative list, the domestic industry is given the opportunity to step up and manufacture them for the needs of the forces.
- This will boost indigenisation of defence production and is in line with the **government's target to reach a turnover of USD 25 billion by 2025 through indigenously manufactured defence products**.
- It is a big step towards self-reliance in defence under the Atmanirbhar Bharat initiative.

2) Pinaka rocket

About Pinaka

- Pinaka is an **indigenous multi-barrel rocket launch system**, which has been developed by the **Defence Research and Development Organisation (DRDO)** for the Indian Army.
- The development of the Pinaka was started by the DRDO in the late 1980s, as an alternative to the multi-barrel rocket launching systems of Russian make, called the '**Grad**', which are still in use.
- After successful tests of Pinaka Mark-1 in the late 1990, it was first used in the battlefield during the **Kargil War of 1999**, quite successfully.

- The **Mark-I version** of Pinaka has a range of **around 40 kilometres** and the **Mark-II version** can fire **up to 75 kilometres**. Over the late 2010s, multiple successful tests of the Mark-II version have been carried out by the DRDO.
- The navigation system of the Pinaka Mark II is aided by the **Indian Regional Navigation Satellite System (IRNSS)** to improve the accuracy and enhance the range.

Why in News?

- DRDO successfully test fired the enhanced version of the Pinaka Mark 1 rocket at integrated test range, Chandipur in Odisha.



- The Enhanced Pinaka Mk-1 will eventually replace the Pinaka Mk-1 missiles, which are currently used by regiments of the Indian Army along India's frontiers with China and Pakistan. The enhanced range version can destroy **targets at distances up to 45km**.

Related Information

Indian Regional Navigation Satellite System (IRNSS) - NavIC

- IRNSS is an independent **regional navigation satellite system** developed by the **Indian Space Research Organization (ISRO)**.
- In April 2016, with the last launch of the constellation's satellite, IRNSS was renamed **Navigation Indian Constellation (NAVIC)**.

Range of NavIC

- It is designed to provide accurate position information service to users in India as well as the region extending up to **1500 km from its boundary**, which is its **primary service area**.
- Beyond that lies an **Extended Service Area**, that can extend up to the edges of the area enclosed by the rectangle imagined by latitudes 30 degrees South and 50 degrees North, and longitudes 30 degrees East and 130 degrees East.
- IRNSS will provide **two types of services**, namely, **Standard Positioning Service (SPS)** which is provided to all the users and **Restricted Service (RS)**, which is an encrypted service provided only to the authorised users.
- The IRNSS System is expected to **provide a position accuracy of better than 20 m** in the primary service area.
- The space segment consists of the IRNSS **constellation of eight satellites** (with one being a replacement). Three satellites are located in the **geostationary orbit** and the remaining four are located in **geosynchronous orbits**.

Applications

- Applications of IRNSS include:
 1. Terrestrial, Aerial and Marine Navigation
 2. Disaster Management
 3. Vehicle tracking and fleet management
 4. Integration with mobile phones
 5. Precise Timing
 6. Mapping and Geodetic data capture
 7. Terrestrial navigation aid for hikers and travellers
 8. Visual and voice navigation for drivers

PROVIDES INDIA WITH ASSURED NAVIGATION SERVICE FOR VITAL CIVILIAN & MILITARY APPLICATIONS WITHOUT HAVING TO DEPEND ON ANOTHER COUNTRY; FIRST SATELLITE TO BE LAUNCHED ON JULY 1; REMAINING 6 BY 2015

IRNSS: INDIAN REGIONAL NAVIGATION SATELLITE SYSTEM

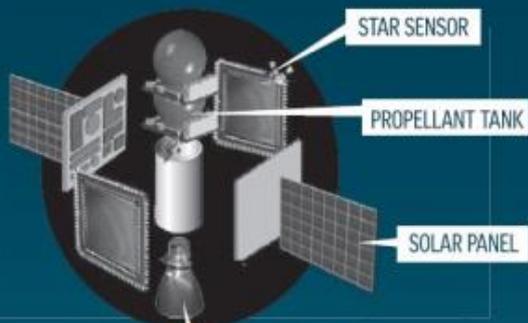
7
SATELLITES

3 GEOSTATIONARY

4 GEOSYNCHRONOUS

ORBIT ALTITUDE **36,000** KM

COST **₹ 1,420** CRORES



Covers India and up to **1,500** km beyond its borders

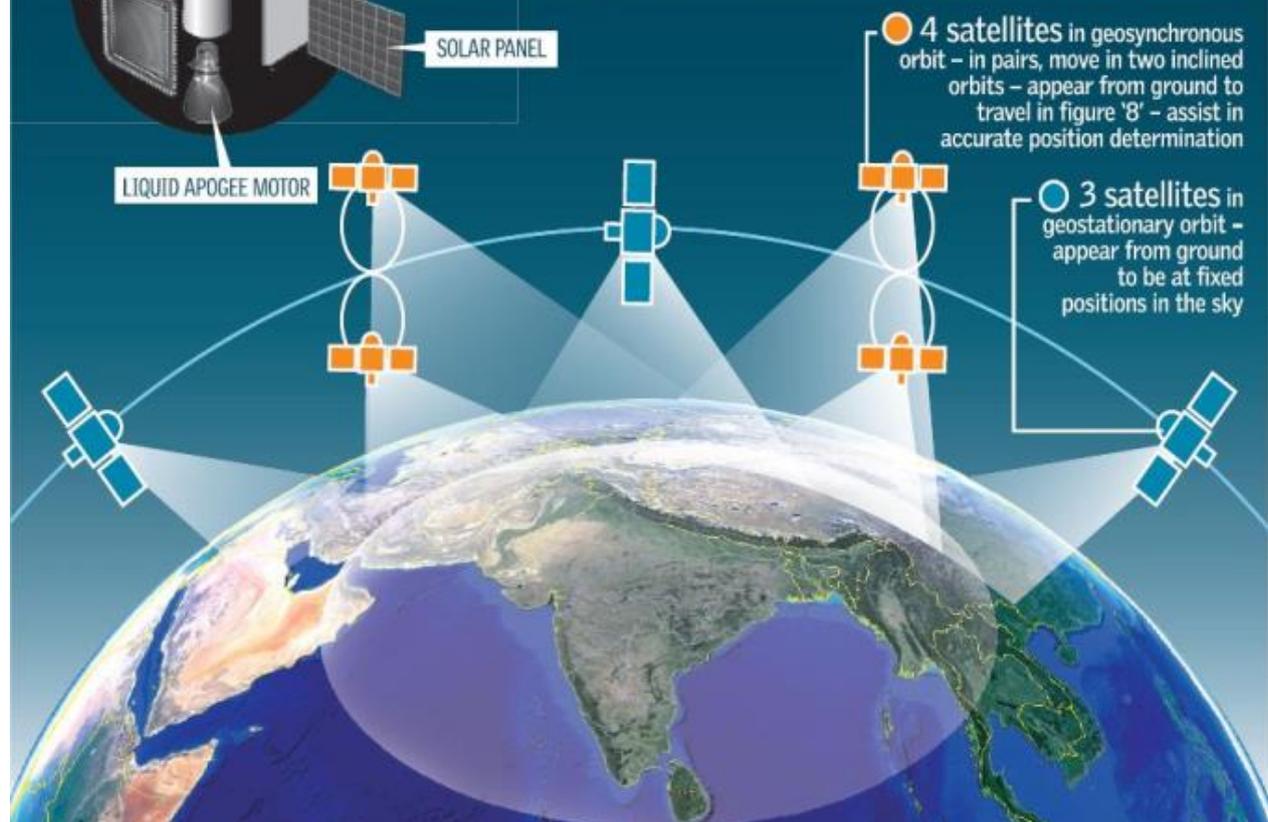
3 extremely accurate rubidium atomic clocks in each satellite

GPS receivers will not work; need special receivers (yet to be developed)

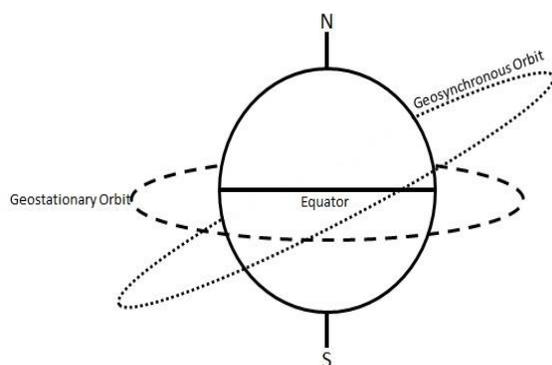
IRNSS provides Standard Positioning Service

Open to all users

Accuracy better than 20 metres



Geostationary vs Geosynchronous orbits



Geosynchronous Orbit

- The orbit around the Earth with an orbit period equal to **one sidereal day** (i.e. 23 Hrs, 56 minutes, 4 seconds) is known as geosynchronous orbit. The word "synchronous" means an object in this orbit returns to the same position after a period of 1 sidereal day to the observer on the Earth's surface.
- There are **many such orbits around the Earth**. It may be **circular or non-circular** types.

- Geosynchronous satellites have an **inclination with respect to the equator.**

Geostationary Orbit

- The circular orbit at an **altitude of 35768 Kms above the equator** of the Earth which **follows the direction of rotation of the Earth** is known as geostationary orbit.
- **Object in this orbit has a period equal to the rotation period of the earth.** Hence it appears motionless from earth or at fixed position to observers on the ground w.r.t. his/her position. Hence the word "stationary".
- There is **only one such orbit** around the Earth.
- It is one **type of Geosynchronous orbit.** It is a **circular orbit.**
- Geostationary satellites have **zero inclination with respect to the equator.**