Current Affairs Update (Sep 1-4)

National

Aadhaar-Voter ID linkage debate

Need for Linking Aadhaar with Voter ID:

Exercise by EC: Updated and accurate record of the voter base by the Election Commission.

Weed out duplication of voters: Such as migrant workers(who may have registered more than once on the electoral rolls in different constituencies) or persons registered multiple times within the same constituency.

Advantages related to Aadhar:

Universal: At the end of **2021**, **7% of the adult Indian population** had an Aadhaar card exceeding any other officially valid document such as a driver's license, ration cards, PAN cards etc that are mostly applied for specific purposes.

More reliable: Aadhaar-based authentication and verification are considered more reliable, quicker and cost-efficient when compared to other IDs.

 Issues with linking:

Puttaswamy judgment(2017): The Court held that depriving a person of their **right to privacy** for non-linkage fell foul of the test of proportionality.

Lal Babu Hussein (1995): The Supreme Court held that the **Right to vote** cannot be disallowed by insisting only on **four proofs of identity** — voters can rely on any other proof of identity and obtain the right to vote.

Punjab bans sarpanch proxies

Male kin of women can't attend meetings of Panchayat as the Punjab government order. **'Sarpanch pati'**, where men relatives (mostly husbands) of elected women run the office in place of them.

Issues with 'Panchyat Pati':

- Most of the women's sarpanches **do not attend meetings** that take place at the district/block/village.
- **Defeats the purpose of reservation** for women in Panchayat
- Study says, more than **80 per cent of women sarpanches** are proxy sarpanches even today

- Punjab had implemented a **50 per cent reservation** for women in Panchayati Raj institutions.

Indian Navy's ensign

PM will **unveil the new naval ensign** (flag) for the Indian Navy in Kochi on the sidelines of the commissioning of India's first indigenous aircraft carrier INS Vikrant at Cochin Shipyard Limited.

 What is the Saint George's Cross?

The red cross on a white background is known as the Saint George's Cross and is named after a **Christian Warrior Saint** who is believed to have been a crusader during the third crusade. (This cross also serves as the flag of England)

Background: After Independence, on August 15, 1947, the Indian defence forces continued with the British colonial flags and badges and it was only on **Jan 26, 1950, that a changeover to Indianised pattern** was made, however, in the Navy's flag Union Jack was replaced with the Tricolour, and the **George's Cross was retained**.

Smriti Van memorial

Prime Minister Narendra Modi inaugurated the Smriti Van memorial, which celebrates the **courage shown by people during the devastating 2001 earthquake in the Kutch region of Gujarat.** It is spread over 470 acres on Bhujiyo Hill near Bhuj town.

The forest around the memorial has been developed under the **Miyawaki method (**The method involves planting two to four trees per square metre. Miyawaki forests grow in two to three years and are self-sustaining)

PM inaugurates Iconic 'Atal Bridge' in Ahmedabad

This bridge is built on the banks of the **Sabarmati Riverfront, Sabarmati River** which flows through the **city of Ahmedabad.**

Sabarmati River is a monsoon-fed river originating in Aravalli hills (Udaipur) and draining in the Gulf of Cambay in the Arabian Sea.

Major Tributaries: Sei, Harnav, Wakal, Hathmati and Watrak

Haridwar: Best Aspirational District

NITI Aayog has declared Haridwar city of Uttarakhand as the best aspirational district on the basis of five parameters. Haridwar has secured first position in Basic Infrastructure theme. Now an additional allocation of Rs 3 crore will be made to this city.

Aspirational District Programme: The programme was launched in January 2018 aims to quickly and effectively transform some of most underdeveloped districts of the country. This scheme has been

implemented along with the central and state schemes. In its successful implementation, there is important cooperation of the 'in-charge' officers of the central, state level and district collectors. The competition between these districts is maintained through equated monthly delta rankings, so that they are eager to make it a success.

Noida Supertech Twin Towers razed

Recently, on the directions of the Supreme Court, Noida's famous Twin Towers (Apex (32 floors) and Cyan (29 floors)) were blown up and demolished. This twin tower was built by Supertech. This matter was going on in the court for the last 9 years, after which the Supreme Court had said in its decision that the construction of this tower is illegal and the company will demolish it at its own expense under the supervision of the Noida Authority.

New DRDO Chairman

Sameer V Kamat, Director General, Naval Systems and Materials Division of DRDO, was recently appointed as the new Chairman of DRDO. DRDO is a premier agency, working under Department of Defence Research and Development of Ministry of Defence. It is charged with military's research and development. The agency is headquartered in Delhi. It was established in 1958.

International

India votes against Russia in UNSC

India for the first time voted against **Russia** during a "**procedural vote**" at the **UNSC on Ukraine**, as the **15-member** powerful UN body invited the Ukrainian

Key Highlights:

- **Procedural vote:** In response to Russia's request, a **procedural vote** was held in which out of **15 members of UNSC, 13 voted in favour** of allowing Zelensky to address the council while **Russia** voted against it and **China decided to abstain.**
- **Abstain from signing the document:** India did not sign a document at the **UN premises against Russia** that was sponsored by the **West** and had the backing of about **60 countries.**
- **Joint anti-Russian statement:** It was supported by **only 58 United Nations member states** or less than a third of the organization's **193 members. India** was **not a party** to this joint statement.
- **Filtration operation:** The US voiced concern about Russia's " **filtration operation"**, which involves the systematic and forced deportation of Ukrainian civilians to remote areas of the Russian Federation.

UNESCO Felix Houphouet-Boigny Peace Prize

Former German Chancellor **Angela Merkel** has won UNESCO Felix Houphouet- Boigny Peace Prize 2022 for her efforts at 'welcoming and protecting refugees'

About the Prize (est. 1989): In accordance with the Charter of UNESCO, the prize is given to living individuals who have made a significant contribution to maintaining and safeguarding peace.

2022 Pulitzer Prize

Bangladesh-born painter and story writer **Fahmida Azim** has been selected for the 2022 Pulitzer Prize. Currently, she is working for Insider, an American online magazine. Fahmida is honored for an illustrated report entitled **"How I Escaped a Chinese Internment Camp"** along with her winning team members Anthony Del Col, Josh Adams and Insider's Walt Hickey in New York.

Pulitzer Prize is an award that is given for achievements in newspapers, magazines, musical composition, online journalism, and literature. This prize was established in the year 1917 by the provisions that were written in the will of Joseph Pulitzer. Columbia University administers this prize.

UNGA praises India's role at United Nations

- The **President** of the **United Nations General Assembly (UNGA**), praised India for its contributions to the global body.
- **Source of pride:** He described India as a "source of pride" not only for South Asia but for all peace-loving democracies.
- **Fight against injustice**: e.g., India was 1st country to raise Apartheid issue at UN.
- **Peacekeeping**: More than 2 lakh troops to 49 UN peacekeeping missions. India (in 2007) was the **1st country to deploy all women contingent** to UN mission in Liberia.
- **Pharmacy of the world:** He acknowledged the crucial role India played during the **Covid-19 pandemic.** India not only recovered from the disease itself but even assisted several other countries and acted as a "pharmacy of the world".
- **UNCTAD:** India was instrumental in setting up of UNCTAD (1964)
- **Terrorism:** India drafted Comprehensive Convention on international Terrorism.
- **Reform of UN:** India is collaborating with G4 and L69 countries on reform and expansion of UN security council.

India-Bangladesh MoU on Kushiyara River

- During the 38th Ministerial Meeting of the India-Bangladesh Joint Rivers Commission, the two countries finalized a draft of a Memorandum of Understanding to share the waters of the Kushiyara River on an interim basis.
- The **Kushiyara River** forms the Indo-Bangladesh border as a branch of the Barak River when it separates from the Surma, another branch of the Barak. After flowing some distance in

Bangladesh, it meets again with Surma river and this combined river is now called **Meghna river**. Manipur, Mizoram and Assam receive water through this river in India.

- India and Bangladesh share **54 rivers** between them. All the rivers of Bangladesh either have their source in India or pass through it.
- The **Joint River Commission** between India and Bangladesh was formed in the year 1972 under the peace treaty, through which issues of mutual interest on the border, border rivers can be resolved.

What is 'PEN-PLUS' strategy?

- Recently Africa adopted a pen-plus strategy at the 72nd session of the Regional Committee of the United Nations World Health Organization (WHO) held in **Lomé, Togo**.
- PEN-PLUS is basically a regional strategy to address serious **non-communicable diseases** at first level referral health facilities. This strategy supports capacity building of district hospitals and other first class referral facilities for early diagnosis and management of serious non-communicable diseases, resulting in reduction in mortality.
- The non-communicable diseases include heart diseases, cancers, diabetes, asthma, Anemia, Polycythemia, Leucopenia, Hodgkin's Disease etc.

Science-Tech & Environment

India's INDC target

India has formally submitted an updated Intended Nationally Determined Contribution (NDC) target to UNFCCC. The INDCs are the primary means for governments to communicate internationally the steps they will take to address climate change in their own countries. They are **not legally** binding.

India's INDC (to be achieved primarily by 2030)

Original Target: A total of 40% of the installed capacity for electricity will be from non-fossil fuel sources.

New Target: **50% by 2030** (with help from international finance (Global climate fund) and transfer of technology

Original Target: To reduce the emissions intensity of the **GDP by 33-35% (from the 2005 level)**

New Target: **45%** of GDP by 2030

New target added: Propagating a sustainable way of living: mass movement for 'LIFE- Lifestyle for environment' using traditions and values of conservation.

India also promised an **additional carbon sink** of **2.5 to 3 billion tonnes** of carbon dioxide equivalent through **additional forest and tree cover by the year 2030.**

 New targets at COP26: India announced the goal of reaching net-zero by 2070 (Read Panchamitra Plan)

As per the recent report, achieving these targets will boost India's GDP by **up to 4.7% (2036**) and create million new jobs

Aashwasan Campaign

The campaign to **detect TB cases** across **174 tribal district**s under which door-to-door screening was done in over **68,000 villages.**

The Aashwasan Campaign was undertaken by the **Tribal Affairs and Health Ministries** and supported by **USAID (United States Agency for International Development)** as a **technical partner** and **Piramal Swasthya** as the implementing partner.

Moderna suing Pfizer over Covid vaccine technology

US Pharma company **Moderna** said it is suing **Pfizer and its German partner BioNTech** for copying its **mRNA technology** (and thus patent infringement) in the development of the first Covid-19 vaccines. A patent is **an exclusive right granted for an invention**

Issue: Moderna has claimed in its statement that Pfizer-BioNTech copied two key features of its intellectual property.

One alleged infringement is of the mRNA structure that its scientists started working on in 2010 and were the first to demonstrate in human trials in 2015.

The second is the coding of a full-length spike protein that Moderna developed while manufacturing the shot for the coronavirus that causes Middle East Respiratory Syndrome (MERS).

What is an mRNA vaccine?

Messenger RNA (mRNA) vaccines aid the cells in making a protein or a piece of a protein that will trigger an immune response inside the body. This immune response, wherein antibodies are produced, protects the body and helps fight the virus in the future.

After vaccination, mRNA enters cells shortly and tells them to create a SARS-CoV-2 spike protein, which then evokes an immune response

What is Xylitol?

- Xylitol, a sugar alcohol derived from natural products.
- It has potential antidiabetic and anti-obesogenic effects, is a mild prebiotic and protects teeth from caries.
- It is a colorless or white crystalline solid that is soluble in water.
- Xylitol is manufactured industrially by a chemical reaction in which wood-derived D-xylose, an expensive chemical, is treated with a nickel catalyst at very high temperatures and pressures which makes the process highly energy-consuming.

Is xylitol an artificial sweetener?

Xylitol is a natural sugar substitute safe for diabetics. It is not an artificial sweetener but is a natural sugar alcohol sweetener found in the fibres of many fruits and vegetables, and can be extracted from various berries, oats, and mushrooms, as well as fibrous material such as corn husks and sugar cane bagasse. Xylitol is roughly as sweet as sucrose with only two-thirds the food energy.

First indigenous cervical cancer shot unveiled

- India unveiled the first indigenous quadrivalent human papillomavirus vaccine (qHPV) as a primary prevention tool for cervical cancer, the second most common cancer affecting young women, after cancers of the breast.
- Cancer of the cervix is the second leading cancer among women aged 15 to 44 after breast cancers with 90 per cent mortality due to this cancer reported in low- and middle-income countries.
- The qHPV shot has been developed in collaboration between the Department of Biotechnology under the government and the Serum Institute of India, Pune.

Cloud Seeding

Cloud seeding is a type of **weather modification** that aims to change the amount or type of precipitation that falls from clouds by dispersing substances (such **as silver iodide, potassium iodide and dry ice (solid carbon dioxide) and liquid propane**) into the air that serve as cloud condensation or ice nuclei.

Benefit: It improves a **cloud's ability to produce rain or snow, supplements the rainwater supply**and cleans the atmosphere by introducing tiny ice nuclei into certain types of subfreezing clouds. These nuclei provide a base for snowflakes to form.

Dangers: So far, experts haven't found any harmful effects of cloud seeding with silver iodide on the environment. But Silver iodide can be toxic to aquatic life. The concentration of silver in a storm from cloud seeding is **far below the accepted limit of 50 micrograms per litre**.

India: In India, cloud seeding operations were conducted during the years **1983, 1984–87,1993-94** by **Tamil Nadu Govt** due to severe drought. In the **years 2003 and 2004** Karnataka government initiated **cloud seeding.**

India-Nepal MoU on Biodiversity Conservation

Recently, the Union Cabinet has approved a Memorandum of Understanding with the Government of Nepal on Biodiversity Conservation proposed by the Ministry of Environment, Forest and Climate Change. The shared Indo-Nepal border of over 1,850 km touches five Indian states – **Sikkim, West Bengal, Bihar, Uttar Pradesh and Uttarakhand.**

The joint border of India and Nepal includes many border wildlife habitats. For example, **the Valmiki Tiger Reserve in Bihar connects to the Chitwan National Park** and **Parsa Wildlife Sanctuary** in Nepal. Similarly, **Dudhwa Tiger Reserve** in Uttar Pradesh shares its boundary with **Shukla Phanta** National Park in Nepal. Thus, this MoU is expected to have a significant focus on the management of the marginal landscape.

Vajra Prahar

- The 13th edition of India-US Joint Special Forces Exercise Vajra Prahar recently concluded in Bakloh, Himachal Pradesh.
- Vajra Prahar' is an Indo-US Special Forces joint training exercise that began alternately in 2010 in India and the US.
- The aim of the exercise is to boost military ties between the two countries by enhancing reciprocity and mutual exchange of strategies between the Special Forces.

INS Vikrant

- **Indigenous aircraft carrier** 'Vikrant' is set to commission on September 2, 2022 in the presence of Prime Minister Narendra Modi. The aircraft landing trials on INS Vikrant will begin in November and will be completed by mid-2023.
- It is also known as **Indigenous Aircraft Carrier One (IAC-1).** It is being constructed by Cochin Shipyard, Kerala for the Indian Navy. It has an overall indigenous content of 76%.
- The motto of INS Vikrant is **"Jayema Sam Yudhi Sprdhah".** It was taken from Rig Veda. It means " I defeat those who fight against me".
- With the construction of 'Vikrant', India joins a select group of countries such **as US, UK, Russia, China and France** that have the unparalleled capability to design and manufacture aircraft carriers indigenously.

Economics

PM Jan Dhan Yojana (PMJDY)

PMJDY is National Mission for Financial Inclusion **(launched 2014**) to ensure access to financial services.

Objectives:

- **To ensure access of financial products & services at an affordable cost:** Banking/ Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension
- **Use of technology** to lower cost & widen reach.
- **Banking the unbanked:** account opening in camp mode, zero balance & zero charges.
- **Securing the unsecured** – Debit cards for cash withdrawals & payments and free accident insurance coverage of Rs. 2 lakhs.
- **Funding the unfunded** – micro-insurance/Credit, overdraft for consumption, and micro-pension.
- Focus shift from **Every Household to Every Unbanked Adult.**

Achievements:

- **Increased financial inclusion**: More than 46 Cr beneficiaries banked
- **Increased financial Penetration:** More than 67% of PMJDY account in rural and semi-urban areas
- **Increased women empowerment**: 56% account holders are women
- **Increased DBT:** Benefits like scholarships, subsidies, pensions, and COVID relief funds are credited to the bank accounts.

Design-led Incentive (DLI) Scheme

PLI scheme has gained importance in the manufacturing sector. Ministry of Communication had previously invited applications under DLI as a part of the Production linked Incentive Scheme (PLI)

Difference between DLI (launched 2022) and PLI

DLI will offer a **1% additional incentive** over the PLI scheme. Telcom equipment makers who use at least **50%** Made in India components will be eligible for it.

PLI Scheme (launched in 2020)

It offers a **production-linked incentive** to boost domestic manufacturing and attract large investments in a specified sector. e.g., in the electronics sector, the scheme shall extend an incentive of **4% to 6% on incremental sales (over the base year)** of goods manufactured in India for a period of five years.

So far, the government has announced PLI schemes for 14
sectors including auto, electronics, telecom, pharma, solar, metals and mining, textiles, white goods, drones, and advanced chemistry cell batteries.

National Statistical Office (NSO)

- NSO as an agency that was formed on the recommendation of the Rangarajan Commission. The office was set up to implement and maintain the statistical standards and coordinate the statistical activities of Central and State agencies in accordance with the National Statistical Commission (NSC).
- The Rangarajan Commission had also recommended to set up the NSC. NSC is headed by a person having a "Minister of State-Level designation".
- NSC will serve as a nodal body for all core statistical activities in India. NSO was formed after merging the National Sample Survey Office (NSSO) and Central Statistics Office (CSO) under the Ministry of Statistics and Programme Implementation (MoSPI).

Sports GK

National Sports Day

The National Sports Day (NSD) is celebrated every year in India on 29th of August to mark the birth anniversary of legendary hockey player **Major Dhyan Chand**, who was known as **'The Wizard' or 'The Magician'** of hockey for his superb ball control.

He won gold medals in Olympics for India in the years 1928, 1934 and 1936. He scored over **400 goals** in his career, from 1926 to 1948. It is believed that after India defeated Germany in the 1936 Olympics final by 8-1, Adolf Hitler offered him a senior post in the German Army, to which Chand refused.

Current Affairs Update (Sep 5-10)

National

Role of administration in public health

- **Administering**: From a primary health centre to the district, State, and national level.
- **Implementing**: Managing health programmes, addressing human resource issues, supply and logistical issues, etc.
- **Microplanning:** For programme delivery, team building, leadership as well as financial management to some extent.
- **Principles of organizational management:** A good understanding of the principles of organizational management and health administration is key to acquiring this competency.

Issues:

- **Resistance from medical fraternity:** Resistance of the medicalised public health fraternity for public health professionals to have a medical degree. It has resulted in denying nursing, dental, and other health professionals to contribute more to public health.
- **Lack of skills:** Many doctors and other health professionals work at the grassroots level. But they do not become public health professionals as they may not have the necessary skills.
- **Clinicians with training in epidemiology and biostatistics:** They are not qualified to be public health professionals as they lack essential and critical expertise along with appropriate perspective.
- **Training duration:** Short training or even a year-long distance learning course cannot create a public health professional the way it cannot create a physician or a cardiologist.

Issues with the current farming methods

- Degradation of land (almost 30%)
- Depletion of Groundwater
- Polluted air e.g., stubble burning
- Extreme weather events
- **Ecological imbalance**: The pace of human population growth has not been in line with the earth's carrying capacity.

Grievance Redressal Index 2022

- **Unique Identification Authority of India (UIDAI)** has topped among all Ministries/Departments for resolving Public Grievances in the ranking report published by the **Department of Administrative Reforms and Public Grievances (DARPG).**
- UIDAI has been a top performer in the resolution of cases received through the Centralized **Public Grievance Redress and Monitoring System (CPGRAMS)**.
- **UIDAI**: It is a **statutory authority** established in 2009. Works under the jurisdiction of the **Ministry of Electronics and Information Technology.**
- **Mandate**: The UIDAI is mandated to assign a **12-digit unique identification (UID) number (Aadhaar) to all the residents of India.**

UNESCO Network of Learning Cities

- Recently, three cities in India have joined the UNESCO Global Network of Learning Cities. These include two cities **Thrissur and Nilambur** in Kerala and **Warangal** in Telangana.
- Warangal is the second UNESCO recognition for Telangana. Earlier, Ramappa Temple in Mulugu district was included in the list of UNESCO World Heritage Sites.
- This time, Ukraine's capital **Kyiv**, South African city **Durban** and UAE city **Sharjah** have been included in this list of UNESCO Global Network of Learning Cities.
- Launched in **2013**, the UNESCO Global Network of Learning Cities (GNLC) is an international policy based network. It aims to ensure the development of all learning cities by sharing ideas and arts with other cities. So far, 294 cities from 76 countries are included in this list.
- The network supports the achievements of all 17 Sustainable Development Goals (SDGs), but primarily focused on SDG 4 ('Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all) and SDG 11 (making human habitats sustainable, inclusive, safe).

Indian Army Chief conferred honorary rank of Nepal Army General

- Recently, at a special ceremony at '**Sheetal Niwas',** the official residence of the President in Nepal's capital Kathmandu, Indian Army Chief **General Pande** was conferred with the title of Honorary General of the Nepalese Army during his ongoing visit to the Himalayan nation.
- Commander-in-Chief General **KM Cariappa** was the first Indian Army Chief to be awarded this title in 1950. In November last year, Nepal's Army Chief General **Prabhu Ram Sharma** was also conferred with the title of Honorary General of the Indian Army by President Ram Nath Kovind at a function held in New Delhi.
- The practice follows a seven-decade-old tradition of decorating army chiefs of each other's country with the honorary title.
- General Pande is on a four-day official visit to Nepal from 5th to 8th of this month. This is his first visit to Nepal as the Chief of Army Staff.

International

India-Bangladesh trade ties

- **Sixth largest trading partner:** Bangladesh is **India's sixth largest trade partne**r with bilateral trade rising from **$2.4 billion (two point four) in 2009 to $10.8 billion in 2020-21.**
- **Industrial raw materials:** Bangladesh imports critical industrial raw materials from India on which its exports are reliant.
- **World Bank working paper:** Bangladesh's exports could rise **182%** under a free trade agreement. This could become **300%** if combined with trade facilitation measures and reduced transaction costs.
- **Service sectors:** Bangladesh also could improve several manufacturing industries by leveraging Indian expertise in service sectors.
- India and Bangladesh have expanded their partnership to include: Artificial Intelligence, Fintech, Cybersecurity, Startups, Connectivity

India and Bangladesh signed multiple agreements

Key Highlights:

- **Agreement on withdrawal of water river Kushiyara:** It will supply water to parts of **lower Assam** as well as **Sylhet of Bangladesh.**
- **Flood water related information**: India has extended the period of sharing flood water related information in real time that will help Bangladesh counter the annual floods.
- **Agreement on training of personnel:** The Ministry of Railways of both countries signed an agreement on training of personnel of **Bangladesh Railway** in India.
- **Maitree power plant: A 1320 MW** supercritical coal fired thermal power plant at Rampal in Khulna division of Bangladesh.
- **Rupsha rail bridge:** It will help in connecting **Khulna** with **Mongla port** and the **Indian border** at **Petrapole** and **Gede in West Bengal.**
- **Comprehensive Economic Partnership Agreement (CEPA):** Negotiation for the CEPA would be completed by the time Bangladesh graduates from the Least Developed Country to a developing economy.
- **Mujib scholarships**: For **200 famil**y members of the personnel of the Indian military who were **killed or wounded** during the **Liberation War of 1971.**

2022 Ramon Magsaysay Award

Ramon Magsaysay Awards were announced recently. This year the award will go to Sothiara Chim, Psychiatrist (Cambodia), Tadashi Hattori, Ophthalmologist (Japan), Bernadette Madrid, Pediatrician (Philippines) and Gary Bencheghib, activist and filmmaker (Indonesia).

The award is considered as the Nobel Prize of Asia. It was established in 1957(Ramon Magsaysay became the president of Philippines in 1953)**.** The Award recognizes and honours individuals that have achieved distinction in their field and help others generously.

Mohenjo-Daro

Pakistan's Department of Archaeology has said that Mohenjo-Daro might be removed from the world heritage list if urgent attention to its conservation and restoration is not given.

 Importance of Mohenjo-Daro

- Mohenjo-Daro, a group of mounds and ruins, is a 5000-year-old archaeological site located about 80 km off the city of Sukkur.
- Known to be a model planned city of the ancient civilisation, the houses here had bathrooms, toilets and drainage systems. The sheer size of the city, and its provision of public buildings and facilities, suggest a high level of social organisation.
- Its excavation started in 1921 and continued in phases till 1964-65. The site went to Pakistan during Partition.

Chile rejects new Constitution

- Recently, a referendum in Chile rejected a proposal to replace the old charter with a new progressive constitution.
- According to the result of this referendum, 61.9 percent votes were received against the proposal for the new constitution, while 38.1 percent people got support. The draft resolution was drafted to replace the 1980 charter, written under the dictatorship of **General Augusto Pinochet.**
- The rejection of the referendum motion shocked President **Gabriel Borich**, who argued that the introduction of the new constitution would usher in a new progressive era.
- **Highlights:** The president remains head of the government. However, he would share the power to submit laws involving public spending with legislators. Currently, this power exclusively lies with the president. The president could be re-elected consecutively once. Currently, he can be re-elected non-consecutively.

Britain's new Prime Minister

- Recently, UK Foreign Minister **Liz Truss** has been elected as the next Prime Minister of Britain and the leader of the governing Conservative Party.
- After a grueling six-week campaign, Liz defeated her rival, former finance minister **Rishi Sunak,** by 81,326 votes to 60,399.
- Liz Truss is the 56th Prime Minister of Britain and the third woman Prime Minister to lead the country. The previous female prime ministers **– Margaret Thatcher and Theresa May** – were also from the Conservative Party.

Japan's war on floppy disks

Japan may be home to some of the world's leading tech giants, but the Japanese have always been fond of old technology. But now Japan has declared war on the floppy disk to get rid of old technologies and machines.

Key Points

- One reason for this is that if Japan replaces old technologies such as fax machines and floppies with new technology, it will need to create a lot of software for everyday tasks. And it will also require many software engineers. There is currently a shortage of about 5 lakh software engineers in Japan.
- Other reason for this is that Japan is a country of old people. Bureaucratic confidence in Japan is also an obstacle in the way of new technologies that when a technology is working well for 20 years, why will it not last for the next 20 years.
- Japanese officials are very sensitive to personal and government data. Japanese government officials believe that the data in floppies is more secure than today's modern technologies. That's why they don't even use email in official work.

Floppy Disk

- The floppy disk drive was invented in 1967 by Alan Sugart at IBM. Floppy disks were used as the main storage device in the 1980s-1990s.
- At that time it was the only way to transfer files to a computer. But gradually the use of floppy disk decreased and in today's time floppy disk is not used at all.
- The floppy disks used in computers are 5.25 inches (also called mini floppy) or 3.5 inches (also called micro floppy) in size. Floppy disks can store very small amounts of data.

Science-Tech & Environment

What is the Significance of INS Vikrant?

- Vikrant (which means courageous) is named after India's first aircraft carrier, bought from the UK and commissioned in 1961. India joins the United States (US), the United Kingdom (UK), France, Russia, Italy, and China, which have similar capabilities.
- Help in the Indian Navy's push to establish **itself as a blue water force**, one with the ability to project its power on distant seas.
- Help in India's bid to be a **net security provider** in the Indian Ocean region
- **China** has already inducted two vessels. **Bolster the maritime security of the nation**: Now India has two operational aircraft carriers (the other one is INS Vikramaditya)

Single-use plastic

MoEFCC has notified the Plastic Waste Management Amendment Rules, 2021 on August 12, 2021. India has signed a resolution to draw up an agreement (under UNEA, India is a party to it) that will make it **legally binding for signatories** to address the **full life cycle of plastics**, from production to disposal.

Single-use plastic refers to plastic items that are used once and discarded. E.g., plastics used in packaging items, bottles (shampoo, detergents, cosmetics), polythene bags, face masks, coffee cups, cling film, trash bags, food packaging etc.

India features in the top 100 countries of single-use plastic waste generation – at rank 94 (the top three being Singapore, Australia and Oman). India's domestic production of SUP is **8 million metric tonnes** annually, and its import of **2.9 MMT.** India's per capita generation is **4 kg**.

The largest share of single-use plastic is that of **packaging** – with as much as **95%** of single-use belonging to this category – from toothpaste to shaving cream to frozen foods.

Transboundary Protected Areas

A transboundary protected area is an ecological protected area that spans the boundaries of more than one country or sub-national entity. E.g. India shares TPA with Nepal on

- Kanchenjunga Conservation Area (KCA)
- Terai Arc landscape
- Sacred Himalayan Landscape (Nepa, Sikkim, Bhutan)

Tejas Mark-2 Project

Recently the Cabinet Committee on Security (CCS) approved the project to develop a more capable and powerful version of the indigenous aircraft LCA Mark 2 multirole fighter jet.

The Tejas Mark-2 is described as a 4.5-generation machine, which will not only have 70 per cent indigenization (as opposed to the Mark IA's 62 per cent), but will incorporate more advanced technologies to be manufactured in India. Tejas is a single-engine and highly maneuverable multi-role supersonic fighter aircraft manufactured by state-run Hindustan Aeronautics Limited (HAL).

The LCA Mark-2 fighter jets will replace the Jaguar and Mirage 2000 fighters when they are phased out after 10 years. The new Tejas is a very formidable aircraft which will surely add more strength to the IAF list.

India's 1st LNG fuelled Green Truck

A start-up backed by Blue Energy Motors, has made India's **1st LNG–fuelled green truck at Chakan in Pune.**

Working of the Truck: Heavy-duty liquefied natural gas (LNG) vehicles work much like gasoline-powered vehicles with a spark-ignited internal combustion engine. The natural gas is **super-cooled and cryogenically** (at – 260 degrees F) stored in liquid form, usually in a tank on the side of the truck. In the liquid state, the volume of natural gas is **600 times smaller** than its gaseous state.

Dark sky reserve
In a first-of-its-kind initiative, the Department of Science & Technology (DST) has announced the setting up of India's first Dark Sky Reserve in Hanle, Ladakh in the next three months. It is the partnership of Ladakh Autonomous Hill Development Council (LAHDC), Leh, and the Indian Institute of Astrophysics (IIA), Bengaluru.

A dark-sky reserve is an area, usually surrounding a park or observatory, that restricts artificial light pollution. The purpose of the dark-sky movement is generally to promote astronomy and avoid interference during astronomical observations.

The International Dark Sky Association is a U.S.-based non-profit that designates places as International Dark Sky Places, Parks, Sanctuaries and Reserves, depending on the criteria they meet.

Global Alliance for Industry Decarbonization (GAID)
IRENA (Int'l Renewable Energy Agency) along with major companies (including Tata Steel) have launched GAID with the aim to **accelerate net-zero ambitions and decarbonization** of the industrial value chains. The term decarbonization literally means **the reduction of carbon**.

The International Renewable Energy Agency is an **intergovernmental organization** mandated to facilitate cooperation, advance knowledge, and promote the adoption and sustainable use of renewable energy. India is the **77th Founding Member** of IRENA.

IRENA also coordinates **Small Island Developing States (SIDS) Lighthouse Initiative** for supporting the energy transition efforts of Small Island countries.

Climate reparation
Climate reparations refer to a call for money to be paid by the **Global North to the Global South** as a means of addressing the historical contributions that **the Global North** has made (and continues to make) toward climate change.

Principle: Demand for **compensation for loss and damage** from climate disasters is an extension of the universally acknowledged "**Polluter Pays" principle** (polluter liable for paying for remedial action and compensating the victims)

Global Norms:

- **UNFCCC (1994)** explicitly acknowledges that rich countries must provide both finance and technology to developing nations to help them tackle climate change.
- Under this, **$100 billion amount**, the rich countries agreed to provide every year to the developing world. (but not yet fulfilled)
- **Warsaw International Mechanism (WIM) for Loss and Damages (** 2013) was the first formal acknowledgement of the need to compensate developing countries struck by climate disasters.

Limitations: Reluctance from developed countries, difficulty in estimating the quantum of loss and damage, no mandatory global consensus.

iNCOVACC-Intranasal COVID vaccine

- **Bharat Biotech's ChAd36-SARS-CoV-S COVID-19 (Chimpanzee Adenovirus Vectored) recombinant nasal vaccine** has been approved by Central Drugs Standard Control Organisation (**CDSCO) fo**r primary immunization against COVID-19 in **18+ age** group for restricted use in emergencies.
- This is India's **first** intranasal vaccine for COVID-19.
- **iNCOVACC** is stable at **2-8°C** for easy storage and distribution.
- Recombinant vaccines are **protein or DNA recombinants** that are produced by expression in bacterial or yeast systems.
- It uses **specific pieces of the germ** – like its **protein, sugar, or capsid** (a casing around the germ).

Einstein Ring

- James Webb Space Telescope recently took picture of the 'Einstein Ring'. The image was captured using the James Webb Space Telescope's MIRI (Mid-Infrared Instrument)
- **An Einstein ring** is created when light from a galaxy or star passes by a massive object en route to the Earth. Due to **gravitational lensing**, the light is diverted, making it seem to come from different places.
- **Gravitational Lensing**: As the light emitted by distant galaxies passes by massive objects in the universe, the gravitational pull from these objects can distort or bend the light.

BPal

- **BPaL**, a 6-month oral regimen **(BPaL= 'B' for bedaquiline, Pa for Pretomanid and L for Linezolid)** for treating extensively drug-resistant tuberculosis (XDR-TB), as an alternative for at least 20 months of regular treatment.
- TB is a potentially serious **infectious bacterial disease** (caused by bacillus Mycobacterium tuberculosis) that mainly affects the lungs.
- Currently, BCG is the **only vaccine**
- According to WHO, India has the **world's largest tuberculosis epidemic**. In 2020, India accounted for **26%** of the incident TB cases across the globe.

ISRO tests Inflatable Aerodynamic Decelerator

- Recently, the Indian Space Research Organization (ISRO) has successfully tested **the Inflatable Aerodynamic Decelerator (IAD)** technology that can aid in cost-effective recovery of spent rocket stages and land payloads safely on other planets.
- The Inflatable Aerodynamic Decelerator has been designed and developed by **Vikram Sarabhai Space Center (VSSC).**
- The IAD technology has been tested from the sounding rocket **Rohini-300** (RH300 Mk II). Rohini sounding rockets are regularly used by scientists from India and abroad for flight demonstrations.
- The IAD has huge potential in variety of space applications like recovery of spent stages of rocket, for **landing payloads on to Mars or Venus** and in making **space habitat** for human space flight missions.
- IAD can prove to be a game changer for many future space missions. With this technique, the speed of the rocket can also be slowed down, so that scientists will be able **to control the speed of the rocket.**

Economics

India becomes the world's 5th largest economy

- According to Bloomberg Report, India outpaced England during the preceding three months of 2021. The calculation is based on US dollars (current prices), and India extended its lead in the first quarter, according to GDP figures from the International Monetary Fund.
- Indian economy is forecast to grow more **than 7% this year**
- The size of the Indian economy in "**nominal**" cash terms in the quarter through March was approx.. **$855** On the same basis, the UK **was $816 billion.**
- **Top Economies in the World** 1. The United States 2. China 3. Japan 4. Germany 5. India 6. The United Kingdom 7. France 8. Italy.

2021 Human Development Index

- As per the UNDP's report, **Norway topped the index, followed by Ireland, Switzerland, Hong Kong and Iceland**.
- India ranked 132 out of 191 countries in the 2021 human development index, according to a report released by the United Nations Development Programme (UNDP).

- India's HDI value of 0.633 places the country in the medium human development category, lower than its value of 0.645 in the 2020 report. India ranked 131 among 189 countries in the 2020 human development index.
- The HDI measures progress on three key dimensions of human development - a long and healthy life, access to education, and a decent standard of living. It is calculated using four indicators – life expectancy at birth, mean years of schooling, expected years of schooling, and the Gross National Income (GNI) per capita.
- The latest Human Development Report - Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World - launched by UNDP - argues that layers of uncertainty are stacking up and interacting to unsettle life in unprecedented ways.

Sports GK

Lausanne Diamond League
Olympic gold medalist **Neeraj Chopra** recently won the Lausanne Diamond League with a best throw of 89.08m. He became the first Indian to win the Diamond League meeting title. Before Chopra, discus thrower **Vikas Gowda** is the only Indian to finish in the top three in the Diamond League.

Mascot & anthem for 36th National Games
- Recently, Union Home Minister Amit Shah unveiled the anthem and mascot of the 36th National Games at TransStadia's EKA Arena in Ahmedabad
- The 36th National Game 2022 will be held in Gujarat.
- It will be held across 6 cities of Gujarat, in which all the 28 states and 8 Union Territories will participate. The National Games 2022 will be held across 6 cities in Gujarat, viz., Gandhinagar, Surat, Ahmedabad, Rajkot, Vadodara, and Bhavnagar.
- In all, 36 sports will be hosted, in line with the tagline **"Sports for Unity".**
- This year, **Yogasana and Mallakhamba** have been added to the list of games. Thus, it will promote indigenous sports in India.
- The mascot is named **Savaj** which in Gujarati means **cub**. The mascot represents India's cultural heritage, while also giving a glimpse of the rapidly growing India, which is set to become a world leader again.
- The theme of the national anthem is **Ek Bharat Shreshtha Bharat.**

Current Affairs Update (Sep 11-17)

National

Urban flooding

Urban Flooding is an inundation of land in a constructed setting, particularly in densely populated areas.

Natural Reasons:

- **Higher rainfall:** As per the IMD, monsoon has become frequent and unpredictable
- **Storm surges (for coastal cities)**: E.g. Cyclone Amphan in 2020 flooded the streets of Kolkata. Within eastern India, the storm killed 98 people and caused **$13.8 billion** (2020 USD).
- **Groundwater levels:** In Chennai, the replenished groundwater table across the city after rains becomes a challenge for several buildings with basements.

Anthropogenic Reasons:

- **Encroachment:** A large number of wetlands that soaked up the rainwater has encroached. Bangalore had 262 lakes in the 1960s; now only 10 of them hold water.
- **Rapid and unplanned urbanization:** In Bengaluru, stormwater drains were not directly connected to its water bodies. In some places, the runoff water was flowing into constructed deviation canals. CAG found that this increased the chances of flash floods.
- **Destruction of mangroves:** Mumbai lost about 40% of its mangroves between 1995 and 2005.
- **Poor civic management of storm water drainage**: CAG report (last year) pulled up Bengaluru municipality for this poor management.
- **Lack of data:** CAG also found that the Bengaluru municipality did not maintain proper records of the stormwater management funds allotted to it under the JNNURM.
- **Lack of coordination**: CAG report also noted the lack of coordination between the municipality and the Bangalore Development Authority on drainage-related matters.

Steps to mitigate urban flooding:

- **Sponge Cities Mission**: The idea of a sponge city is to make cities more permeable so as to hold and use the water which falls upon them.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)**
- **Stormwater disposal system:** The Brihanmumbai Storm Water Disposal System or BRIMSTOWAD, the project to overhaul Mumbai city's old stormwater drainage system was started after the 2005 deluge.

- **Water-sensitive urban design (WSUD in Australia):** regards urban stormwater runoff, and waste water as a resource rather than a nuisance or liability.
- **Bioswales or 'Rain Garden' (New York):** are landscape features that collect polluted stormwater runoff, soak it into the ground, and filter out pollution.

'Kartavya Path'

Recently, Prime Minister Narendra Modi inaugurated the road 'Kartavya Path' between Rashtrapati Bhavan to India Gate. Rajpath is the route where the 26 January parade takes place.

The Rajpath witnessed the dawn of India's independence, and hosts the annual Republic Day celebrations. This ceremonial boulevard running from Raisina Hill Complex to India Gate was first known as Kingsway, a landmark in the city of 'New' Delhi, built after the British Raj shifted its capital from Calcutta (now Kolkata) in 1911. Then after independence its name was changed to 'Rajpath'. And now its name will be 'Kartavya Path'.

Gayaji Dam: India's longest rubber dam

- Recently, Bihar Chief Minister Nitish Kumar inaugurated the country's largest rubber dam and a steel bridge over the Falgu river near Vishnupad temple in Bihar.
- The Gayaji Dam has been constructed by Rubina Company of Austria in collaboration with Nagarjuna Construction Company of Hyderabad on the advice of experts from IIT Roorkee.

Adoption in India

District Magistrates (DM) have been empowered to give **adoption orders instead of courts.** All cases pending before courts have to be transferred.

Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021: Section 61 of the JJ Act: Authorizing **District Magistrates** and **Additional District Magistrates** to issue adoption orders by striking out the word "**court**".

The Hague Convention protects children and their families against the **risks of illegal, irregular, premature or ill-prepared adoptions abroad.**

Concerns over the revised rules:

- **Start cases afresh:** Cases already before courts for the past several months will have to be transferred and the process will have to start afresh.
- **Issues with parents registering for adoption:** A delay in such an order can often mean that a child can't get admission into a school because parents don't yet have a birth certificate.
- **Awareness about the cases:** Parents and lawyers claim that neither judges, nor DMs are aware about the change in the **JJ Act** leading to confusion in the system and delays.

The Indira Gandhi Urban Employment Guarantee Scheme

- The Indira Gandhi Urban Employment Guarantee Scheme has rolled out in **Rajasthan**
- **Objective**: Providing economic support to the **poor** and needy families **living in the cities** through work to be provided on demand for **100 days a year.**
- **Eligibility**: Age group of **18 to 60** years residing within the limits of urban local bodies are eligible.
- **Income limit:** There is **no income limit**, though the poor and destitute people will be given preference.
- **Categories of tasks:**

    o Environment protection

    o Water conservation

    o Heritage conservation

    o Removal of encroachments and illegal boards etc

Supreme Court's three-question test for the validity of the 10% EWS quota

- The Supreme Court will examine whether **The Constitution (103rd Amendment) Act,** which introduced a **10 per cent quot**a for **Economically Weaker Sections (EWS)** in government jobs and admissions, violates the **basic structure of the Constitution.**

 What is the 103rd Amendment?

- It inserted **Articles 15(6)** and **16(6)** in the Constitution for 10 per cent reservation to EWS other than backward classes, SCs, and STs in **higher educational institutions** and **initial recruitmen**t in government jobs.
- The amendment **empowered state government**s to provide reservations on the basis of economic backwardness.

Sinho Commission:

- The EWS reservation was granted based on the recommendations of a **S R Sinho commission**
- It recommended that all **below-poverty-line (BPL) familie**s within the general category be notified from time to time.
- All families whose annual family income from all sources is below the **taxable limit** should be identified as EBCs (economically backward classes)

 Basis of Challenge:

- **It violates the basic structure of the Constitution:** Special protections guaranteed to socially disadvantaged groups are part of the **basic structure.** The 103rd Amendment departs from this by promising special protections on the sole basis of economic status.
- **Reservation at 50 per cent:** It violates the Supreme Court's ruling in **Indra Sawhney & Ors v Union(1992) of Indi**a, which upheld the **Mandal repor**t and capped reservations at 50 per cent.
- **Private, unaided educational institutions**: The fundamental right to practise a trade/ profession is violated when the state compels them to implement its reservation policy and admit students on any criteria other than merit.

International

India-Japan 2+2 Ministerial dialogue
- 2nd Indo-Japan ministerial dialogue will be held in Tokyo.
- **Foreign and Defence ministers** of India and its ally (2+2) meet regularly to understand each other's strategic concerns and build stronger ties.
- India has 2+2 dialogues with four key strategic partners: **the US, Australia, Japan, and Russia.**

India-Japan collaboration:

- **Principles involved**: Promote rules-based order, Respect for International law and norms, open navigation in common waters, and safeguarding global commons.
- **Development collaboration:** Quad, Supply Chain Resilience Initiatives, Asia-Africa Growth Corridors, Mutual Logistics and supply agreement (MLSA)
- **Exercises**: Fighter Exercises (Air force); **Dharma Guardian**(Joint Military Exercise); **JIMEX** (Navy) and **Malabar** (India-US-Japan-Australia maritime exercise)

IPEF Ministerial
- Indo-Pacific Economic framework (IPEF) ministerial summit concludes.
- **The IPEF** is the US-led economic grouping of **14 countries** in the Indo-Pacific region, intended to counter Chinese aggressive and non-transparent trade and economic policies.
- **Members**: Four QUAD countries, South Korea, New Zealand, Fiji and seven out of the ASEAN members
- **The IPEF framework has four pillars**: Supply-chain resilience, Clean energy, decarbonisation & infrastructure, Taxation & anti-corruption (anti-corruption, anti-money laundering and tax), and Fair & resilient trade (strong labour and environment standards etc.)
- It aims to define the rules of trade among countries which belief in fair play, transparency, and rules-based trading in the future

Outcome of the ministerial:

- India has joined **three out of four pillars** related to supply chains, tax and anti-corruption and clean energy, but didn't join the **"Fair and resilient trade" pillar** as it was apprehensive of commitments required on the environment, labour, digital trade and public procurement.

G20

- The **17th G20 Heads of State** and Government Summit will take place in **Bali**. After Indonesia, India will assume the presidency of the **G20** from **December 2022 to November 2023.**

Benefits of G20 Presidency:

- **Global agenda:** India will have the opportunity to assume centre stage in proposing and setting the global agenda and discourse.
- **Global economic growth:** The G20 holds a strategic role in securing global economic growth and prosperity as it represents more than 80% of the world's GDP.
- **Leadership potential:** The country's leadership potential and diplomatic foresight in organizing such a big event and in arriving at meaningful outcomes will be tested.

What is 'Safe Harbour'?

In the US, social media companies enjoy special protection under US' the Communications Decency Act (CDA). It is similar to **Section 79 of India's Information Technology Act, 2000**, (IT Act) which classifies social media **platforms as intermediaries and broadly shields** them from legal action based on content users post on their platform. Both these regulations offer social media platforms something called '**safe harbour'**.

Rationale behind 'safe harbour'?

Since platforms cannot control at the first instance what users post on their site, they should not be held legally liable for any objectionable content they host as long as they agree to take such content down when flagged by the government or various courts.

Although tech platforms can help keep us connected, create a vibrant marketplace of ideas, and open up new opportunities for bringing products and services to market, they can also divide us and wreak serious real-world harms

2022 SCO Summit

- The 2022 Shanghai Cooperation Organization (SCO) Summit will be organized in **Uzbekistan**
- The 2022 SCO Summit would be held in Samarkand – a city in Uzbekistan on the ancient trade route of Silk Road that connects China with the Mediterranean.
- This is the first in-person summit since 2019 SCO summit held in Bishkek, Kyrgyzstan.

- After the Samarkand summit, **India** would take up the SCO presidency.
- India will hold the presidency of SCO until September 2023. It would host the SCO summit next year.
- The Shanghai Cooperation Organization (SCO) is a Eurasian political, economic and security grouping founded on June 15, 2001. It is headquartered in Beijing. Its members include China, Russia, India and Pakistan as well as 4 Central Asian countries – Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan. It is the world's largest regional grouping, covering about 60 per cent of the area of Eurasia, 40 per cent of the global population and more than 30 per cent of global GDP.

"Global Estimates of Modern Slavery" report

The 2021 Global Estimates for Modern Slavery, which was recently released by the International Labour Organization (ILO), revealed a spike in the instances of forced labour.

Highlights

- In 2021, 50 million people were living in modern slavery, of which 28 million were in forced labour and 22 million were trapped in forced marriage.
- The number of people in modern slavery has increased exponentially in the past five years.
- Compared to the 2016 global estimates, 10 million more people have been trapped by modern slavery.
- Women and children are disproportionately vulnerable to modern slavery.
- Modern slavery occurs in almost all countries across the world, regardless of differences in ethnicity, culture and religion.
- **Forced Labour:** 52 per cent of all forced labour are found in upper-middle or high-income countries. 86 per cent of forced labour are found in private sector. Forced labour in sectors other than commercial sexual exploitation accounts for 63 per cent of all forced labour.
- **Forced marriage:** An addition of 6.6 million people are victims of forced marriage in 2021 when compared to 2016 global estimates. More than 85 per cent of forced marriage is caused by family pressure. Its prevalence is highest in Arab states.
- **Migrant workers** are more than three times likely to be in forced labour than non-migrant adult workers. This is because of poorly governed migration or unethical recruitment practices.

Science-Tech & Environment
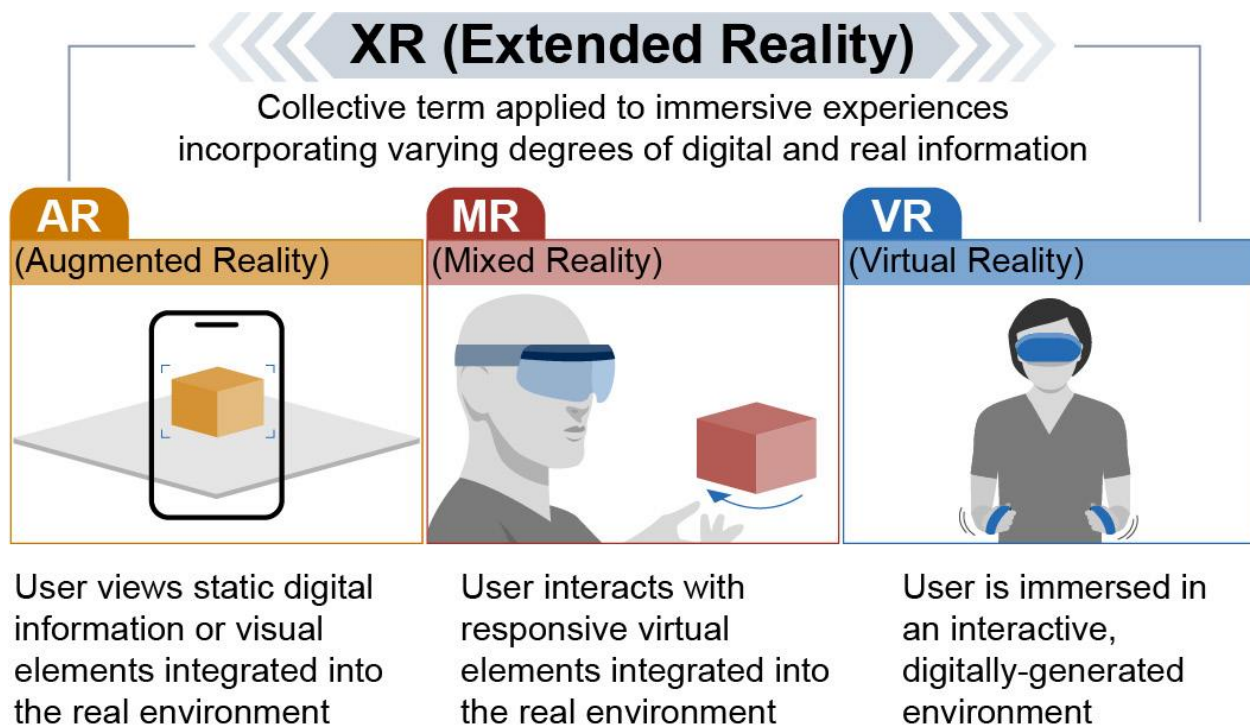
Extended reality (XR)

Extended reality (XR) is an umbrella term referring to all real-and-virtual combined environments and human-machine interactions generated by computer technology and wearables.

Applications:

- **Training**: e.g., for soldiers, driving, surgeons
- **Testing**: for corporate
- **Tourism**: virtual tours

Issues:

- No concrete data privacy law is in place yet.
- The cost of equipment is high for common men to afford
- Lack of digital literacy

XR (Extended Reality)
Collective term applied to immersive experiences incorporating varying degrees of digital and real information

AR (Augmented Reality) — User views static digital information or visual elements integrated into the real environment

MR (Mixed Reality) — User interacts with responsive virtual elements integrated into the real environment

VR (Virtual Reality) — User is immersed in an interactive, digitally-generated environment

Source: GAO. | GAO-22-105541

Why in news? The XR Startup Program was jointly launched by MeitY Startup Hub and Meta to create the next generation startups focusing on Extended Reality Technologies.

MeitY Startup Hub (MSH), an initiative of the Ministry of Electronics & Information Technology (MeitY), aims to achieve the Indian Government's goals of promoting technology innovation, startups and creation of intellectual properties. This nodal agency would act as a national coordination, facilitation and monitoring centre that will integrate all incubation centres, startups and innovation-related activities of the MeitY.

Green hydrogen

Hydrogen when produced by electrolysis using renewable energy is known as Green Hydrogen which has no carbon footprint.

India, being **a tropical country,** has a significant edge in **green hydrogen production** due to its favourable geographical conditions and abundant natural resources. Producing hydrogen from renewables in India is likely to be cheaper than producing it from natural gas.

Challenges for green hydrogen:

- **Low investment**
- **Low stage of technology for sustainable production**
- **The challenges in ramping up the supply of electrolysers** — a device in which green hydrogen is produced
- **Electrolysis capacity** is still tiny compared to where we need to be in 2050 for Net Zero emissions scenarios

Efforts in this regard:

- **National Hydrogen Mission (i**ncrease production to 5 million metric tonnes (MMT) by 2030 to meet about 40 per cent of domestic requirements)
- **Green hydrogen and green ammonia policy** that offers 25 years of free power for any new renewable energy plants set up for green hydrogen production before July 2025.

Miyawaki method

The Miyawaki method, which was devised by **Japanese botanist Akira Miyawaki** in the 1980s, is a technique to **create micro forests** over small plots of land. Achieving this goal requires **planting a wide variety of plants in a fairly dense manner** so that the plot of land has different layers of a forest such as shrubs and canopies and not just trees.

Climate tipping points

"Climate tipping points" are levels of ecological changes, if crossed, could spark a **significant change i**n the way the Earth's systems operate, affecting oceans, weather and chemical processes, which could be "**irreversible**" and self continuing even if there is no further warming.

The six tipping points "likely" to be crossed are:

- Greenland Ice Sheet collapse
- West Antarctic Ice Sheet collapse
- Collapse of ocean circulation in the polar region of the North Atlantic
- Coral reefs die off in the low latitudes
- Sudden thawing of permafrost in the Northern regions
- Abrupt sea ice loss in the Barents Sea.

Human Organ Transportation Drone

- Union Minister for Road Transport and Highways Nitin Gadkari recently inaugurated the country's first prototype drone for transporting human organs to facilitate quick transplantation in hospitals.
- With this innovation, it will take much less time to transport the transplanted organs from airport to hospital. At present, this facility has been started by MGM Healthcare Hospital located in Chennai.
- India ranks third in the world after United States and China, with a maximum of 17,000-18,000 solid organ transplants every year.
- Globally, Spain has the highest organ donation rate at about 34 donors per million, while India has nearly 0.03 donors per million. In India, Tamil Nadu has a highest number of organ donations.
- India needs an estimated 6 lakh kidney donations annually, only 6,000 kidney transplants take place.

First time, avian flu is seen in cetaceans

- A bottlenose dolphin found dead in a Florida canal in the spring tested positive for a highly virulent strain of bird flu (**Eurasian H5N1**).
- It has also been found in other marine mammals such as **Porpoises and whales (called Cetaceans)**
- Cetaceans are called sentinels of ocean health as it provides insights into marine ecosystem health.
- While experts emphasize that the risk to humans remains low, the spread of the virus to new species poses potential risks to wildlife and provides the virus with new chances to mutate and adapt to mammalian hosts.

Potential applications of genome editing technologies

- **Better understanding of diseases; –** Most uses of genome editing have been in scientific research –for example, to investigate models of human disease. Several therapeutic interventions using **CRISPR** for diseases like **thalassaemia or sickle cell anaemia have gone into clinical trials**
- **Identifying threats:** genome editing has been used to develop a suite of tools that scientists can use to better understand new and existing pathogens.This can help **to develop and poor countries** are prepared for incoming threats of diseases.
- **Developing new treatments:** the potential of genome editing to impact the development and use of new treatments is tremendous. Genome-editing technologies have a major **advantage over traditional drugs** in that they can **target the genetic basis of disease**. This can drastically lower the cost of life-threatening diseases.
- **Treating genetic diseases:** it has huge potential in the field of genetic diseases. Poor countries like Nigeria, Sudan and tribals in India have witnessed the rise in cases of diseases like **Sickle cell anaemia, thalassemi**a etc.
- **Other potential uses:** Genome-editing technologies also have a number of relevant applications to global health security outside of the human body. Gene drives have the **potential to control vectors and minimize the possibility of certain outbreaks** whose impact is felt by poor countries more. It can help either by eliminating the vector entirely or by **editing the vector's genome** to remove its ability to carry a particular agent.

Economics

PM Matsay Sampada Yojana (PMMSY)

Recently, the **2nd anniversary of PMMSY** has been celebrated (launched in 2020)

Aim: To bring about a blue revolution through **sustainable and responsible development of the fisheries sector in India.**

Ministry: Fisheries, Animal Husbandry and Dairying

Timeline: FY 2020 to 2025

Approach: 'Cluster or Area based approaches' and many new interventions such as fishing vessel insurance, Aquaculture in saline/alkaline areas, Sagar Mitras, FFPOs, Nucleus Breeding Centres, etc.

Key targets:

1. Enhance fish production by an **additional 70 lakh tonnes** by 2024-25.

2. Increase fisheries export earnings to **Rs.1,00,000 crore** by 2024-25.

3. **Double incomes** of fishers and fish farmers.

4. Reduce post-harvest losses from **20-25% to about 10%.**

5. Generate **additional 55 lakhs of direct and indirect gainful** employment opportunities in the fisheries sector and allied activities.

Windfall tax

- Government has defended the windfall tax (applicable from July 1), as a way to rein in the **"phenomenal profits"** made by some oil refiners who chose to export fuel to reap the benefits of skyrocketing global prices while affecting domestic supplies.
- **The United States Congressional Research Service (CRS)** defines a windfall as an "**unearned, unanticipated gain in income through no additional effort or expense**".
- Domestic producers sell crude oil to domestic refineries at **international parity prices**, thus making windfall gains. E. g. **ONGC reported bumper profits** in the March quarter (when international prices soared to a near 14-year high of $139 per barrel).
- The U.N. chief urged all governments to tax these excessive profits "and use the funds to support the most vulnerable people through these difficult times."
- **Other countries**: Besides India, the United Kingdom, Italy, and Germany have either already imposed a windfall profit tax or are contemplating doing so.

Damodaran Committee

The Union Finance Ministry recently set up an expert committee headed by former SEBI chief M. Damodaran to assess and recommend ways to solve regulatory issues to boost investments by private equity (PE) and venture capital (VC) in India

Sports GK

2022 US Open

The 2022 US Open is a tennis tournament played on outdoor hard courts at the USTA Billie Jean King National Tennis Center. It was the overall 142th edition of the US Open, the fourth and final Grand Slam event of the year 2022.

Men's Singles Title

- Carlos Alcarez has won the men's singles title of the US Open 2022.
- Spain's 19-year-old Carlos defeated 23-year-old Casper Rood of Norway 6-4, 2-6, 7-6(1), 6-3 in a four-set match in the title match.

- Carlos has also created history with this victory. He has become the youngest player to reach the first position in the ATP rankings. Apart from this, he is the youngest US Open winner since Pete Sampras in 1990.

Women's Singles Title

- In the final Grand Slam US Open tennis of the year, world number one Iga Swiatek of Poland has won the women's singles title. She defeated Tunisia's Ons Jabeur 6-2, 7-6 in the final.
- Swiatek is the first Polish female player to win the US Open title.
- She has won 10 titles including three Grand Slam titles in his career so far

Current Affairs Update (Sep 18-24)

National

ECI seeks restrictions on cash donations to political parties

The **Election Commission** has proposed reducing anonymous political donations to **₹2,000 f**rom **₹20,000** and capping cash donations at **20% or at a maximum of ₹20 crores** to cleanse election funding of black money.

Aim:

- **Transparency:** Reforms and transparency in donations received by political parties
- **Equal playfield:** Expenditure incurred by candidates who want to fight elections.
- **Reported:** All donations above **₹2,000 s**hall be reported, thereby enhancing transparency in funding

Other recommendations:

- **Digital transactions:** The EC has sought to make **digital transactions or account payee** cheque transfers mandatory for all expenses **above ₹2,000** to a single entity/person.
- **Amendment to Rule 89 of the Conduct of Election Rules, 1961:** A candidate would have to maintain a separate account for receipt and payments related to elections and the same has to be transparently disclosed to authorities, as an account of election expenditure.
- **RP Act and the Foreign Contribution Regulation Act (FCRA), 2010**: The EC has also sought "electoral reforms" to ensure that no foreign donations creep into the funds of the parties as stipulated under these laws.

Lower fertility rates

Positive implications:

- Lower fertility impacts women's education positively, which in turn lowers the fertility of the next generations.
- With better infrastructure development, better health care, and education, fertility drops and income rises.
- The spiral of lower fertility leads to a window of time when the ratio of the working-age population is higher than that of the dependent age groups.
- This high proportion of people in the workforce boosts income and investment, given the higher level of saving due to lower dependence.

Negative implications of falling fertility rate:

- **A fall in fertility rate** beyond replacement level would have a **negative effect** on the proportion of the working population, which in turn will affect output in an economy. **Japan** was the first country to experience the implications of falling fertility rates. The increasing dependency ratio has led to near zero GDP growth since the 1990s.
- Some experts believe that **falling fertility could diminish** the creative capacity of humankind.
- An ageing population will also affect **global interest rates negatively** as the share of people over 50 years will form almost 40% of the population by 2100.

Policies to boost fertility:

- Germany allows more parental leave and benefits.
- Denmark offers state-funded IVF for women below 40 years
- Hungary recently nationalized IVF clinics.
- Poland gives out monthly cash payments to parents having more than two children
- Russia makes a one-time payment to parents when their second child is born

Qutb Shahi tombs

- Six walls of Qutb Shahi Tombs Complex in Hyderabad have been restored recently and it will help make **a strong case for Unesco World Heritage City.**
- The Qutub Shahi Tombs are located in the **Ibrahim Bagh (garden precinct**), close to the famous Golconda Fort in Hyderabad, India. They contain the tombs and mosques built by the various kings of the Qutub Shahi dynasty.
- **Quṭb Shāhī dynasty, (1518–1687**), rulers of the kingdom of Golconda in the southeastern Deccan of India, one of the five successor states of the Bahmanī kingdom. The founder was **Qulī Quṭb Shah**.

Cabinet approves addition of four tribes

The Union Cabinet under the chairmanship of the Prime Minister has approved the addition of four tribes to the list of Scheduled Tribes.

Tribes included:

- **Hatti tribe**(Trans-Giri area of Sirmour district in Himachal Pradesh)
- **Narikoravar**(hill tribe of Tamil Nadu)
- **Kuruvikaran**(hill tribe of Tamil Nadu)
- **Binjhia**(Chhattisgarh)

Process to include or remove tribes from the list: Articles 341 and 342: The final decision rests with the President's office issuing a notification specifying the changes. There are said to be **705** ethnic groups listed as Scheduled Tribes under **Article 342**.

What are the criteria for inclusion?

- Ethnological traits
- Traditional characteristics
- Distinctive culture
- Geographical isolation
- Backwardness

Kurmi stir for ST tag

- Kurmis blocked railway tracks in various parts of eastern India demanding **Scheduled Tribe (ST) status** and inclusion of **Kurmali language** in the **eighth schedule of the Constitution.**
- Kurmi is traditionally a non-elite **tiller caste** in the **lower Gangetic plain of India.**
- They are present in **southern regions of Awadh, eastern Uttar Pradesh and parts of Bihar.**
- **Part XVII** of the Indian constitution deals with the official languages in **Articles 343 to 351.**
- **Official Languages:** The Eighth Schedule to the Constitution consists of the following **22 languages**.

Swachh Sujal Pradesh

Andaman and Nicobar (A&N) Islands have got **India's 1ˢᵗ Swachh Sujal Pradesh certification** (by Jal Shakti Ministry).

The certification is provided for ensuring 3 things:

- Safe and secure drinking water supply,
- ODF Plus status,
- Awareness about cleanliness and convergence of schemes.

All the villages of A&N islands have received Har Ghar Jal Certification.

International

Abraham Accord

Brokered by the USA, Abraham Accord is a **normalization agreement** between **UAE and Israel** to establish **formal diplomatic relations**, later joined by **Bahrain, Sudan, and Morocco** and in exchange

Israel would suspend its plans to annex parts of the occupied West Bank, thereby becoming the **first Gulf country** to establish diplomatic and economic relations with Israel.

UAE becomes the **third Arab nation** to recognize Israel **after Egypt (in 1979) and Jordan (1994)**

It has been **two years of the Abraham Accords**. It has helped not only the member nations but has also provided various benefits to India as well.

Significance of Abraham Accord for India:

- **Economic Cooperation:** The discovery of **new hydrocarbon resources in the eastern Mediterranean,** has renewed territorial **disputes between Turkey and Greece**, and the Turkish quest for regional dominance has drawn Greece and the UAE closer thereby paving way for India's participation in the region.
- **Regional connectivity:** Abraham Accords have improved the regional connectivity between the member countries. This regional connectivity has also helped Indians. For example, the Indian diaspora in the Gulf can now fly directly from the UAE to Israel or from Israel to Bahrain.
- **Technology cooperation:** Beyond trade, there is potential for India, UAE, and Israel to collaborate in many areas — from space to defence technology.
- **The only geopolitical entity in the region:** The new "Quad" in the Middle East is likely to be India's only new coalition in the region. The feasibility of **a non-ideological engagement with the Middle East** by bridging the Arab- Israeli rift.
- **'Extended' neighbourhood:** This engagement **will open the door** for extending the collaboration with other regional partners like **Egypt**, having much more impact in the region.,
- **Peace and Stability in West Asia:** Agreement opens the doors to the first big rapprochement between traditional adversaries in West Asia—**Israel and the Arab** This would open new doors for India's engagement in the region.
- **Group formation:** The Accords have helped in the formation of the I2U2 Group. This group is established by Israel, India, the UAE, and the United States.

SCO tourist and cultural capital

- The city of Varanasi has been nominated as the **first-ever SCO Tourism and Cultural Capital** during the period 2022-2023 at the **22nd Meeting of the Shanghai Cooperation Organization (SCO) Council of Heads** of State in Samarkand, Uzbekistan.
- The nomination of Varanasi as the first ever SCO Tourism and Cultural Capital **will promote tourism, and cultural and humanitarian exchanges between India and the SCO member Countries**. It also underlines India's ancient civilizational links with the Member States of SCO, especially the Central Asian Republics.

- Varanasi is a city on the Ganges river in northern India that has a **central place in pilgrimage, death, and mourning in the Hindu world**. It is one of the world's oldest continually inhabited cities.

AIBD extends India's Presidency for one more year

India's Presidency of the prestigious **Asia-pacific Institute of Broadcasting Development (AIBD)** has been extended for one more year.

The Asia-Pacific Institute for Broadcasting Development (AIBD):

- It was established in **1977** under the auspices of **UNESCO**.
- **Electronic media development:** It is a regional **intergovernmental organization** servicing countries of the **United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)** in the field of **electronic media**
- **Objectives**: Achieve a vibrant and cohesive electronic media environment in the Asia-Pacific region through policy and resource development.
- **Members**: The AIBD currently has **26 countries as full members represented by 43 organizations,** and **52 affiliate members**.

Poland opens new canal across the Vistula Spit

Poland has opened a new sea waterway to enable ships to sail from the **Baltic Sea and the Bay of Gdansk** to ports of **Vistula lagoon** without relying **on Strait of Pilawa** in Russia. The new canal was opened on the 83rd anniversary of the Soviet invasion of Poland during the Second World War.

The Vistula Spit is an Aeolian sand spit or a peninsular stretch that separates the Vistula Lagoon from the Gdansk Bay in the Baltic Sea. Its tip is separated from the mainland by the Strait of Pilawa. This spit is politically divided between Poland and Russia as the border between Poland and Kaliningrad Oblast (semi-exclave belonging to Russia) passes through it.

European Parliament: Hungary no longer a full democracy
- The European Parliament has recently adopted a parliamentary report that declared Hungary to be "a hybrid regime of electoral autocracy".
- It concluded that the European values are currently under threat in Hungary and thus, it is no longer a democratic country.
- The recent motion at the European Parliament is symbolic disapproval from the EU towards Hungary, that has witnessed years of opprobrium over the rule-of-law issues under the regime of the current populist Prime Minister Viktor Orban.
- Hungary is currently having close ties with Russia and it is involved in blocking further European sanctions on Moscow for its involvement in Ukraine crisis.

Science-Tech & Environment

International Ozone Day

September 16 is celebrated as national ozone day.

Theme: **Montreal Protocal@35** (as 2022 marks the 35th year of implementation of the Montreal Protocol)

Montreal Protocol

- Under the Vienna Convention (1985), Montreal Protocol (1987) was set up with the aim to **cut down 99% of all ozone-depleting substances (ODS**) by active collaboration between Governments, Scientists and Industry.
- It remains the **only treaty to** be ratified by all 198 UN Member States. It achieved universal ratification on **September 16, 2009**. Hence, September 16 is now commonly known as World Ozone Day.
- After Montreal Protocol, **ODS Choloflourocarbon (CFCs**) was replaced with Hydroflorurcarbons (HFCs).
- Even though HFCs don't harm ozone but are extremely potent to cause global warming and therefore under the **Kigali amendment (2016),** HFCs were replaced as well. India ratified the Kigali amendment in 2021.

Sea cucumbers

- Sea cucumbers were the most frequently trafficked marine species in **India between 2015 and 2021, a new analysis by the Wildlife Conservation Society-India (WCS-India)** has shown.
- **Tamil Nadu** recorded the highest number of marine wildlife seizures during this period, the analysis added.
- The analysis, titled **Illegal trade in marine species in India 2015-2021** is based on the assessment of 187 media reports about marine wildlife seizures in India between 2015 and 2021. It recorded illegal marine trade in seven species groups — **sea cucumber, coral, seahorse and pipefish, shark and ray, seashell, sea fan and sea turtle.**
- Sea cucumbers are part of a larger animal group called echinoderms, which also contain starfish and sea urchins. **Their body shape is similar to a cucumber, but they have small tentacle-like tube feet that are used for locomotion and feeding**.
- **Protection**: IUCN Red List: Brown Sea Cucumber (Endangered), Blackspotted Sea Cucumber (Least Concern); Wildlife Protection Act, 1972: Schedule I.

KSTAR reactor

Researchers have said that South Korea's nuclear fusion (KSTAR) reactor has reached the temperature of **over 100mn degrees Celcius (nearly 7 times that of the core of the Sun)**

Significance: The reactor achieved simultaneous **sustainability of heat & plasma stability** for 30 seconds of the reaction. This promises a viable fusion reactor that can be scaled up in the future. **One kilogram(kg) of fusion fuel** contains about **10 million times** as much energy as a kg of coal, oil or gas

Other International Initiatives on Nuclear Fusion Energy:

- **International Thermonuclear Experimental Reactor (ITER) Assembly (France)**: It aims to build the world's largest tokamak to enable the commercial fusion reaction. Its members include China, the European Union, India, Japan, South Korea, Russia and the United States.
- **China's Artificial Sun**: The Experimental Advanced Superconducting Tokamak (EAST) device designed by China replicates the nuclear fusion process carried out by the sun.
- **JET** (Joint European Torus facility) (UK)

ISRO and Hughes launch India's first commercial satellite broadband service

- Hughes Communications India (HCI) in collaboration with the Indian Space Research Organization (ISRO) officially launched its first **high throughput satellite (HTS) broadband internet service** in the country.
- From northeast to desolate parts of Leh and Ladakh, the company, **using ISRO's Ku-band capacity of GSAT-11 and GSAT-29 satellites** has promised to deliver high-speed satellite broadband services to remote locations across India.
- High-throughput Satellite differs from a conventional satellite in the sense that it **increases capacity when using the same amount of orbital spectrum** while simultaneously **reducing the cost per bit.**

Sova virus

- CERT-In has given advisory on SOVA virus – a novel mobile banking "Trojan" virus that is currently targeting Indian customers.
- Sova virus is capable of stealthily encrypting an android phone for ransom.
- It can add false overlays to a range of apps and mimic over 200 banking and payment applications to con the android users.
- It is capable of collecting keystrokes, steal cookies, intercept multi-factor authentication tokens, take screenshots and record video from a webcam and perform gestures like green click, swipe etc., using android accessibility service.
- It is also capable of intercepting actions that seek to uninstall the malware from setting or pressing the icon.

- It is a major threat to privacy and security of sensitive customer data and can cause large-scale financial frauds and cyberattacks.

World's 1st cloned wild arctic wolf

China has produced World's 1st cloned wild arctic wolf. Beijing-based gene firm announced the debut of the world's first cloned wild arctic wolf. The announcement was made 100 days after its birth in a Beijing lab. This arctic wolf was born on 10 June 2022. It has been named **Maya**.

Other names: white wolf or polar wolf

Distribution: Species is native to the High Arctic tundra of Canada's Queen Elizabeth Islands

Significance: Milestone achievement in conserving rare and endangered species through cloning technology.

Red list status: The International Union for Conservation of Nature, or the IUCN, lists arctic wolves as **endangered** in the Red List of Threatened Species.

Maya's surrogate mother was a beagle, a dog breed. The dog was selected as the surrogate as it shares genetic ancestry with ancient wolves and hence, ensures success in cloning.

Global Registry of Fossil Fuels

- The Global Registry of Fossil Fuels is the first large-scale **public database to track what is yet to be burned**.
- **Carbon Tracker, a** nonprofit think tank that researches the energy transition's effect on financial markets, and **the Global Energy Monitor,** which tracks a range of global energy projects, jointly developed the registry.
- These organizations hope the registry will **empower groups to hold governments accountable** in a range of scenarios, for example, when issuing licenses for fossil fuel extraction.
- The inventory includes data from more than **50,000 oil, gas and coal fields in 89 countries, covering 75 per cent of global production**.
- With the Registry, it will be much easier to include expected future emissions into the analysis, and thus identify and prioritize the companies with the greatest risk of harbouring assets likely to become stranded.

Peatlands

- Peatlands are terrestrial **wetland ecosystem** formed because of the accumulation of partially decomposed plant remains over thousands of years. The plants are only partially decomposed as waterlogged conditions prevent the complete decomposition.

- Peatlands are **critical for carbon storage** as well as the storage and **cycling of water and nutrients.** They can reduce the risk of climate change and flooding, provide drinking water and safeguard the livelihoods of local communities.
- International agreements such as Ramsar Convention, United Nations Environmental Assembly Resolution and the **Brazzaville Declaration on Peatlands** are promoting their sustainable management and conservation.

Rashid

- The **United Arab Emirates** will launch its first lunar rover named Rashid from Kennedy Space Centre in Florida in November 2022.
- The rover would reach the Lunar surface aboard the **Hakuto-R lander of Japan'**s space sometime in March next year.
- If this lunar mission is successful, the UAE and Japan will rank among the **US, Russia and China** as being the only countries to land a spacecraft on the lunar surface.
- Its destination the **Lacus Somniorum** – the Lake of Dreams – situated close to the lunar equator.
- The Rashid rover will study the lunar surface, mobility on the surface of the moon and how different surfaces interact with the particles on the moon.
- The rover is named after Dubai's former ruler **Sheikh Rashid bin Saeed Al Maktoum**, who is credited for the transformation of Dubai from a small cluster of settlements near the Dubai Creek to a modern port city and commercial hub.

NASA's Perseverance finds organic matter on Mars

- The Perseverance Rover has collected samples having high concentration of organic matter from the Martian surface.
- One of the rocks the Perseverance collected was nicknamed as **Wildcat Ridge**. This rock was likely formed when mud and sand settled in a saltwater lake as it evaporated billions of years ago.
- The instrument's analysis revealed that the organic materials may possibly be aromatics or stable molecules of carbon and hydrogen, which are connected to sulfates.

India Hypertension Control Initiative (IHCI)

- '2022 UN Interagency Task Force, and **WHO Special Programme on Primary Health Care Award'** was conferred to India for its India Hypertension Control Initiative (IHCI).
- The India Hypertension Control Initiative (IHCI) is a joint initiative of the Union Ministry of Health and Family Welfare, the Indian Council of Medical Research (ICMR), state governments and World Health Organization-India.
- It was launched in **2017** and expanded in a phased manner to cover more than 130 districts across 23 states in India.

- It was given recognition for its ability to prevent and **control non-communicable diseases** and delivering integrated people-centric primary care.

Economics

Technical textiles

Technical textiles are defined as textile materials and products manufactured primarily for their technical performance and functional properties rather than aesthetic and decorative characteristics.

Depending upon their application areas, Technical Textiles products are divided into **12 broad categories:** Agrotech, Buildtech, Clothtech, Geotech, Hometech, Indutech, Mobiltech, Meditech, Protech, Sportstech, Oekotech, Packtech.

National Technical Textiles Mission:

- **Ministry of Textiles** was launched in **2020** (to be implemented in 2024) to make India a global leader in technical textiles and improve their usage. Presently, India shares only **6% of the world market** and the usage level is only **5-10%** (usage in advanced countries **30-70%)**
- **It will have four components:** R&D; Promotion and development of the market; Export promotion; and Education, training and skill development.

Seed treaty

- Seed treaty or also known as the International Treaty of Plant Genetic Resources for Food and Agriculture (**ITPGRFA**) is a major **legally binding** international agreement to **conserve, use and manage** plant genetic resources.
- It was adopted by FAO in 2001 and came into force in 2004.
- **India** is a party to it.

The Treaty aims at:

- Recognizes the contribution of farmers to the diversity of crops.
- **Provides access** to plant genetic materials;
- Ensures sharing of the benefits.
- The treaty **enables sharing of 64 of our most important crops** through an easily accessible global pool of genetic resources.
- **The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001:** It recognizes the contributions of both commercial plant breeders and farmers in plant breeding activity.

Why in news? India will host the 9th session of governing body of the Seed treaty

National Logistics Policy (NLP)

Prime Minister Modi recently launched the National Logistics Policy (NLP).

Key features

- The National Logistics Policy aims to promote smooth movement of goods across India and boost competitiveness of the Indian goods in the domestic and international markets.
- It aims to bring down the logistics cost, which in turn would improve efficiency of various sectors of the economy, boosting value addition and economic growth.
- The policy was announced for the first time in Union Budget 2020.
- Its focus areas are Integration of Digital System (IDS), Unified Logistics Interface Platform (ULIP), Ease of Logistics (ELOG) and System Improvement Group (SIG).
- **The IDS** will integrate 30 different systems of seven different departments, such as customs, aviation, road transport, railways, international trade and commerce ministries.
- **The ULIP** aims to ensure continuous monitoring of cargo movement.
- **The ELOG** would seek to simplify procedures and achieve ease of doing business.
- **The SIG** would monitor all projects related to logistics in a regular basis and ensure the removal of hurdles faced in the sector.

Significance of India's bans on broken rice export

- India has banned the export of **broken rice and imposed a 20 per cent** duty on exports of various grades of rice, except basmati.
- **India is the world's largest exporter of rice:** India accounted for **41%** of the total rice exports in the world in 2021 larger than the next four exporters (Thailand, Vietnam, Pakistan and United States) combined.
- In descending order, China, Senegal, Vietnam, Djibouti and Indonesia are the biggest importers of India's broken rice. Hence, these countries would be impacted by the ban.

Reasons for ban:

- There has been **lower rice production** this year due to deficient rainfall in some areas.
- High food inflation
- **For use in Ethanol blending:** In the 2018-19 Ethanol Supply Year (ESY), the government allowed the FCI to sell surplus rice to ethanol plants for fuel production.
- Broken rice is also used as Poultry feed.

International Year of Millets (IYM) 2023

2023 has been declared as IYM by the UN on a **proposal by India** with the aim to create awareness about the health benefits of millet.

Benefits of Millets:

- **Nutritional Security**: cheap and more nutritious. E.g. Ragi has the highest calcium content and high iron content can fight the high prevalence of anaemia.
- **Climate Resilient:** they are known as hardy and drought-resistant crops
- **Economic Security**: low investment for inputs
- **Against Health Issues**: Millets are **gluten-free** and have a **low glycemic index** (glucose level) and therefore can help in tackling lifestyle problems and health challenges such as obesity and diabetes.
- Millets have **antiaging and antioxidant**

Initiatives in India:

- **Government declared (in 2018)** millets as **"Nutri-Cereals"**, considering their "high nutritive value" and also "anti-diabetic properties".
- **The 2018** year: '**National Year of Millets".**
- Increase in **MSP** for millets
- Government has included **millets in the public distribution system (PDS) and POSHAN Abhiyan**.
- Millet Mission (under the National Food Security Mission): It will help develop farm-gate processing and empower farmers using FPOs.

Current Affairs Update (Sep 25-Oct 7)

National

CSR Policy Amendment Rules 2022

MCA (Ministry of Corporate Affairs) has released Companies (CSR Policy) Amendment Rules 2022.

New Rules:

- Unspent CSR amount must be utilized **within 3 years**
- Mandatory constitution of **CSR committee** to implement CSR works
- Amount Spent for Social Impact Assessment (SIA) to **not exceed 2.5% of total CSR** or Rs 50 lakh. SIA has been made mandatory for businesses with **Rs 10cr or more** CSR budget or for projects with an outlay of **Rs 1 cr or more**
- **Transparency**: Companies are to disclose the composition of the CSR Committee and CSR policy on the company website.

 About Corporate Social Responsibility (CSR):

- It is a corporate initiative to assess and take responsibility for the company's effects on the environment and on social welfare.
- The rules in **Section 135 of India's Companies Act 2013** make it mandatory for companies (with an **annual turnover of 1,000 crores and more, or a net worth of Rs. 500 crores and more**, or a **net profit of Rs. 5 crores a**nd more) to **spend 2% of their average net** profit for the past three years on CSR.
- India is the **first country** in the world to **mandate CSR spending** along with a framework to identify potential CSR activities.

Issues with the Semiconductor chipmaking industry

- **Shortage of chips:** Due to Pandemic induced closure of factories, US-China tension in Taiwan, the Russia-Ukraine war disrupting the Supply chain, and rising demand.
- **The chip-making industry is a highly-concentrated one**: 90% of 5nm (nanometre) chips are mass-produced in Taiwan, by the Taiwan Semiconductor Manufacturing Company (TSMC).

So, governments all over the world are trying to create their domestic chip-making industry.

What are the challenges?

1. High Investments Required: one semiconductor fab requires an investment of anywhere between $3 and $7 billion

2. Minimal Fiscal Support from Government.

3. Lack of Fab Capacities.

4. Insufficient Grants under PLI Scheme.

5. Resource Inefficient Sector.

6. Chip production is a resource-intensive and expensive process

7. Chip-making also requires gallons of **ultrapure water** in a single day

Weather warnings

The top weather body in India, the Indian Meteorology Department (IMD) is tasked with identifying and issuing warnings for adverse weather events, relying on a system of colour-coded weather warnings to do so.

The IMD's four colour codes are:

- **Green (pre-cyclone watch)**: This code means that **"all is well",** there is no likelihood of any adverse weather-related and there are no advisories issued.

- **Yellow (cyclone alert)**: The colour yellow signals authorities to **"be aware" or on their guard**, with the likelihood of severely bad weather that could last several days at a stretch, while also suggesting that the weather could take a turn for the worse and upset daily activities.

- **Orange (Cyclone warning)**: Meaning "**Be prepared",** the IMD issues the orange alert as a warning for extremely bad weather, electricity blackouts and the possibility of communication disruptions, including road and rail closures.

- **Red (during or post-landfall outlook)**: The IMD issues the highest level of warning—indicating authorities should "take action"—only when it is guaranteed that bad weather is going to upend travel and power and pose a significant risk to life.

These warnings are based on 'the probability of occurrences and 'impact assessment'. The point of the exercise is to give authorities and people likely to be impacted **enough forewarning to be prepared to meet harsh or hazardous weather** that has the potential to wreak severe damage, disrupt daily life or cause loss of life. The warnings are updated daily.

UPSC Mains 2022 Q. Discuss the meaning of colour-coded weather warnings for cyclone-prone areas given by the India's Meteorological department. (150 words)

Avalanche Monitoring Radar

The Indian Army and the Defence Geoinformatics and Research Establishment (DGRE) have jointly installed the **Avalanche Monitoring Radar**, the first of its kind in India, in north Sikkim

 An avalanche is a rapid flow of snow down a slope, such as a hill or a mountain. Avalanches can be set off spontaneously, by such factors as increased precipitation or snowpack weakening, or by external means such as humans, animals, and earthquakes.

Benefits of Avalanche Monitoring Radar:

- Detection of avalanches (within **3 seconds** of the trigger) and landslides.
- Assist in **saving valuable life** of troops and civilians as also vehicles in super high altitude areas

DGRE is the Defence Research and Development Organisation's wing involved in forecasting and mitigating avalanche hazards faced by the Indian Army in the Himalayan region.

Importance of Bay of Bengal

- **Commerce hub:** It is a major commerce hub for the Indian Ocean.
- **Connects east to west:** It creates a conduit between the East and the West in terms of trade and culture.
- **Key sea lanes of communication**: They are lifelines for global economic security. Sea lanes are crucial to the energy security that powers the economies of many countries in the region.
- **Regional cooperation:** It provides an opportunity for greater regional cooperation in the environmentally friendly exploration of marine and energy resources.
- **Biodiversity:** The Bay has a biodiverse marine environment.
- **Home to many rare and endangered marine species and mangroves:** which are essential to the survival of the ecology and the fishing sector.

Sittanavasal

- It is considered by historians to be one of the **oldest inhabited areas in the district** and a major centre of **Jain influence**.
- This is the only place in Tamil Nadu where we can see **Pandya paintings**.
- The artwork on the ceiling of the sanctum and the **Ardha mandapam of Arivar Kovil is an early example of post-Ajanta cave paintings** of the fourth to sixth centuries, done using the fresco-secco technique.
- The ceiling paintings show **'bhavyas' (exalted souls who work to achieve moksha or spiritual liberation)** enjoying themselves in a pool, full of blooming lotuses; today much of it is obscured by patchy plastering.

Operation Megh Chakra

- The Central Bureau of Investigation (CBI) conducted searches across 20 States and one Union Territory, as part of a pan-India drive against the circulation and sharing of **Child Sexual Abuse Material (CSAM).**
- **Megh Chakra:** The operation code named **"Megh Chakra"** is being carried out following the inputs received from Interpol's Singapore special unit based on the information received from the authorities in New Zealand.
- **Operation Carbon:** similar exercise by CBI, in which the suspects in 13 States and one Union Territory were raided

Operation Garuda

- The Central Bureau of Investigation has launched a **multi-phase 'Operation Garuda'** against illicit drug trafficking network, registering 127 new cases, arresting 175 people and seizing huge quantities of narcotic drugs.
- A CBI release said the operation seeks to **disrupt, degrade and dismantle drug networks with international linkages through rapid exchange of criminal intelligence** on drug trafficking and coordinated law enforcement actions across international jurisdiction through Interpol.
- This global operation was initiated in close coordination with **Interpol and Narcotics Control Bureau,** for combating the smuggling of illicit drugs and psychotropic substances, with special focus on Indian Ocean region.

Single women get equal abortion rights

In a historic judgment, the Supreme Court allowed *unmarried and single women* whose pregnancies are between *20 and 24 week*s to access safe and legal abortion care on par with their married counterparts.

Key Highlights:

- *The rights of reproductive autonomy under Article 21*: It gives an unmarried woman the right of choice as to whether or not to bear a child on a similar footing as that of a married woman," court held.

- *Violation of the right to equality before law and equal protection (Article 14)*: Prohibiting single or unmarried pregnant women while allowing married women with the same term of pregnancy.

The MTP Act 1971 and The MTP Act Amendments 2021

	MTP Act 1971	The MTP Amendment Act 2021
Indications (Contraceptive failure)	Only applies to married women	Unmarried women are also covered
Gestational Age Limit	20 weeks for all indications	24 weeks for rape survivors Beyond 24 weeks for substantial fetal abnormalities
Medical practitioner opinions required before termination	One RMP till 12 weeks Two RMPs till 20 weeks	One RMP till 20 weeks Two RMPs 20-24 weeks Medical Board approval after 24 weeks
Breach of the woman's confidentiality	Fine up to Rs 1000	Fine and/or Imprisonment of 1 year

Live streaming of SC hearing

SC will live stream the constitutional bench hearing from September 27, as a part of 3rd phase of e-courts projects (use of information technology in Judiciary)

Benefits:

- Will ensure Transparency and public scrutiny
- Will help in de-congestion of courts
- Improve physical access for litigants and trust of people in the judiciary
- Help in legal research and training
- Encourage legal awareness

Issues:

- Digital divide
- Lack of ICT infrastructure
- Lack of digitally trained court officials
- Risk of privacy breach
- Risk of the case getting sensationalised.

Recommendations for improving the functioning of CBI and CVC

- **Amendment:** The CVC Act should be amended, providing for a **five/seven-member CVC,** which could broadly assume the role visualized for the **Lokpal**.
- **Prevent favouritism in selection:** The selection process to be more broad-based to prevent favouritism or from controversial persons being appointed.
- **CVC should constitute an advisory committee:** Consisting of at least 11 members drawn from **criminologists** and **forensic science experts.**
- **Expert or professional assistance:** CVC should be given the power to go to any expert or professional to assist it in screening complaints.
- **No permission from the government:** After assessing a complaint by broad-based CVC, there should be no need to seek prior permission from the government.
- **CBI should be made functionally and financially independent:** Of the controls of any government ministry/department.The professional supervision over the investigations of the **CBI should rest only with the CVC**.
- **Manner of the appointment of the CBI Director**: It should be broad-based as in the case of the CVC members.
- **Better synergy between anti-corruption laws and grievance handling**: The laws relating to whistleblowers and grievance redressal should be placed within the jurisdiction of the CVC.

New Chief of Defense Staff (CDS)

- The Government appointed former Eastern Army Commander Lt. General Anil Chauhan as the next **Chief of Defense Staff (CDS).**
- The next Chief of Defense Staff (CDS) shall also function as **Secretary** to the Government of India, **Department of Military Affairs.**
- CDS acts as the **permanent Chairman** of the Chiefs of Staff Committee which will also have **three service chiefs as members.**

Financing poll promises

The **ECI** wrote to parties proposing that they spell out **ways and means** of raising additional resources to **finance** the promises.

Key Highlights:

- **ECI prescribed a standardized disclosure proforma**: To declare quantification of the physical coverage of the schemes promised, financial implications of the promise and availability of the financial resources.
- **Additional resources to finance schemes:** The parties will have to detail how they propose to raise the additional resources to finance the schemes.

- **Explain the impact of the additional resource raising plan**: On fiscal sustainability of the State or the Union Government.
- **Amendment to MCC:** EC plans to propose an amendment to the relevant clauses in the Model Code of Conduct.

Government Initiatives to address Mental Health issues

- **Constitutional Provision**: The right to Health (including mental healthcare) is a fundamental right under Article 21 of the Constitution.
- **National Mental Health Program (NMHP)** (To address the huge burden of mental disorders and shortage of qualified professionals)
- **Mental HealthCare Act 2017**(Guarantees every affected person access to mental healthcare and treatment from services run or funded by the government)
- **Kiran Helpline**(Ministry of Social Justice and Empowerment (2020) launched a 24/7 toll-free helpline)

YUVA 2.0-PM's Scheme

The **Ministry of Education**, Department of Higher Education launched **YUVA 2.0 – Prime Minister's Scheme for Mentoring Young Authors.**
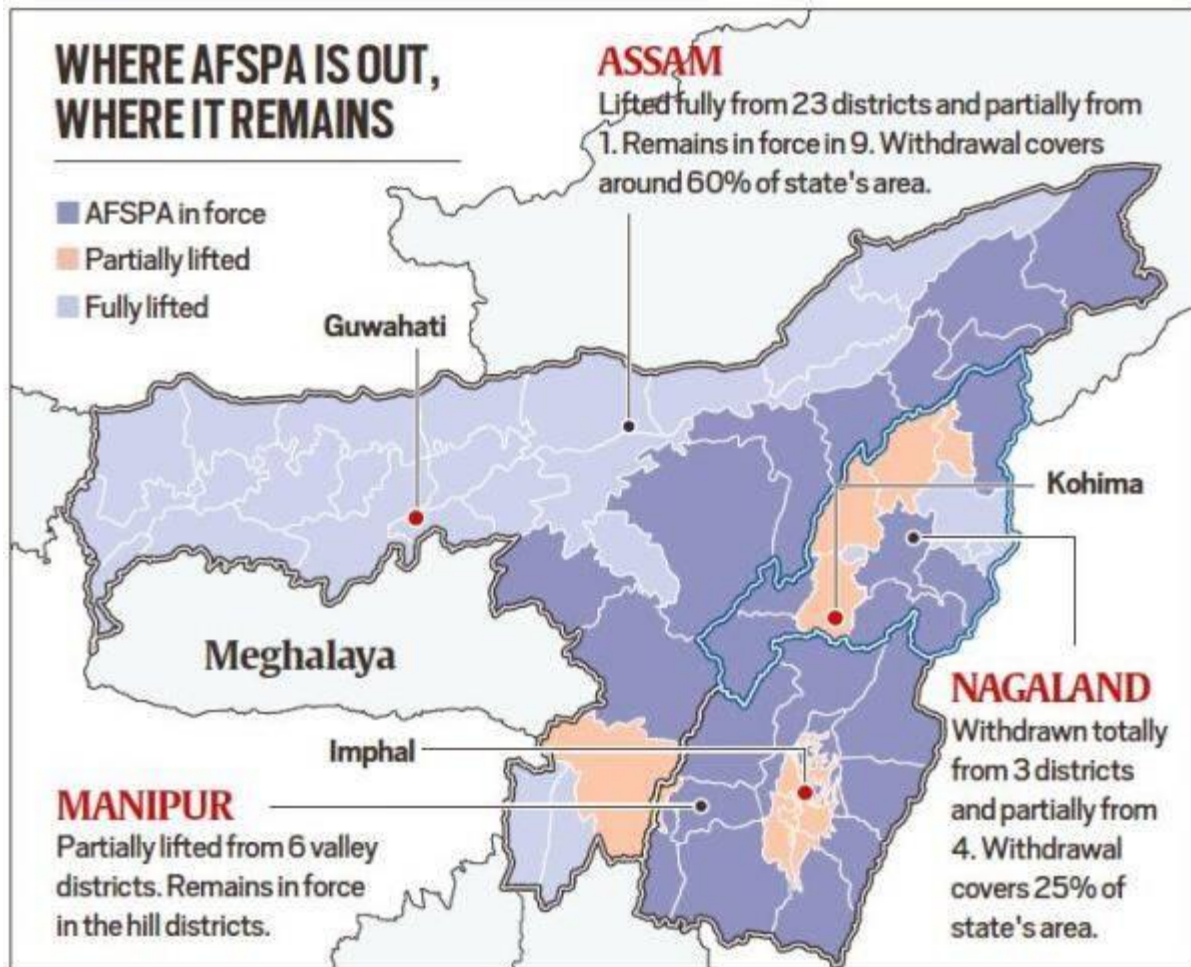
Key Highlights:

- **Author Mentorship programme:** To train young and budding authors (**below 30 years of age**) in order to promote reading, writing and book culture in the country.
- **YUVA 2.0**: It is a part of the **India@75**
- **THEME**: 'Democracy (institutions, events, people, constitutional values – past, present, future)' in an innovative and creative manner.

AFSPA

- The **Ministry of Home Affairs (MHA)** has extended the **Armed Forces (Special Powers) Act (AFSPA)** in parts of **Arunachal Pradesh** and **Nagaland** for another six months.
- Currently, the **Union Home Ministry** issues periodic **"disturbed area"** notification to extend AFSPA only **for Nagaland and Arunachal Pradesh.**
- **State government:** The **notification for Manipur and Assam** is issued by the **State governments.**

Revoked:

- **Tripura**: revoked the Act in 2015
- **Meghalaya**: revoked by the MHA from 1st April 2018.

WHERE AFSPA IS OUT, WHERE IT REMAINS

■ AFSPA in force
■ Partially lifted
■ Fully lifted

Guwahati

ASSAM
Lifted fully from 23 districts and partially from 1. Remains in force in 9. Withdrawal covers around 60% of state's area.

Kohima

Meghalaya

NAGALAND
Withdrawn totally from 3 districts and partially from 4. Withdrawal covers 25% of state's area.

Imphal

MANIPUR
Partially lifted from 6 valley districts. Remains in force in the hill districts.

International

Nord Stream pipelines

Nord Stream 1 subsea pipeline:

- Nord Stream 1 was completed in 2011 and **runs from Vyborg in Leningrad (Russia) to Lubmin near Greifswald, Germany.**
- **Majority ownership:** The Russian state-owned gas company Gazprom has a majority ownership in the pipeline
- **According to Bloomberg**: **40%** of **Europe's** pipeline gas came from Russia before the war(now 9%).

Nord Stream 2:

- This is a **1,200-km pipeline** that runs from **Ust-Luga in Russia to Greifswald in Germany** through the Baltic Sea.
- It will carry **55 billion cubic meters** of gas per year.
- The Nord Stream crosses the **Exclusive Economic Zones (EEZs)** of several countries including: **Russia, Finland, Sweden, Denmark, and Germany.** Territorial waters of: **Russia, Denmark, Germany**

India's Stand at SCO Summit

In the recently concluded SCO summit in the historic city of Samarkand talked about the ideal world order. **India's Stand:**

- **Now is not an era of war:** India bluntly told Russia that this was not the time for war and that the war must stop.
- **Diplomacy and democracy:** It was the only country to demand a cessation of all hostilities and want diplomacy and democracy.
- **Other issues discussed by India:**

  o   The oil crisis

  o   Looming food scarcity

  o   The disruption of supply chains

  o   Transit trade access

- **On Pakistan**: Pakistan should give India transit trade access by land to **Afghanistan** and **Central Asia**.

India's stand on UNSC

Theme of the 77th General Assembly: "A watershed moment: Transformative Solutions to Interlocking Challenges". India's stand:

- **Reformed multilateralism**: India's call for structural overhaul of the UNSC must incorporate institutional accountability.
- **Wider representation of the developing countries**: Growing stakes of developing countries in the Security Council could foster trust and leadership across the world.

The UN's faultlines:

- **Unable to prevent wars:** UN-led multilateralism has been unable to provide strong mechanisms to prevent wars.

- **China's rise and aggression**: Through its actions in the **South China Sea**, the **Indo-Pacific region etc** have also underscored the limitations of UN-style multilateralism.

Steps taken by India for Reforms in UN:

- **G4**: Ministerial meeting of the **G4 (Brazil, India, Germany and Japan).**
- **69:** Meeting of the Indian delegation with the **L.69 Group**(membership spread over Asia, Africa, Latin America, Caribbean and Small Island Developing States)

Seti River project

The **Investment Board Nepal** signed a **Memorandum of Understanding (MoU)** with India's **National Hydroelectric Power Corporation (NHPC)** Limited to develop the **West Seti** and **Seti River (SR6) projects** — a total of **1,200 MW.**

Benefit of this project for India:

- **Geopolitical influence of China:** It will help India minimize the Chinese influence and firm its presence in Nepal. The West **Seti** Hydroelectric Project was a **major Chinese venture under the Belt and Road Initiative.**
- **Cross-border exchange:** The project has the potential to enhance cross-border power exchanges between the two countries.
- **Growing energy demand:** The **West Seti Hydroelectric Project** can provide an added alternative and viable way to address power deficits.

Italy's first female premier
- Giorgia Meloni, the leader of the far-right political party Brothers of Italy, is set to become the first female premier of Italy.
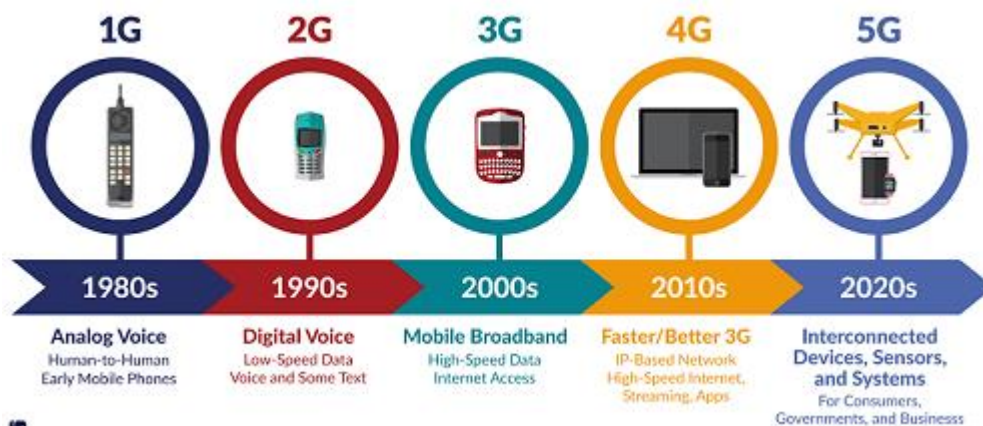
Science-Tech & Environment

C-Band
- India's Aviation safety regulator (DGCA) has written to the telecom department flagging concerns over the likely interference of the **5G C-Band spectrum** with aircraft radio altimeters.
- **A radio altimeter** is an instrument that provides direct height-above-terrain information to various aircraft systems. These altimeters as well as a part of the 5G telecom services operate in the C-Band and therefore risks interference.
- For telecom service providers, the C-Band presents a sweet spot for rolling out 5G services, ensuring coverage as well as high bandwidth, resulting in faster internet speeds. For aircraft

operations, the use of altimeters in this band ensures highly precise measurements of the plane's altitude.

- However, experts say, India has auctioned the C-Band spectrum in frequency ranging from **3.3 GHz to 3.6 GHz**. Aircraft radio altimeters mainly use frequencies ranging from **4.2-4.4 GHz.** So, there is a significant **500 MHz gap** between the two frequency ranges.

Rotterdam Convention

- International trade of two new hazardous pesticides — Iprodione and Terbufos — has been recommended for **"prior informed consent" (PIC)** procedure under the Rotterdam convention. The chemicals are dangerous for humans and aquatic animals.
- The Rotterdam Convention is an international treaty designed to facilitate informed decision-making by countries with **regard to trade in hazardous chemicals**.
- **Terbufos is a soil insecticide** used commonly on sorghum, maize, beet and potatoes. It has also been found to pose risk to aquatic organisms due to its toxicity.
- In India, the use of these chemicals was permitted by the 2015 **Anupam Verma committee report**. The country is among the largest exporters of Terbufos.
- **Iprodione, a fungicide** used on vines, fruits, trees and vegetables, has been classified as carcinogenic and toxic for reproduction.

Integrated Cryogenic Engine Manufacturing Facility (ICMF)

- President **Droupadi Murmu** inaugurated Hindustan Aeronautics Limited's (HAL) **Integrated Cryogenic Engine Manufacturing Facility (ICMF) in Bengaluru.**
- The ICMF is dedicated to **Rocket Manufacturing** and its assembly for ISRO. The facility will boost **self-reliance in the manufacturing of high-thrust rocket engines.**
- On January 5, 2014, India successfully flew **GSLV-D5 with a cryogenic engine** (made by ISRO through private industries) and **became the sixth country in developing cryogenic engines**.

New Target under National Clean Air Programme

- The Indian Government has set a new target of **40 per cent reduction** in the particulate matter concentration by 2026 in cities under the NCAP.
- This is an update of the earlier goal of **20 to 30 per cent reduction** of particulate matter concentration by 2024.
- According to the Environment Ministry, 95 of the 131 non-attainment cities covered under the NCAP have reduced their PM10 levels in 2021 when compared with the 2017 levels.
- The NCAP was **launched in 2019** as the first-ever national framework for air quality management with time-bound reduction target. It aims to bring down the concentration of **PM10 and PM2.5** across India with 2017 as the base year for the comparison of concentration of the pollutants.

Swachh Vayu Sarvekshan

- MoEFCC will rank **131 cities** on the efforts to reduce air pollution (and not on the measurement of air quality parameters)
- Previously, City Action plans were prepared as part of **NCAP (national clean air programme, 2019)** for reducing air pollution up to **40% by 2025-26.**
- The Sarvekshan will pick up **three best performing cities** from each category (population more than 10 lakh, between 3-10 lakh and less than 3 lakh) and will be given cash awards.
- NCAP aims to **reduce Particulate Matter (PM2.5 and PM10)** concentration **by 20%** by 2024, with **2017** as the base year for comparison.

Government steps for defence manufacturing exports

- **FDI limit raised to 74%**
- **Defence corridors established in UP and TN**
- **Innovation for Defence Excellence (iDEX) initiative etc.**
- **Mission Raksha Gyan Shakti:** It will boost Intellectual Property culture in defence.
- **Defence Acquisition Procedure (DAP) 2020:** To promote Make in India and AtmaNirbharta in Defence.
- **Agreements:**g. India signed an agreement with the Philippines for the supply of an anti-ship variant of **BrahMos Supersonic cruise missile**.
- **Indigenization:** Indigenous Advanced Light Helicopter Mk-III's squadron commissioned recently, aircraft carrier INS Vikrant, new generation nuclear-capable ballistic missile 'Agni P'.

Use of technology in Agriculture

- **Seed quality enhancing**: **High-yielding varieties and genetically engineered seeds** (BT Cotton) lead to efficient use of pesticides, water, etc and can increase yields.

- **Efficiency in farm inputs**:

    o **Water**: drip irrigation technology, use of sensors for moisture control, sprinklers for irrigation.

    o **Fertilizers and pesticides**: fertilizer sensors, drones for spraying pesticides

    o **Efficient input data**: Kisan suvidha portal, M-Kisan

    o **Electricity:** Solar-powered water pumps.

    o **Labour:** Mechanization of harvest led to improved labour productivity.

- **Harvest management**:

    o **PUSA Biodecomposer-** for dealing with stubble/crop residue

    o **Agricultural waste is used as input for bioethical production**.

DART

- In the first-of-its-kind, save-the-world experiment, NASA's **Double Asteroid Redirection Test (DART) spacecraft will crash into a** small moonlet called **Dimorphos.**
- The impact of the collision should be just enough to nudge the asteroid into a slightly tighter orbit around its companion space rock — demonstrating that if a killer asteroid ever heads our way, we'd stand a fighting chance of diverting it.

Madhav National Park (MNP)

60 years after they were last seen, tigers are being reintroduced to Madhya Pradesh's Madhav National Park.

About MNP:

- **Location:** Shivpuri District, Madhya Pradesh.
- It was the **hunting ground** of Mughal emperors and Maharaja of Gwalior.
- **Ecosystem:** It has a diverse ecosystem consisting of lakes (**Sakhya Sagar and Madhav Sagar**), dry deciduous & dry thorn forests.
- **Tiger Corridor:**It is part of the **Ranthambhore-Kuno-Madhav** (Madhya Pradesh and Rajasthan) Tiger Corridor of Central India & Eastern Ghats landscape.
- Home to **Particularly Vulnerable Tribal Groups** (PVTG)s like Saharia

Khosta-2

Khosta-2 **variant of coronavirus** found in Russian bats in **Sochi National Park**. The zoonotic virus is capable of infecting humans. This is unlike the Khosta-1, which is also found in Russian bats but cannot easily spread to humans. Sochi National Park is UNESCO world heritage site in Russia. Established in 1983, it is the oldest national park in Russia.

AVGAS 100 LL

- **Indigenously developed** special aviation fuel AVGAS 100 LL was launched by the Indian Government.
- AVGAS 100 LL was indigenously developed by the **Indian Oil Corporation** for the piston engine aircrafts and unmanned aerial vehicles.
- This indigenously developed fuel is a blue aviation gasoline with a **high octane number**, which measures the fuel's ability to resist compression without bursting.
- The IOC's newly developed aviation fuel would provide for the requirements of India's aviation industry, which is witnessing an increased footfall in airports, increased number of aircraft and Flying Training Organizations (FTOs) for pilot training.
- It will be produced in Indian Oil's refinery in **Vadodara, Gujarat**.

What is LiFE?

- LiFE (Lifestyle for the Environment) was launched on June 5, 2022 on the occasion of World Environment Day to harness the power of individual and collective action to address the global climate crisis.
- It was introduced by Prime Minister Narendra Modi at the COP26 in Glasgow, Scotland.
- This concept advocates for a mindful and deliberate utilization of resources as opposed to "mindful and wasteful consumption".

- It aims to create a global movement towards the adoption of simple and specific climate-friendly behaviours in daily life.
- The LiFE seeks to make such daily actions an integral part of collective social norms and promote sustainable development of the overall global community. It will deploy behavioural techniques like nudges, social and behaviour change communication to achieve its goals.

IMEI number

- The Department of Telecommunications (DoT) has made it mandatory for mobile phone manufacturers to register the **International Mobile Equipment Identity (IMEI)** – the 15-digit numbers that uniquely identify each mobile device – of all handsets made in India with the government.
- The IMEI is a **unique number that is used to identify a device on a mobile network**. It has **15 digits and is like a phone's unique identity**. The number is used to verify the identity of a device when a user uses the Internet or places a call through it.
- **Phones with a dual-SIM option have two IMEI numbers**, one for each SIM. The IMEI number can help network providers track down a device in case it gets stolen or is lost. Once such loss or theft is reported, the carriers can deny the device access to the cellular network even with a new SIM card.

Nobel Prize for Physiology or Medicine 2022

- Swedish scientist **Svante Pääbo** has been awarded the Nobel Prize for Physiology for the year 2022 "for his discoveries concerning the **genomes of extinct hominins and human evolution**.
- **Svante Pääbo** found that gene transfer had occurred from these now extinct hominins to Homo sapiens. This ancient flow of genes to present-day humans has physiological relevance today, for example affecting how our immune system reacts to infections.

Achievements:

- **Paleogenomics**: Through his groundbreaking research, Svante Pääbo established an entirely new scientific discipline, paleogenomics.
- **Sequencing** the genome of the **Neanderthal**, an extinct relative of present-day humans
- New powerful methods for sequence analysis indicate that **archaic hominins** may also have mixed with Homo sapiens in Africa.

Significance of his discovery:

- Will help better understand human evolution and migration.
- How archaic genes influence present-day humans: eg. Denisovan version of the gene **EPAS1** confers an advantage for survival at high altitudes and is common among present-

day Tibetans. Neanderthal genes that affect our immune response to different types of infections.

Nobel Prize in physics 2022

- The **Nobel Prize in physic**s for 2022 is being awarded to **Alain Aspect, John F. Clauser and Anton Zeilinger** for their work on **quantum mechanics**
- **Awarded for**: Experiments with entangled photons, establishing the violation of Bell inequalities, and pioneering quantum information science.
- **Conducted groundbreaking experiments:** using entangled quantum states, where two particles behave like a single unit even when they are separated.

Importance:

- **Development of experimental tools**: laid the foundation for a new era of quantum technology.
- **Being able to manipulate and manage quantum states and all their layers of properties:** It gives us access to tools with unexpected potential.

Nobel Prize in Chemistry

- **Carolyn Bertozzi (USA), Morten Meldal (Denmark), and Barry Sharpless (USA),** won the 2022 Nobel Prize in Chemistry for the development of **click chemistry and bioorthogonal chemistry**.
- While Barry Sharpless and Morten Meldal laid the foundation for a functional form of chemistry click chemistry in which molecular building blocks snap together quickly and efficiently. Carolyn Bertozzi took it to a new dimension and started utilising it in living organisms.
- These reactions are now used globally to explore cells and track biological processes. Using bioorthogonal reactions, researchers have improved the targeting of cancer pharmaceuticals, which are now being tested in clinical trials.
- Click chemistry and bioorthogonal reactions have taken chemistry into the era of functionalism. This is bringing the greatest benefit to humankind.

Prachand

- The Indian Air Force (IAF) today inducted the first fleet of indigenously-built Light Combat Helicopters (LCH), which have been developed primarily for mountain warfare.
- The **HAL Prachand**(meaning *"Fierce"*) is an Indian multi-role, light attack helicopter designed and manufactured by the Hindustan Aeronautics Limited (HAL) under project LCH
- Its flight ceiling(maximum density altitude) is the highest among all attack helicopters in the world.
- The LCH drew extensively on an earlier indigenous helicopter developed and manufactured by HAL, the **ALH Dhruv**

SASTRA Ramanujan Prize 2022

- The **SASTRA Ramanujan Prize for 2022** will be awarded to **Yunqing Tang, Assistant Professor** with the University of California, Berkeley, U.S.A.
- The award, instituted by the **Shanmugha Arts, Science, Technology & Research Academy (SASTRA) in 2005** with a cash prize of $**10,000.**
- It is presented annually to individuals aged **32 and below,** who made outstanding contributions in the field of **mathematics**, influenced by **Srinivasa Ramanjuan**.

Economics

Asian Palm Oil Alliance

Formed by edible oil industry associations of **5 major palm oil importing countries – India, Pakistan, Sri Lanka, Bangladesh and Nepal,** with the aim to gain **collective bargaining power** and change the negative image of palm oil for various purposes.

About Palm Oil

- It is edible vegetable oil produced from the palm fruit of **Elaeis Guineensis/Oliefera.**
- It is rich in **A and E** and has no trans fatty acids.
- Asia accounts for **40% of global palm oil** demand (India is the largest importer (world's 15%))
- **In India**: Palm oil cultivation is mainly concentrated in Andhra Pradesh and Telangana

Water Trading

- Niti Aayog will bring out a policy for trading in Water on commodity exchange in India, similar to Gold, Silver and Oil. It aims to ensure better price discovery of water, efficient use and more investment into water resources.
- **Water trading** is the process of buying and selling water access entitlements, also often called water rights. **Water trade allows water** holders to decide whether they need to buy or sell water at a particular time.
- **1ˢᵗ tradable water price** futures index was launched on the **Chicago stock exchange in 2020.**
- **It is in practice in Australia, Chile, USA Etc.**

Nutri-garden

- Nutri-garden is an advanced form of kitchen garden in which fruits and vegetables are grown as a source of food and income.
- In order to provide the right kind of nourishment, **Poshan Vatikas or Nutri-gardens** are being set under POSHAN Abhiyaan. It will provide easy and affordable access to locally produced fruits, vegetables, medicinal plants and herbs to women and children.

Benefits:

- **Enhance dietary diversity** by providing key micronutrients through local fruits and vegetables.
- It will **reduce external dependency** and make communities **Atmanirbhar**for their nutritional security.

Global Innovation Index 2022

- **India rose to 40th among 132 countries** in the Global Innovation Index 2022, jumping six places from a year ago, according to the rankings released by the **World Intellectual Property Organisation (WIPO).**
- **Reasons**: Improvement in information and communication technologies (ICT) services exports, venture capital recipients' value as well as finance for start-ups.
- **Switzerland, the US, Sweden, the UK and the Netherlands** are the world's most innovative economies, with China on the threshold of the top 10.