



SHAPING TALENT

CURRENT AFFAIRS OCTOBER 2022

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Economic & Social Development

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1. Commodity Markets Outlook: World Bank:

- The World Bank's Commodity Markets Outlook is published twice a year, in April and October.
- It provides market analysis for major commodity groups - energy, metals, agriculture, precious metals, and fertilizers.
- The World Bank recently released the October 2022 edition of the Commodity Markets Outlook.
- The projections of commodity prices are subject to numerous risks. Energy markets are facing significant supply-related distress due to concerns regarding their availability during the winter season.
- Higher-than-expected energy prices could lead to a spike in non-energy commodities' prices, especially food. This will prolong the challenges associated with food insecurity and slowdown the global economic growth.
- The falling value of currencies of most developing economies is the major cause of the rising prices of food and energy. Almost 60 per cent of oil-importing emerging market and developing economies witnessed a surge in energy inflation between February and end of October this year.
- **High energy prices** are causing food inflation since agricultural production is highly reliant on energy commodities. During the first three quarters of 2022, food inflation in South Asia averaged higher than 20 per cent. Except East Asia and the Pacific, other regions witnessed the average of food inflation ranging between 12 and 15 per cent. East Asia and the Pacific saw low food inflation partly because of stable prices of rice – the region's staple food.
- Since the Ukrainian war broke out, energy price has remained volatile. However, it is expected to ease. After increasing by 60 per cent in 2022, the energy prices are expected to decline 11 per cent in 2023. However, the energy prices will remain 75 per cent above the average over the last 5 years.
- **Agricultural prices** are projected to decrease five per cent in 2023. This decline will be ensured by the better-than-projected global supply of wheat, stable supply of rice and resumption of grain exports from Ukraine.
- Prices of metals are expected to decline by 15 per cent in 2023 mainly because of weaker global economic growth and economic slowdown in China.

2. Global TB Report 2022:

- The World Health Organisation (WHO) recently released the World Tuberculosis Report 2022 noting the impact of Covid-19 pandemic on the diagnosis, treatment and burden of disease for Tuberculosis (TB) all over the world.
- The 2022 report features data on trends of disease and the response to the epidemic from 215 countries and areas, including all 194 WHO member states.

Key Findings:

Diagnosis and Mortality Globally:

- Around 10.6 million people across the world were diagnosed with TB in 2021, an increase of 4.5% from 2020, while 1.6 million patients died of the disease.
- Of the total TB deaths, 187,000 patients were also positive for HIV (human immunodeficiency virus).
- Nearly 82% of global TB deaths among HIV-negative people occurred in the African and South-East Asia regions.
- The reported number of people newly diagnosed with TB fell from 7.1 million in 2019 to 5.8 million in 2020.
- There was a partial recovery to 6.4 million in 2021, but this was still well below pre-pandemic levels.

India and TB:

- With 28% cases, India was among the eight countries accounting for more than two-third (68.3%) of the total TB patients' count.
- The other countries were Indonesia (9.2% cases), China (7.4%), the Philippines (7%), Pakistan (5.8%), Nigeria (4.4%), Bangladesh (3.6%) and the Democratic Republic of the Congo (2.9%).
- India accounted for 36% of the global TB related deaths among HIV negative people.
- India was among the three countries (along with Indonesia and the Philippines) that accounted for most of the reduction in 2020 (67% of the global) and made partial recoveries in 2021.
- India's Stand on the Report: India has performed far better on major metrics as compared to other countries over time.
- India's TB incidence for the year 2021 is 210 per 100,000 population – compared to the baseline year of 2015 (which was 256 per 100,000 population).
- There has been an 18% decline (7 percentage points); better than the global average of 11% placing India at the 36th position in terms of incidence rates.

Challenges to TB Elimination:

- ✓ **Rise in Drug-Resistant TB:** The burden of drug-resistant TB (DR-TB) increased by 3% globally between 2020 and 2021, with 450,000 new cases of rifampicin-resistant TB (RR-TB) being reported in 2021.
- ✓ **Disruptions due to Covid-19:** This is the first time in several years that an upward trend has been reported in the number of people developing both TB and DR-TB. Experts attribute this trend to the Covid-19 pandemic. Many services were disrupted by the Covid-19 in 2021 but its impact on the TB response has been particularly severe.
- ✓ **Underreporting:**
 - Ten countries collectively accounted for 75% of the global gap between estimated TB incidence and the reported number of people newly diagnosed with the disease. These gaps are due to:
 - Underreporting (of people diagnosed with TB)
 - Underdiagnosis (people with TB being unable to access health care or not being diagnosed when they do).
 - Underreporting is more of a problem in India; the country is among the top five contributors - India (24%), Indonesia (13%), the Philippines (10%), Pakistan (6.6%) and Nigeria (6.3%).

Decline in Diagnosis and Expenditure:

- Reductions in the reported TB cases suggest an increase in the number of people with undiagnosed and untreated TB.
- The number of people provided with treatment for RR-TB and multidrug-resistant TB (MDR-TB) also declined between 2019 and 2020.
- The reported number of people receiving treatment for RR-TB in 2021 was 161,746, which is only about one in three of those in need.
- The report also notes a decline in global spending on essential TB services from US\$6 billion in 2019 to US\$5.4 billion in 2021, which is less than half of the global target of US\$13 billion annually by 2022.

What is Tuberculosis?

- TB is caused by a bacterium called *Mycobacterium tuberculosis*, belonging to the Mycobacteriaceae family consisting of about 200 members.
- In humans, TB most commonly affects the lungs (pulmonary TB), but it can also affect other organs (extra-pulmonary TB). It can spread from person to person through the air.
- Most people who develop the disease are adults – in 2021, men accounted for 56.5% of the TB burden, adult women - 32.5% and children - 11%.
- TB is preventable and curable - around 85% of people who develop the disease can be successfully treated with a 4/6-month drug regimen.

India's Initiatives to Eliminate TB:

- Under the Pradhan Mantri TB Mukht Bharat Abhiyan, India aims to eliminate TB from the country by 2025 (5 years earlier than the global target of 2030).
- Ni-kshay Mitra is a component of this initiative that ensures additional diagnostic, nutritional, and vocational support to those on TB treatment.
- India conducts its own National TB Prevalence Survey to assess the true TB burden in the country which is the world's largest such survey ever conducted.
- The Union Ministry for Health and Family Welfare also launched the 'TB Harega Desh Jeetega Campaign', along with the Survey.
- Currently, two vaccines VPM (Vakzine Projekt Management) 1002 and MIP (*Mycobacterium Indicus Pranii*) have been developed and identified for TB which are under clinical trials.

World Tuberculosis (TB) Day:

- The **World Tuberculosis (TB) Day** is observed on **24th March** to spread awareness about the disastrous health, social, and economic consequences of TB and to make efforts to end the TB epidemic globally.
- The **Bacille Calmette-Guérin (BCG)** vaccine is presently the sole vaccine available for the prevention of TB.

3. Nihonshu:

- The **Embassy of Japan**, New Delhi, has filed an application seeking a Geographical Indication (GI) tag for Nihonshu/Japanese sake.
- This is the first time a product from Japan has filed for a tag at the Geographical Indication Registry.
- In Japan, **Nihonshu** is regarded as a special and valuable beverage made from fermenting rice.
- People traditionally drink nihonshu on special occasions, such as festivals, weddings or funerals, but it is also consumed on a daily basis.

- Thus, it is an integral part of the lifestyle and culture in Japan.
- The sake market (almost all are nihonshu) is the **second largest brewed** liquor (such as beer) market in Japan.

Geographical Indication (GI) Tag:

- **Geographical Indication (GI)** is an indication used to identify goods having special characteristics originating from a definite geographical territory.
- The Geographical Indications of Goods (Registration and Protection) Act, 1999 seeks to provide for the registration and better protection of geographical indications relating to goods in India.
- It is governed and directed by the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).
- It was decided and also stated under Articles 1 (2) and 10 of the Paris Convention that the protection of industrial Property and Geographical Indication are elements of Intellectual Property.
- It is primarily an agricultural, natural or a manufactured product (handicrafts and industrial goods).
- This tag is valid for a period of **10 years** following which it can be renewed.

Significance:

- Once a product gets this tag, any person or company cannot sell a similar item under that name.
- GI registration of a product provides it legal protection and prevention against unauthorised use by others.
- GI tag helps in promoting the exports of the product.
- It also provides comfort to customers about the authenticity of that product.

4. CCI Penalty on Google:

- Recently, the Competition Commission of India (CCI) has imposed a penalty of Rs. 936.44 crores on Alphabet-owned Google for “abusing its dominant position” in markets related to the Android mobile device ecosystem.
- The CCI ordered an investigation into Google Unfair Business Practices in 2019 after consumers complained about Android-based smartphones.
- The allegations against Google were based on two agreements between Original Equipment Manufacturers (OEMs) of Android OS and Google – the Mobile Application Distribution Agreement (MADA) and the Anti-Fragmentation Agreement (AFA).
- The CCI stated that Google contravened competition law due to mandatory pre-installation of the entire Google Mobile Suite (GMS) under MADA and there was no option to uninstall the same.
- **GMS** is a collection of Google applications and Application Programming Interface (APIs) that help support functionality across devices. GMS includes Google’s key offerings such as Google Search, Google Chrome, YouTube, Play Store, and Google Maps.
- This action of Google amounted to imposition of unfair conditions on the device manufacturers and thereby violated Section 4 of the competition Act.
- Section 4 of the Competition Act is related to abuse of dominant position.

Competition Commission of India (CCI):

- Competition Commission of India (CCI) is a statutory body of the Government of India responsible for enforcing the Competition Act, 2002, it was duly constituted in March 2009.
- The Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act) was repealed and replaced by the Competition Act, 2002, on the recommendations of the Raghavan committee.
- The Commission consists of one Chairperson and six Members who shall be appointed by the Central Government.
- The commission is a quasi-judicial body which gives opinions to statutory authorities and also deals with other cases. The Chairperson and other Members shall be whole-time Members.

Competition Act, 2002:

- The Competition Act was passed in 2002 and has been amended by the Competition (Amendment) Act, 2007. It follows the philosophy of modern competition laws.
- The Act prohibits anti-competitive agreements, abuse of dominant position by enterprises and regulates combinations (acquisition, acquiring of control and M&A), which causes or likely to cause an appreciable adverse effect on competition within India.
- In accordance with the provisions of the Amendment Act, the Competition Commission of India and the Competition Appellate Tribunal have been established.
- Government replaced Competition Appellate Tribunal (COMPAT) with the National Company Law Appellate Tribunal (NCLAT) in 2017.

5. "Most Popular GI" Award:

- The Union Ministry of Commerce and Industry recently conferred the '**Most Popular GI**' award to Hyderabad Haleem and other GI products.
- Hyderabad Haleem received the 'Most Popular GI' award under the food category and agriculture category.
- It received the award by beating dishes like Rasgulla, Bikaneri Bhujia, and Ratlami Sev.
- The award was presented to the director of Pista House and president of Hyderabad Haleem Makers Association MA Majeed.
- Under the handicraft category, Thanjavur Art Plate from Tamil Nadu won the award.
- **Mysore Sandal Soap** from Karantaka received the award under the manufacturing category and Uttar Pradesh's **Chuna Balua Patthar** won in the natural category.
- The winners of this award were chosen based on the popular vote.

6. National Credit Framework:

- The Ministry of Education recently unveiled a draft 'National Credit Framework' (NCrF) which aims to bring the entire education system, from school to university, into the academic 'credit' regime and has sought public view.

About the National Credit Framework (NCrF):

- The new framework is a part of the National Education Policy.
- According to the framework, an academic year will be defined by the number of hours a student puts in. Credits will be provided to them accordingly at the end of each academic year.

- The framework has been formulated under the University Grants Commission (Establishment and Operation of Academic Bank of Credits in Higher Education) Regulations, notified in July 2021.
- **Credit System:** The report of the high-level committee on the NCrf, put out in public domain, proposes credit levels from class 5 onward itself - which will be credit level 1, going up to credit level 7 and 8 with post-graduation and a doctorate, respectively.
- Credit levels will increase by 0.5 for every year of learning.
- **Earning Credit:** The total 'Notional Learning hours in a year' for assignment of Credits will be 1200 hours. A minimum of 40 credits may be earned for 1200 hours of learning every year with 20 credits per semester of six months. Each Credit will come with 30 hours of learning- 30 hours per credit.
- Notion learning hours in the context of NCrf means time spent not just in classroom teaching, but also in a range of co-curricular and extracurricular activities. The list of such activities includes sports, yoga, performing arts, music, social work, NCC, vocational education, as well as on-the-job training, internships or apprenticeships.
- **Easy Entry and Exit:** The credit transfer mechanism will also enable a student/ learner to enter and exit the educational ecosystem, both general and vocational, at any point of time. In such cases due weightage is given to work experience gained or any other training undertaken by the learner.
- **Due Attention to Co-Curricular Activities:** The new credit framework will not have any hard separation between Curricular and Co-Curricular, or various discipline and will count in performance on -classroom teaching/learning/laboratory work/class projects; Sports and games, etc.
- **Aadhaar-enabled student registration:** An Aadhaar-enabled student registration will take place. After student registration, an Academic Bank of Credit (ABC) account will be opened. The deposit of degree and credits will take place in those accounts. There will be a knowledge locker along the lines of DigiLocker.
- **Academic Bank of Credit:** The recently introduced Academic Bank of Credit (ABC) for higher education will be expanded to allow for end-to-end management of credits earned from school education onwards and will also include vocational education and trainings, it is envisaged.

Importance:

- It would work as 'an umbrella framework for skilling, re-skilling, up-skilling, accreditation & evaluation' encompassing educational & skilling institutions and workforce.
- The credits for knowledge acquisition, hands-on training, and positive social outcomes will be a key step for achieving 100% literacy in the next 2-3 years and go towards making India a \$5 trillion economy.

7. "One Nation, One Fertilizer" scheme:

- The "One Nation, One Fertilizer" scheme was launched recently by Prime Minister Narendra Modi.

Important Facts:

- The "One Nation, One Fertiliser" scheme or Pradhan Mantri Bhartiya Jan Urvarak Pariyojana was launched by the Central Government.
- This is the largest fertilizer initiative implemented by the Indian Government till date.

- Under the scheme, all types of fertilizers, whether urea, DAP or NPK, will be sold under the single brand name “Bharat”.
- The scheme seeks to standardize fertilizer brands across India regardless of the company that manufactures them.
- It aims to remove all confusions related to the quality of fertilizers and their availability.
- Earlier, retailers were pushing the sale of certain brands to get higher commission and manufacturers are promoting their own products through targeted advertisement campaign.
- This creates misconception on fertilizers, forcing farmers to costlier alternatives.
- This increases the prices of the fertilizers significantly.
- The new scheme is expected to minimise the cost of fertilizers and increase their availability in the market.
- Creation of a single brand for all fertilizers will reduce the cross-country movement of fertilizers, resulting in large freight subsidies.
- It will bring down competition between different manufacturers and ensure sufficient supply of fertilizers is available across India.
- It will unify the fertilizer brands across India.
- Under the new rule, the fertilizer manufacturers are mandated to promote their product under the brand name Bharat.
- They will be permitted to advertise their brand, name, logo and other related information about the product on one-third of their bags.
- The remaining two-thirds of the bag’s space will display the “Bharat” brand and “Pradhanmantri Bharatiya Jan Urvarak Pariyojana” logo.
- For all fertilizer companies, state trading entities (STEs), and fertilizer marketing entities (FMEs), the brand name for urea, Di-Ammonium Phosphate (DAP), Muriate of Potash (MOP), and Nitrogen Phosphorus Potassium (NPK) and others will be Bharat Urea, Bharat DAP, Bharat MOP, Bharat NPK etc.

8. Digital banking units:

- Recently, the Prime Minister of India has dedicated 75 Digital Banking Units (DBU) across 75 districts to the nation.
- As part of the Union budget speech for 2022-23, the Finance Minister announced setting up the 75 DBUs in 75 districts to commemorate our country's 75 years of independence.
- What are Digital Banking Units?
- A Digital Banking Unit is a specialised fixed point business unit or hub, set up by scheduled commercial banks, housing certain minimum digital infrastructure for delivering digital banking products and services as well as servicing existing financial products and services digitally in self-service mode at any time.
- The DBUs are being set up with the objective to ensure the benefits of digital banking reach every nook and corner of the country and will cover all the States and Union territories.

Benefits:

- The DBUs will enable those who do not have Information and Communications Technology (ICT) infrastructure to access banking services digitally.
- They will also assist those who are not tech savvy to adopt digital banking.
- DBU Services:

- Services being offered through DBU include banking facilities like opening of savings account, balance-check, print passbook, transfer of funds, investment in fixed deposits, loan applications, stop-payment instructions for cheques issued, application for credit / debit cards, view statement of account, pay taxes, pay bills, make nominations, etc.
- The DBUs will also facilitate onboarding to Government credit link schemes through the Jan Samarth portal and end-to-end digital processing of small ticket MSME/retail loans.

Difference between DBU & Traditional Banks:

- DBU will provide banking services including cash deposit & withdrawal 24 x 7.
- Services of DBU shall be provided digitally.
- People not having connectivity or computing devices can do banking transactions from DBU in a paperless mode.
- Bank staff will be available to help and guide users for banking transactions in assisted mode.
- DBU will help in providing digital financial literacy and create awareness for adopting digital banking.

Difference between the Digital Banks and DBUs:

Balance Sheet/Legal Personality:

- DBUs do not have legal personality and are not licensed under Banking Regulation Act, 1949.
- Legally, they are equivalent to “banking outlets” i.e., branches.
- Digital Banks will have a balance sheet and legal personality & are proposed to be duly licensed banks under Banking Regulation Act, 1949.

Level of Innovation/Competition:

- DBUs improve existing channel architecture by offering regulatory recognition to digital channels. However, they are silent on competition.
- The DBU guidelines expressly state that only existing commercial banks may establish DBUs.
- In contrast, a licensing and regulatory framework for Digital banks as proposed here, is more enabling along competition/innovation dimensions.

What are other Initiatives for Financial Inclusion?

- ✓ Pradhan Mantri Jan Dhan Accounts
- ✓ Unified Payments Interface (UPI)
- ✓ Direct Bank Transfer
- ✓ Fintech
- ✓ India Stack

9. Global Hunger Index 2022:

- India has experienced remarkable economic growth in recent years and remains one of the fastest growing economies in the world. However, hunger and malnutrition are still areas of concern in spite of many strides.
- While the food security situation is progressively improving, access to nutritional and balanced food is problematic for the vulnerable population. India has slipped 6 places and ranked 107, out of 121 countries, in **Global Hunger Index (GHI) 2022**. In response the Indian government has raised methodological concerns.
- Let’s understand the issues related to the Global Hunger Index (GHI) 2022 and the extent of Food and Nutritional Security in India.

What is the Global Hunger Index (GHI)?

- In common parlance, hunger refers to discomfort due to a lack of food. However, the GHI is not such a simplistic measure “it captures the multidimensional nature of hunger”.

- There are 4 measures it used by GHI:

Undernourishment: The share of the population whose caloric intake is insufficient.

- This makes up 1/3 of the GHI score.

Child Stunting: The share of children under the age of 5 who have low height for their age, reflecting chronic undernutrition.

- This makes up 1/6 of the GHI score.

Child Wasting: The share of children under the age of 5 who have low weight for their height, reflecting acute undernutrition.

- This makes up 1/6 of the GHI score.

Child Mortality: The share of children who die before their 5th birthday, reflecting in part the fatal mix of inadequate nutrition and unhealthy environments.

- This makes up 1/3 of the GHI score.
- The overall score is placed on a 100-point scale and a lower score is better.
- A score between 20 and 34.9 is pegged in the “serious” category and this is where India finds itself with a total score of 29.1. (GHI 22)

Why has the Indian government criticised GHI 2022?

- The Indian government has questioned the methodology of GHI. There are two major sub-parts to the government’s contention:
- First, that the GHI uses “an erroneous measure of hunger”, that 3 out of the 4 variables used are related to children and cannot be representative of the entire population.
- Second, that the 4th indicator of GHI, the proportion of undernourished population is “based on an opinion poll conducted on a very small sample size of 3000”, which is not justified with a country like India representing one-fifth of the world’s population.

What are the Recent Government Initiatives to Tackle Hunger?

10. POSHAN Abhiyan
11. Pradhan Mantri Matru Vandana Yojana
12. Food Fortification
13. Mission Indradhanush
14. Eat Right India Movemen

What are the Factors Responsible for Hunger and Malnutrition in India?

- **Poverty Backing Hunger:** Poor living conditions limit the availability of food for children, while overpopulation, coupled with limited food access, result in malnutrition in children, especially in rural India.
- **Faulty Public Distribution:** There has been a wide variation in the distribution of food in urban and rural areas, with grains being diverted to the open market in order to make a higher profit, and poor quality grains being sold in ration shops, and the irregular opening of these shops contributing to hunger and malnutrition.
- **Unidentified Hunger:** Due to the arbitrary nature of the criteria used to determine a household’s Below Poverty Line status and the fact that these criteria vary from state to state, food consumption has declined significantly due to the inaccurate classification of above poverty line (APL) and below poverty line (BPL).
- Besides this, the poor quality of grains have further contributed to the problem.

- **Hidden Hunger:** India is experiencing a severe micronutrient deficiency (also known as hidden hunger). There are several causes of this problem, including poor diet, disease, and a failure to meet micronutrient needs during pregnancy and lactation.
- **Lack of adequate knowledge amongst mothers regarding nutrition, breast-feeding and parenting** is another area of concern.
- **Gender Inequality:** Due to patriarchal mindset, gender inequality places the girl child at a disadvantage compared to boys and causes them to suffer more since they are last to eat and considered less important.
- In contrast to boys, girls are deprived of mid-day meals due to a lack of access to school.
- **Lack of Immunisation:** Children are neglected when it comes to preventive care (specifically immunizations) due to lack of awareness and not given access to health care for diseases due to affordability issues.
- **Lack of Audit for Nutritional Programmes:** Although a number of programmes with improving nutrition as their main component are planned in the country, there is no specific nutritional audit mechanism at local governance level.

Way Forward:

- **Viewing Nutrition Through Different Lenses:** Better nutrition involves more than just food, it includes health, water, sanitation, gender perspectives, and social norms. Therefore, there is a need to look forward to comprehensive policy to fill the nutritional gap.
- If Swachh Bharat Abhiyan, Beti Bachao Beti Padhao and nutrition policies like Poshan Abhiyan are interlinked, India's nutritional situation will undergo holistic changes.
- **Bringing Social Audit Mechanism:** States and Union Territories should compulsorily carry out the social audit of the mid-day meal scheme in every district, with the help of local authorities and simultaneously work on nutritional awareness.
- Use of information technology to improve program monitoring can be thought of too.
- **Re-orienting PDS:** There is a need to be re-orient and an up-scale Public Distribution System to make it more transparent and reliable and ensure availability, accessibility and affordability of nutritious food, also making a positive impact on the purchasing power of the lower socio-economic segment of the population
- **Agriculture-Nutrition Corridor:** Currently, India's nutritional hubs (villages) are the most deprived of adequate nutrition, there is a need to devise mechanisms to check "Nutritional security of villages" in line with agricultural-commerce.
- Recognising the importance of this link, the Ministry for Women and Child Development launched the Bharatiya Poshan Krishi Kosh in 2019.
- **Women-led SDG Mission:** There is a need to redesign existing direct nutrition programs and linking it with women's self-help groups can make India realise the Sustainable Development Goal- 2 to end hunger and all forms of malnutrition by 2030.
- **Reducing Waste, Reducing Hunger:** India wastes about 7% of its total annual food production and almost 30% of the fruits and vegetables because of inadequate warehousing facilities and cold storages.
- According to the International Institute of Refrigeration, if developing countries had the same level of refrigeration infrastructure as developed countries, they would save 200 million tonnes of food or around 14% of their food supply, which can help in tackling hunger and malnutrition.

10. LEADS (Logistics Ease Across Different States) 2022:

- Recently, the Ministry of Commerce and Industry has released the Logistics Ease Across Different States (LEADS) Report 2022.
- The LEADS is an indigenous data-driven index to assess logistics infrastructure, services, and human resources across all 36 States and UTs.
- LEADS continues to act as a guiding & bridging mechanism for the identification of interventions enhancing logistics efficiency at State/UTs. It reflects positively on international indices, like Logistics Performance Index.
- The first logistics report was released in 2018.

Key Findings:

- Unlike the previous versions of LEADS which were based on ranking systems for all states, LEADS 2022 has adopted a classification-based grading, states have been now classified under four categories viz coastal states, hinterland/landlocked states, north-eastern states, and Union Territories.
- For the assessment of how well a State or UT has performed in comparison to the Top State/UT within the specific cluster.
- Three performance categories namely:
 - Achievers: States/UTs achieving 90% or more percentage.
 - Andhra Pradesh, Assam, Chandigarh, Delhi, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Odisha, Punjab, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and Gujarat are in the achievers Category.
 - Maharashtra tops amongst the “Achievers” states.
- Fast Movers: States/UTs achieving percentage scores between 80-90%.
- Kerala, Madhya Pradesh, Rajasthan, Puducherry, Sikkim and Tripura.
- Aspirers: States/UTs achieving percentage scores below 80% have been made.
- The LEADS 2022 survey report would assist PM Gati-Shakti National Master Plan (PMGS-NMP) and National Logistics Policy (NLP) to mapping of logistics infrastructure, services, and regulatory environment enabling State Governments to identify and fill the gaps and achieve data-driven multimodal connectivity.
- PMGS-NMP has potential to save over Rs. 10 Lakh Crore annually by improving logistics efficiency and will bringing down the logistic cost to single digits in the coming years.
- NMP to help remotest areas undertake integrated infrastructure planning and close development gaps. Through PM Gati-Shakti 197 critical infrastructure gap projects identified.

What is Logistics Performance Index?

- The Logistics Performance Index (LPI), developed by the World Bank Group, is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.
- LPI is the weighted average of the country's scores on the six key dimensions:
 - Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs.
 - Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology).
 - Ease of arranging competitively priced shipments.

- Competence and quality of logistics services (e.g., transport operators, customs brokers).
- Ability to track and trace consignments.
- Timeliness of shipments in reaching destinations within the scheduled or expected delivery time.
- India ranked 44th on the LPI in 2018. As of 2022 no new data has been published.

Page|15 What are the Initiatives Related to Logistics?

1. Multimodal Transportation of Goods Act, 1993.
2. PM Gati Shakti Scheme
3. Multi Modal Logistics Parks
4. LEADS Report
5. Dedicated Freight Corridor
6. Sagarmala Projects
7. Bharatmala Project

11. PM-DevINE:

- The Union Cabinet has recently approved a new scheme called Prime Minister's Development Initiative for North East Region (PM-DevINE).

Key facts:

- PM-DevINE scheme was announced by the Central Government during Union Budget 2022-23 to remove the developmental gaps in the North Eastern Region (NER).
- The recently launched scheme will be implemented for the remaining four years of the 15th Finance Commission from 2022-23 to 2025-26.
- It was announced to address the shortfalls in Basic Minimum Services (BMS) in the North Eastern Region.
- It will be fully funded by the central government and implemented by the Union Ministry of Development of North Eastern Region (DoNER).
- The government has allocated Rs.6,600 crore for the implementation of this scheme.
- The scheme provides funding for infrastructure projects and social development projects that will help remove developmental gaps in various sectors in Northeastern region.
- The ultimate aim of this initiative is to boost livelihood opportunities in Northeastern region, especially for women and youth.
- To minimise the risk of delays and cash crunch, the projects under this scheme will be implemented on engineering-procurement-construction (EPC) basis as much as possible.
- The PM-DevINE scheme will not be a substitute to the existing central and state schemes.
- The new scheme is unique from the other existing MDoNER schemes that are implemented for the development of North Eastern Region.
- The average size of projects under other schemes is about Rs.12 crore. The PM-DevINE scheme aids infrastructure and social development projects that are larger in size. It will also provide end-to-end development solutions rather than focusing on just isolated projects.
- For 2022-23, the scheme will cover all projects that were introduced during recent Union Budget.
- In the future, it will focus on projects that promises to create substantial socio-economic impact or sustainable job opportunities for the general public. These may include basic

infrastructure in all Primary Healthcare Centres, comprehensive facilities in government schools etc.

12. 2022 Nobel Prize for Economics:

- The Royal Swedish Academy of Sciences has decided to award the 2022 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel to Ben S. Bernanke, Douglas W. Diamond and Philip H. Dybvig “for research on banks and financial crises.”
- The 2021 Nobel Prize in Economic Sciences was awarded in one half to Canadian-born David Card (labor economics) and the other half jointly to Israeli-American Joshua D Angrist and Dutch-American Guido W Imbens (analysis of causal relationships).
- Other 2022 Nobel Prizes for Literature, Chemistry, Physics, Medicine and Peace have already been announced.
- Unlike the other prizes, the economics award wasn't established in Alfred Nobel's will of 1895 but by the Swedish central bank in his memory. The first winner was selected in 1969.

What Contribution have these Laureates made in the Banking System?

Ben S. Bernanke:

- Ben Bernanke analysed the Great Depression of the 1930s, the worst economic crisis in modern history.
- Through statistical analysis, Bernanke demonstrated how failing banks played a decisive role in the global depression of the 1930s.
- He showed how bank runs were a decisive factor in the crisis becoming so deep and prolonged.
- It also helped in understanding the importance of well-functioning bank regulation.
- Bernanke was the head of the US central bank, the Federal Reserve, when the 2008 crisis hit, and was able to “put knowledge from research into policy”.

Douglas W. Diamond and Philip H. Dybvig:

- Both Diamond and Dybvig worked together to develop theoretical models explaining why banks exist, how their role in society makes them vulnerable to rumors about their impending collapse, and how society can lessen this vulnerability. These insights form the foundation of modern bank regulation.
- They presented a solution to bank vulnerability, in the form of deposit insurance from the government. When depositors know that the state has guaranteed their money, they no longer need to rush to the bank as soon as rumors start about a bank run.
- Diamond also showed how banks perform a societally important function. As intermediaries between savers and borrowers, banks are better suited to assessing borrowers' creditworthiness and ensuring that loans are used for good investments.

13. Crypto-Asset Reporting Framework:

- The Crypto-Asset Reporting Framework or CARF was recently released by the Organization for Economic Co-operation and Development (OECD).
- Cryptocurrency has grown in size and popularity among investors to facilitate the financial activities such as buying, selling and trading trading in India and around the world. According to the United Nations Conference on Trade and Development Report 2021, 7.3% of Indians owned cryptocurrency in 2021.
- As much appreciable as it is that India is rapidly moving towards digitisation in almost every aspect of life, an underlying concern that needs immediate attention is that at

present, India does not have any regulatory framework to govern the crypto assets market.

- The absence of a regulatory framework not only creates uncertainty for businesses looking to enter this space, but also exposes investors to avoidable frauds. An unregulated ecosystem can also facilitate money laundering, fraud and terror financing.

Page|17 **What is Cryptocurrency?**

- A cryptocurrency is a medium of exchange, such as the rupee or the US dollar, but is digital in format that uses encryption techniques to both control the creation of monetary units and to verify the exchange of money.
- Bitcoin is considered to be the world's best known cryptocurrency and is the largest in the world according to market capitalisation.
- Most cryptocurrencies are not regulated by national governments, they are considered alternative currency or means of financial exchange that are outside the scope of state monetary policy.
- However, In September 2021, El Salvador became the first country in the world to introduce Bitcoin as legal tender.

Where does India Stand in terms of Regulating Cryptocurrency?

- In 2017, the Reserve Bank of India (RBI) issued a warning that virtual currencies/cryptocurrencies are not a legal tender in India.
- However, no ban on virtual currencies took place.
- In 2019, RBI issued that trading, mining, holding or transferring/use of cryptocurrencies is subject to punishment in India with a financial penalty or/and imprisonment up to 10 years.
- RBI also declared that it may launch digital rupee as a legal tender in India in future.
- In 2020, the Supreme Court of India removed the ban on cryptocurrencies imposed by RBI.
- In 2022, the Government of India clearly mentioned in the Union budget 2022-23 that the transfer of any virtual currency/cryptocurrency asset will be subject to 30% tax deduction.
- Gifts in the form of virtual assets/cryptocurrencies will be taxed in the hands of the receiver.
- In July 2022, The Reserve Bank of India (RBI) recommended a ban on cryptocurrencies citing 'destabilising effects' for the country's monetary and fiscal health.

What are the Grey Areas Regarding Crypto-Currency?

- **Volatile Nature:** Cryptocurrency is speculative. Investing in high amounts leads to Market Volatility, meaning prices fluctuate and people may suffer big losses as a result.
- **Reliability and Security:** Cryptocurrency for its characteristic of be a digital mode of transaction, it has become a very common platform for hackers, terror finance, and drug transaction.
- This has brought tiredness among the people to a larger extent as it brings lesser security and lack of reliability.
- For example, Wannacry virus was used by criminals to make ransom payments in Bitcoin.
- **Lack of Regulatory Framework:** The Indian government is following a wait and watch policy towards cryptocurrencies. Absence of regulatory authority has led to increased chances of fraud threat to investor protection and movement of money in the economy.

- **Flooding Advertisement:** There has been an explosion of advertising in the crypto market to lure people into speculating, because it is seen as a quick way to make money. However, there is concern that these efforts are to mislead youth through “overpromising” and “non-transparent advertising”.
- **Stock-Market Issues:** The Securities and Exchange Board of India (SEBI) has pointed out that it does not have control over cryptocurrency "clearing and settlement" and cannot provide counterparty guarantees as it does for stocks.
- In addition, cryptocurrency has not been defined as either a currency, commodity, or security.
- **Scalability Concern:** The scalability of crypto remains a major concern, since it is based on blockchain technology. In blockchain technology, the data storage mechanism is append-only, that means it cannot be modified, and since the demand is growing, storage capacity remains limited.
- **Money Laundering:** There is a huge possibility that people might start investing in money laundering and it is very easy as one can send money from country to country without any accountability.
- **Possibility of Economic Disbalance:** Rising crypto currency market can disbalance the circular flow of money in the Indian Economy. The creation of cryptocurrency is very different from how actual cash is created in the economy.
- For instance, In India, only the RBI has the authority to create cash only after maintaining the Minimum Reserve System. This creates a balance of demand and supply.
- However, Cryptocurrency doesn't rely on the financial institutional regulations but are encrypted and protected which makes it difficult to increase the supply of money over a predefined algorithm rate.
- **No Ombudsman:** Currently there is no forum, where a user can possibly reach out for any help or grievance redressal mechanism related to crypto assets, as a result of which consumers are exposed to transactional and informative risks.

What Should be the Way Forward?

- **Defining Cryptocurrency:** Cryptocurrencies should be explicitly defined as securities or other financial instruments under the relevant national laws.
- **Linking Startup Ecosystem with Crypto:** India's startup ecosystem can be revitalised by cryptocurrency and blockchain technology, which can create job opportunities, from blockchain developers to designers, project managers and business analysts to promoters and marketers.
- **Lynchpin for International Cooperation:** Because crypto assets transcend national borders, they serve as a lynchpin for international coordination of financial markets governance.
- However, crypto-asset regulation is still in its infancy in many emerging and developing economies (EMDEs) like India.
- A risk-based and context-specific international cooperation to regulate cryptocurrency flow is crucial.
- **India Towards CBDC:** The Finance Minister of India announced the introduction of a Central Bank Digital Currency (CBDC) for India in the form of Digital Rupee. It will give a big boost to the Indian digital economy.

- Digital currency will also lead to a more efficient and cheaper currency management system.
- However, CBDC should exist in harmony with other cryptocurrencies to reap the full benefits of the Blockchain technology.

14. Tele-MANAS initiative:

- On the occasion of World Mental Health Day, Tele Mental Health Assistance and Networking Across States (Tele MANAS) initiative was launched.

What is the need for Tele MANAS?

- There is an urgent need to establish a digital mental health network that will withstand the challenges amplified by the pandemic.

About Tele MANAS:

- The programme includes a network of 23 tele-mental health centres of excellence.
- Aim: To provide free tele-mental health services all over the country round the clock, particularly catering to people in remote or under-served areas.
- Initiated by: Union Ministry of Health & Family Welfare
- Nodal Centre: NIMHANS
- Technology support: International Institute of Information Technology-Bangalore (IIITB)
- Functioning: A toll-free, 24/7 helpline number (14416) has been set up across the country allowing callers to select the language of choice for availing services. The calls would be routed to Tele-MANAS cells in the respective state and union territory.

The organizational framework of Tele MANAS:

- Tele-MANAS will be organised in a two-tier system; Tier 1 comprises state Tele MANAS cells which include trained counsellors and mental health specialists. Tier 2 will comprise specialists at District Mental Health Programme (DMHP)/Medical College resources for physical consultation and/or e-Sanjeevani for audio-visual consultation.

15. Education 4.0 report:

- The Education 4.0 India report was jointly released by the WEF, UNICEF and YuWaah (Generation Unlimited India).

Key findings:

- The school-to-work transition is the process of making students employable in a rapidly changing job market.
- The report found that, due to the lack of coordination, school-to-work transitions in India face significant challenges.
- The main challenges in this regard include lack of trainers, insufficient resources, infrastructure gaps, poor integration with mainstream school education curriculum and poorly links between local skill gaps and vocational courses.
- Majority of parents and students consider vocational education as the second-best option to mainstream education.
- Employers expect students to have high level of competencies, knowledge and skills related to their jobs. They also favour those students with strong communication skills, teamwork and problem-solving and critical thinking capabilities.
- Currently, the school education system lacks the means to satisfy the demands of the industry and there is no formal channel to involve the participation of industries to address this issue.

- Since credits cannot be transferred or linked between formal and informal education streams, it discourages students from pursuing higher education after vocational courses and vice versa.
- The report suggests boosting career awareness, increasing job opportunities via internships and apprenticeships, allowing credit transferability to enable students to shift between formal and informal means of education, holistic development through language learning, STEM-based courses and life skills coaching and other such recommendations.

About Education 4.0 report:

- The Education 4.0 report assesses the progress and findings from Education 4.0 India initiative, which focuses on the use of Industrial Revolution 4.0 technologies in improving the learning outcomes and reducing inequalities in India's education sector. It aims to address the disparities in the country's education sector and recommends strategy to improve the Indian school system. It also seeks to empower students using ed-tech. It gives framework for the development of scalable pilots that can be implemented by the government entities and private players.

16. 2022 Commitment to Reducing Inequality (CRI) Index:

- India has moved up six places to **rank 123 out of 161 countries** for reducing inequality but continues to be among the lowest performers in health spending, according to the latest **Commitment to Reducing Inequality Index (CRII)**.
- The 2022 CRII looks at government policies and actions in 161 countries to fight inequality during the first two years of the COVID-19 pandemic.
- **Norway leads the CRII followed by Germany and Australia.**
- India's overall rank has improved by six points from 129 in 2020 to 123 in 2022. It has moved up 12 places to rank 129 for reducing inequality through progressive spending.
- The country ranks 16 for progressive taxation, up by three.
- Under ranking for minimum wage, India has fallen 73 places due to the country being reclassified as not having a national minimum wage.
- Under the 'Impact of public spending on reducing inequality indicator', India has moved up 27 places and under 'Impact of tax on reducing inequality indicator', India has moved up 33 places.
- The Index which is prepared by Oxfam International and Development Finance International (DFI) measures governments policies and actions in three areas proven to have a major impact on reducing inequality.

17. Foreign Direct Product Rule (FDPR):

- Recently, the US Commerce Department is tightening export controls to limit China's ability to get advanced computing chips, develop and maintain supercomputers, and make advanced semiconductors.

About The foreign direct product rule (FDPR):

Background:

- It was first introduced in 1959 to control trading of US technologies.

Objective:

- It essentially says that if a product was made using American technology, the US government has the power to stop it from being sold including products made in a foreign country.

Significance of this law:

- This application will stop advanced chip use in Chinese supercomputers which can be used to develop nuclear weapons and other military applications.
- The United States had already placed a number of Chinese supercomputing companies on a restricted entity list, cutting them off from buying US chips.

Examples:

- It was used against China telecom company Huawei Technologies Co Ltd in 2020.
- American officials had tried to cut off Huawei's supply of semiconductors but found that companies were still shipping Huawei chips made in factories outside the United States.
- US regulators used it on Russia and Belarus after the invasion of Ukraine to cut off chips.

18. Poverty and Shared Prosperity Report 2022:

- Recently, the **World Bank** has released the report titled Poverty and Shared Prosperity 2022: Correcting Course.

Major Highlights of the report:

Poverty

- The world is unlikely to meet the goal of ending extreme poverty by 2030.
- 70 million people were plunged into poverty in 2020, the largest one-year increase since global poverty monitoring began in 1990.
- An estimated 719 million people subsisted on less than \$2.15 a day by the end of 2020.
- COVID pandemic and the war in Ukraine
- The global poverty reduction has been slowing down since 2015 but the Covid pandemic and the war in Ukraine have completely reversed the outcomes.

Inequalities:

- They too have risen.
- The poorest people bore the steepest costs of the pandemic: income losses averaged 4 per cent for the poorest 40 per cent, double the losses of the wealthiest 20 percent of the income distribution.
- Global inequality rose for the first time in decades.

Global median income:

- It declined by 4 per cent in 2020, the first decline since measurements of median income began in 1990.
- The median divides the income distribution into two equal parts: one-half of the cases falling below the median income and one-half above the median.
- India's poverty levels
- Poverty has gone up in India too.
- Previous estimates suggested a poverty headcount rate at the US\$1.90 poverty line of 10.4 percent in 2017.
- The latest estimate based on Sinha Roy and van der Weide (2022) shows that poverty at the US\$1.90 poverty line was 13.6 percent in 2017.

Major challenges as cited by the report:

- The report uses data from the Centre for Monitoring Indian Economy (CMIE), because there are no official estimates of poverty available since 2011.
- The most recent survey data released by the National Sample Survey Office of India used to measure poverty is the 2011/12 National Sample Survey (NSS).
- The government decided not to release the 2017/18 NSS round because of concerns about data quality.

Biggest poor population:

- Lack of data could not have left India out of the poverty estimates simply because India is one of the countries with the biggest poor population.
- Poverty and Shared Prosperity 2020
- Because of India's size, the lack of recent survey data for the country significantly affects the measurement of global poverty, as was evident in Poverty and Shared Prosperity 2020.

Way forward:

Fiscal policy:

- Considering the initial country conditions in terms of fiscal space it does offer opportunities for policy makers in developing economies to step up the fight against poverty and inequality.
- The average poverty rate in developing economies would have been 2.4 percentage points higher without a fiscal response.

Government spending:

- It proved far more beneficial to poverty reduction in the wealthiest countries, which generally managed to fully offset Covid-19's impact on poverty through fiscal policy and other emergency support measures.

Resources:

- Developing economies had fewer resources and therefore spent less and achieved less.
- Upper-middle-income economies offset just 50 per cent of the poverty impact.
- Low- and lower-middle income economies offset barely a quarter of the impact.

19. IFC's Global Food Security Platform:

- **International Finance Corp. (IFC)** has launched Global Food Security Platform to strengthen the private sector's ability to respond to food crisis and boost food production.

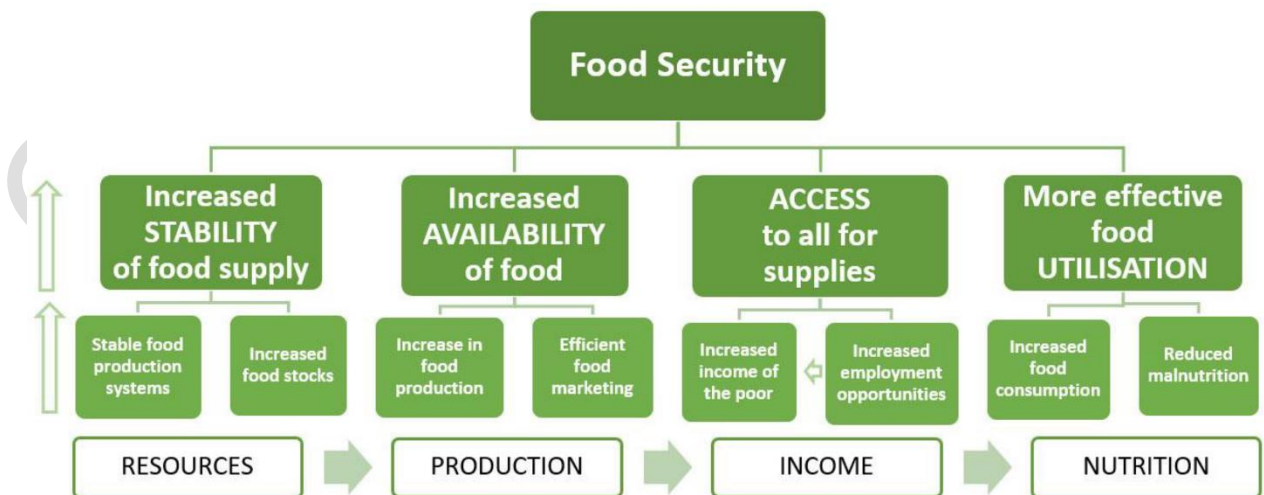
Key facts:

- The **World Bank's** private sector arm, IFC, launched the Global Food Security Platform to address global food crisis.
- This 6 billion USD financing facility will help boost the flow the vital goods and services, including the uninterrupted trade flow of food supplies and other important commodities like fertilizers to vulnerable communities.
- It is part of the World Bank's on-going 30 billion USD initiative that was launched to reduce food insecurity.
- The **Global Food Security Platform** will also help private entities to make new and long-term investment on local food systems in emerging markets to make them more diversified, sustainable and productive.

- The platform aims to reduce the food volatility through emergency funding to farmers, food and feed processors, commodity traders, and other stakeholders witnessing funding constraints because of sudden inflation.
- It will also assist war-torn Ukraine to restore crop production, food storage, food processing and logistics.
- With the Ukraine war and climate change adversely impacting the global grain supplies, the initiative will promote localized production of staple crops and increase commercial viability of traditional wheat alternatives in Africa and Asia. Efforts will be made to make these crops more productive and resilient to climate crisis.
- The financial facility will boost industries that are involved in ensuring food security. These include agribusinesses, renewable energy, digital technologies, logistics, storage facilities, fertilizer trade and crop nutrition products.
- The platform will be complemented by the IFC's on-going advisory initiatives focusing on improving crop production practices, increasing the capacity of smallholders and easing access to safe and nutritious food.
- The issue of gender gaps will also be addressed since they limit global food production and curtail job opportunities for women. This will be achieved by providing women with financial aid, technical assistance, capacity building and employment opportunities.

Food Security in India:

- India has experienced remarkable economic growth in recent years and remains one of the fastest growing economies in the world. However, poverty and food insecurity in India are still areas of concern in spite of many strides. Food is considered as a basic amenity essential for the sustenance, development and growth of an individual.
- India has ranked 101 among the 116 countries on the Global Hunger Index, 2021. According to the Food and Agriculture Organisation, the Food Price Index has increased by 30% in the year 2021-22.
- Although the **Government of India** has been actively addressing food security at households for a long time through the Public Distribution System and the **National Food Security Act (NFSA) 2013**, there are still concerns related to Food Security in India



amidst increasing population, climate change and global supply chain disruption (Russia-Ukraine War) that need to be addressed.

20. herSTART Initiative:

- The President of India recently launched 'herSTART', an initiative of the Gujarat University Startup and Entrepreneurship Council (GUSEC) aimed at supporting women-led startups.
- The President also laid the foundation stone for various projects related to education and tribal development in Gujarat.

About:

- The platform will include a digital platform to provide resources and training modules free of cost to aspiring women entrepreneurs, a digital community for them, and a digital publication to spread their success stories.
- The Platform encompasses the herSTART Incubator, a dedicated full-fledged Startup incubator for women entrepreneurs and innovators, and the herSTART Accelerator, a round-the-year accelerator programme for high-impact women-led startups.
- Gujarat is the first state in the country to form the Garima Cell with the aim of giving new energy and direction to the higher education system of the state.

Significance:

- The 'herSTART' platform will boost innovation and start-up efforts of women entrepreneurs and also help them connect with various government and private enterprises.
- Employment generation: through 450 Startup projects operational in Gujarat University. Of these, 125 startups specially inspired by entrepreneurial women are giving a new direction to the entrepreneurship and innovative ideas in women.
- India has moved from 81st position to 40th position in the Global Innovation Index (GII) of 2022 as a result of the Startup program.
- Reduction in the drop-out rate among the students of the tribal community due to Vanabandhu Kalyan Yojana, Eklavya Model Residential School and Kanya Nivasi Shala.
- Real-time monitoring of the education system of more than 55,000 schools in the state by the Vidya Review Centre.
- Upgrading the infrastructure of about 20,000 schools of the state through Mission School of Excellence.

21. BharatSkills Forum:

- A new feature called the Bharatskills Forum has been added to the Bharatskills learning platform that allows sharing of books, notes, videos, question banks, etc and other relevant skill-related content for learners.

What is Bharatskills Platform?

- Launched in: 2019
- Launched by: Directorate General of Training(DGT) in the Ministry of Skill Development and Entrepreneurship(MSDE)
- **Purpose:** It is a Central Digital Repository for the trainees and trainers of the ITI ecosystem, providing easy access to updated curriculum, e-books, Question Banks, mock/practice papers, learning videos for courses under the Craftsmen Training

Scheme (CTS), Craft Instructor Training Scheme(CITS) and the Apprenticeship Training Scheme(ATS).

- **Significance:** This platform presents unique access to a centralized, scalable, and thriving support ecosystem through its industrial partners for the students and teachers who can now learn the new age (Industrial Revolution 4.0) skills to meet the demands of the industry.

22. UNCTAD annual trade and development report:

- The UNCTAD has released its annual Trade and Development Report 2022.
- The Geneva-based UN body has been releasing this report since 1981 to provide analysis the major current economic trends and policy issues of global concern. It provides recommendations to boost the global economy so that lives of people are improved and the future of the planet is secure.

Key facts:

- The UN report expects the world economy to grow 2.6% in 2022. This is 0.9 percentage points below last year's projected rate. The growth is expected to further decelerate in 2023 to 2.2%. This would leave the real GDP below the pre-pandemic levels by the end of 2023.
- It warns that the rapidly increasing interest rates and fiscal tightening in the advanced economies, along with the Russia-Ukraine War, have already exacerbated the global slowdown into a global economic downturn.
- The advanced economies' monetary and fiscal policies risk triggering a global recession and prolonging stagnation. This could lead to a situation worse than the 2008 financial crisis and the 2020 COVID-19 induced shock.
- The report holds that attempting to curb inflation by increasing interest rates is an impudent gamble and would lead to a recession.
- Excessive monetary tightening, especially given the current situation of declining real wages, financial turbulence and insufficient support and coordination from multilateral forum, could lead to stagnation and instability in many developing economies as well as some developed ones.
- The report expects the Indian economy, the largest in the region, to grow 5.7% in 2022 and 4.7% in 2023. In FY22, the country's GDP grew 8.7%.
- The country's economic activity is being affected by weaker public expenditure and higher financing costs, according to the 2022 report. While the government plans to boost capex, especially in the road and rail sectors, the weakening global economy will put pressure on the policymakers to reduce the fiscal imbalances. This would reduce expenditure elsewhere.

23. YUVA 2.0:

- The Central Government recently launched the YUVA 2.0 scheme.

Key facts:

- The second edition of the Young, Upcoming and Versatile Authors (YUVA) scheme was launched by the Union Ministry of Education as part of Azadi ka Amrit Mahotsav or India @75 project.
- The scheme is a mentoring programme for young and budding authors below the age of 30.

- Its objective is to promote the culture of reading and writing across India and showcase Indian writing at the international level.
- It aims to bring the perspective of the Indian youth on the theme “Democracy (institutions, events, people, constitutional values past, present and future)”.
- It will benefit budding authors capable of writing on a wide-range of subjects focused on the promotion of Indian culture, heritage and knowledge across the globe.
- The launch of the latest edition of YUVA scheme comes after the first edition witnessed a huge participation from young authors in 22 different regional languages as well as in English.
- The theme for the inaugural edition was ‘National Movement of India’, with the focus on “Unsung Heroes”, “Role of Unknown Places in Freedom Movement” and other subjects.

About PM-YUVA scheme:

- Pradhan Mantri-Mentorships’s Scheme for Young writers (PM-YUVA) was launched on May 29, 2021. It is being implemented by the National Book Trust (NBT), India. Under this initiative, 75 young authors will be chosen based on the manuscripts submitted. The selections will be made by a committee set up by the NBT. The chosen authors will get mentors who will guide and help develop the selected proposals into fully-complete books. The authors will be provided a scholarship of Rs.50,000 each month for a period of 6 months. 10 per cent of the royalty will be received by the authors on the publication and sale of the books. The published books will be translated into different Indian languages to promote Ek Bharat Shrestha Bharat and boost cross-cultural and linguistic ties within India.

24. Implementation of Card Tokenization:

- Recently, the Reserve Bank of India (RBI) has made tokenisation mandatory for all credit and debit cards used in online, point-of-sale, and in-app transactions.
- The customer will not be charged for availing the tokenisation service.

What is Tokenisation?

- It refers to the replacement of actual card details with a unique alternate code called the ‘token’, which shall be unique for a combination of card, token requester (i.e., the entity which accepts requests from the customer for tokenisation of a card and passes it on to the card network to issue a corresponding token) and the device.

What was the Need for Tokenisation?

- **Vulnerability of Sensitive Data:** E-commerce giants like Amazon, Myntra, Flipkart, Bigbasket, etc., save sensitive card details with them like card number, expiration date, and CVV get stored in these companies’ databases.
- But if the databases get hacked, it poses a real problem as all the card data will become easily accessible.
- **Rise of Digital Fraud:** The COVID-19 pandemic has pushed drastic changes into the digital economy. With more and more customers and merchants adapting to digital payments, it is now more important than ever to tighten security.
- With an average of 6 billion transactions happening every month, fraud could also grow proportionally if not taken care of.
- This fraud can be a huge threat to the entire country’s financial system. From 2019 to 2020, card fraud has increased by 14% Compounded Annual Growth Rate (CAGR), while in the last three years, it has increased by 34%.

- **Outdated Present System:** The current Card-on-File system (CoF) can be easily breached, and the data can be stolen. So, to take care of the security concerns, RBI has come up with the Tokenization system, which guarantees that the customers' details cannot be breached and cannot be misused by anybody.
- A CoF transaction is a transaction where a cardholder has authorised a merchant to store the cardholder's Mastercard or Visa payment details.

Science and Technology

1. WHO fungal priority pathogens list (WHO FPPL):

- The WHO fungal priority pathogens list (WHO FPPL) is the first global effort to systematically prioritize fungal pathogens, considering their unmet research and development (R&D) needs and perceived public health importance.
- Fungal priority pathogens list (FPPL) includes 19 fungi that represent the greatest threat to human health.
- The list takes precedence from the bacterial priority pathogens list, first established by WHO in 2017 with a similar focus to galvanise global attention and action.
- It aims to focus and drive further research and policy interventions to strengthen the global response to fungal infections and antifungal resistance.

Categories:

- The classification is based on the pathogen's public health impact or emerging antifungal resistance risk.
 - **Critical Priority Group:** It includes *Candida auris*, which is a highly drug-resistant fungi, *Cryptococcus neoformans*, *Aspergillus fumigatus*, and *Candida albicans*.
 - **High Priority Group:** It includes a number of other fungi from the *Candida* family as well as others such as *Mucorales*, a group containing "black fungus", an infection which rose rapidly in seriously ill people, particularly in India, during Covid-19.
 - **Medium Priority Group:** It includes a number of other fungi, including *Coccidioides* spp and *Cryptococcus gattii*.
- Recommended Actions by FPPL Report:
- Strengthening laboratory capacity and surveillance.
 - Sustaining investments in research, development, and innovation.
 - Enhancing public health interventions for prevention and control.

What are the Rising Concerns related to Fungal Pathogens?

Concerns:

- Fungal pathogens are a major threat to public health and are becoming increasingly common and resistant to treatment with only four classes of antifungal medicines currently available, and few candidates in the clinical pipeline.
- Most fungal pathogens lack rapid and sensitive diagnostics and those that exist are not widely available or affordable globally.
- Emerging evidence indicates that the incidence and geographic range of fungal diseases are both expanding worldwide due to global warming and the increase of international travel and trade.

- During the COVID-19 pandemic, the reported incidence of invasive fungal infections increased significantly among hospitalized patients.
- As the fungi that cause common infections (such as candida oral and vaginal thrush) become increasingly resistant to treatment, risks for the development of more invasive forms of infections in the general population are also growing.

Page|28 **Target Population:**

- These fungal infections often affect severely ill patients and those with significant underlying immune system related conditions.
- Populations at greatest risk of invasive fungal infections include those with cancer, HIV/AIDS, organ transplants, chronic respiratory disease, and post-primary tuberculosis infection.

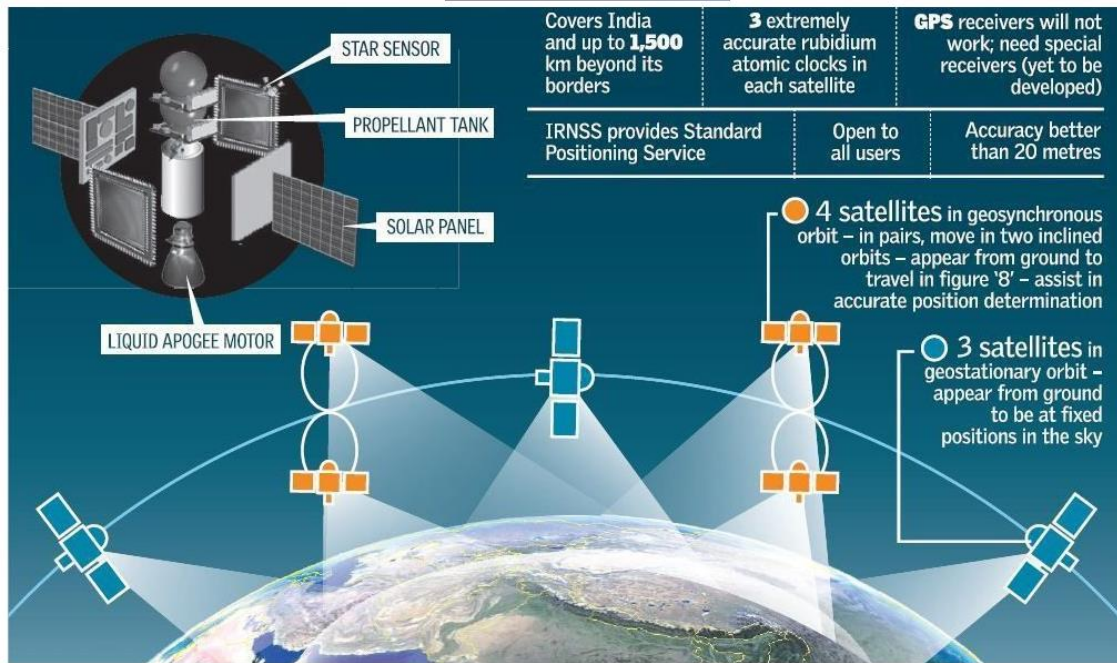
2. India to expand NavIC:

- The Indian Space Research Organization (ISRO) is currently planning to expand the Navigation with Indian Constellation (NavIC).
- It had sought the government's permission to launch 12 additional satellites into the Medium Earth Orbit (MEO) for this purpose. Placing NavIC satellites in MEO will make them global like GPS.
- Currently, NavIC satellites are either in geostationary or geosynchronous (GEO) orbit (36,000 km from Earth). The MEO orbits occupy space between GEO and Low Earth Orbit (250-2,000 km from Earth).
- Several of the satellites in the current NavIC constellation are not operational.
- ISRO is planning to replace at least five of these existing satellites with L-1, L-5, and S-Band, which will provide improved global positioning services.
- The NavIC satellites are currently operating in L-5 Band and S Band, which are used only for transportation and aviation sectors.
- The inclusion of the L-1 band in the new satellite would help NavIC become easily accessible to civilians
- The new satellites will have improved features for securing communication. Currently, NavIC only provides short code. The improved version will provide long code so that communications are not breached while being used for strategic and security purposes.

About NavIC:

- **NavIC** is an independent stand-alone navigation satellite system developed by ISRO. It was operationalized in 2018 with 7 satellites covering the whole of the Indian landmass and up to 1,500 km from the international boundaries.
- It is currently being used for public vehicle tracking, providing emergency warning alerts for fishermen sailing to the deep sea, and tracking information related to natural disasters. With NavIC, India is one of the few countries having its own positioning system.
- Others with their own navigation satellite systems are Russia (**GLONASS**), the European Union (**Galileo**), and China (**BeiDou** Navigation Satellite System).

India's NavIC



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3. Asia's largest Compressed Bio Gas plant:

- Recently, the Union Minister of Petroleum and Natural Gas Hardeep Singh Puri recently inaugurated Asia's largest Compressed Bio Gas (CBG) plant in Lehragaga, Punjab.

Key facts:

- The compressed Bio Gas (CBG) plant in Lehragaga was constructed at the cost of Rs.230 crore over 20 acres of land.
- The project was commissioned with a foreign direct investment (FDI) of Verbio AG – one of the leading bio-energy companies in Germany.
- The CBG plant is currently capable of processing 6 tonnes of paddy straw each day. This capacity will later be expanded to 300 tonnes of paddy straw per day to produce 33 TPD of compressed biogas using eight digesters of 10,000 cubic meters.
- It will address the issue of stubble burning in the state.
- The CBG plant will consume 100,000 tonnes of paddy straw, which will be procured from 6 to 8 satellite locations within a 10 km radius of the plant.
- It will produce 600-650 Tons of FOM (fermented organic manure) each day. The manure will be used for organic farming.
- The plant will provide direct employment to 390 people and indirect employment to 585 people.
- This project will increase the income of farmers in the Sangrur district.
- It will prevent stubble burning on 40,000 – 45,000 acres of land. This will cut down 150,000 tons of carbon dioxide emissions each year.
- The new CBG plant is a step towards achieving the goals of the Sustainable Alternative Towards Affordable Transportation (SATAT) scheme.

SATAT scheme:

- The Indian Government launched the SATAT scheme in 2018 to set up the CBG production plants across the country by inviting expressions of interest through potential investors. The CBG will be used for the automotive sector.
- **Compressed Bio-Gas (CBG)** is produced naturally through the process of anaerobic decomposition of biomass sources like crop residue, cattle dung, sugarcane press mud, sewage treatment plant waste, etc. It has the potential to replace Compressed Natural Gas in automotive, industrial, and commercial uses in the future.

4. Solar Facility:

- The 'Solar Facility' has been approved by the International Solar Alliance at its 5th Assembly Meeting.

Key facts:

- Solar Facility is a payment guarantee mechanism under the ISA framework.
- This initiative was launched to attract investments into the solar energy sector, in line with the ISA goal of unlocking \$1 trillion in solar energy investments by 2030. It is also to reduce the cost of financing and technology.
- The Solar Facility has 2 components - Solar Payment Guarantee Fund and Solar Insurance Fund
- This facility will crowd-source investments from various private donors from across the world. Under-served solar power projects in Africa will then purchase payment guarantees and partial insurance premiums from this fund.

5. HTT-40:

- Recently, the Prime Minister has launched 'Mission DefSpace' at the ongoing DefExpo.
- He also released the fourth Defence Indigenisation List which bars import of 101 items after certain timelines.
- He also unveiled the HTT-40 (Hindustan Turbo Trainer-40) indigenous trainer aircraft designed and developed by Hindustan Aeronautics Limited (HAL) at the India Pavilion during the Expo.

What is HTT-40 Indigenous Trainer Aircraft?

- HTT-40 is a basic training aircraft developed by Hindustan Aeronautics Limited (HAL) for the Indian Air Force (IAF).
- It will replace the ageing fleet of HAL HPT-32 Deepak trainers that are in service with the IAF.
- Its trainer offers the best-in-class fuel economy and power rating.
- It takes-off from a short distance and has a high climb rate.
- It has a maximum speed of 450km/h and can reach a maximum distance of 1,000 km. The stall speed with flaps down is 135 km/h.

6. Human brain cells integrated into new-born rats:

- Scientists have successfully implanted and integrated human neurons into new-born rats.

Key facts:

- Studying of complex psychiatric disorders like schizophrenia and autism is difficult since animals do not experience them like people and human beings cannot be used for the research.
- Human brain cells made using stem cells in petri dishes do not grow to the size of human neurons and their isolation from human body makes it difficult to study the symptoms of the neurological disorders.
- These limitations are addressed by implanting and integrating a group of human brain cells called organoid into the brains of new-born rats.
- Integration of human brain cells in new-born rats helps research psychiatric disorders and test treatment against them.
- Only young rats are used for the implantation since brain stops developing after a certain age in rats. This limits how the implanted brain cells integrate.
- The researchers found that the organoids can grow relatively large in young rats, covering about one-third of the rat's brain.
- The integration was tested by blowing air across the rats' whiskers, which triggered electrical activity in the human neurons. This means that the human tissue in the brain was able to process the external stimulation of the rat's body.
- The researchers also tested and concluded that the implanted human neuron can send signals back to the rat's body.
- The technique was recently used to study the Timothy Syndrome. The researchers found that organoids made using brain cells of patients with Timothy Syndrome grew more slowly and displayed less electrical activity than those from healthy people.
- This study will play a major role in improving the current understanding about human brain development and neurodevelopment disorders.
- However, implanted neurons did not replicate the key features of the developing human brain.
- The implantation of human neurons in rats does not make them more human-like because of the limitations on how deeply these neurons integrate with the rat brain.
- However, these barriers may not exist in species closely related to humans like primates and thus causes ethical concerns over progressing further into the experiment.

7. **Kuafu-1: China's first space-based solar telescope:**

- The Advanced Space-based Solar Observatory (ASO-S) – China's first space-based solar telescope–was launched recently.

Key facts:

- The **Advanced Space-based Solar Observatory (ASO-S)** was launched aboard the Long March-2D carrier rocket from the Jiuquan Satellite Launch Center in northwestern part of China.
- It is nicknamed Kuafu-1, after a mythical giant that sought to capture and tame the sun.
- The solar mission, which is expected to last for 4 years, will enable scientists to capture and study the previously unprecedented images of the Sun during the "solar maximum" (when sun has the highest number of sun spots). The solar maximum is expected to occur around the year 2025.
- The ASO-S is China's first full-scale satellite dedicated to researching the Sun. It is the world's first solar telescope capable of simultaneously monitoring both solar flares and coronal mass ejections.

- It will study the Sun from an orbit 720 km above the surface of the Earth.
- The mission is capable of simultaneous observation of the entire Sun's vector magnetic field, imaging spectroscopy at high energies of solar flares, and studying the formation and evolution of solar flares and coronal mass ejections on the disk and in the inner corona.
- This will improve the understanding of the physics of solar eruptions and further the forecasting capability of solar weather.
- The solar satellite will send 500 GB data concerning the Sun's magnetic field, solar flares and coronal mass ejections each day to ground stations in Sanya, Kashgar and Beijing.
- During the solar eruptions, the satellite can send pictures to ground stations every second.
- From the ground stations, the data is transferred in packages to a 2,048-core computer in Purple Mountain Observatory.
- This mission is similar to NASA's Parker Solar Probe and ESA's Solar Orbiter.
- India is planning to launch a similar solar mission in 2023 called Aditya-L1 to research the solar atmosphere.

8. NASA's Dragonfly rotorcraft:

- Dragonfly rotorcraft will be launched by the American space agency in 2027 to study Titan – the largest moon of Saturn.
- Dragonfly rotorcraft is scheduled to be launched in 2027 and reach the Selk Crater region on Titan in the year 2034.
- The spacecraft, weighing less than 1,000 pounds, will look similar to a military transport helicopter.
- It will operate like a drone to understand the composition of Titan and conduct research to understand the origin of life on Earth.
- This would be the first aircraft on the Saturn's moon and the first-ever fully controlled atmospheric flight on any moon.
- It will be the first flying machine targeting a celestial body in the outer solar system.
- Titan is the target of NASA's Dragonfly rotorcraft since it is an ideal destination to research prebiological chemistry, astrobiology and the potential habitability of an extra-terrestrial world.

9. India's first 24×7 solar-powered village:

- Recently, the Prime Minister declared Modhera, a village in the Mehsana district of Gujarat as India's first solar-powered village.

Key Highlights:

About Modhera Village:

- Modhera is famous for its Sun temple, a protected ancient site, which is situated on the river **Pushpavati**. It was built by King Bhima-I of the Chalukya dynasty in 1026-27.
- The temple will acquire a 3-D projection facility which will inform tourists about the history of Modhera.
- Solar Power Generation: The solar power village would be self-sufficient in solar energy generation, as it will utilise 1000 solar panels that have been installed on the village houses, generating electricity round the clock for the villagers.

- It is developed through Ground Mounted Solar power plant and more than 1300 Rooftop solar systems on residential and Government buildings, all integrated with Battery Energy storage systems (BESS).
- A BESS is a type of energy storage system that uses batteries to store and distribute energy in the form of electricity.

Page|33 Benefits:

- The project will demonstrate how India's renewable energy prowess can empower people at the grassroots.
- The people in the village wouldn't pay for electricity, rather they could start selling it and earn from energy produced by the solar panel by selling it to the government grid.
- It will generate employment at the village level, and ultimately improve the standard of living.
- It will enhance the sustainable implementation of various welfare projects in the area.
- Residents of the area will be able to save 60-100% of their electricity bills.
- It will reduce the drudgery among rural women and girls engaged in the collection of fuel wood from long distances and cooking in smoky kitchens.
- It will also result in minimization of the risks of contracting lung and eye ailments.

10. Chandrayaan-2 maps sodium content on Moon's surface:

- For the first time, the spectrometer on Chandrayaan-2 mapped abundance of sodium on the moon.

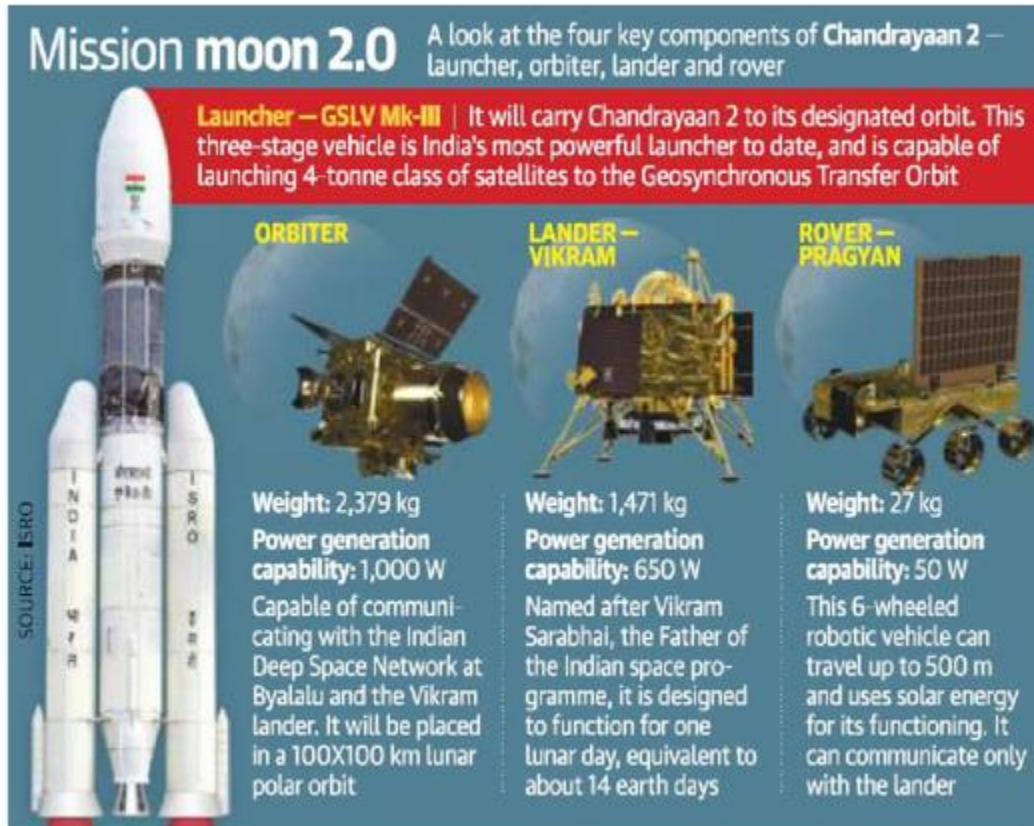
Key facts:

- The x-ray spectrometer called CLASS (Chandrayaan-2 Large Area Soft X-ray Spectrometer) aboard the Chandrayaan-2 Orbiter detected a large amount of sodium on the moon for the first time.
- Earlier, Chandrayaan-1 X-ray Fluorescence Spectrometer (C1XS) opened up the possibility of large amount of sodium on the Moon by detecting the element's characteristic line in X-rays.
- CLASS spectrometer, due to its improved capability and sensitivity, was able to provide clean signature of the sodium line.
- The new research found that a part of the signal could be detected from a thin veneer of sodium atoms that is weakly bound to the lunar grains on the surface.
- Sodium is found in the Moon's exosphere, where atoms rarely interact. The exosphere begins at the lunar surface and spans across several thousand kilometres before merging into the interplanetary space.
- If sodium atoms are part of the lunar minerals, they can easily be pushed out of the surface by the UV rays or solar winds.
- The diurnal variation of the alkali element on the surface explains its continuous supply and presence in the exosphere.
- Currently, sodium and potassium are the only elements that can be observed through telescopes in the lunar atmosphere (exosphere).
- The new findings by the Chandrayaan-2 provides scope to study the interactions between the lunar surface and exosphere. This could help in the development of similar models for Mercury and other airless celestial bodies in the solar system.

- The recent study is the first shot towards a global-scale measurement of sodium on the lunar surface using X-ray fluorescent spectra.

About X-ray fluorescence:

- **X-ray fluorescence** is commonly used to find the composition of minerals in a non-destructive manner. It is triggered when solar flares (a large amount of X-ray radiation) falls on the lunar surface. The CLASS spectrometer measures the energy of the X-ray photons emitted from the moon and counts the total number. The photon's energy indicates the element's atom and its intensity is used to measure of the number of atoms present.



11. Kuafu-1: China's first space-based solar telescope:

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- This mission is similar to NASA's Parker Solar Probe and ESA's Solar Orbiter.
- India is planning to launch a similar solar mission in 2023 called Aditya-L1 to research the solar atmosphere.

12. Nobel Prize in Chemistry 2022:

- Carolyn R Bertozzi, Morten Meldal and K Barry Sharpless have been awarded the Nobel Prize 2022 in Chemistry "for the development of Click Chemistry and Bioorthogonal Chemistry".
- Sharpless (won second time) came up with the term 'click chemistry' and worked extensively on it.
- Meldal, independently of Sharpless, came up with a special chemical structure called 'triazole' which has many significant applications.
- Bertozzi took the next step of developing click reactions that could work inside living organisms – 'bioorthogonal' reactions (a term she coined).
- The 2021 Nobel Prize in Chemistry was awarded to Benjamin List and David MacMillan for the development of asymmetric organocatalysis.
- K Barry Sharpless shared the 2001 Nobel Prize with William S. Knowles and Noyori Ryōji for "Developing the First Chiral Catalysts".

What is the Nobel Winners' Contribution in Click Chemistry?

Concept (Coined by Sharpless):

- Click Chemistry is a minimalistic form of chemistry in which molecular building blocks can quickly and efficiently snap together. It is a form of simple and reliable chemistry, where reactions occur quickly, and unwanted by-products are avoided.
- The concept of Click Chemistry was coined by Barry Sharpless around the year 2000, he found that instead of forcing carbon atoms, the building blocks of organic matter, to bond with each other in the process of building molecules, it's easier to link smaller molecules with complete carbon frameworks.
- The central idea is to choose simple reactions between molecules that have a "stronger intrinsic drive" to bond together, resulting in a faster and less wasteful process.

- **Significance:** Chemists often try to recreate complex chemical molecules found in nature, and this has applications, among other things, in the field of medicine – how to target and block pathogens in cells. However, this process can be complicated and time-consuming.
- Click chemistry, the robust method for building molecules, cannot provide exact copies of natural molecules but it will be possible to find molecules that fulfil the same functions.

Azide - Alkyne Cycloaddition (Meldal and Sharpless):

- In the 2000s, Meldal and Sharpless (independent of each other) provided the crown of Click Chemistry- the copper catalysed azide-alkyne cycloaddition.
- Meldal found that adding copper ions to a reaction between an alkyne and an acyl halide created a triazole, a stable ring-shaped chemical structure that's a common building block in pharmaceuticals, dyes and agricultural chemicals. Adding copper ions helped control the reaction and create just one substance.
- Together, the alkyne and the azide combined to make a triazole. Azide is an N₃ (Nitride Ion) organic compound, whereas an alkyne is a hydrocarbon with at least one carbon-carbon triple bond.
- This simple and effective chemical reaction is now widely used in the development of drugs, mapping Deoxyribonucleic Acid (DNA), and creating materials that are more fit for purpose, among many other things.

Bioorthogonal Reactions (Bertozzi):

- These reactions work inside living organisms without disrupting the normal chemistry of the cell.
- Its use in combination with nanotechnology can lead to further developments in diverse areas of biomedicine, such as molecular bioimaging, targeted delivery, in situ drug activation, study of cell-nanomaterial interactions, biosensing, etc.
- Using bioorthogonal reactions, researchers have improved the targeting of cancer pharmaceuticals.

How did Bertozzi develop Cancer Fighting Click Chemistry?

Spotting Glycans:

- While researching glycans, an elusive type of carbohydrate found on the surface of cells that is crucial to the immune system, Carolyn R Bertozzi wanted to attach fluorescent molecules to glycans so they could be easily spotted.
- Bertozzi turned to the same azide used by Sharpless and Meldal. The azide not only avoids interacting with other parts of the cell, but it's also safe to introduce in living beings.
- In 2004, she developed an alternate click chemistry reaction that worked without toxic copper, making it safe for living cells.
- Bertozzi work is being used to identify glycans on the surface of tumour cells and block their protective mechanisms that can incapacitate immune cells.
- This method is currently in clinical trials for people with advanced cancer. Researchers have also begun developing "clickable antibodies" that can help track tumours and accurately deliver doses of radiation to cancer cells.

13. Optimus - Tesla's humanoid robot:

- Tesla CEO Elon Musk recently unveiled the latest prototype of Optimus – a humanoid robot developed by the American company based in Texas.
- Optimus is a humanoid robot developed by the American company Tesla.

Key facts:

- The prototype of Optimus was showcased during the annual Tesla AI [artificial intelligence] Day presentation.
- The humanoid robot demonstrated the ability to perform simple tasks like watering plants, carrying boxes and lifting metal bars.
- Its purpose is to replace a human tasks with a machine.
- This robot shares some of the artificial intelligence software and sensors with the Tesla cars' autopilot driver assistance features.
- The mass production of these robots will cost less than 20,000 USD.

14. 2022 Nobel Prize in Physics:

- The Nobel Prize in Physics for 2022 was awarded to John F. Clauser, Alain Aspect and Anton Zeilinger for their work in quantum mechanics by the Royal Swedish Academy of Sciences.
- In 2021, the Nobel Prize in Physics was awarded to Syukuro Manabe and Klaus Hasselmann (jointly) for their research on climate models and to Giorgio Parisi for his work on the interplay of disorder and fluctuations in physical systems.
- The Nobel Prize for 2022 in Physiology or Medicine was awarded to Svante Pääbo for his research in the field of genomes of extinct hominins and human evolution.

What is Quantum Mechanics and Quantum Entanglement?

- Mechanics is the branch of physics that deals with the movement and interaction of various bodies. Mechanics has two parts - classical and quantum.
- Classical or Newtonian mechanics is the mathematical study of the motion of macroscopic objects and the forces that affect them.
- Quantum mechanics is a subfield of physics that describes the behavior of particles – atoms, electrons, photons and almost everything in the molecular and sub molecular realm.
- One important difference in the behaviour of quantum systems, when compared to classical rigid bodies, is the concept of entanglement.
- Quantum entanglement is a phenomenon by which a pair of subatomic particles are allowed to exist in a shared state where they have complementary properties, such that by measuring the properties of one particle, one can automatically know the properties of the other particle.
- This is true regardless of how far apart the two particles are transported.
- Quantum entanglement was first elucidated by Erwin Schrödinger in 1935, leading to his well-known cat paradox.

What is Bell Inequality?

- In the 1960s, John Stewart Bell developed the mathematical inequality - Bell Inequality which states that if there are hidden variables, the correlation between the results of a large number of measurements will never exceed a certain value.
- Quantum mechanics predicts that a certain type of experiment will violate Bell's inequality, thus resulting in a stronger correlation than would otherwise be possible.

What is the Experiment?

- The laureates have been awarded for their experiments with entangled photons (quantum entanglement), establishing the violation of Bell inequalities, and pioneering quantum information science.
- John F. Clauser developed John Bell's ideas, leading to a practical experiment which supported quantum mechanics by clearly violating a Bell inequality implying that quantum mechanics cannot be replaced by a theory that uses hidden variables.
- Alain Aspect developed the setup, using it in a way that closed an important loophole.
- He was able to switch the measurement settings after an entangled pair had left its source, so the setting that existed when they were emitted could not affect the result (as some loopholes remained after John Clauser's experiment).
- Anton Zeilinger was chosen for his innovative use of entanglement and Bell pairs both in research and application such as quantum cryptography.
- His research group demonstrated a phenomenon called quantum teleportation, which makes it possible to move a quantum state from one particle to the one at a distance.

How is the Experiment Significant?

- The development of experimental tools has laid the foundation for a new era of technology based on quantum information.
- It will help in utilising the special properties of individual particle systems to construct quantum computers, improve measurements, build quantum networks, establish secure quantum encrypted communication (quantum cryptography) and precise timekeeping as is done in atomic clocks.

15. Svante Pääbo receives Nobel Prize in Medicine:

- Recently, the 2022 Nobel Prize for Physiology or Medicine has been awarded to Swedish geneticist Svante Pääbo for his research in the field of genomes of extinct hominins and human evolution.
- In 2021, the honour went to two United States-based scientists, David Julius and Ardem Patapoutian for their discoveries of receptors for temperature and touch.

What are the Key Highlights of Svante Paabo's Research?

- **Human Evolution:** Homo sapiens, first appeared in Africa approximately 300,000 years ago, while closest known relatives, Neanderthals, developed outside Africa and populated Europe and Western Asia from around 400,000 years until 30,000 years ago, at which point they went extinct.
- **Genome Sequencing of Neanderthals:** After sequencing Neanderthals' genes it is found that archaic gene sequences from our extinct relatives influence the physiology of present-day humans.
- For e.g., the Denisovan version of the gene EPAS1 confers an advantage for survival at high altitudes and is common among present-day Tibetans.
- Other examples are Neanderthal genes that affect our immune response to different types of infections.
- **Discovery of Denisova:** In 2008, a 40,000-year-old fragment from a finger bone was discovered in the Denisova cave in the southern part of Siberia.
- The DNA Sequencing of this bone had led to the discovery of a previously unknown hominin, which was given the name Denisova.

- Coexistence of Different Human Species: The ancestors of modern humans, Neanderthals and Denisovans co-existed for about 20,000 years, during which they not only interacted with each other but also inter-bred.
- In modern day humans with European or Asian descent, approximately 1-4% of the genome originates from the Neanderthals.
- Further, gene flow had also occurred between Denisova and Homo sapiens. This relationship was first seen in populations in Melanesia and other parts of South East Asia, where individuals carry up to 6% Denisova DNA.

Novel Methodology:

- It is not easy to amplify and sequence ancient DNA because it is highly fragmented and full of contamination from microbes like fungi and bacteria. Over time, DNA tends to degrade and become chemically modified.
- Therefore, Pääbo decided to study mitochondrial DNA from Neanderthals.
- Mitochondria, popularly called the powerhouse of the cell, is an organelle inside the cell that has its own DNA.
- Although the mitochondrial genome is small and only contains a fraction of genetic information in the cell, it is present in thousands of copies. This increases the chance of its successful sequencing.

Significance:

- The conceptual breakthrough is of paramount importance in understanding human evolution.
- Dr Pääbo's research has resulted in the rise of a new scientific discipline called Paleogenomics, which is the study and analysis of genes of ancient or extinct organisms.

Environment and Ecology

1. IEA World Energy Outlook (WEO) 2022 report:

- A Report titled "World Energy Outlook 2022" has been released by the IEA (International Energy Agency).

About:

- The annual World Energy Outlook is the International Energy Agency's flagship publication, widely recognised as the most authoritative source for global energy projections and analysis. It appears every year since 1998.
- WEO presents detailed projections of energy demand, production, trade and investment, fuel by fuel and region by region.
- Its research and objective data offer crucial insights into the world's energy demand and supply under various scenarios, as well as the implications for energy security, climatic goals, and economic growth.

The 2022 Report:

India

- Talking specifically about India, the Report stated that the primary challenge for the country is going to be about meeting its rising electricity demand.

- It said India will have to find out ways to meet this increasing demand with renewables and nuclear on a scale that is large enough to reduce the use of “unabated coal-fired generation”, which provides nearly three-quarters of electricity supply currently.
- It revealed that India became the world’s second-largest coal producer in 2021 (in energy terms), overtaking Australia and Indonesia. India plans to increase domestic production by more than 100 million tonnes of coal equivalent (Mtce) by 2025 from the current levels. At present, India accounts for just over 10 percent of global coal consumption, after China which accounts for 55 percent. Coal demand in India rose rapidly between 2010 and 2019, mainly as increases in electricity demand were largely met through coal-fired power. Coal use in India dropped by 7 percent in 2020 due to the pandemic, but increased by 13 percent in 2021, therefore already surpassing the 2019 levels.
- India becomes the world’s most populous country by 2025 and, combined with the twin forces of urbanisation and industrialisation, this underpins rapid growth in energy demand, which rises by more than 3 percent per year in the stated policies scenario (STEPS) from 2021 to 2030. The Report sees the largest increase in energy demand of any country.

World:

- Russia’s invasion of Ukraine has sparked a **global energy crisis**.
- Prices for spot purchases of natural gas have reached levels never seen before, regularly exceeding the equivalent of USD 250 for a barrel of oil. Coal prices have also hit record levels, while oil rose well above USD 100 per barrel in mid-2022 before falling back. High gas and coal prices account for 90% of the upward pressure on electricity costs around the world.
- The crisis has stoked inflationary pressures and created a looming risk of recession, as well as a huge USD 2 trillion windfall for fossil fuel producers above their 2021 net income.
- **Higher energy prices** are also increasing food insecurity in many developing economies, with the heaviest burden falling on poorer households where a larger share of income is spent on energy and food. Some 75 million people who recently gained access to electricity are likely to lose the ability to pay for it, meaning the total number of people worldwide without electricity access has started to rise. And almost 100 million people may be pushed back into reliance on firewood for cooking instead of cleaner, healthier solutions.

2. 2022 Forest Declaration Assessment:

- Recently, the 2022 Forest Declaration Assessment was published, showing that the Deforestation rates worldwide declined only modestly in 2021 by 6.3 % compared to the 2018-20 baseline.
- Some 145 countries affirmed their commitment to halt and reverse forest loss and land degradation by 2030 at the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow (2021).
- Forest Declaration Assessment publishes annual updates on progress toward global forest goals.
- In 2014, the New York Declaration on Forests (NYDF) was adopted as a political declaration calling for the end of natural forest loss and the restoration of 350 million hectares of degraded landscapes and forestlands by 2030.

What are the Findings?

Overview

- Not a Single Global Indicator is on Track' to Reverse Deforestation by 2030.
- To be on course to halt deforestation completely by 2030, a 10% annual reduction is needed.
- While afforestation and restoration efforts have been commendable, more forest area is being lost than gained.
- Global forest loss decreased in 2021, but the crucial climate goal of stopping deforestation by 2030 would still be missed.

Contributors to Deforestation:

- Brazil was the world's largest contributor to deforestation in 2021.
- The country marked a 3% rise in the rate of deforestation in 2021 compared to the baseline 2018-2020.
- Although Brazil didn't show a large increase, its total deforestation rates each year remained high – making it the world's largest contributor.
- Bolivia and the Democratic Republic of the Congo underwent deforestation at 6 % and 3 %, respectively.

Gain in Tree Cover:

- Global tree cover increased by 130.9 million hectares over the past two decades.
- Three-quarters of the global gain was concentrated in 13 countries.
- The most significant improvements were observed in Russia (28.4 %), Canada, the United States, Brazil, and China.
- China showed the largest net gain in tree cover – 2.1 million hectares (Mha). India also marked a gain of 0.87 Mha in tree cover.
- Globally, 118.6 Mha of the total tree cover gain is likely due to natural regeneration and assisted natural regeneration that occurred outside plantations.

Reduction in Deforestation:

- Gabon reduced deforestation by 28% in 2021 compared to 2018-20.
- The country implemented measures to combat illegal logging and the enforcement of protected areas.
- Indonesia reduced deforestation after implementing the forest moratorium and improved enforcement measures.
- The moratorium, which covers around 66 million hectares of primary forest and peatland (terrestrial wetland ecosystems), was first introduced in 2011 and has been renewed regularly as part of the efforts to reduce emissions from fires caused by deforestation.
- In Brazil, the decline in deforestation rates between 2004 and 2012 can be partly attributed to the coordinated implementation of the Action Plan for the Prevention and Control of Deforestation in the Amazon.
- It created protected areas and effective monitoring systems.
- Recent years have seen legal interventions in the European Union, Ecuador and India to protect forests.
- In 2021, a constitutional court in Ecuador upheld the rights of nature enshrined in the country's constitution.

3. Restriction of Glyphosate:

- The Ministry of Agriculture and Farmers Welfare has restricted the use of glyphosate, a widely used herbicide, citing health hazards for humans and animals.
- The new notification mandates that all certificates of registration for the chemical that companies have to get for its manufacture or sale have now to be returned to the registration committee.
- Failure to do so will result in appropriate action being taken under the Insecticides Act of 1968.

What is Glyphosate?

- It is an Herbicide, developed in 1970.
- Herbicide is an agent, usually chemical, for killing or inhibiting the growth of unwanted plants, such as residential or agricultural weeds and invasive species
- Its scientific name is N-(phosphonomethyl) glycine under the International Union of Pure and Applied Chemistry (IUPAC) system of nomenclature.
- It is applied to the leaves of plants to kill weeds.

Usage in India:

- Glyphosate was highly accepted by the tea planters in the past two decades. It has a very good market size in the tea sector of West Bengal and Assam.
- Presently, its consumption is highest in Maharashtra as it is becoming a key herbicide in sugarcane, maize and many fruit crops.

What are the Concerns?

Health Impacts:

- Health impacts of glyphosate range from cancer, reproductive and developmental toxicity to neurotoxicity and immunotoxicity.
- Symptoms include irritation, swelling, burning of the skin, oral and nasal discomfort, unpleasant taste and blurred vision.
- Some 35 countries have banned or restricted the use of glyphosate.
- These include Sri Lanka, Netherlands, France, Colombia, Canada, Israel and Argentina.

Illegal Use:

- In India, glyphosate has been approved for use only in tea plantations and non-plantation areas accompanying the tea crop. Use of the substance anywhere else is illegal.
- However, a 2020 study by Pesticide Action Network (PAN) India on the state of glyphosate use in the country had worrying findings, glyphosate was being used in more than 20 crop fields.
- Majority of those using the weedicide were not trained for doing so and did not have the appropriate safety precautions.
- Threatens Agro Ecological nature of Farms:
- The rampant use of glyphosate in non-designated areas has severe consequences.
- Allowing continued use of glyphosate in India will contribute to widespread use of illegal herbicide tolerant crops.
- This will endanger the agroecological nature of Indian farms, apart from spreading the toxic effects to people, animals and the environment.

4. Emissions Gap Report 2022:

- Ahead of COP27, the United Nations Environment Programme (UNEP) released a report titled 'Emissions Gap Report 2022: The Closing Window – Climate Crisis Calls for Rapid Transformation of Societies'.
- This is the 13th edition of the UNEP Emissions Gap Report. It assesses the gap between anticipated emissions in 2030 and levels consistent with the 1.5°C and 2°C targets of the Paris Agreement. Every year, the report features ways to bridge the gap.

What are the Findings?

- The top 7 emitters (China, the EU27, India, Indonesia, Brazil, the Russian Federation and the United States of America) plus international transport accounted for 55% of global GHG emissions in 2020.
- For these countries GHG emissions rebounded in 2021, exceeding pre-pandemic 2019 levels.
- Collectively, G20 members are responsible for 75% of global GHG (Greenhouse Gas Emission) emissions.
- The global average per capita GHG emissions was 6.3 tonnes of CO₂ equivalent (tCO₂e) in 2020.
- India remains far below the world average at 2.4 tCO₂e.
- World is falling short of the goals set forth in the Paris Climate Agreement adopted in 2015, with no credible pathway to 1.5°C in place.
- The Paris Agreement defined a global warming limit of 2°C above pre-industrial levels (preferably 1.5°C), which if exceeded, can result in extreme weather events such as extreme heat waves, droughts, water stress, etc.
- National pledges since COP26 (Glasgow, UK) make a negligible difference to predict 2030 emissions.

5. Viral spillover risks:

- A new research found that climate change could increase the risk of “viral spillover” in several parts of the world. This could cause pandemics in the future.

Key facts:

- A new research article titled “Viral spillover risk increases with climate change in High Arctic lake sediments” was released recently.
- Viral spillover occurs when viruses overcome several barriers to infect new host from reservoir host (in which it usually resides).
- The researchers from the University of Ottawa sought to study the possibility of a viral spillover by collecting sediments and soil samples from Lake Hazen in Canada – the world’s largest High Arctic lake by volume.
- **High Arctic** was chosen for this study since it is warming faster than the rest of the world.
- The researchers sequenced the RNA and DNA to reconstruct the lake area’s virus composition and estimated the viral spillover risks.
- The study found that the chances of viruses successfully infecting new host increases with the runoff from glacier melt.
- With global warming increasing the instances of glacier melting, there is a high possibility of previously ice-trapped viruses and bacteria finding new hosts and increasing spillover risks.

- Spillover risks are also increased due to changes in global distribution and dynamics of the viruses, their reservoirs and vectors.
- However, this does not guarantee a higher possibility of pandemic occurring in the future.
- This is because viral spillover depends on three main categories – pathogen pressure, human and vector behaviors and attributes of the host.
- All these phases are fraught with several natural challenges that the virus must overcome to successfully reach the new host.
- Coronaviruses successfully overcame these barriers since they are RNA viruses capable of evolving more quickly than other virus families because of their ability to recombine and acquire point mutations.
- Other pathogens that have successfully spilled over to humans are Influenza A and Ebola.

6. Two Indian beaches receive Blue Flag tag:

- Two beaches in Lakshadweep received international eco-label “Blue Flag”.

Key facts:

- Minicoy Thundi Beach and Kadmat Beach in Lakshadweep recently entered into the coveted list of Blue Beaches.
- These two beaches have a dedicated staff to maintain cleanliness and provide safety and security for swimmers.
- With these new entrants, India currently has 12 beaches with **Blue Flag certification**.
- Other beaches in the blue list are Shivrajpur (Gujarat), Ghoghla (Diu), Kasarkod and Padubidri (Karnataka), Kappad (Kerala), Rushikonda (Andhra Pradesh), Golden beach (Odisha), Radhanagar (Andaman and Nicobar Islands), Kovalam (Tamil Nadu) and Eden (Puducherry).
- Golden Beach in Puri was the first in Asia to receive Blue Flag certificate.
- In 2021, Kovalam beach in Tamil Nadu and Eden beach in Puducherry received the blue flag tag.
- A 30-km stretch of the Marina Beach in Chennai is currently being developed for receiving Blue Flag Beach certification. The government has allocated Rs.100 crore for the implementation of this project.

What is Blue Flag Certification?

- Blue Flag certification is a globally recognized eco-label accorded by Foundation for Environment Education in Denmark (FEE). The water bodies are given this label if the stringent criteria are maintained. The Blue flag beaches are often in news hence it is necessary to understand its significance. Read here to know more.
- The iconic Blue Flag is one of the world’s most recognized voluntary awards for beaches, marinas, and sustainable boating tourism operators.
- To qualify for the Blue Flag, stringent environmental, educational, safety, and accessibility criteria must be met and maintained.
- The mission of Blue Flag is to promote sustainability in the tourism sector, through environmental education, environmental protection, and other sustainable development practices.

7. *Allmenia multiflora*:

- Allmania multiflora is a herb plant with branches arising from the base.
- **Genus:** It belongs to the genus Allmania. It is only the second species of this genus discovered to date.
 - Note: The first species, Allmania nodiflora was originally published under the genus Celosia as Celosia nodiflora in 1753. Specimens found in Ceylon (Sri Lanka) were first described as Allmania nodiflora in 1834.
- **Features:** Allmania multiflora has been so named for having a higher number of florets within an inflorescence.
- The stem of this plant is red to violet at the base and green above.
- **IUCN Status:** Critically Endangered.
- **Threats:** It could be accidentally exploited by local people as a vegetable. Its habitat, the granite hillocks, too faced various forms of threats today.

8. Migration of Great Indian Bustard:

- Three Great Indian Bustards were spotted in Pakistan's Cholistan desert.

Key facts:

- The recent sighting of Great Indian Bustards (GIBs) in the Cholistan desert led to the speculation that these species have migrated from Desert National Park (DNP) in Rajasthan, India.
- The three GIBs were spotted in the Cholistan game reserve in the southern part of Punjab province.
- The migration may have taken place because of the shrinking habitat in DNB.
- GIBs are critically endangered in Pakistan because of the absence of protective measures and rampant hunting by poachers.
- They are also critically endangered in India despite being protected under the Wildlife Protection Act 1972.
- Rajasthan, having around 150 GIBs, accounts for 95 per cent of the total global population.
- The population in the Thar Desert is rapidly dwindling because of the laying of power lines, industrial activities, and agricultural practices.
- In 2019, the Desert National Park has initiated the captive breeding of GIBs via a project implemented by the Dehradun-based Wildlife Institute of India.
- Currently, 24 GIB chicks are being reared as part of this programme.
- The International Fund for Houbara Conservation of United Arab Emirates is providing technical aid for this initiative.
- In 2020, the GIB was included in the list of protected species of the Convention on the Conservation of Migratory Species of Wild Animals during its 13th conference held in Gandhinagar, Gujarat.
- Pakistan is a signatory of this convention.



9. Climate Transparency Report 2022:

- The eighth edition of the **Climate Transparency** report was released recently.
- The Climate Transparency Report is the most comprehensive annual study of G20 countries' climate measures. Its assessment includes 100 indicators for climate adaptation, risks, protection and finance.

Page|46 Key findings:

- The report, which assessed the climate actions by G20 countries found that the members' support to produce fossil fuels have reached new heights at 64 billion USD in 2021, despite the worsening of climate crisis.
- Wider government fossil fuel subsidies, which shrunk to 147 billion USD in 2020, rose back again by 29 per cent to 190 billion USD in 2021.
- The subsidies continue to spike into 2022, partly because of the Russian war in Ukraine causing inflation in energy sector, which has increased profits of energy manufacturers.
- G20 members with highest total subsidies for fossil fuels are China, Indonesia and the United Kingdom.
- These subsidies are contributing to the global temperature surpassing the 1.5 degrees Celsius warming limit agreed under the Paris Agreement and reaffirmed in 2021 at the COP26 held in Glasgow.
- The report also found that energy emissions also rebounded across G20 countries by 5.9 per cent last year, returning back to the pre-pandemic levels despite the warning from the Intergovernmental Panel on Climate Change (IPCC) that recommended reducing emissions by 50 per cent to keep the 1.5 degree warming levels.
- In 2021, emissions in power and real estate sector were higher than pre-pandemic levels. The per capita emissions in these sectors in China and Turkey are currently higher than 2019 levels.
- The share of renewables in power generation mix has increased in all G20 countries between 2016 and 2021.
- Countries with highest increase in renewable energy share are the United Kingdom (67 per cent), Japan (48 per cent) and Mexico (40 per cent).
- The lowest increase was seen in Russia (16 per cent) and Italy (14 per cent).
- India experienced an income loss of 159 billion USD (5.4 per cent of its GDP) in service, manufacturing, agriculture and construction sectors because of extreme heat in 2021.
- The heat exposure in India caused a loss of 167 billion potential labour hours - a 39 per cent increase from 1990-1999.
- The labour productivity in the country is expected to decline by 5 per cent from 1986-2006 level if global temperature increase by 1.5°C.

10. Trees outside forests in India programme:

- The Ministry of Environment, Forest, and Climate Change, the Government of India and the US Agency for International Development (USAID) has announced the launch of the "Trees Outside Forests in India" Initiative.

What is Trees Outside Forests in India Initiative?

- Aim: To increase tree coverage outside of forest lands in India in a bid to support global climate change mitigation and adaptation goals.

- Features: The programme will bring together farmers, companies and private institutions in India to rapidly expand tree coverage outside of traditional forests by 28 lakh hectares.
- It will use innovative financing models and leverage India's private sector to promote tree-based enterprises, helping to create sustainable markets and improve rural economies and livelihoods.
- Implementation: The program will be implemented by a consortium led by the Center for International Forestry Research (CIFOR) and World Agroforestry.
- Coverage: The program will be implemented in seven states including Andhra Pradesh, Assam, Haryana, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh.
- Significance: The program will enhance carbon sequestration, support local communities and strengthen the climate resilience of agriculture.

11. World Green City Award 2022:

- The city of Hyderabad has bagged the prestigious 'World Green City Award 2022' beating Paris, Bogota, Mexico City, Montreal, and Fortaleza in Brazil.
- The city of Hyderabad has bagged the prestigious 'World Green City Award 2022' beating Paris, Bogota, Mexico City, Montreal, and Fortaleza in Brazil.

About:

- Additionally, the city has also won 'Living Green for Economic Recovery and Inclusive Growth' at the International Association of Horticulture Producers (AIPH) 2022 held in Jeju, South Korea.
- Hyderabad is the only Indian city that was selected for the 'World Green City 2022,' award, the best across all six categories.

12. Paraliparis selti - new species of deep sea fish:

- Scientists have recently discovered a new species of deep sea fish in the Atacama Trench.

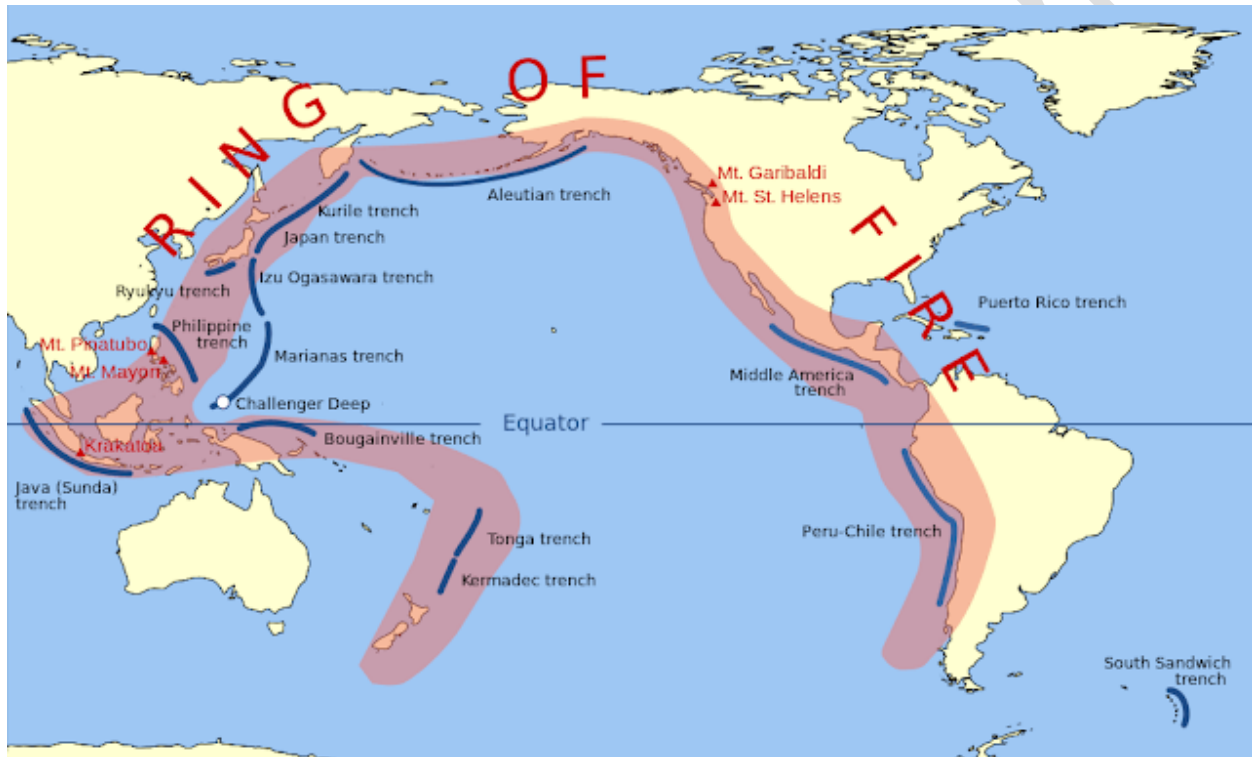
Key facts:

- In 2018, an international team of researchers surveyed the Atacama Trench by deployed free-falling landers to study deep sea creatures.
- They recorded three types of hadal snailfish, one of which is never known to science.
- The new species, christened Paraliparis selti, was discovered some 6,000 to 7,000 meters deep.
- With its large eyes and unique colour, it resembled snailfish living in shallower waters.
- Scientists used a 3D x-ray technique called microcomputed tomography (micro-CT) and DNA barcoding to identify the species and found that the new species is a separate colonizer of the Atacama Trench.
- It belongs to genus Paraliparis. Species of this genus is mainly found in Southern Ocean of the Antarctic and rarely found deeper than 2,000 meters.
- This is the first time that the Paraliparis genus was recorded in the hadal zone.
- The name Paraliparis selti means blue in the Kunza language of the indigenous people living in Atacama Desert.
- The new species has evolved from the cold-adapted species of the Southern Ocean.

- Its discovery opens new questions related to the connection between cold temperature and high pressure adaptation.
- It gives insights into how and when life went into the deep waters.

About Atacama Trench:

- The Atacama Trench or the Peru-Chile Trench is an oceanic trench in the eastern Pacific Ocean situated some 160 km off the coast of Peru and Chile. It reaches a maximum depth of 8,065 and is around 5,900 km long.
- It delineates the boundary between the subducting Nazca Plate and the overriding South American Plate. Subduction is the geological process that occurs when one tectonic plate shifts under another and is forced to sink because of high gravitational force into the mantle. Seamount ridges - Nazca Ridge and Juan Fernández Ridge - enter the subduction zone in the Atacama Trench.



Important Trenches of the World (Deepest oceanic trenches)

| Trench | Location |
|--------------------------|---|
| Aleutian Trench | South of the Aleutian Islands, west of Alaska |
| Bougainville Trench | South of New Guinea |
| Cayman Trench | Western Caribbean |
| Cedros Trench (inactive) | Pacific coast of Baja California |
| Hikurangi Trench | East of New Zealand |
| Hjort Trench | Southwest of New Zealand |
| Izu–Ogasawara Trench | Near Izu and Bonin islands |
| Japan Trench | East of Japan |
| Kermadec Trench | Northeast of New Zealand |
| Kuril–Kamchatka Trench | Near Kuril islands |
| Manila Trench | West of Luzon, Philippines |
| Mariana Trench | Western Pacific Ocean; east of Mariana Islands |
| Middle America Trench | Eastern Pacific Ocean; off coast of Mexico, Guatemala, El Salvador, Nicaragua, Costa Rica |
| New Hebrides Trench | West of Vanuatu (New Hebrides Islands). |
| Peru–Chile Trench | Eastern Pacific Ocean; off the coast of Peru & Chile |
| Philippine Trench | East of the Philippines |
| Puerto Rico Trench | The boundary of the Caribbean and Atlantic ocean |
| Puysegur trench | Southwest of New Zealand |
| Ryukyu Trench | Eastern edge of Japan's Ryukyu Islands |
| South Sandwich Trench | East of the South Sandwich Islands |
| Sunda Trench | Curves from south of Java to west of Sumatra and the Andaman and Nicobar Islands |
| Tonga Trench | Near Tonga |
| Yap Trench | Western Pacific Ocean; between Palau Islands and Mariana Trench |

13. Global Status of Multi-Hazard Early Warning Systems:

- Recently, the United Nations Office for Disaster Risk Reduction (UNDRR) and the World Meteorological Organization (WMO) released a report titled Global Status of Multi-Hazard Early Warning Systems - Target G, which warns that half of the countries globally are not protected by Multi-Hazard Early Warning Systems (MHEWS).
- The report has been released to mark the International Day for Disaster Risk Reduction (13th October).
- The analysis was made with data from the targets outlined in The Sendai Framework (2015-2030). The framework is a global blueprint for disaster risk reduction and prevention.
- Of the seven targets in the framework, Target G aims to “substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

What are the Early Warning Systems?

- Early warning systems are a proven means to reduce harm to people and damage to assets ahead of impending hazards, including storms, tsunamis, droughts, and heatwaves, to name a few.
- Multi-hazard early warning systems address several hazards that may occur alone, simultaneously, or cascadingly.
- Many systems only cover one type of hazard - like floods or cyclones.

What are the Findings?

Failure at Investment:

- The world is failing to invest in protecting the lives and livelihoods of those on the front line.
- Those who have done the least to cause the climate crisis are paying the highest price.
- LDCs (Least developed countries), SIDS (Small Island Developing States), and countries in Africa, require the most investment to increase early warning coverage and adequately protect themselves against disasters.
- Pakistan is dealing with its worst recorded climate disaster, with nearly 1,700 lives lost. Despite this carnage, the death toll would have been much higher if not for early warning systems.

Significant Gaps:

- Only half of the countries globally have MHEWS.
- The Number of recorded disasters has increased five-fold, driven in part by human-induced climate change and more extreme weather. This trend is expected to continue.
- Less than half of the Least Developed Countries and only one-third of Small Island Developing States have a multi-hazard early warning system.

Humanity is in the Danger Zone:

- As ever-rising greenhouse gas emissions are supercharging extreme weather events across the planet, climate disasters are hurting countries and economies like never before.
- Increasing calamities are costing lives and hundreds of billions of dollars in loss and damage.
- Three times more people are displaced by climate disasters than war and half of humanity is already in the danger zone.

What are the Recommendations?

- Called on all countries to invest in early warning systems.
- As climate change causes more frequent, extreme, and unpredictable weather events, investment in early warning systems that target multiple hazards is more urgent than ever.
- This is because of the need to warn not only against the initial impact of disasters, but also second and third-order effects. Examples include soil liquefaction following an earthquake or a landslide, and disease outbreaks following heavy rainfall.

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What are India's Efforts in Managing Disaster?

Establishment of National Disaster Reaction Force (NDRF):

- India has increasingly mitigated and responded to all types of disasters, including with the establishment of its National Disaster Reaction Force (NDRF), the world's largest rapid reaction force dedicated to disaster response.

India's Role as a Foreign Disaster Relief:

- India's foreign humanitarian assistance has increasingly included its military assets, primarily deploying naval ships or aircraft to deliver relief.
- In line with its diplomatic policy of "Neighbourhood First," many of the recipient countries have been in the region of South and Southeast Asia.

Contribution to Regional Disaster Preparedness:

- Within the context of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), India has hosted DM Exercises that allow NDRF to demonstrate for counterparts from partner states the techniques developed to respond to various disasters.
- Other NDRF and Indian Armed Forces exercises have brought India's first responders into contact with those from states in the South Asian Association for Regional Cooperation (SAARC) and the Shanghai Cooperation Organisation (SCO).

14. NITI Aayog-CSIR Report on Lead Poisoning in India:

- A report by the central government has found that India bears the world's highest health and economic burden due to Lead Poisoning. Major sources of Lead Poisoning in India are air, water and dust.
- The report was brought out by jointly prepared by government think tank Niti Aayog and the Council of Scientific & Industrial Research (CSIR).

Affected states:

- Bihar, Madhya Pradesh, Jharkhand, Uttar Pradesh, Chhattisgarh and Andhra Pradesh have the highest average blood lead levels (BLL) among Indian states.
- Lead Poisoning is a type of metal poisoning that result in increase in lead concentration in the body. Lead exposure can occur by contaminated air, water, dust, food, or consumer products.

Sources of Lead Poisoning:

- The major Source of Lead Poisoning was vehicular emission. However, use of lead in petrol was phased out in 2000.
- Battery recycling, lead mining, smelting, welding, soldering and automobile repatriating are other main sources.
- Adulterated spices (turmeric), cosmetics (sindoor), paints, pesticides, toys and traditional medicines have traces of lead.

- Drinking water supplied through lead pipes or lead soldered pipes may contain lead.
- Pottery glaze on cookware and serving dishes makes up a significant source of lead exposure for children and adults.

Effects of Lead Poisoning on the Human Body:

- Neurological Problems: Tingling, numbness or weakness in the legs or hands. Some have brain-related symptoms such as low IQ and memory loss.
- Reproductive problems: Low sperm count, miscarriages and variation in menstrual cycle.
- Blood: Anemia, blood pressure and effects on blood cells.
- Gastrointestinal: Abdominal pain, poor appetite, weight loss, constipation etc.
- Renal: Lead can damage kidney cells, leading to chronic kidney problems.
- Infants: Lead can lead to premature birth, reduced birth weight as well as slow growth of the infant. They also suffer from pale skin and hearing problems.

15. Death of Pilot Whales in New Zealand:

- Over 400 whales have died after being stranded on New Zealand's Pitt Island.
- While majority of the stranded pilot whales died naturally, the survivors were euthanized because of the threat of them being consumed by sharks as well as the logistical challenges in Pitts Island, which hosts less than 100 inhabitants.
- Refloating these stranded whales is unsafe since dead whales on beaches or shallows are likely to attract sharks closer to the shore, posing risks to humans attempting to refloat the whales.
- The whales got stranded on the Chatham Islands archipelago, which is situated some 840 km off the east coast of New Zealand's South Island. This archipelago has the Pitts Island and Chatham Island, both of which have little human presence.
- The mass deaths of pilot whales occurred in Chatham Islands Archipelago because of whale beaching.
- The Chatham Islands hosts just around 600 people. The archipelago is among the top three "stranding hotspots" in New Zealand.
- In the year 1918, Chatham Islands witnessed the highest recorded stranding in New Zealand of about 1,000 pilot whales.
- Whale beaching:
 - The reason for whale beaching is unknown. Some speculate that it occurs because of the social nature of these marine mammals. The changes in electromagnetic fields in the region caused by solar flares or seismic activities are also cited as reasons behind whale beachings. Pilot whales use sonar to find prey and for orientation.
 - Changes in electromagnetic field could lead them to lose their way and move away from the waters. Another reasons specific to the Pitts Island could be the tides and shape of the beaches. If whales or dolphins are caught in the waters, they are forced towards the shore and get stranded. Another research found that the presence of prey close to the shore also causes the stranding of pilot whales.

16. Living Planet Report 2022:

- There has been a 69% decline in the wildlife populations of mammals, birds, amphibians, reptiles and fish, across the globe in the last 50 years, according to the Living Planet Report 2022 by World Wide Fund for Nature (WWF).
- This report is released every two years.

Key Findings of the Report:

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Region-wise Decline in Wildlife Populations:

- The highest decline in the wildlife populations (94%) was in the Latin America and the Caribbean region.
- Africa recorded a 66% fall in its wildlife populations from 1970-2018 whereas the Asia-Pacific recorded a decline of 55%.

Decline in Freshwater Species:

- Freshwater Species populations globally reduced by 83%.
- Habitat loss and barriers to migration routes were responsible for about half of the threats to monitored migratory fish species.

Collapsing Vertebrate Wildlife Populations:

- **Living Planet Index (LPI)** showed that vertebrate wildlife populations are collapsing at a particularly staggering rate in tropical regions of the world.
- Featuring about 32,000 populations of 5,230 species across the world, LPI is a measure of the state of the world's biological diversity based on population trends of vertebrate species from terrestrial, freshwater and marine habitats.

Mangrove Degradation:

- Mangroves continue to be lost to aquaculture, agriculture and coastal development at a rate of 0.13% per year.
- Many mangroves are also degraded by overexploitation and pollution, alongside natural stressors such as storms and coastal erosion.
- Around 137 square kilometres of the Sundarbans mangrove forest in India and Bangladesh has been eroded since 1985, reducing land and ecosystem services for many of the 10 million people who live there.

Key Threats to Biodiversity:

- WWF identified six key threats to biodiversity to highlight 'threat hotspots' for terrestrial vertebrates:
 1. Agriculture
 2. Hunting
 3. Logging
 4. Pollution
 5. Invasive Species
 6. Climate Change

What are the Recommendations of the Report?

- The planet is experiencing double emergencies of human-induced climate change and biodiversity loss, threatening the well-being of current and future generations. Biodiversity loss and climate crisis should be dealt with as one instead of two different issues as they are intertwined.
- A nature-positive future needs transformative, game-changing shifts in how we produce, how we consume, how we govern and what we finance.

- An all-inclusive collective approach towards a more sustainable path must be adopted. It will ensure that the costs and benefits from our actions are socially just and equitably shared.

World Wildlife Fund for Nature:

- It is the world's leading conservation organization and works in more than 100 countries.
- It was established in 1961 and is headquartered at Gland, Switzerland.
- Its mission is to conserve nature and reduce the most pressing threats to the diversity of life on Earth.
- WWF collaborates at every level with people around the world to develop and deliver innovative solutions that protect communities, wildlife, and the places in which they live.

17. Kadavur Slender Loris sanctuary:

- In a first in the country, the Tamil Nadu government notified Kaduvur slender loris sanctuary covering 11,806 hectares in Karur and Dindigul districts.
- The Kadavur slender loris sanctuary is to cover Vendasandur, Dindigul East and Natham taluks in Dindigul district and Kadavur taluk in Karur district.
- The government notified 'Kadavur slender loris sanctuary' under Section 26 (A)(1)(b) of Wildlife (Protection) Act, 1972.

About Slender Loris:

- They are small nocturnal mammals that are arboreal in nature as they spend most of their life on trees.
- The species acts as a biological predator of pests in agricultural crops and benefits farmers.
- It has a wide range of ecological roles to play in the terrestrial ecosystem.
- The survival of the species depends on its habitat improvement, conservation efforts and mitigation of threats

18. Global Forest Sector Outlook 2050:

- The report titled "The global forest sector outlook 2050: Assessing future demand and sources of timber for a sustainable economy" was released recently by the United Nations Food and Agriculture Organization (FAO) at the 26th Session of the Food and Agriculture Organization Committee on Forestry in Rome.

Key facts:

- The newly released report estimates an increased demand for wood products like mass timber and manmade cellulose fibre that are used as alternatives to non-renewable materials.
- Their demand may surge by up to 272 million cubic metres by 2050.
- This is expected to create over 1 million jobs in developing countries.
- The report forecasts that the consumption of primary processed wood products will increase to 3.1 billion cubic meters by 2050.

- This estimation is based on the Global Forest Products Model, which uses historical patterns of the production and trade of wood products.
- The report also forecasted that the industrial roundwood (IRW) will be vulnerable to uncertainties caused by climate-change influenced government interventions in naturally regenerated production forests and the expansion of planted forests. The future demands for IRW will be met by both planted forests mainly from Global South and naturally regenerated temperate and boreal forests.
- In 2020, about 44 per cent of the IRW production was provided by regenerated temperate and boreal forests.
- During the same year, the planted forests contributed to around 46 per cent of the IRW supply.
- In the future, an additional 33 million hectares of “highly productive plantation forest” will be required to meet the demand in 2050, if the area of naturally regenerated forests remain intact.
- A total annual investment of 40 billion USD will be required to maintain and expand the IRW production by 2050.
- Another yearly funding of 25 million USD will be required for the modernization and establishment of industries.
- In 2050, consumption of wood energy will be concentrated in sub-Saharan Africa and South Asia, where fuelwood is traditionally used by communities.
- Firewood will also be used in modern biomass to generate renewable energy.
- In 2020, the global consumption of fuelwood was 1.9 billion cubic meters. In 2050, this figure is expected to increase 11 to 42 per cent by reaching 2.1 to 2.7 billion cubic meters.

United Nations Food and Agriculture Organization (FAO):

- Headquarters: Rome, Italy
- Founded: It was founded on 16 October 1945.

19. Adoption of world’s first single charger rule:

- Recently, the **European Parliament** has approved the new rule to introduce single charging port for electronic gadgets by 2024 in the EU.

Key facts:

- The new EU law states that all new smartphones, tablets and camera will have a single standard charger.
- The new rules allow customers to choose between two chargers – one with and one without USB-C chargers while purchasing a handheld device.
- Under the first phase of the law, which will be implemented from late 2024, all mobile phones, tablets and cameras sold in the EU have to be equipped with a USB Type-C charging port.
- From 2026, the rules will be expanded to include laptops.
- It is expected to impact smartphone manufacturers such as Apple, since these rules will force changes in the charging port of iPhones and other devices for the users in the EU.
- The USB Type-C ports can charge up to 100 Watts, transfer data up to 40 GB per second and linked to external displays.

- In the next 2 years, the new EU law will affect all handheld mobile phones, handheld videogame consoles, headphones, headsets, tablets, digital cameras, portal speakers, e-readers, earbuds, mice, keyboards and portable navigation systems.
- The new law aims to minimise e-waste and empower customers to make more sustainable choices.
- It will also simplify the life of Europeans, bring down costs and reduce the number of chargers in the market.
- It can save at least 200 million euros each year and significantly bring down electronic waste every year.
- Currently, about 11 000 tonnes of e-waste is generated by disposed or unused charges in the European Union each year.
- It will also put an end to the technological “lock-in” effect, which involves a customer fully depending on a single manufacturer.
- While these rules may adversely affect businesses in the short-term, it will also promote the sales of new and improved versions of gadgets, ensuring profits for tech companies such as Apple, Samsung, Huawei etc.

20. Australia’s Plan to Stop Extinction Crisis:

- Australia announced a plan to halt extinction of species.

Key facts:

- The Australian Government is planning on stopping species from going extinct and ending the country’s status as “the mammal extinction capital of the world”.
- The strategy comes after the State of the Environment report found that Australia has the highest instances of extinction in the world.
- This is the first time that Australian government has announced a zero extinction target for the country’s flora and fauna.
- The 10-year strategy aims to prioritize the conservation of 110 threatened animals and plants, including Koala.
- It also seeks to protect a third of Australia’s landmass, which is deteriorating at a rapid pace due to habitat loss, invasive pests and weeds, climate crisis and frequent natural disasters.
- The protection of at least 30 per cent of the landmass under the environmental law ensures the safety of vulnerable species and habitats.
- 20 areas with high densities of threatened species will be specifically targeted, like Kangaroo Island and Blue Mountains.
- The strategy also includes improving climate resilience, building “insurance” populations of some key species in predator-free zones and improving surveillance of existing populations.
- It will also focus on reducing the impact of feral cats, foxes and a weed called gumba grass.
- Under the new plan, the aboriginal people’s expertise will be utilized for the protection of the environment.
- The plan is being criticized as it picked “winners” by identifying 110 “priority species”, when around 2,000 species have been listed as threatened under the national laws.

- It is unclear how this plan seeks to protect those species have not been recognized as priority.
- The goals of the plan are difficult to attain unless the funding is increased to improve the conservation efforts, ensure the recovery of species and prevent habitat loss.
- According to experts, around 1.69 billion USD is required to address the problem of extinction in Australia.

21. Bannerman's Turaco:

- Bannerman's Turaco bird has come under serious threat at Kilum-Ijim Mountain Forest of Cameroon's northwest region.
- The Kilum-Ijim Mountain Forest, spanning some 20,000 square kilometers, is one of the last remaining homes of the endemic Bannerman's Turaco bird.



About:

- Bannerman's turaco is a species of bird in the family Musophagidae.
- It is endemic to Cameroon. Its scientific and common names honor the ornithologist David Armitage Bannerman.
- This bird has a deep cultural value for the people in the Cameroon grassfields.
- Its natural habitat is subtropical or tropical moist montane forests.
- It is threatened by habitat destruction and the International Union for Conservation of Nature has listed it as an "endangered species".
- Threats: Habitat destruction due to clearing of forests for agricultural land.

22. Study on Fast Melting Arctic Ice and ocean acidification:

- Rapid melting of Arctic Ice is contributing the fast-paced acidification of ocean.

Key facts:

- An international team of researchers have found that acidity levels in the Arctic Ocean's western region are raising 3 to 4 times faster than any other oceans across the world.
- The research team has found a concrete link between the high rate of melting ice and the rate of ocean acidification.
- Ocean absorbs a third of all the atmospheric carbon dioxide.
- The fast-paced melting of sea ice in the Arctic over the past few decades have exposed the seawater to absorb more carbon dioxide, resulting in the increasing rate of long-term acidification.
- The research forecasted that by 2050, Arctic Sea Ice may not be able to survive the increasingly hot summers, resulting in the acidification of ocean.
- Acidification of ocean can threaten marine population and its dependents like polar bears.
- Normally, the seawater is alkaline with pH of around 8.1.
- Now, the pH is rapidly decreasing as melting sea ice changes surface water in three primary ways.

- Water under the sea ice, which has little carbon dioxide, is exposed to the atmosphere, leading to fast-paced absorption of the greenhouse gas.
- Carbon dioxide from the atmosphere is concentrated at the surface since seawater mixed with meltwater has low density and is incapable of easily mixing with the deeper waters.
- Meltwater dilutes the carbonate ion concentration in the seawater, hindering its capacity to neutralize the carbon dioxide into bicarbonate and accelerating the ocean acidification.

23. Cheetah Task Force:

- Ministry of Environment, Forest and Climate Change has constituted a Task Force for monitoring Cheetah introduction in Kuno National Park, Madhya Pradesh and other suitable designated areas.

What is Project Cheetah?



Source: Indian Express

The introduction of cheetahs in India is being done under Project Cheetah. It is the world's first intercontinental large wild carnivore translocation project.

Under this project, eight Cheetahs (five female and three male Cheetahs) have been brought from Namibia and released in Kuno National Park (Madhya Pradesh).

Significance: Cheetahs will help restore open forest and grassland ecosystems in India. This will help conserve biodiversity

and enhance the ecosystem services like water security, carbon sequestration and soil moisture conservation, benefiting society at large.

What is the need for Cheetah restoration?

- Cheetah restoration is part of a prototype or model for the restoration of original cheetah habitats and their biodiversity. Bringing back a top predator restores historic evolutionary balance resulting in cascading effects on various levels of the ecosystem.
- For instance, the cheetah has been the evolutionary natural selection force that has shaped the adaptation of high speeds in Indian antelopes and gazelles. By restoring cheetah, India would also be able to save not only its prey base comprising certain threatened species, but also other endangered species of the grasslands / open forest eco-systems, some of which are on the brink of extinction.

About Cheetah Task Force:

- The Task Force shall be in force for a period of two years. The National Tiger Conservation Authority (NTCA) would facilitate the working of the Cheetah Task Force and render all necessary help.

- The Cheetah Task Force has been constituted to,
- Review, progress and monitor the health status of the Cheetah, upkeep of the quarantine & soft release enclosures, protection status of the area for Cheetah introduction in India.
- Monitor hunting skills and adaptation of Cheetahs to the habitat of Kuno National Park.
- Monitor release of Cheetah from Quarantine bomas to soft release enclosures and then to grass land and open forest areas.
- Open Cheetah habitat for eco-tourism and suggest regulations in this regard.
- Regularly interact with Cheetah Mitras and local communities for their awareness raising and also about their involvement in the protection of Cheetahs in particular & area in general.

Polity & Governance

1. Amendments in IT Rules, 2021:

- Recently, government notified amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021.
- These are aimed at making internet-open, safe & trusted and accountable, for the digital nagriks of the country.

Key Amendments:

New Guidelines for Social Media Intermediaries:

- Currently, intermediaries are only required to inform users about not uploading certain categories of harmful/unlawful content. These amendments impose a legal obligation on intermediaries to take reasonable efforts to prevent users from uploading such content. The new provision will ensure that the intermediary's obligation is not a mere formality.
- The amendment requires intermediaries to respect the rights guaranteed to users under the Articles 14, 19 and 21 of the Indian Constitution, therefore, including a reasonable expectation of due diligence, privacy and transparency.
- For effective communication of the rules and regulations of the intermediary, it is important that the communication is done in regional Indian languages as well.

Amendments to the Rule 3:

- The grounds in subclause 1 of rule 3 (rule 3(1)(b)(ii)) have been rationalized by removing the words 'defamatory' and 'libellous'.
- Whether any content is defamatory or libellous will be determined through judicial review.
- Some of the content categories in subclause 1 of rule 3 (rule 3(1)(b)) have been rephrased to deal particularly with misinformation, and content that could incite violence between different religious/caste groups.

Establishment of Grievance Appellate Committee(s):

- Grievance Appellate Committee(s) will be established to allow users to appeal against the inaction of, or decisions taken by intermediaries on user complaints.

- However, users will always have the right to approach courts for any remedy.

What are the Key IT Rules, 2021?

- Mandates Social Media to Exercise Greater Diligence:
- Broadly, the IT Rules (2021) mandate social media platforms to exercise greater diligence with respect to the content on their platforms.

Page|60 Establish a Grievance Officer:

- They are required to establish a grievance redressal mechanism and remove unlawful and unfitting content within stipulated time frames.
- The grievance officer of the platform's redressal mechanism is responsible for receiving and resolving complaints of the users.

Ensuring Online Safety and Dignity of Users:

- Intermediaries shall remove or disable access within 24 hours of receipt of complaints of contents that exposes the private areas of individuals, show such individuals in full or partial nudity or in sexual act or is in the nature of impersonation including morphed images etc.

Educating Users about the Privacy Policies:

- The privacy policies of the social media platforms must ensure that users are educated about not circulating copyrighted material and anything that can be construed as defamatory, racially or ethnically objectionable, paedophilic, threatening the unity, integrity, defence, security or sovereignty of India or friendly relations with foreign states, or violative of any contemporary law.

2. Official Language Committee's Recommendations:

- The Chief Ministers of Tamil Nadu and Kerala have voiced their concerns over the recommendations of the Committee of Parliament on Official Language.

What is this language panel?

- Section 4 of the Official Languages Act, 1963 says that a Committee on Official language shall be constituted on a resolution to that effect being moved in either House of Parliament with the previous sanction of the President and passed by both Houses.
- The Parliamentary Committee of Official Language was set up in 1976 under Section 4 of The Official Languages Act, 1963.
- The Committee is chaired by the Union Home Minister, and has, in accordance with the provisions of the 1963 Act, 30 members - 20 MPs from Lok Sabha and 10 MPs from Rajya Sabha.
- The purpose of the Committee is
 - ✓ To review the progress made in the use of Hindi for official purposes, and
 - ✓ To make recommendations to increase the use of Hindi in official communications.
- Under the provisions of the 1963 Act, the panel submits its report to the President, who "shall [then] cause the report to be laid before each House of Parliament, and sent to all the State Governments".

What did the Committee recommend?

- The Committee has recommended to replace English as a medium of instruction in all technical and non-technical institutions with Hindi.
- While IITs, IIMs and All India Institute of Medical Sciences are considered technical institutions, Kendriya Vidyalayas and Navodaya Vidyalayas fall under the other category.

- Also, the committee has recommended the removal of English as one of the languages in examinations held for recruitment to the Central services.
- It has stated that the requisite knowledge of Hindi among candidates should also be ensured.
- These recommendations has made many states to claim that it is an attempt to impose Hindi on non-Hindi speaking people.

What is the backdrop to the Hindi imposition row?

- The origin of the linguistic row goes back to the debate on official languages.
- In the Constituent Assembly, Hindi was voted as the official language by a single vote.
- However, it added that English would continue to be used as an associate official language for 15 years.
- The Official Languages Act came into effect on the expiry of this 15-year period in 1965.
- This was the background in which the anti-Hindi agitation took place.
- However, as early as in 1959, Jawaharlal Nehru had given an assurance in Parliament that English would continue to be in use as long as non-Hindi speaking people wanted it.

What is the alternative suggested to the proposal?

- The essence of the Official Languages Act, 1963, is to provide something to each of the differing groups to meet its objections and safeguard its position.
- Also, there is a call for equal treatment to all the languages specified under the Eighth Schedule of the Constitution.

3. Multi-State Cooperative Societies (Amendment) Bill, 2022:

- The Union Cabinet has approved the Multi-State Cooperative Societies (MSCS) Amendment Bill, 2022, which seeks to amend the Multi-State Cooperative Societies Act, 2002
- A new Ministry of Cooperation was formed in July 2021 with an objective to provide renewed impetus to the growth of Cooperative Sector.

What are the Changes Proposed in the Bill?

- The amendments seek to improve ease of doing business, bringing greater transparency and enhance governance.
- It has included provisions relating to representation of women and Scheduled Caste/Scheduled Tribe members on the board of multi-state cooperative societies.
- The amendments have been brought to reform the electoral process, strengthen monitoring mechanisms and enhance accountability.
- It will also widen the composition of board and ensure financial discipline, besides enabling the multi-state cooperative societies to raise funds.
- To improve the governance of multi-state cooperative societies, the Bill has specific provisions for setting up of Cooperative Election Authority, Cooperative Information Officer and Cooperative Ombudsman.
- There will also be a provision for issuing non-voting shares in multi-state co-operative societies to help them raise funds.
- Further, the newly proposed Rehabilitation, Reconstruction & Development Fund will help in revitalising sick co-operative societies.
- The Bill will incorporate the provisions of the 97th Constitutional Amendment.

- Moreover, the provision for stipulating prudential norms will bring in financial discipline. The amendments relating to auditing mechanism will ensure more accountability.

What are the Key Points of MSCS Act, 2002?

About:

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- Multi State Cooperative Societies: Although Cooperatives is a state subject, there are many societies such as those for sugar and milk, banks, milk unions etc whose members and areas of operation are spread across more than one state.
- For example, most sugar mills along the districts on the Karnataka-Maharashtra border procure cane from both states.
- Maharashtra has the highest number of such cooperative societies at 567, followed by Uttar Pradesh (147) and New Delhi (133).
- The MSCS Act was passed to govern such cooperatives.
- Legal Jurisdiction: Their board of directors has representation from all states they operate in.
- Administrative and financial control of these societies is with the central registrar, with the law making it clear that no state government official can wield any control on them.
- The exclusive control of the central registrar was meant to allow smooth functioning of these societies, without interference of state authorities.

Associated Concerns:

- Lack of Checks and Balances: While the system for state-registered societies includes checks and balances at multiple layers to ensure transparency in the process, these layers do not exist in the case of multi state societies.
- The central registrar can only allow inspection of the societies under special conditions.
- Further, inspections can happen only after prior intimation to societies.
- Weak Institutional Infrastructure of Central Registrar: The on-ground infrastructure for central registrar is thin- there are no officers or offices at state level, with most work being carried out either online or through correspondence.
- Due to this, the grievance redressal mechanism has become very poor.
- This has led to several instances when credit societies have launched ponzi schemes taking advantage of these loopholes.

What are Cooperatives in India?

Definition:

- The International Cooperative Alliance (ICA) defines a Cooperative as “an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.”
- Examples of Successful Cooperatives in India:
 1. National Agricultural Cooperative Marketing Federation of India (NAFED),
 2. Indian Farmers Fertilisers Cooperative Limited (IFFCO)
 3. AMUL

Constitutional Provisions:

- The Constitution (97th Amendment) Act, 2011 added a new Part IXB regarding the cooperatives working in India.
- The word “cooperatives” was added after “unions and associations” in Article 19(1)(c) under Part III of the Constitution.

- This enables all the citizens to form cooperatives by giving it the status of fundamental right of citizens.
- A new Article 43B was added in the Directive Principles of State Policy (Part IV) regarding the “promotion of cooperative societies”.

Supreme Court Judgement:

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- In July, 2021, the Supreme Court struck down certain provisions of the 97th Amendment Act, 2011.
- As per the SC, Part IX B (Articles 243ZH to 243ZT) has “significantly and substantially impacted” State legislatures’ “exclusive legislative power” over its co-operative sector.
- Also, the provisions in the 97th Amendment were passed by Parliament without getting them ratified by State legislatures as required by the Constitution.
- The SC held that states have exclusive power to legislate on topics reserved exclusively to them (cooperatives are a part of State list).
- The 97th Constitutional Amendment required ratification by at least one-half of the state legislatures as per Article 368(2).
- Since the ratification was not done in the case of the 97th amendment, it was liable to strike it down.
- It upheld the validity of the provisions of Part IX B which are related to Multi State Cooperative Societies (MSCS).
- It said that in case of MSCS with objects not confined to one state, the legislative power would be that of the Union of India.

4. 50th Chief Justice of India:

- The Chief Justice of India is the highest judicial post in India. Usually, the senior-most judge of the Supreme Court occupies the position.
- The outgoing CJI recommends the Union Ministry of Law, Justice and Company Affairs about the next CJI. The President of India makes the final appointment.
- Eligibility Criteria for selection as CJI: The criteria for CJI are same as that of Supreme Court judge:
 - He/she should be a citizen of India
 - He /she should have been for at least five years a Judge of a High Court or of two or more such Courts in succession or
 - He/she should have been for at least ten years an advocate of a High Court or of two or more such Courts in succession or
 - He/she should be, in the opinion of the President, a distinguished jurist

Appointment of Chief Justice of India:

- The President of India appoints Chief Justice of India and the other judges of the Supreme Court under clause (2) of Article 124 of the Indian Constitution.
- The President makes appointment after consultations with judges of the Supreme Court, as the President may “deem necessary”.
- Tenure: The CJI serves until he/she attains the age of 65 years.

Removal of Chief Justice of India:

- A judge of the Supreme Court shall not be removed from his office except by an order of the President passed after an address presented to the President by each House of Parliament.

- Such an address should be supported by a majority of the total membership of that House and by a majority of not less than two-thirds of the members of that House present and voting.
- Criteria for removal: The CJI or Supreme Court judge cannot be removed during their tenure except on proved misbehavior or incapacity.

Page|64 **How are Judicial Appointments to the Supreme Court Made?**

- The appointment of the Chief Justice of India and judges of the Supreme Court is governed by a Memorandum of Procedure.
- For the appointment of a Supreme Court judge, when a vacancy is expected to arise in the apex court, the collegium recommends a candidate to the Union Law Minister.
- The collegium of the CJI and four senior-most judges of the Supreme Court make recommendations for appointments to the apex court and High Courts.
- The CJI ascertains that the views of the senior-most judges in the Supreme Court, who hail from the High Court from where the person recommended comes from.
- The opinion of each member of the Collegium and other judges consulted is to be made in writing and forms part of the file on the candidate sent to the government.
- If the CJI consults non-judges, he/she should make a memorandum containing the substance of consultation, which would also be part of the file.
- After the receipt of the Collegium recommendation, the Law Minister forwards it to the Prime Minister, who would advise the President in the matter of appointment.

50th Chief Justice of India Landmark Judgments:

- Ayodhya land title dispute: Justice Chandrachud was part of the bench that resolved the Ayodhya land title dispute, paving way for the construction of Ram temple.
- Decriminalization of homosexuality: He was part of the bench that partially struck down Section 377 of the IPC that criminalized homosexuality.
- Validity of the Aadhaar scheme: Justice Chandrachud dissented with the majority opinion when he opined that passing Aadhaar bill as money bill was unconstitutional.
- Sabarimala temple issue: 50th Chief Justice of India Chandrachud supported the right of women in the 10-50 age group to visit the Sabarimala Temple and held that not allowing them to enter violated constitutional morality.
- Expanding scope of Medical Termination of Pregnancy (MTP) Act: He was part of the bench that expanded the provision of the law to include unmarried women, even transgender, for abortion between 20-24 weeks of pregnancy.
- Right to privacy judgment: Justice Chandrachud wrote the judgment for a nine-judge constitution bench in the Justice K S Puttaswamy versus Union of India case that unanimously ruled that right to privacy constituted a fundamental right.
- Permanent commission for women officers: The bench headed by Justice Chandrachud gave judgment in favour of women officers in the Army getting permanent commission and command postings.
- Demolition of Supertech towers: Justice Chandrachud headed the bench that ordered the demolition of realty major Supertech's twin 40-storey towers in Noida.

5. Matdata Junction:

- Recently, the Chief Election Commissioner of India launched the radio series "Matdata Junction".

Key facts:

- Matdata Junction is a year-long voter awareness programme launched jointly by the Election Commission of India (ECI) and the All India Radio (AIR).
- This radio series has a total of 52 episodes.
- It was produced by the ECI in collaboration with the AIR.
- This programme is a mixture of information and entertainment.
- It aims to address the apathy of urban population towards voting and create awareness about the importance elections in the safety of democracy.
- The programme will provide insights about how the elections are conducted in inclusive, accessible, transparent, free, fair and inducement-free manner.
- It would last for 15 minutes and will be aired every Friday during 7 to 9 PM slot on the All India Radio network.
- It will be broadcasted in 23 languages, including Hindi, English and other regional languages.
- The programme will focus on various aspects of the election and related processes from the perspective of voters.
- The episodes will be theme-based, like voter registration, EVMs, informed and ethical voting, value of vote, inclusive and accessible elections, stories of election officials, model code of conduct, IT applications etc.

International Affairs

1. 6th India-EU HLDMM:

- The sixth High Level Dialogue on Migration and Mobility (HLDMM) between India and European Union (EU).

About 6th India-EU HLDMM:

- The 6th India-EU HLDMM was held in Brussels on October 27, 2022. The fifth edition was organized in New Delhi in 2019.
- The high-level dialogue focused on wide range of topics related to the promotion of safe, orderly and regular migration and prevention of irregular migration.
- The discussions also focused on potential areas of cooperation to facilitate and ease mobility and migration of talented professionals, students and skilled workforce for the mutual benefit for both the EU and India.
- The two sides also expressed satisfaction of the successful implementation of the India-EU Common Agenda on Migration and Mobility (India-EU CAMM).
- The Indian delegates for the dialogue had representatives from the Ministries of External Affairs, Home Affairs, Skill Development and Entrepreneurship and Labour and Employment.

What is India-EU CAMM?

- The India-EU Common Agenda for Migration and Mobility (CAMM) was established during the 13th India-EU Summit that was held in 2016. It is a framework for the

cooperation between India and EU on the areas related to migration. It provides joint objectives, recommendations and actions that need to be undertaken to strengthen legal aspects of migration, prevent and combat irregular migration and address human trafficking issues.

Page|66 **About India-EU Security and Defence Consultations:**

- The inaugural edition of the India-European Union (EU) Security and Defence Consultations was organized in Brussels in June 2022. It focused on topics like cyber security, terrorism, maritime awareness, training modules, joint exercises, threat assessments etc. Discussions were held on the changing security situation in Europe, India's neighbourhood and the Indo-Pacific. The decision to hold this dialogue was made during the 2020 India-EU Summit. During the dialogue, several positive developments in the India-EU relations were discussed like the establishment of the regular maritime security dialogue, which was held for the second time in February 2022.

2. Lula da Silva – New President of Brazil:

- The leftist leader Lula da Silva recently made a comeback as the new President of Brazil after defeating incumbent far right President Jair Bolsonaro.

Who is Lula da Silva?

- Luiz Inácio Lula da Silva, popularly known as Lula, served as the President of Brazil for two terms between 2002 and 2010. During his previous tenures as the president, Brazil witnessed a massive economic growth and large-scale implementation of social welfare programmes that raised millions of people out of poverty. The most popular of these social welfare programmes is the Bolsa Familia. It provided cash to poor families if they send their children to schools and get them to undergo regular health check-ups. Lula left office since the laws in the country did not allow third consecutive presidential term.
- Lula started education only when he was 10 years old. He was forced to drop out after grade 5 because of the need for full-time job as a metalworker. He was elected as the leader of workers' union in 1975. He led large-scale labour protests against military regime in Brazil. In 1980, he cofounded the Workers' Party (PT), which later went on to become the main left-wing political party in the country.
- After Lula left Presidential post, he and his handpicked successor to the post, Dilma Rousseff, faced various corruption charges. While Rousseff was impeached in 2016, Lula was convicted for corruption and money laundering the following year. In 2018, Lula started a 12-year sentence in prison. In March 2021, he was cleared of all charges after the Supreme Court overturned the convictions.

Significance of Lula's return:

- The victory of Lula in this recent election indicates the leftist shift in Latin American politics. This shift began with the 2018 election victory of Andres Manuel Lopez Obrador of Mexico. This was followed by victories for Alberto Fernandez in Argentina in 2019, and Gabriel Boric in Chile, Pedro Castillo in Peru, and Gustavo Petro in

Colombia. With Lula's election win, Latin America's 6 largest economies will be under the control of leftist politicians.

- India is expected to have improved ties with Brazil under Lula. He visited India as the Chief Guest to the 2004 Republic Day parade and again in 2007 and 2008. He hosted former Prime Minister Manmohan Singh in 2006 and 2010 and former Indian President Pratibha Patil in 2008. He was the President of Brazil when the inaugural edition of BRICS meeting was held in Russia in 2009.

3. UNSC Counter-Terrorism Committee:

- Recently, India has hosted a special meeting of the **United Nations Security Council's Counter Terrorism Committee (CTC)** to discuss terror-financing through cryptocurrency and use of drones in the new-age terrorism.
- This will be the first such meeting of the UNSC-CTC in India since its establishment in 2001. The Permanent Representative of India (Ruchira Kamboj) to the UN (United Nations) serves as the Chair of the CTC for 2022.
- **Theme:** Countering the use of new and emerging technologies for terrorist purposes.

What is UNSC-CTC?

- It was established by Security Council resolution 1373 which was adopted unanimously on 28th September 2001 in the wake of the 9/11 terror attacks in the US.
- The Committee comprises all 15 Security Council member.
- Five permanent members: China, France, Russian Federation, the United Kingdom, and the United States, and ten non-permanent members elected for two-year terms by the General Assembly.
- The Committee was tasked with monitoring implementation of resolution 1373 which requested countries to implement a number of measures aimed at enhancing their legal and institutional ability to counter terrorist activities at home and around the world.
- This includes taking steps to criminalize the financing of terrorism, freezing any funds related to persons involved in acts of terrorism, deny all forms of financial support for terrorist groups, suppress the provision of safe haven, sustenance or support for terrorists and share information with other governments on any groups practicing or planning terrorist acts.

What are the Highlights of the Meet?

- India listed five points for the consideration of the CTC,
- Effective and sustained efforts to counter terror-financing.
- Normative efforts of the UN need to be coordinated with other fora like the Financial Action Task Force (FATF).
- Make sure that the Security Council's sanctions regime is not rendered ineffective because of political reasons.
- International cooperation and concerted actions against terrorists and their sponsors including the dismantlement of terrorist safe havens, etc. are critical imperatives.
- Recognise these linkages and strengthen multilateral efforts to break against terrorism's nexus with a transnational organised crime like arms and illicit drug trafficking.

What are Emerging Challenges for India?

- Use of emerging technologies for spreading terror is an issue of increasing concern across the globe.
- While one of the terrorists of 26/11 strike was captured alive, prosecuted, and convicted by the Supreme Court in India, the key conspirators and planners of the 26/11 attacks continue to remain protected and unpunished.
- China's putting a hold on UNSC sanctions against Pakistan-based terrorists on multiple occasions weaken the Security Council to act in some cases.
- Over the years, terrorist groups have diversified their funding portfolio. They have also begun to exploit the anonymity of new and emerging technologies such as virtual currencies for fund-raising and finances.
- Pakistan was put on the FATF's so-called grey list in June 2018 for a lax regime in countering money laundering and terror funding. The FATF removed Pakistan after more than four years at the plenary in October 2022.
- Discussion over the delisting of Pakistan from last year coincided with a trend of rising terror attacks in Kashmir.

4. Pakistan off FATF Grey List:

- Recently, the Financial Action Task Force (FATF), the international watchdog on terror financing and money laundering, has removed Pakistan from the list of countries under "increased monitoring" (Grey List).
- India's other neighbour on the grey list, Myanmar, was moved to the "black list" due to actions by the military leadership after the 2021 coup.

What is the FATF?

- FATF is the global money laundering and terrorist financing watchdog. It also aims to counter the financing of proliferation of weapons of mass destruction.
- It was set up in 1989 out of a G-7 meeting of developed nations in Paris.
- Its Secretariat is located at the Organisation for Economic Cooperation and Development (OECD) headquarters in Paris.
- As of today, it is a 39-member body with 37 countries and two regional organisations: the European Commission, and the Gulf Cooperation Council.
- Indonesia is the only observer country of FATF.
- India joined with 'observer' status in 2006 and became a full member of FATF in 2010.
- India is also a member of its regional partners, the Asia Pacific Group (APG) and the Eurasian Group (EAG).

Greylisting and Blacklisting Countries:

- The FATF Plenary (decision-making body of the FATF) meets tri-annually - in February, June and October, to take stock of "Mutual Evaluation Reports" (MERs) of the countries it reviews.
- If a country appears to have major deficiencies in its AML/CFT regime, it is put on a list of "jurisdictions under increased monitoring" - "grey list" and if it fails to address FATF concerns, it is put on a "high-risk jurisdictions" list - "black list".
- AML/CFT refers to "Anti-Money Laundering/Combating the Financing of Terrorism".

- The Grey List includes countries that are considered safe haven for supporting terror funding and money laundering. It serves as a warning that the country may enter the blacklist.
- The Black List includes Non-Cooperative Countries or Territories (NCCTs) that support terror funding and money laundering activities. As of now, Iran, North Korea and Myanmar are the three black listed countries.
- The enlisted countries are subjected to increased financial structures, thus making it difficult for them to procure loans from the financial institutions affiliated to FATF (as observers) such as the IMF, World Bank etc.

What are the Key Points about Pak's Removal from the Grey List?

- FATF's Stand: The FATF lauded "Pakistan's significant progress" saying that the country had completed two action plans comprising a 34-point tasklist in the period since 2018.
- Pakistan has been removed from the list after four years. It was first put on the list in 2008, removed in 2009 and before adding it again in 2018, it remained under increased monitoring from 2012 to 2015.
- India's Response: India has protested Pakistan's lack of action against cross-border terror groups responsible for attacks on India, however, it agreed to the decision to take Pakistan off the list, as the latter had submitted "documentary evidence" of its actions against designated terrorists.
- India believes that Pakistan must continue to take "credible, verifiable, irreversible and sustainable" action against terror groups emanating from territories under its control.

What are the Implications of Removing Pakistan from the List?

- For Pakistan: Being removed from the grey list, Pakistan has essentially received a reputational boost and a clean bill of health from the international community on terrorist financing.
- Considering the current situation of the country's economy, it is essentially in desperate need of investments from other countries. Removal from the grey list will definitely do the deed in this context.
- For India: While four years of greylisting has scaled-down the cross-border terror, the occasional incidents of terrorists infiltration and the regular sightings of drones bearing weapon-payloads along the border suggest that Pakistan's terrorism infrastructure directed against India is presently in a recessed mode but far from being dismantled comprehensively.
- India will have to continue mustering all available instruments and options to deny Pakistan operating space to wield the terror-weapon.
- India's interests lie in playing the long game in these diplomatic battles with the goal of making the region more stable and secure.

5. One Health Joint Plan of Action (OH JPA):

- Recently, a new One Health Joint Plan of Action was launched by the Quadripartite-the Food and Agriculture Organization (FAO), the United Nations Environment

Programme (UNEP), the World Health Organization (WHO), and the World Organisation for Animal Health (WOAH, founded as OIE).

- In April 2022 a pilot project in the state of Uttarakhand was launched to implement the One Health Framework by One Health Support Unit.
- The Action plan developed through a participatory process, provided a set of activities that aim to strengthen collaboration, communication, capacity building and coordination equally across all sectors responsible for addressing health concerns at the human-animal-plant-environment interface.
- The plan is valid from 2022-2026 and is aimed at mitigating the health challenges at global, regional, and country levels.

Focus Areas of the Action Plan:

- One Health capacity for health systems
- Emerging and re-emerging zoonotic epidemics
- Endemic zoonotic
- Neglected tropical and vector-borne diseases
- Antimicrobial resistance and the environment

What is the One Health Concept?

- One Health is an approach that recognizes that the health of people is closely connected to the health of animals and our shared environment.
- One Health' vision derives its blueprint from the agreement between the tripartite-plus alliance comprising the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE).
- It's purpose is to encourage collaborations in research and sharing of knowledge at multiple levels across various disciplines like human health, animal health, plants, soil, environmental and ecosystem health in ways that improve, protect and defend the health of all species.

Why has the One Health Concept become more Important?

- Human Expansion: Human populations are growing and expanding into new geographic areas due to which close contact with animals and their environments provides more opportunities for diseases to pass between animals and people.
- Of the contagious diseases affecting humans, more than 65% are of zoonotic or animal to man origin.
- Environmental Disruptions: Disruptions in environmental conditions and habitats can provide new opportunities for diseases to pass to animals.
- International Travel & Trade: The movement of people, animals, and animal products has increased from international travel and trade due to which diseases can spread quickly across borders and around the globe.
- Viruses in Wildlife: Scientists have observed that there are more than 1.7 million viruses circulating in wildlife, and many of them are likely to be zoonotic.
- This implies that unless there is timely detection, India risks facing many more pandemics in times to come.

Way Forward:

- The Covid-19 pandemic showed the relevance of 'One Health' principles in the governance of infectious diseases, especially efforts to prevent and contain zoonotic diseases throughout the world.
- India needs to scale up such a model across the country and to establish meaningful research collaborations across the world.
- There is a need to develop best-practice guidelines for informal market and slaughterhouse operation (e.g., inspections, disease prevalence assessments), and creating mechanisms to operationalise 'One Health' at every stage down to the village level.
- Awareness generation, and increased investments toward meeting 'One Health' targets is the need of the hour.

6. International Coordinating Group:

- Amid shortages in cholera vaccine supply, the International Coordinating Group (ICG) temporarily suspended the standard two-dose vaccine regime and initiated the single-dose approach.
- The new single-dose approach was initiated to address the surge in cholera cases.
- Since the beginning of 2022, 29 countries have reported cholera cases, with Haiti, Malawi, and Syria witnessing large-scale outbreaks.
- 13 of these countries did not report an outbreak in 2021.
- Five years ago, less than 20 countries on average reported cholera outbreaks.
- The increase in the number of cholera cases worldwide is attributed to floods, droughts, conflict, and population movement, which are limiting access to clean water and creating other risk factors.
- The one-dose approach has been an effective response against large-scale outbreaks, though the evidence of the exact duration of protection is limited and it is found to be less effective in children.
- The two-dose approach, with the second dose being administered within 6 months after the first, provides immunity for 3 years.
- However, the benefit of one dose outweighs no doses at all since it expands vaccine coverage and provides protection for the short term.
- The International Coordinating Group (ICG) is responsible for the management and coordination of emergency vaccine supplies and antibodies to countries during major disease outbreaks. It is responsible for the management of the global stockpile of oral cholera vaccines. It has members from WHO, Doctors Without Borders, UNICEF, and the International Federation of Red Cross and Red Crescent Societies. It was set up in 1997 following the major outbreak of meningitis in Africa.

7. UNICEF: 4 million children pushed into poverty by Ukraine War:

- A report titled "The impact of the war in Ukraine and subsequent economic downturn on child poverty in eastern Europe" was recently released by UNICEF.

Key findings:

- The report assessed the economic impact of the Ukraine war by studying 22 countries in Eastern Europe and Central Asia.
- The Ukraine War and consequent inflation have driven an additional 4 million children across the region into poverty. This is a 19 per cent increase since 2021.
- It found that 25 per cent of the population in the region is children. However, they account for nearly 40 per cent of the additional 10.4 million people who are suffering from poverty in 2022.
- Russia has experienced the highest increase in children living in poverty, with 2.8 million more children currently living in BPL households.
- Ukraine hosts the second-largest share of children living in poverty.
- The sharp spike in child poverty can result in 4,500 more children losing their lives before their first birthday and 1,17,000 more children dropping out of school this year.
- The economic crisis caused by the Ukraine war can create a risk of children facing abuse, exploitation, violence, and child marriage.
- Childhood poverty has long-term consequences since one in three children born and raised in poverty live their adult lives in poverty, resulting in an intergenerational cycle of hardship and deprivation.
- The issue of poverty is exacerbated by the government's reduction in public expenditure, increased consumption of taxes, and austerity measures seeking to limit economic growth for a short period of time.

The report recommends various measures to mitigate the child poverty crisis:

- Provide universal cash benefits for children and minimum income security for vulnerable families
- Expand social assistance to all families with children in need, including refugees
- Protect social welfare initiatives, especially those targeting vulnerable children and families
- Protect and support the delivery of health, nutrition, and social care services to pregnant women, infants, and pre-schoolers.
- Regulate prices of basic food items for families.

8. 90th General Assembly of Interpol:

- The General Assembly of the International Criminal Police Organisation (Interpol) is meeting in Delhi for four days from October 18, 2022. This is the second time since 1997 the 195 member-strong body is holding such a large conference in India.

What is the Interpol?

- It was set up in 1923, as a secure information-sharing platform that facilitates criminal investigation of police forces across the globe through collection and dissemination of information received from various police forces.
- It is headquartered in Lyon, France.

- It keeps track of the movements of criminals and those under the police radar in various regions and tips off police forces which had either sought the Interpol's assistance or which in its opinion will benefit from the particulars available with it.
- It aims to promote the widest-possible mutual assistance between criminal police forces.

Page|73 **How is the Interpol Organised?**

- The head of Interpol is the President who is elected by the General Assembly. He comes from one of the member-nations and holds office for four years.
- The day-to-day activities are overseen by a full-time Secretary General elected by the General Assembly, who holds office for five years.
- The General Assembly lays down the policy for execution by its Secretariat which has several specialised directorates for cybercrime, terrorism, drug trafficking, financial crime, environmental crime, human trafficking, etc. Every member-country is the Interpol's face in that country.
- All contact of a country's law enforcement agency with Interpol is through the highest investigating body of the land.
- The Central Bureau of Investigation (CBI) assumes this role in India with one of its senior officers heading its exclusive Interwing (the National Central Bureaus) for collation of information and liaison with the world body.

What are Interpol Notices?

- About: Its notices are international requests for cooperation or alerts allowing police in member countries to share critical crime-related information.
- Notices are issued by the General Secretariat at the request of a member country's INTERPOL National Central Bureau and are made available for all our member countries to consult in our Notices database.

9. What is IBSAMAR?:

- It is a joint Multinational Maritime Exercise between the Indian, Brazilian and South African Navies currently being held in South Africa from 10-12 October, 2022.
- The previous edition of IBSAMAR (IBSAMAR VI) was conducted in Simons Town, South Africa in 2018.
- The Indian Navy is represented by the Teg class guided missile frigate, INS Tarkash, a Chetak helicopter and the personnel from the Marine Commando Force (MARCOS).
- The harbour phase of IBSAMAR VII includes professional exchanges such as damage control and fire-fighting drills, Visit, Board, Search, and Seizure (VBSS)/cross boarding lectures and interaction among special forces.
- The Joint Maritime Exercise will strengthen maritime security, joint operational training, sharing of best practices and building interoperability to address common maritime threats.

What are India's Other Maritime Exercises?

- Thailand: India-Thailand Coordinated Patrol (Indo-Thai CORPAT)
- United Kingdom: Konkan - Shakti

- Indonesia: Samudra Shakti
- Singapore: Singapore-India Maritime Bilateral Exercise (SIMBEX)
- Qatar: Zair-Al-Bahr
- Japan: Maritime Partnership Exercise (MPX)

Page|74 What is IBSA?

- The IBSA is a trilateral, developmental initiative between India, Brazil and South Africa to promote South-South cooperation and exchange.
- The idea of South-South Cooperation (SSC) is not new. Its genesis can be traced back to the decades of efforts by countries and groupings working together to ensure South-South solidarity such as Bandung conference 1955, Non-Aligned Movement 1961, G77 grouping, United Nations Conference on Trade and Development (UNCTAD), the Buenos Aires Plan of Action 1978, and the 2009 Nairobi declaration.

Formation:

- The grouping was formalized and named the IBSA Dialogue Forum when the Foreign Ministers of the three countries met in Brasilia (Brazil) on 6th June 2003 and issued the Brasilia Declaration.

Headquarters:

- IBSA does not have a headquarters or a permanent executive secretariat.

IBSA Fund:

- Established in 2004, IBSA Fund (India, Brazil and South Africa Facility for Poverty and Hunger Alleviation) is a unique Fund through which development projects are executed with IBSA funding in fellow developing countries.
- The fund is managed by the United Nations (UN) Office for South-South Cooperation (UNOSSC). Each IBSA member country is required to contribute \$1 million per annum to the fund.

10. Steadfast Noon:

- Amid the rising tensions with Russia, the members of North Atlantic Treaty Organization are planning to conduct a nuclear exercise called "Steadfast Noon".
- The Steadfast Noon exercise will be conducted each year and it would last for over a week.
- It was planned before the Russia launched a military operation in Ukraine in February 2022.
- It would involve the participation of fighter jets capable of carrying nuclear warheads. However, it will not involve any live bombs.
- 14 of the 30 NATO members will participate in this exercise.
- Conventional jets, surveillance and refuelling aircraft will routinely take part in this exercise.
- The main part of the drill will be conducted more than 1,000 km from Russia.
- NATO, as an organization, does not have any nuclear weapons.

- These weapons of mass destruction are nominally linked to the NATO alliance but remain under the firm control of the three member states – the United States, France and the United Kingdom.

About NATO's Nuclear Planning Group:

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- The NATO's Nuclear Planning Group, which will meet before the Steadfast Noon is launched, is the senior body that is constantly reviewing specific issues concerning the nuclear forces. It is currently the only formal NATO body dealing with nuclear affairs.
- It was founded in December 1966 to initiate the consultative process on the nuclear doctrine and other related issues within the NATO. All NATO members are currently members of the Nuclear Planning Group except France, which decided to not participate.
- It is chaired by the NATO Secretary General. It generally meets at the level of defence ministers. The Nuclear Planning Group reviews and sets the NATO's nuclear policy amid the changing security environment. It is involved in discussions focussing on policy issues concerning the nuclear forces and other topics like nuclear arms control and nuclear proliferation.

11. 2nd UN World Geospatial International Congress:

- Recently, 2nd United Nations World Geospatial Information Congress was inaugurated in Hyderabad under the theme 'Geo-Enabling the Global Village: No one should be left behind'. India's geospatial economy is expected to cross Rs. 63,100 crores by 2025 at a growth rate of 12.8%.

What is the UN World Geospatial Information Congress?

- The first United Nations World Geospatial Information Congress was held in Deqing, Zhejiang Province, China in 2018.
- The United Nation Committee of Experts on Global Geospatial Information Management (UN-GGIM) organizes the United Nations World Geospatial Information Congress (UNWGIC) every four years.
- The objectives are enhancing international collaboration among the Member States and relevant stakeholders in Geospatial information management and capacities.

What is Geospatial Technology?

- Geospatial technology is a term used to describe the range of modern tools contributing to the geographic mapping and analysis of the Earth and human societies. The term 'geospatial' refers to a collection of technologies that help to collect, analyse, store, manage, distribute, integrate, and present geographic information.

Broadly, it consists of the following technologies:

- Remote Sensing
- GIS (Geographic Information System)
- GNSS (Global Navigation Satellite System)
- Survey
- 3D modelling

Significance:

- Employment Generation:
- It will provide employment to more than 10 lakh people mainly through Geospatial start-ups in India.

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Socio-Economic Development:

- Geospatial technology has become one of the key enablers in socio-economic development by enhancing productivity, ensuring sustainable infrastructure planning, effective administration, and aiding the farm sector.

Other Advantages:

- Other advantages include sustainable urban development, managing and mitigating disasters, tracking the impact of climate change, forest management, water management, stopping desertification and food security.
- Intelligent maps and models can be created using geospatial technology.
- It can be used to reveal spatial patterns hidden in large amounts of data that are complex to access collectively through mapping.
- Geospatial technology has been driving inclusion and progress in national development projects like SVAMITVA, PM Gati Shakti master plan, Jan Dhan-Aadhaar-Mobile (JAM) Trinity etc.

12. Indestructible Brotherhood-2022:

- Kyrgyzstan has called off the CSTO's military drills called Indestructible Brotherhood-2022, which was set to be held in the Central Asian country from October 10 to 14.
- Kyrgyzstan, a former Soviet Republic, called off the "Indestructible Brotherhood 2022" command and staff exercise a day before the multinational military exercise was scheduled to commence in its territory.
- The exercise is joint military drill involving army personnel from Collective Security Treaty Organisation (CSTO) - a 6-member security alliance comprising of Russia, Belarus, Armenia, Kyrgyzstan, Kazakhstan and Tajikistan.
- Non-member states like Syria, Serbia and Uzbekistan were also invited for this military exercise as observers.
- The multilateral military drills were set to take place in the eastern highlands of Kyrgyzstan.
- The cancellation of Indestructible Brotherhood-2022 is the latest show of on-going diplomatic tensions between the members of CSTO.
- In September 2022, Armenia did not attend a 2-week long joint CSTO military drill organized by Kazakhstan in protest against CSTO's lack of support during the violent border skirmish between Armenia and Azerbaijan.
- The CSTO responded to the Armenia-Azerbaijan border tensions by sending just fact-finding missions to the border rather than providing military assistance requested by Armenia.
- The alliance, over the past, has failed to respond to numerous security crisis among its member states.

- For instance, it did not intervene when its two member states – Kyrgyzstan and Tajikistan – were engaged in a three-day border conflict in 2021.
- Earlier, in September 2022, the two neighbors were engaged in border clashes yet again.
- Currently, the alliance only focuses on increasing security readiness for potential adverse consequences of US troop pull-out from Afghanistan.
- Currently, Russia has stationed around 5,000 troops at Tajikistan’s border with Afghanistan.

About CSTO:

- Headquartered in Moscow, the Collective Security Treaty Organization (CSTO) is an intergovernmental military alliance set up as an alternative to the US-led North Atlantic Treaty Organization (NATO).

13. Rosetta Stone:

- Many Egypt historians are demanding the U.K to return the 2,000-year-old Rosetta Stone.
- The Rosetta Stone is a large stone slab with inscriptions on it and is believed to be a piece of a bigger rock.
- It has inscriptions in three scripts, all of which convey a decree or public message.
- The decree is inscribed three times, in hieroglyphs (suitable for a priestly decree), Demotic (the cursive Egyptian script used for daily purposes, meaning ‘language of the people’), and Ancient Greek (the language of the administration – the rulers of Egypt at this point were Greco-Macedonian after Alexander the Great’s conquest).
- This is similar to how in Ancient India, King Ashoka ordered stambhas or edicts that had messages of Buddha’s teachings and news about victory in a war inscribed. These were then placed throughout the kingdom for the public to see.
- Its discovery that helped develop the specific field of ancient Egypt studies, Egyptology.
- According to the British Museum, the engraving was done during the reign of King Ptolemy V who ruled from 204–181 BC.
- This stone was ‘rediscovered’ in the time of French king Napoleon Bonaparte, who launched a campaign in Egypt from 1798 to 1801.
- On Napoleon’s defeat later at the hands of the British, the Treaty of Alexandria (1801) led to its transfer and it has been at the British Museum since then.

14. Kerch Bridge collapse:

- The road-and-rail bridge linking Russia and the Crimean peninsula was damaged in a powerful blast recently, hitting a crucial supply route for Russian forces in Ukraine.
- The 19-km (12-mile) Crimea Bridge over the Kerch Strait is the only direct link between the transport network of Russia and the Crimean peninsula, which Moscow annexed from Ukraine in 2014.
- The bridge is crucial for the supply of fuel, food and other products to Crimea, where the port of Sevastopol is the historic home base of Russia’s Black Sea Fleet.
- The Kerch Strait is a crucial part of the regional grain trade connecting the Azov sea with the Black Sea.



15. MENA region – world’s fastest crypto adopter:

- The Middle East and North Africa (MENA) region is the fastest growing cryptocurrencies market in the world.
- The 2022 Global Crypto Adoption Index released by the blockchain researcher Chainalysis revealed that the Middle East and the North Africa (MENA) region witnessed 48 per cent increase in the volume of cryptocurrency received – the highest in the world.
- Though MENA region is one of the smallest cryptocurrency markets in the world, it received cryptocurrency worth 566 billion between July 2021 and June 2022.
- After MENA, Latin America witnessed the second biggest cryptocurrency growth in the world during the same period. It recorded a 40 per cent increase.
- It was followed by North America at 36 per cent growth and Central Asia, Southern Asia and Oceania at 35 per cent growth.
- The three MENA countries – Turkey, Egypt and Morocco – were among the top 30 in the index.
- There is a spike in the volume of cryptocurrencies in these countries because of increased savings and remittance payments.
- Turkey currently tops the MENA countries by having highest value of cryptocurrencies received. By the end of June 2022, it had received 192 billion worth of cryptocurrencies. However, it only witnessed a 10.5 per cent year-on-year growth.
- According to the report, Saudi Arabia is the third largest crypto market in MENA region, and the United Arab Emirates stands at fifth position.

- This is mainly attributed to young, tech-savvy early adopters having large amount of disposable incomes.
- Increasing inflation is also playing a major role in the increased adoption of cryptocurrencies.
- Its adoption is attractive to institutional investors because of the uncertain economic situation, currency devaluation and inflation.
- Afghanistan, which held the 20th spot in 2021, fell to bottom most spot in the index after Taliban banned cryptocurrencies, which were equated by the extremist group to gambling that goes against the Islamist ideologies.

16. Nobel Peace Prize 2022:

- Recently, the 2022 Nobel Peace Prize was awarded to human rights advocate Ales Bialiatski from Belarus, the Russian human rights organisation Memorial, and the Ukrainian human rights organisation Center for Civil Liberties.
- The Prize recognizes their contribution for many years, promoting the right to criticize power and protecting the fundamental rights of citizens.
- With the awardees being from Belarus, Ukraine, and Russia, an implicit message has been sent about the ongoing conflict between Russia and Ukraine.
- In 2021, Nobel Peace Prize was awarded to journalists Maria Ressa of the Philippines and Dmitry Muratov of Russia for their efforts to safeguard freedom of expression, which is a precondition for democracy and lasting peace.
- Other 2022 Nobel Prizes for Literature, Chemistry, Physics and Medicine have already been announced.

Who are the Winners?

Belarus's Ales Bialiatski:

- Ales Bialiatski was one of the initiators of the democracy movement in Belarus in the mid-1980s."
- Bialiatski is also credited with founding the organisation Viasna (Spring) in 1996 in response to the controversial constitutional amendments that gave the president (Alexander Lukashenko) dictatorial powers.
- Over time, Viasna evolved into a "broad-based human rights organisation that documented and protested against the authorities' use of torture against political prisoners".
- In 2020, he was one of the three recipients of the Right Livelihood Award by the Swedish Right Livelihood Foundation, sometimes referred to as the "Alternative Nobel".
- He is the fourth person to get the Nobel Peace Prize in Jail.

Russian Human Rights Organisation, Memorial:

- The organisation was established in 1987, "by human rights activists in the former Soviet Union who wanted to ensure that the victims of the communist regime's oppression would never be forgotten."

- Nobel Peace Prize laureate Andrei Sakharov, who won the prize in 1954, and human rights advocate Svetlana Gannushkina were among the organisation's founders.
- It has been described as the largest human rights organisation in Russia, and in the present day, it helped in gathering information on "the political oppression and human rights violations in Russia".

Ukrainian Human Rights Organisation, Center for Civil Liberties:

- The Center for Civil Liberties was founded in Kyiv in 2007 "for the purpose of advancing human rights and democracy in Ukraine".
- The Centre describes itself as "one of the leading actors in Ukraine, influencing the formation of public opinion and public policy, supporting the development of civic activism, and actively participating in international networks and solidarity actions to promote human rights".
- After Russia's invasion of Ukraine in February 2022, the Center for Civil Liberties has engaged in efforts to identify and document Russian "war crimes" against the Ukrainian civilian population.

17. 2022 Nobel Prize in Literature:

- The 2022 Nobel Prize in Literature has been awarded to French author "Annie Ernaux" for "the courage and clinical acuity with which she uncovers the roots, estrangements and collective restraints of personal memory".
- In 2021, the award was given to novelist Abdulrazak Gurnah "for his uncompromising and compassionate penetration of the effects of colonialism and the fate of the refugee in the gulf between cultures and continents".
- The Nobel Prizes in Physics, Chemistry and Medicine for 2022 have already been awarded.

Who is Annie Ernaux?

- Annie was born in 1940 and brought up in the small town of Yvetot in Normandy (France). She went on to study at the universities of Rouen and then Bordeaux from where she qualified as a schoolteacher and gained a higher degree in modern literature.

Career & Work:

- Her exemplary literary career started with the publication of her first book, *Cleaned Out*, in 1974. Her other major work includes "A Women's Story", "Happening", "A Girl's Story", "Getting Lost".

Themes of her work:

- Her books talk about the body and sexuality, intimate relationships, social inequality and the experience of changing class through education, time and memory, and the overarching question of how to write these life experiences. Her books have explored how shame is built into the female consciousness, and how women censor and judge themselves even in personal spaces such as a diary.

Awards & Recognition:

- Her works overall have received the French language prize and the Marguerite Yourcenar prize. In 2014 she was awarded an honorary doctorate by the University of Cergy-Pontoise. Her work "The Years" was shortlisted for the Man Booker International prize.

18. Burkina Faso Military Coup:

- Recently, the President of Burkina Faso, Paul-Henri Damiba announced his resignation following violence in the volatile West African nation after the military government was overthrown by a group of soldiers in the second coup in around eight months.
- Despite Damiba's promises to improve the security situation in the country, the crisis worsened under his government.
- The West African regional bloc



Economic Community of West African States (ECOWAS) suspended Burkina Faso from the organisation, demanding Damiba led Government to hold elections as soon as possible.

What is the History of Burkina Faso?

- A former French colony, Burkina Faso has suffered chronic instability since gaining independence in 1960, including several coups.
- The country's name, meaning "land of the honest men", was picked by revolutionary military officer Thomas Sankara who took power in 1983. He was toppled and killed in 1987.
- Since 2015, the country has been fighting an Islamist insurgency that spilled over from neighbouring Mali. This has fuelled anger in the military and damaged the once important tourist industry.
- Landlocked Burkina Faso, one of West Africa's poorest countries despite being a gold producer, has experienced numerous coups since independence from France in 1960.
- Islamist militants control swathes of Burkina Faso's territory and have forced residents in some areas to abide by their harsh version of Islamic law, while the military's struggle to quell the insurgency has drained scarce national resources.

19. Ministerial dialogue of USISCEP:

- Ministerial dialogue of US-India Strategic Clean Energy Partnership (USISCEP) will be held in the United States from October 7 to 11 this year.
- The Ministerial Dialogue will be co-chaired by Union Minister of Petroleum and Natural Gas and Housing and Urban Affairs Hardeep Singh Puri and US Secretary of Energy Jennifer Granholm.
- The revamped USISCEP was launched based on the US-India Climate and Clean Energy Agenda Partnership 2030 Partnership that was unveiled jointly by US President Joe

Biden and Indian Prime Minister Narendra Modi at the Leaders' Summit on Climate Change in April 2021.

- The USISCEP focuses on 5 pillars – responsible oil and gas pillar, power and energy efficiency pillar, renewable energy pillar, sustainable growth pillar and emerging fuels and technologies pillar.
- The partnership is based on the long-standing US-India energy dialogue focusing on boosting innovation and energy security.
- The new revamped USISCEP emphasizes on the electrification and decarbonization processes and end uses.
- It also aims to scale up emerging green energy technologies, provide green-energy solutions for sectors that are difficult to decarbonize and provide technical solutions.
- Increasing involvement of private entities and other stakeholders will be prioritized to speed up the deployment of technologies and create economic opportunities benefiting both India and the United States.

What is US-India Agenda 2030 Partnership?

- The US-India Agenda 2030 Partnership focuses on two tracks of engagement – the Strategic Clean Energy Partnership (SCEP) and the Climate Action and Finance Mobilization Dialogue. The partnership focuses on collaborating towards achieving the two countries' climate and clean energy targets set under the Paris Agreement.
- It also focuses on strengthening the cooperation in climate and green energy through mobilization of financial resources and demonstrating and scaling up innovative technologies required for the decarbonization of sectors like power, real estate, transportation etc. The partnership validates how the international community can integrate climate-related efforts with inclusive and resilient economic development with consideration to sustainable development goals and national challenges.

20. Russia annexes 4 regions in Ukraine:

- Vladimir Putin has declared the Annexation of 4 Ukrainian regions by Russia namely Donetsk, Luhansk, Kherson and Zaporizhia. The West has denounced the annexation of occupied Ukrainian territory by Russia as an illegitimate land grab after Russian President Vladimir Putin signed treaties. The president of Ukraine, Zelenskyy responded by unexpectedly submitting an application to join the NATO armed alliance. Vladimir Putin's action and President Volodymyr Zelenskyy's signature of what he called an expedited NATO membership application sent the two leaders hurtling toward each other, raising the possibility of a full-scale battle between Russia and the West.
- At a Kremlin signing ceremony, Vladimir Putin reaffirmed his warning to use "all possible means" to safeguard the recently acquired parts of Ukraine.
- Vladimir Putin again raged angrily against the West, charging that the United States and its allies wanted to destroy Russia.
- Zelenskyy then organised his own signing ceremony in Kyiv and made a video of him signing what he claimed to be a legitimate application for NATO membership.
- Vladimir Putin has made it quite obvious that any possibility of Ukraine joining the military alliance is one of his red lines and has used it as justification for his invasion,

which has been going on for eight months and is the largest land conflict in Europe since World War II.

- **Ukraine Russia Conflict:** Zelenskyy refuses to any Discussions with Putin
- Vladimir Putin encouraged Ukraine to participate in peace negotiations in his address, but Putin emphasised that he would not bring up the subject of returning seized territory namely Donetsk, Luhansk, Kherson and Zaporizhia.
- There would be no discussions with Putin, according to the Ukrainian President Zelenskyy.
- **Ukraine Russia Conflict:** Putin accuses the West and NATO
- Putin accused the West and NATO of inciting conflicts to transform Russia into a “colony” and a “crowd of soulless slaves” at his signing ceremony in the opulent St. George’s Hall of the Kremlin.
- Tensions in the battle, which has resulted in tens of thousands of deaths and injuries, were already at levels unseen since the Cold War when he took a more rigid stance.
- An outpouring of outrage from world leaders, particularly those from the Group of Seven leading countries, followed, and the United States and the United Kingdom imposed additional penalties.

RUSSIA-UKRAINE WAR

Which Ukrainian regions is Russia annexing?

Four partially Russian-controlled regions of Ukraine - **Donetsk, Luhansk, Kherson and Zaporizhia** - will be incorporated into Russia following ‘referendums’ held in the regions, the Kremlin has said.



Defence & Security

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1. "Agni Prime" ballistic missile:

- Recently, Defence Research and Development Organisation (DRDO) successfully test-fired indigenously-developed new generation medium-range ballistic missile Agni Prime (Agni-P) from the APJ Abdul Kalam Island at Odisha coast.

What is Agni Prime?

- It is a two-stage canisterised missile.
- It is the latest and sixth variant of the Agni series missiles (under IGMDP - Integrated Guided Missile Development Program).
- With multiple independently targetable re-entry vehicles, the missile is capable of delivering a number of warheads at separate locations at a distance of 1,000 - 2,000 km.
- The 10.5 metre tall missile with a diameter of 1.2 metre can carry warheads up to 1.5 tonne.
- It can perform high maneuvers while homing in on targets.
- These missiles will be inducted in the armed forces after couple of user associated launches
- It has a dual redundant navigation and guidance system.
- The Agni-P missile would further strengthen India's credible deterrence capabilities.

What is the Other Agni Class of Missiles?

- They are the mainstay of India's nuclear launch capability.
- Range of other Agni Missiles:
- Agni I: Range of 700-800 km.
- Agni II: Range more than 2000 km.
- Agni III: Range of more than 2,500 Km
- Agni IV: Range is more than 3,500 km and can fire from a road mobile launcher.
- Agni-V: The longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM) with a range of over 5,000 km.

What is IGMDP (Integrated Guided Missile Development Program)?

- It was conceived by Dr. A.P.J. Abdul Kalam to enable India attain self-sufficiency in the field of missile technology. It was approved by the Government of India in 1983 and completed in March 2012.
- The 5 missiles (P-A-T-N-A) developed under this program are:
- Prithvi: Short-range surface-to-surface ballistic missile.
- Agni: Ballistic missiles with different ranges, i.e., Agni (1,2,3,4,5)
- Trishul: Short-range low-level surface to air missile.
- Nag: 3rd generation anti-tank missile.
- Akash: Medium-range surface-to-air missile.

2. Tiger Triumph exercise:

- The Tiger Triumph exercise was jointly conducted by the United States and Indian militaries in Visakhapatnam, Andhra Pradesh.

Key facts:

- The "Tiger Triumph" tabletop simulation was organized at India's Eastern Naval Command in Visakhapatnam from October 18 to 20 this year.

- It is a comprehensive endeavor of the Indian and US military and diplomatic representatives to provide coordinated disaster relief to a notional third country hit by a super-cyclone.
- Tiger Triumph exercise sought to improve interoperability between India and the US and create a multinational command and control model for humanitarian assistance in the Indian Ocean Region (IOR).
- Its objective was to streamline diplomatic, operational, and logistical coordination between the two countries while responding to disasters.

3. Exercise PowerEX-2022:

- Indian Computer Emergency Response Team (CERT-In) in collaboration with Power-CSIRTs (Computer Security Incident Response Teams in Power sector), successfully designed & conducted the Cyber Security Exercise “PowerEX”

About PowerEX-2022:

- Exercise “PowerEX” was hosted by CERT-In on its exercise simulation platform.
- Around 350+ officials from various Power Sector Utilities participated in the event.
- The Objective of the exercise was to “Recognize, Analyse & Respond to Cyber Incidents in IT & OT Systems”.
- Theme: “Defending Cyber induced disruption in IT & OT infrastructure”
- Exercise “PowerEX” was successful in meeting its objectives and helped the participants to learn, practice and respond to cyber security incidents.

4. Exercise Prasthan:

- Recently, Prasthan, an Offshore Security Exercise was conducted under the aegis of Headquarters, Eastern Naval Command.
- Exercise conducted every six months.
- It aims to integrate the efforts of all maritime stakeholders involved in offshore defence.

Geography

1. Gujarat Morbi Bridge collapse:

- Recently, a suspension bridge collapsed over the river Machchu, in Gujarat’s Morbi district, which killed almost 135 people.
- The suspension bridge, or Jhulta Pul, was built by the ruler of the princely state of Morbi, Sir Waghji Thakor, in 1877.
- It was made to reflect the 'progressive and scientific nature of the rulers of Morbi'. It was inaugurated by the then-Bombay governor, Richard Temple, in 1879.

What is Suspension Bridge?

- A suspension bridge is a type of bridge in which the deck is hung below suspension cables on vertical suspenders.

- The basic structural components include stiffening girders, two or more main suspension cables, and towers and anchorages for cables at either end of the bridge.
- The main cables are suspended between the towers and are connected to the anchorage or the bridge itself. The vertical suspenders carry the weight of the deck and the commuter load on it.
- The design ensures that the load on the suspension cables is transferred to the towers at the two ends, which transfer them further by vertical compression to the ground by way of the anchorage cables.
- About: The Machchhu river originates from Madla hills in the Surendranagar district of Gujarat and ends 141.75 km downstream in the Rann of Kutch.
- Tributaries: Beti, Asoi, Jamburi, Benia, Machchhori, Maha are the tributaries of Machchhu river.
- Dams: It has two dams to augment irrigation to alleviate droughts in Saurashtra.

What is the Significance of Morbi District?

- It is famous for its ceramic industry. Around 70% of India's ceramics are produced in Morbi, and ceramic tiles manufactured here are exported to countries in the Middle East, East Asia, and Africa.

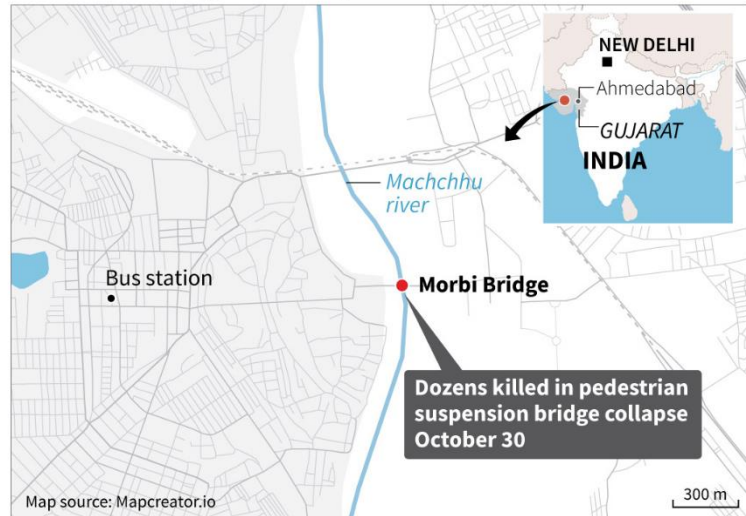
2. India's first indigenously-made aluminium freight train rake:

- Recently, Union Minister for Railways inaugurated India's First Aluminum Freight Rake named - 61 BOBRNALHSM1 at Bhubaneswar Railway Station.

What is the Significance of Aluminum Freight Rake?

- **Improve Make in India Programme:** This is a dedicated effort for the Make in India program as it has been fully designed and developed indigenously in collaboration with RDSO, HINDALCO and Besco Wagon.
- **Reduce Carbon Footprint:** It will reduce carbon footprint as lower consumption of fuel in empty directions and more transport of freight in a loaded condition. As a single rake can save over 14,500 tonnes of carbon dioxide over its lifetime.
- As per an estimate, around 15 million tonnes of carbon emissions can be saved in a year even if just 5% of the 2 lakh railway wagons that the Central government plans to introduce are aluminum-made.
- **Reduce Imports:** The iron industry consumes a lot of Nickel and Cadmium which comes from imports. So, a proliferation of Aluminum wagons will result in less import. At the same time, this is good for the local aluminum industry
- **Consumes Less Energy:** The new aluminum rakes are reportedly 180 tonnes lighter than the current steel rakes. The carrying capacity of the new design is said to be 5%-10%

India bridge collapse



more than their steel counterparts. More importantly, they consume less energy with relatively negligible wear and tear to rolling stock and rails.

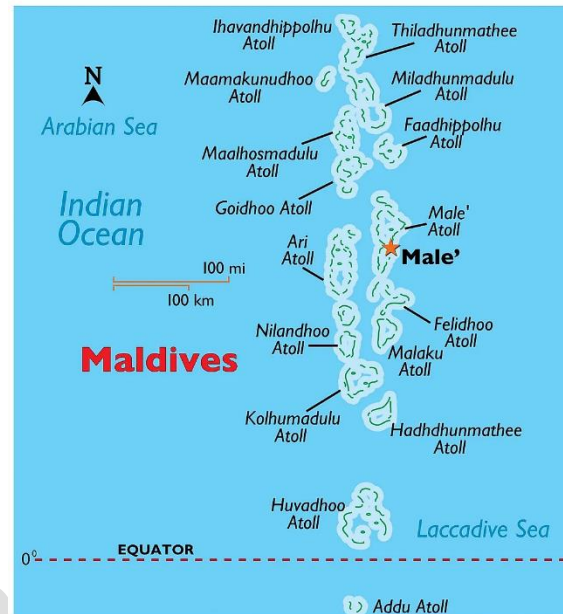
- **Net Zero Carbon Emission:** it would help the Indian Railways to achieve net zero Carbon Emissions by 2030 to become the world's largest Green Railway.

3. Discovery of 'The Trapping Zone' in Maldives:

- Recently, scientists reported the discovery of 'The Trapping Zone' in the island nation Maldives, India's southern neighbour.

Key Facts:

- This **Trapping Zone is a new ecosystem**, discovered some 500 meters beneath the surface, is being referred to as 'as oasis of oceanic life'.
- It was discovered by scientists under the Nekton Maldives Mission. Nektons are pelagic faunal species (i.e. animals living in the open seas away from the shore) that are capable of swimming independently of wind and water currents. Some examples include bony fishes and sharks (under chordate nekton category), octopuses and squids (under molluscan nekton category) and shrimps and lobsters (under arthropod nekton category).
- The scientists spotted the ecosystem using the camera on the submersible named Omega Seamaster II. Biological samples were also collected for further research.
- The survey revealed the presence of several mega-faunal predators like sharks and other large marine fishes that feed on micro-nekton. According to the scientists, these organisms are trapped at the 500 m mark, against the subsea landscape.
- These micro-nektons usually exhibit 'vertical migration' i.e. migration from the deep waters to the surface at night and vice versa at dawn. However, they are prevented from diving deeper by the subsea features like the cliffs, terraces, volcanic structures and fossilized carbonate reefs, forming the base of the atolls. Hence, the ecosystem presents a rich source of food for the larger predators like tuna, alfonsino, spiky oreo and sharks.
- Notably, this is the first instance of such a high diversity of shark species being spotted in the deep sea around Maldives. Some of the species include tiger shark, sand tiger shark, gulper shark, six gill shark, silky shark, scalloped hammerhead shark and even the rare bramble shark.
- This discovery is significant given the critical knowledge of sub-surface biodiversity would further support conservation efforts and encourage sustainable ocean management. It would also boost the country's fisheries and tourism sectors.
- Also the discovery has unveiled the possibility of such distinct new ecosystems existing on the continental slopes and oceanic islands elsewhere.



4. Avalanche on Draupadi Ka Danda II peak:

- Recently, a team of individuals participating in a mountaineering course were hit by an avalanche on Draupadi Ka Danda-II peak in Uttarakhand.

Key facts:

- A total of 16 individuals, including 2 instructors and 14 trainees have lost their life to the avalanche while taking part in a training course conducted by Nehru Institute of Mountaineering. 15 more people are currently missing.
- Among the casualties is 26-year-old Savita Kanswal, who became the first Indian woman to climb Mount Everest and Mount Makalu in just 16 days.
- The rescue operations are currently being conducted by State Disaster Response Force (SDRF), Indo-Tibetan Border Police (ITBP), a 14-member team from High Altitude Warfare School based in Jammu and Kashmir's Gulmarg as well as mountaineers from the Nehru Institute of Mountaineering (NIM).
- The avalanche had hit the Draupadi Ka Danda II peak in Uttarakshi district at an altitude of 17,000 feet.
- This catastrophic avalanche may have been caused because of a 2.5 magnitude earthquake that hit the Uttarakshi district on October 2.
- The epicentre of this earthquake was at Nald village in Uttarakshi district's Bhatwari tehsil.
- 25-km long trek to Mount Draupadi ka Dana starts from Bhukki Village, which is also situated in Bhatwari tehsil.

Draupadi Ka Danda:

- Draupadi ka Danda (Draupadi's Hill) are two peaks in the Gangotri range of Garhwal Himalayas. These two peaks are situated in the Indian state of Uttarakhand. Dokriani glacier is situated at the northern slope of the mountain. The height of the peaks is unknown.
- The two peaks are named after Draupadi – a character from the Hindu epic Mahabharata. The peak is believed to be the place from which the Pandavas ascended the heaven. This mountain holds religious significance for villagers in Bhatwari. It is being worshipped by conducting pujas on the banks of Kheda tal, a lake situated at the foothills of the peaks.

5. Revival of Sukapaika river:

- Recently, the NGT has directed the state government of Odisha to revive Sukapaika River within 6 months.

About Sukapaika River:

- Sukapaika is one of the several distributaries of the mighty Mahanadi river in Odisha.
- It branches away from the Mahanadi at Ayatpur village in Cuttack district and flows for about 40 kilometers (km) before rejoining its parent river at Tarapur in the same district.
- It covers three blocks such as Cuttack Sadar, Raghunathpur and Nichintakoili of Cuttack.
- Sukapaika river is an important system of the Mahanadi to control floodwater and maintain the flow in the river as well as the Bay of Bengal.

History, Art and Culture

1. 2022 Booker Prize:

- Recently, Sri Lankan writer Shehan Karunatilaka won the Booker Prize 2022 for his novel “The Seven Moons of Maali Almeida”, about a dead war photographer on a mission in the afterlife.

What is Booker Prize?

- The Booker Prize is the world’s leading literary award for a single work of fiction.
- Founded in the UK in 1969, it was initially awarded to Commonwealth writers and now spans the globe, and it is open to anyone regardless of origin.
- Each year, the Booker Prize is awarded to what is, in the opinion of our judges, the best sustained work of fiction written in English and published in the UK and Ireland.
- The winning book is a work that not only speaks to our current times, but also one that will endure and join the pantheon of great literature.

2. Kati Bihu:

- **Kati Bihu** is celebrated in **Assam** and is one of the three Bihu festivals. The Kati Bihu is also called as Kangali Bihu, the festival of the poor (the word “Kongal” means “poor”). It is celebrated in mid-October when the crops are at growing stage and the granaries of the farmers are empty.
- Bihu is associated with agriculture and rice.
- On **Kati Bihu** festival day, earthen lamps are lit in households. During ancient times, earthen lamps were lit all around the paddy crops to captivate the insects. Therefore, it acted as a natural insecticide. In the evening, cows and bulls are fed with food made from rice items and this is called pitha.
- There are three different types of Bihu festivals namely Bohag Bihu, Kati Bihu and Bhogali Bihu.



3. Mahakal Lok Corridor:

- Recently, the Prime Minister inaugurated the first phase of the ‘Shri Mahakal Lok’ corridor in Ujjain, Madhya Pradesh.
- After Vishwanath temple in Varanasi and the Kedarnath shrine in Uttarakhand, Mahakal temple is the third ‘jyotirlinga’ site to see a major upliftment exercise.
- The Rs 800-crore Mahakal corridor is four times the size of the Kashi Vishwanath Corridor.

What is the Shri Mahakal Lok Corridor?

About:

- Mahakal Maharaj Mandir Parisar Vistar Yojna is a plan for the expansion, beautification, and decongestion of the Mahakaleshwar temple and its adjoining area in Ujjain district.

- Under the plan, the Mahakaleshwar temple premises of around 2.82 hectares is being increased to 47 hectares, which will be developed in two phases by the Ujjain district administration.
- This will include the 17 hectares of Rudrasagar lake.
- The project is expected to increase annual footfall in the city from the current 1.50 crore to nearly three crores.

What is the Significance of Shri Mahakal Lok Corridor?

- **Immense Cultural Beliefs:** The temple is believed to be governed by Mahakaleshwar, which means the 'Lord of time' i.e., Lord Shiva. As per Hindu mythology, the temple was constructed by Lord Brahma and is presently located alongside the holy river Kshipra.
- **Only Jyotirlinga Facing South:** Mahakaleshwar Jyotirlinga in Ujjain is one of the 12 jyotirlingas considered the most sacred abodes of Shiva. The shrine is revered as one the 18 Maha Shaktia Peeth in India.
- It is the only jyotirlinga facing the south, while all the others face east. This is because the direction of death is believed to be the south.
- In fact, people worship Mahakaleshwar to prevent an untimely death.
- According to the Puranas, Lord Shiva pierced the world as an endless pillar of light, called the jyotirlinga.
- Besides Mahakal, these include Somnath and Nageshwar in Gujarat, Mallikarjuna in Andhra Pradesh, Omkareshwar in Madhya Pradesh, Kedarnath in Uttarakhand, Bhimashankar, Triyambakeshwar and Grishneshwar in Maharashtra, Viswanath at Varanasi, Baidyanath in Jharkhand, and Rameswaram in Tamil Nadu.
- **Mention in Ancient Texts:** The Mahakal temple finds a mention in several ancient Indian poetic texts. In the early part of the Meghadutam (Purva Megha) composed in the 4th century, Kalidasa gives a description of the Mahakal temple.
- It is described as one with a stone foundation, with the ceiling on wooden pillars. There would be no shikharas or spires on the temples prior to the Gupta period.
- **Destruction and Rebuilt of Temple:** During the medieval period, Islamic rulers used to give donations to priests for offering prayers here.
- In the 13th century, the temple complex was destroyed by Turk ruler Shams-ud-din Iltutmish during his raid on Ujjain.
- The present-day five-storeyed structure was built by the Maratha general Ranoji Shinde in 1734, in the Bhumija, Chalukya and Maratha styles of temple architecture.

4. Thadingyut festival:

- The three-day Thadingyut festival was celebrated in Myanmar from October 8 to 10 this year.
- The Thadingyut Festival is also called the Lighting Festival of Myanmar.
- People in Myanmar celebrate this festival every year on the full moon day of the Burmese lunar month of Thadingyut.
- It is celebrated at the end of the Buddhist sabbath, mainly by Buddhist communities in Southeast Asia during the 3-month long monsoon period that usually starts in July and ends in October.
- Thadingyut Festival is the second most popular festival in Myanmar after Thingyan Festival (New Year Water Festival).

- It is believed that Buddha's mother, Maya, passed away just a week after his birth. She was reborn as a god named Santusita in the 'Trayastrimsa Heaven'. Buddha's ascension to heaven to visit his mother is celebrated as Dhammasetkya Day, which falls on Waso Month.

5. 36th National Games:

- Recently, the 36th National Games was inaugurated by the Prime Minister in Gujarat.

Background:

- The Olympic movement, which garnered the attention of the nation in the 1920s, includes the National Games. The National Games in India were first envisioned as the Indian Olympic Games with the goal of promoting Olympic sports in the nation.
- The first edition of the Indian Olympic Games at Lahore in an undivided Punjab in 1924.
- The Indian Olympic Games were named as National Games beginning in 1940. This competition sets athletes from several Indian states with one another in a variety of sporting disciplines.

Objectives:

- They are held for the benefit of Indian athletes, sports organisations etc.
- They help in raise awareness among states/UT's about the necessity of developing internationally grade sports infrastructure.
- It attempts to attract a wide number of youths to participate in sports activities.
- It aims to inculcate sports culture in individuals from all walks of life and educate them on the value of sports in building a healthy society.
- **Jurisdiction:** The duration and the regulations of the National Games are entirely within the jurisdiction of the Indian Olympic Association.

What are the key Highlights of 36th National Games?

- **Event:** The National Games, being held after seven years, will witness India's best athletes compete in 36 disciplines in six cities of Gujarat.
- **Mascot:** The Official mascot for the 36th National Games is "SAVAJ", it portrays a sportsman's most prominent personality traits of self-confidence, vigour, a strong sense of motivation, an inner desire to succeed, a strong sense of focus, a natural leader, and a goal setter
- **Savaj-taranhar** in gujarati means "Savior" in English. Savaj is the representation of The Asiatic Lion, which today survives only in wild India.

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