



**EXCEL**  
CIVILS ACADEMY

EMPOWERING FUTURE LEADERS

# EXCEL QUEST

VOLUME - 34, OCTOBER 2022



**Mangalyaan mission over: After eight years in Martian orbit, Mars orbiter bids adieu**



**AICTE- Adobe Partnership on Digital Skilling**



**Draft Indian Ports Bill, 2022**



**African cheetahs at Kuno National Park kill cheetal, make history**



**Dedication of Hooghly Cochin Shipyard Limited (HCSL) to the Nation**



**All you need to know about 'Human Organ Transportation Drone'**



**'Xylitol': New sugar substitute**



**SC to hear PIL for new rules on stubble burning**

A Monthly Magazine from

**EXCEL CIVILS ACADEMY**

NTR Bhavan, Rd. No. 2, Banjara Hills, Hyderabad.

Contact: 91004 33442, 91004 33445

[www.excelacademy.com](http://www.excelacademy.com)

## Director's Message

Dear Aspirants,

The Central Bank of a country cannot pursue all three policies namely independent monetary policy, maintain a fixed exchange rate and allow the free flow of capital across its borders at the same time. This phenomenon commonly referred to as the “Trilemma” or the “Impossible trinity” proposes that maintaining all these three parameters simultaneously would be a herculean task. With the economies allowing borderless flow of funds, the only practical approach is to maintain a balance between currency exchange rate and monetary policy. This phenomenon has recently come under focus due to the hike in the interest rates by the U.S. Federal Reserve.

With the lockdowns induced by the COVID-19 pandemic, there were disruptions in the supply chains across the world. The consumer demand was high and since supply side struggled, the prices of essential commodities increased. The Russia-Ukraine war further compounded the problems of the supply chain disruptions. Russia being a major exporter of oil and food could not export its products due to the sanctions imposed by the West. Consumers all over the world are paying higher prices for basic needs like food and oil. Major economies across the world are struggling with rising inflation. The US Central bank has increased the interest rates to control the free flow of money in the market thereby cooling off the demand and controlling inflation.

In a world where capital is predominantly free to flow across borders, this increase in interest rates by the U.S. Central Bank led to Foreign Institutional Investors (FIIs) and Foreign Portfolio Investors (FPIs) pulling out money from emerging and risky markets like India and investing in safer US markets. This is exerting pressure on Indian Rupee and though the RBI has spent Dollars from its war chest to shore up the Rupee value, it depreciated by about 9% this year as the US Dollar appreciated against all major currencies in the world.

Finance Minister Nirmala Sitharaman speaking to reporters after attending the annual meetings of the International Monetary Fund (IMF) and the World Bank opined that it is not Rupee sliding but Dollar strengthening incessantly. She stated that the RBI is not intervening to fix the value of the Rupee but only checking its volatility. This comment has drawn severe criticism from opposition parties but the experts argue that the point stated by the Minister is true. Flight of money from emerging markets to the US has exerted pressure not only on Indian Rupee but also on developed market currencies like Euro and Japanese Yen. The major currencies across the world have registered double-digit depreciation against the USD. Experts also argue that RBI should only check sharp fluctuations in the exchange rate

and focus more on supporting exports. A weaker rupee is attractive for the foreign buyers and will incentivise them to buy more. It will also help bring in buyers who are scouting for an alternative to minimise their China exposure. India can become the next best alternative to match China in terms of scale and pricing.

The IMF has praised the efforts and prowess of Indian administration in tackling a once in a lifetime sort of crisis. Apart from boosting exports, the Indian government has devised plans to reduce imports by incentivising Make in India products, boosting manufacturing by Production Linked Incentive (PLI) schemes and setting up semi-conductor manufacturing units. It has also increased the remittance limit for Indian repatriates to USD 250000 per annum under the Liberalised Remittance Scheme. The Make in India initiative with respect to the Defence equipment would also help in reducing the import bill. The uncertainty and volatility in the global markets due to the pandemic and the Russia-Ukraine war would lead to fluctuations in the exchange rate but the strong demand and robust forex reserves would help the RBI tide over these uncertain times.

**Best wishes,**

Yours sincerely,



K. Rajendra Kumar IPS (Retd)

## TABLE OF CONTENT

<b>1. NATIONAL</b> .....	<b>1-16</b>
1.1 Promotion of Indian languages	
1.2 The Mediation Bill, 2021	
1.3 The Criterion for SC status	
1.4 Parliamentary Committees, their leaders and their role in law-making	
1.5 Strengthening the CSR framework	
1.6 Tamil Nadu government launches breakfast scheme	
1.7 Mental health at work	
1.8 Oil prices rises as OPEC+ agree to deep cuts, U.S. stockpiles fall	
1.9 Graded Response Action Plan (GRAP)	
1.10 Ethical values from the life of Lal Bahadur Shastri	
1.11 Preventive Detention (PD)	
1.12 Ways to finance poll promises	
1.13 Laws regarding Moonlighting	
1.14 Over 69% houses constructed under PMAY in rural India are owned by women	
1.15 Yuva 2.0-PM's scheme	
1.16 India abstains on UNSC resolution	
1.17 DFS modifies Emergency Credit Line Guarantee Scheme	
1.18 Impossible Trinity	
1.19 Free Trade Agreement (FTA)	
1.20 World Bank says 70 million plunged into poverty in 2020	
1.21 Purchase Managers' Index	
1.22 E-Rupee pilots	
1.23 Stubble burning	
1.24 Sugar industry	

- 1.25 Agri-Credit societies to be set up in all panchayats
- 1.26 Report on sustainable finance submitted to IFSCA
- 1.27 Mangalyaan mission over
- 1.28 The Draft Telecommunication Bill, 2022
- 1.29 AFSPA extended in Nagaland, Arunachal Pradesh
- 1.30 International day for older persons

## 2. INTERNATIONAL RELATIONS .....17-38

- 2.1 Promote common security through dialogue and cooperation: UNSC
- 2.2 Kyrgyzstan-Tajikistan Conflict
- 2.3 Quad grouping
- 2.4 Group of Four (G-4) countries
- 2.5 Time to reform UNSC
- 2.6 Sapta Kosi high dam project
- 2.7 OPEC+ cuts oil production
- 2.8 Science and Tech-driven diplomacy
- 2.9 India to host G20 summit in 2023
- 2.10 Eastern Economic Forum

## 3. INDIAN ECONOMY.....39-47

- 3.1 Public Systems Lab (PSL)
- 3.2 Centre walking towards modernizing foodgrain storage infrastructure in the country
- 3.3 Dedication of Hooghly Cochin Shipyard Limited (HCSL) to the nation
- 3.4 Cabinet approves enhancement in the corpus of Emergency Credit Line Guarantee Scheme for increasing the limit of admissible guarantees
- 3.5 'NAMASTE' (National Action for Mechanized Sanitation Ecosystem)
- 3.6 Draft Indian Ports Bill, 2022

**3.7** Sovereign Gold Bond Scheme

**3.8** Grameen Udyami Project launched in Ranchi to promote skill development and entrepreneurship amongst the tribal youth, gives boost to Skill India Mission

**3.9** ADB, India sign \$96.3 million loan to improve water supply and sanitation services

**4. ENVIRONMENT.....50-64**

**4.1** Cheetah reintroduction

**4.2** Climate change and Indian monsoon

**4.3** La Nina and its impact on India

**4.4** Stubble Burning and Associated Threats

**4.5** International year of millets

**4.6** Hydrogen fuel

**4.7** Battery Waste Management Rules 2022

**4.8** Loktak lake

**4.9** Nano plastics

**5. SCIENCE & TECHNOLOGY.....65-81**

**5.1** Xylitol: New sugar substitute

**5.2** Germany: Fleet of hydrogen-powered passenger trains

**5.3** Pharma Sahi Daam 2.0 App

**5.4** India's first indigenously developed qHPV against cervical cancer

**5.5** CAPF e-Awas portal

**5.6** AICTE- Adobe partnership on Digital Skilling

**5.7** India's first intra-nasal Corona vaccine

**5.8** James Webb telescope captures 'Super-Jupiter'

**5.9** ISRO tests Inflatable Aerodynamic Decelerator

**5.10** NASA – Eyes on the Solar System Tool

**5.11** UGC 'e-Samadhan' portal

**5.12** Synergy: CERT-in cyber security Exercise

**5.13** Sova virus in India

**5.14** Hughes-ISRO satellite internet service

**5.15** MeitY Startup Hub and Meta launch XR startup program

**5.16** What is 'Human Organ Transportation Drone'?

**5.17** India- UK conduct Counter Ransomware exercise

## 1. NATIONAL

### 1.1 Promotion of Indian languages

The Ministry of Education constituted a high-powered committee, the Bharatiya Bhasha Samiti for the promotion of Indian languages.

#### **Objective of the committee:**

- Preparing an action plan for the growth of Indian languages as prescribed under the National Education Policy (NEP) 2020.

#### **Key focus areas for promoting Indian languages:**

- **Bilingual:** Prepare teachers to be bilingual.
- **Qualification:** Incorporating languages as a qualification.

#### **Importance of language development:**

- Improving the medium of communication.
- Developing contemporary literature or content
- Generation of new words is a continuous process.
- Adopting to Technology as 2,000 to 3,000 languages that didn't adapt to print technology disappeared.
- Developing Teaching and learning material.
- Accessing Patronage: which can be from corporates, society and governments.

#### **How will it create Job opportunities?**

- Only 10.4 % of Indian population knows English. Multinationals as well as corporates and governments need to communicate in local languages in order to increase their reach. Thus creating opportunities for interpreters Translators.
- Technology tools such as apps are now being developed in local languages which will open more avenues for employment.

### 1.2 The Mediation Bill, 2021

The Mediation Bill, 2021 was introduced in the Rajya Sabha with the Parliamentary Standing Committee being tasked with a review of the Bill.

#### **Parliamentary Committee recommendations on the bill:**

- Institutionalizing mediation
- Establishing the Mediation Council of India.

#### **Laws containing mediation provisions:**

- Code of Civil Procedure, 1908
- Arbitration and Conciliation Act, 1996
- Companies Act, 2013



- Commercial Courts Act, 2015
- Consumer Protection Act, 2019

**Need for Mediation:**

- **Mediation and Conciliation Project Committee of the Supreme Court of India:** It describes mediation as a tried and tested alternative for conflict resolution.
- **India is a signatory to the Singapore Convention on Mediation:** It is appropriate to enact a law governing domestic and international mediation.
- **Lowering the burden of the judiciary:** over 3 crore cases are pending in regular courts

**Aim of the bill:**

- To promote, encourage, and facilitate mediation, especially institutional mediation.
- To resolve disputes, commercial and otherwise.

**Key features of the Bill:**

- Mandatory mediation before litigation.
- **Rights of litigants:** It safeguards the rights of litigants to approach competent adjudicatory forums/courts for urgent relief.
- **Mediation Settlement Agreement (MSA):** It will be legally enforceable and can be registered with the State/district/taluk legal authorities within 90 days.
- **Mediation council of India:** The Bill establishes the Mediation Council of India and also provides for community mediation.

**1.3 The Criterion for SC status**

The government has set up a 3 member commission headed by former CJI K.G Balakrishnan to study the possibility of according SC status to Dalits who have converted to religions other than Buddhism and Sikhism.

**The law in the present form:**

- The Constitution (Scheduled Castes) Order 1950 provides that only those belonging to Hindu, Sikh and Buddhist communities can be categorised as SCs. Originally it was limited to only Hindus. However subsequent amendments in 1956 and 1990 included Sikhs and Buddhists respectively.

**Government's stand:**

- **Union government:** In 2019 rejected the possibility of including Dalit Christians as members of SCs.
- **Imperial Order of 1936:** Classified a list of the Depressed Classes and specifically excluded "Indian Christians" from it.

---

**Why are Dalit Christians excluded?**

- **The practice of untouchability:** It was a feature of the Hindu religion and its branches, not Islam or Christianity.
- The Registrar General of India had cautioned the government that SC status is meant for communities suffering from social disabilities arising out of the practice of untouchability.

**Case for inclusion:**

- 1) Several Independent Commission reports have documented the existence of caste and caste based inequalities among Indian Christians and Indian Muslims.
- 2) Even in Sikhism and Buddhism, caste system is not present and yet Dalits who have converted in to these religions have been included under SCs.

**1.4 Parliamentary Committees, their leaders and their role in law-making**

**Context:** Recently, 22 Standing Committees were reorganised. Parliamentary Standing Committees are permanent committees constituted every year and work continuously as against non-permanent Ad-hoc committees.

**The necessity of Parliamentary Standing Committees (PSC):**

- **For upholding government accountability:** Increased volume of work, time constraints, disruptive changes, and complexity of work make Parliament not very effective in upholding the accountability of the executive. PSC through detailed scrutiny increases the Parliament's ability to scrutinise government policies and help in the informed debate in the Legislature. E.g. Personal Data Protection bill was sent to the Joint Parliamentary Committee for detailed review.
- **For upholding fiscal prudence:** PSC examines budgetary allocations for various departments and other policies of the government. It ensures fiscal economy and efficiency in public expenditure. Parliamentary Standing Committee on Defence last year pointed out that over 35% lower allocation on defence may impair the Armed forces' weapon acquisition plans.
- **For free and non-partisan debate:** PSC provides the platform for 'closed door' meetings and members are not bound by party whips, thus allowing them the latitude for a more meaningful exchange of views.
- **For protecting citizens' rights:** The Parliamentary Standing Committee on Information Technology grilled two Twitter India representatives this year (2021) over concerns about safeguarding people's rights on the social media platform.
- **For all-around engagement with relevant stakeholders:** On the subject of demonetization, the RBI governor was summoned by the Finance Committee. On net Neutrality and Surrogacy bill, the Standing committee conducted a widespread discussion with several stakeholders.
- **For acting as the link between Parliament and the People and between Administration and them**  
**Parliament:** PSC seeks public feedback to make laws more holistic and farsighted.

- **PSC acts as Mini-Parliament:** The members represent smaller units of MPs from both Houses, and across political parties. They are not bound by populist demand, remain informal and work away from public and media glare. Thus they are better suited for providing holistic and non-biased advice and scrutiny of the bills.

### **1.5 Strengthening the CSR framework**

Since the establishment of the CSR regime in India under Section 135 of the Companies Act 2013, CSR spending in India has risen from ₹10,065 crores in 2014-15 to ₹24,865 crores in 2020-21.

#### **Issues with CSR data for companies:**

- There is no data to verify whether the increase is commensurate with the increase in profits of Indian and foreign (having a registered arm in India) companies.
- **Zero spending:** There were 2,926 companies in 2020-21 with zero spending on CSR.
- **Prescribed limit:** Companies spending less than the prescribed limit of 2% rose from 3,078 in 2015-16 to 3,290 in 2020-21.
- **Participation:** There was also a decline in the number of companies participating in CSR.
- Private companies have registered their own foundations/trusts to which they transfer the statutory CSR budgets for utilization. It is unclear if this is allowed under the Companies Act/CSR rules.

#### **Other issues:**

- **Ashoka University's Center for Social Impact and Philanthropy:** It says that 54% of CSR companies are concentrated in Maharashtra, Tamil Nadu, Karnataka and Gujarat (receiving the largest CSR spending)
- The populous Uttar Pradesh and Madhya Pradesh receive little.
- Only 9% was spent on the environment compared to education (37%) and health and sanitation (29%).
- The Standing Committee on Finance observed that the information regarding CSR spending by companies is insufficient and difficult to access.

### **1.6 Tamil Nadu government launches breakfast scheme**

Tamil Nadu government recently launched the breakfast scheme catering to 1,14,095 primary school students from 1,545 government schools.

**Aim:** To help students attend school hunger-free and improve their nutritional status.

#### **Status of India on nutrition and education:**

- **Global Food Security Index 2021:** India is ranked 71 out of 113 countries
- **Global Hunger Index 2021:** 101 out of 116 countries
- **Human Development Index 2021:** 132 out of 191 countries
- **Schooling:** India's mean years of schooling stood at just 6.7 years in 2020-21.
- **Inequality in education:** India has among the highest levels of inequality in education

### 1.7 Mental health at work

**Context:** WHO and the International Labour Organization (ILO) have called for concrete actions to address mental health concerns in the working population.

**Status:**

- Over 12bn workdays are lost annually (costing about \$1 trillion) due to depression and anxiety
- WHO's World Mental Health Report 2022 showed that of one billion people living with a mental disorder in 2019, 15% of working-age adults experienced a mental disorder.
- WHO Mental Health Atlas found that only 35% of countries reported having national programmes for work-related mental health promotion and prevention.
- COVID-19 triggered a 25% increase in general anxiety and depression worldwide.

**Impact of work on mental health:**

- Work amplifies wider societal issues that negatively affect mental health, including discrimination and inequality.
- Work and Mental Health are closely intertwined as good mental health enables people to work productively and a good work environment induces good mental health.
- Bullying and psychological violence (also known as “mobbing”) is a key complaint of workplace harassment that has a negative impact on mental health.

### 1.8 Oil prices rises as OPEC+ agree to deep cuts, U.S. stockpiles fall

**Context:** OPEC+ agreed to its deepest cuts to production since the 2020 COVID pandemic, despite a tight market and opposition to cuts from the United States and others.

**Reasons for the production cut:**

- Fear of Recession: The 2 million-barrel-per-day (BPD) cut from OPEC+ could spur a recovery in oil prices that have dropped to about \$90 from \$120 three months ago.
- Rising US interest rates mean that there is less investment available
- Stronger Dollar means that there is less return for petroleum-producing countries.

**Impact:**

- It would become costlier for petroleum-dependent countries including India.
- Fear of rising inflation
- BOP crisis may escalate for import-dependent countries with low foreign exchanges e.g. Sri Lanka  
However, the real impact of a large cut would be smaller, given that some of the members are failing to reach their output quotas.

**Opposition to the move:**

- The US will have the midterm congressional election and Joe Biden wanted US gasoline prices to be low.

- Import-dependent developing and developed countries want the prices to be low to sustain economic recovery

#### **About OPEC:**

- The Organization of the Petroleum Exporting Countries (OPEC) is a permanent, intergovernmental organization, created at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela and headquartered in Vienna, Austria.
- **Mandate:** To manage the supply of oil, set the price of oil in the world market, and avoid fluctuations that might affect the economies of both producing and purchasing countries.
- Its membership is open to any country that is a substantial exporter of oil and which shares the ideals of the organization.

#### **1.9 Graded Response Action Plan (GRAP)**

- Commission for Air Quality Management (CAQM) has recently said that GRAP will be enforced in Delhi NCR with immediate effect to combat deteriorating Air Quality Index (AQI) in the region.

**GRAP:** A graded Response Action Plan is a set of emergency measures that kick in to prevent further deterioration of air quality once it reaches a certain threshold.

**Background:** It is based on a plan that was submitted by the Central Pollution Control Board (CPCB) in November 2016. The GRAP was first notified in January 2017 by the Ministry of Environment, Forest and Climate Change.

#### **1.10 Ethical values from the life of Lal Bahadur Shastri**

Lal Bahadur Shastri's birth anniversary being observed on 2nd October. Shastri's leadership was laden with values and ethics.

#### **Ethical lessons from Shastri Ji's life:**

- **Against societal prejudice and discrimination:** Shastri was born Lal Bahadur Shrivastava - being against the prevailing caste system, he decided to drop his surname. The title 'Shastri' refers to a 'scholar' or a person, adept in the Holy Scriptures. During the adverse situations too, he came forward, made himself accountable and showed the signs of a true leader- one who leads from the front.
- **Accountability:** He served as the railway minister in Jawaharlal Nehru's Cabinet and was so conscientious that he resigned following a train accident at Ariyalur in Tamil Nadu in 1956. His gesture was hailed by all including Nehru, whom he considered his "hero".
- **Practice before preaching:** In 1965, India was embroiled in a war with Pakistan and the country was facing an acute food shortage. He asked his family to give up a meal a day. It is only after he was sure that his own family could survive this he announced on All India Radio urging the public to sacrifice one meal at least once a week.

- **Moral public and private life:** Shastriji had a Chevrolet Impala car for official use, which his son once used for a drive. When Shastri learned about it, he asked his driver to check the distance the car was used for and later deposited the money in the government account.
- **Believed in “Sheelam Param Bhushanam”:** In his maiden Independence Day speech, he had emphasized character and moral strength – not only for personal growth but for the development of the nation.

### **1.11 Preventive Detention (PD)**

**Context:** SC has ruled that “Preventive Detention” is a serious invasion of personal liberty, and therefore whatever little safeguards the Constitution and the law authorizing such action provide must be strictly adhered to.

- Over a lakh people were kept under preventive detention in 2021.

#### **Background:**

- **SC (Ashok Kumar Vs Delhi Administration, 1982):** Preventive detention is devised to afford protection to society. The objective is not to punish a man for having done something but to intercept before he does it and to prevent him from doing it.
- **SC (Ram Manohar Lohia Case):** Only the most severe of the acts should justify preventive detention

#### **What is Preventive Detention?**

- Preventive detention is the detention of a person on a mere reasonable apprehension of him doing an activity dangerous to public order and security.
- Here, the person is confined in custody without undergoing a trial. Section 149-153 of CrPC as well as the NDPS Act, and UAPA Act deals with the Preventive actions of the Police. Constitution under articles 22 (1) and (2) gives protection from preventive detention, but these protections are not available to a person arrested or detained under preventive detention laws (Article 22(3)).
- SC had said that there must be a “live and proximate link” between the grounds of detention and the purpose of detention, in order to detain and keep the person in detention.

### **1.12 Ways to finance 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 the quantification of the physical coverage of the schemes promised, the financial implications of the promise and the availability of the financial resources. 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 and its impact on the fiscal sustainability of the State or the Union Government.

- EC plans to propose an amendment to the relevant clauses in the Model Code of Conduct.

### **1.13 Laws regarding Moonlighting**

Moonlighting refers to a state where employees work for remuneration with entities other than their employer. While some companies such as Wipro have opposed moonlighting, by firing 300 employees who were involved with rival firms, other companies like Swiggy have a moonlighting policy which allows employees to take up other work without compromising the company's interest.

#### **What does the law say about moonlighting?**

- The Factories Act of 1948 places a restriction on the double employment of workers.
- However, this is limited only to 'Factories' and is not applicable to 'Companies' which are regulated by the Companies Act 2013.
- The Supreme Court in Glaxo Laboratories Limited vs Labour Court, Meerut held that the employer is not empowered to regulate the behaviour of workers outside duty hours. • Since moonlighting is not defined under any statute, it is subject to the court's interpretation and the law of the land.

### **1.14 Over 69% houses constructed under PMAY in rural India are owned by Women**

Over 69% of houses constructed under the PM's special housing scheme are either wholly or jointly owned by women in rural areas.

#### **Objective of Pradhan Mantri Awaas Yojana Gramin (PMAY-G):**

- To provide pucca houses to all who are houseless and living in dilapidated houses in rural areas by 2022.
- **Target:** Construction of 2.95 crore houses with all basic amenities by the year 2022.
- **Cost sharing:** The cost of unit assistance in this scheme is shared between Central and State Governments in the ratio of 60:40 in plain areas and 90: 10 for North Eastern and the Himalayan States.
- Selection of beneficiaries is based on housing deprivation parameters of Socio-Economic and Caste Census (SECC), 2011, subject to 13-point exclusion criteria, followed by Gram Sabha verification.
- The beneficiary is entitled to 90 days of unskilled labour from MGNREGA.
- The beneficiary would be facilitated to avail loan of up to Rs.70,000/- for the construction of the house which is optional

### **1.15 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 project.
- **Theme:** 'Democracy (institutions, events, people, constitutional values – past, present, future)' in an innovative and creative manner.

**Importance:**

- **Develop a stream of writers:** People who can write on a spectrum of subjects to promote Indian heritage, culture and knowledge system.
- **Window to the aspiring youth:** To articulate themselves and present a comprehensive outlook of Indian Democratic values on domestic as well as international platforms.
- **Implementation:** By the National Book Trust, India, under the Ministry of Education.

**1.16 India abstains on UNSC resolution**

India abstained from a draft resolution at the United Nations Security Council (UNSC) condemning referenda organized by Russia across four regions of Ukraine- Kherson, Zaporizhzhia, Luhansk, and Donetsk. UNSC resolutions are the formal expressions of the opinion or will of United Nations organs.

**1.17 DFS modifies Emergency Credit Line Guarantee Scheme**

The Department of Financial Services (DFS) (under the finance ministry) has modified the Emergency Credit Line Guarantee Scheme (ECLGS) for the aviation sector, to help the sector tide over cash-flow problems.

**Modified ECLGS:** Raising the scheme's cheaper loan limit to ₹1,500 crores from ₹400 crore, wherein the airline would be eligible for 100% of its fund based or non-fund-based loan outstanding of ₹1,500 crores.

- It was earlier extended beyond March 2022 to March 2023.
- **Recent issues with the aviation sector:** High fuel cost, need for funds to sustain heavy costs and pay pending dues.

**About ECLGS:**

- ECLGS was launched in May 2020 as part of the Centre's Aatmanirbhar package in response to the Covid-19 crisis.
- It is aimed at giving the necessary collateral-free liquidity loans at reasonable interest rates (and a 4-year timeline for reimbursement) to support small businesses struggling and other sectors including aviation.
- 100% guarantee is provided by the National Credit Guarantee Trustee Company (NCGTC) to Member Lending Institutions (MLIs) - banks, financial institutions and Non-Banking Financial Companies (NBFCs).
- First-time borrowers and Non-Performing Asset (NPA) accounts cannot raise funds under the scheme.

**1.18 Impossible Trinity**

- The trilemma has come under focus recently as the U.S. Federal Reserve has been raising interest rates to fight rising prices. The impossible trinity, or the trilemma, refers to the idea that an economy cannot pursue independent monetary policy, maintain a fixed exchange rate, and allow the free flow of capital across its borders at the same time. According to economists, any economy can choose to pursue only



two out of the three policy options noted above simultaneously in the long run. The idea was proposed independently by Canadian economist Robert Mundell and British economist Marcus Fleming in the early 1960s.

- **On India:** The Reserve Bank of India may also face the dilemma of choosing between maintaining the value of the rupee and holding on to its monetary policy independence. As the U.S. Federal Reserve has raised interest rates, there has been increasing pressure on the rupee, which has depreciated almost 10% against the U.S. dollar this year.

### **1.19 Free Trade Agreement (FTA)**

**Source:** Trade officials from India and the United Kingdom will try to seal India-UK FTA soon, however, U.K. Prime Minister's new Home Secretary suggested that she would not back the deal if it involved increased immigration to the U.K. Previously, Theresa May (in 2016) had said that "Any increase in visas to Indians would have to co-relate to the "speed and volume of the return of Indians with no right to remain in the UK".

#### **What is an FTA?**

- FTA is a pact between two or more nations to reduce barriers to imports and exports among them.
- FTAs can be categorized as:
  - Preferential Trade Agreement (PTA)
  - Comprehensive Economic Cooperation Agreement (CECA)
  - Comprehensive Economic Partnership Agreement (CEPA)

#### **Immigration:**

It is the international movement of people to a destination country of which they are not natives or where they do not possess citizenship in order to settle as permanent residents or naturalized citizens.

### **1.20 World Bank says 70 million plunged into poverty in 2020**

- According to a recent report by World Bank "Poverty and Shared Prosperity 2022: Correcting Course", both poverty and inequality have gone up sharply.

#### **Highlights of the report:**

- **Reversal of poverty outcomes:** The report states that global poverty reduction has been slowing down since 2015 but the Covid pandemic and the war in Ukraine have completely reversed the outcomes. • The world is unlikely to meet the goal of ending extreme poverty by 2030.
- **Rise in Poverty level:** In 2020 alone, the number of people living below the extreme poverty line rose by over 70 million. Inequalities, too, have risen.

#### **Suggested Solutions:**

- **Fiscal Policy:** According to David Malpass, President of World Bank Group, "fiscal policy prudently used, does offer opportunities for policymakers in developing economies to step up the fight against poverty and inequality".

---

**The World Bank has three specific suggestions when it comes to fiscal policy.**

- 1) Choose targeted cash transfers instead of broad subsidies.
- 2) Prioritize public spending for long-term growth.
- 3) Mobilize tax revenues without hurting the poor.

**1.21 Purchase Managers' Index**

According to a recent S&P Global India Services Purchase Managers' Index (PMI), India's service sector growth eased to a six-month low in September led by reduced demand amid high inflation. Purchasing Manager's Index (PMI) is an economic indicator derived from the monthly survey of private sector companies. PMI aims in providing information regarding the current and future conditions of a business to the decision-makers, analysts and investors of the company.

**1.22 E-Rupee pilots**

- RBI will soon commence limited pilot launches of e-rupee, or central bank digital currency (CBDC), for specific use cases.

**What is the e-Rupee?**

- e-rupee is akin to sovereign paper currency but in digital form, exchangeable at par with the existing currency and will be accepted as a medium of payment, legal tender and a safe store of value.

**Features:**

- e-rupee appears as a liability on a central bank's balance sheet.
- e-rupee can be structured as 'token-based' or 'account-based'.
- A token-based CBDC: whosoever holds the tokens at a given point in time would be presumed to own them, similar to banknotes. The person receiving a token will verify that his ownership of the token is genuine. It is preferred for retail payments.
- An account-based system would require maintenance of the record of balances and transactions of all holders of the CBDC and indicate the ownership of the monetary balances, similar to Bitcoins. An account-based CBDC is one where an intermediary verifies the identity of an account holder. More preferred for wholesale payments.
- RBI has been opposing private cryptocurrencies, stating that they are a threat to India's macroeconomic situation and financial stability.
- **International acceptance:** As of July 2022, 105 countries were exploring CBDC. Ten countries have launched CBDC, the first of which was the Bahamian Sand Dollar in 2020 and the latest was Jamaica's JAM-DEX.
- **Benefits of CBDC:** Bring a cultural shift towards virtual currency by reducing currency handling costs, universal access, easier cross-border payments, and greater financial inclusion.
- **Challenges:** There are privacy concerns (RBI may hold data on the individual use of user transactions), the digital divide, low financial literacy, faster obsolescence of technology, etc.

### 1.23 Stubble burning

**Context:** Stubble generation (2022-23) is set to increase by over 1 mn tonnes and over 6 mt may be burned says the government review data.

#### **What is Stubble burning?**

Stubble burning is the practice of intentionally setting fire to the straw stubble that remains after grains, such as rice and wheat, have been harvested.

Why burn stubble?

- **Mechanized harvesting:** Combine harvesters used in India's green belt leave stubble in the field.
- Due to less time between the harvesting of the Kharif crop and the sowing of wheat, farmers often burn the stubble.

#### **Issues with stubble burning:**

- In addition to its effects on air quality, stubble burning also affects soil fertility (through the destruction of its nutrients), economic development and climate.
- It is a key contributor to the air pollution in Delhi-NCR.

### 1.24 Sugar industry

India has emerged as the world's largest producer and consumer of sugar as well as the world's 2nd largest exporter of sugar. Sugar season (Oct-Sep) 2021-22, has proven to be a watershed season for the Indian sugar sector and India recorded the highest export of over 109 lakh metric tonnes.

#### **Reasons behind high production:**

- High international prices of sugar
- Supportive Central and State government

#### **Policy:**

- Diversion of sugar to ethanol and exports led to the unlocking of the value chain of the whole industry as well as improved financial conditions of sugar mills leading to more mills in the ensuing season.

#### **About Sugar production:**

- The sugar industry is broadly divided into two major areas of production- Uttar Pradesh, Bihar, Haryana and Punjab in the north and Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.
- Due to the tropical climate in South India, it has higher sucrose content giving a higher yield per unit area as compared to north India.
- **Significance:** Labour-intensive sector has multiple by-products, important for biofuel.
- **Issues:** Low yield compared to other parts of the world, low sugar recovery rate, high production cost, and low and delayed remuneration for farmers. In order to regulate the sugar industry, C Rangarajan Committee (2012) recommended several reforms such as the abolition of the quantitative controls on the export and import of sugar.

### **1.25 Agri-Credit societies to be set up in all panchayats**

- The co-operation ministry is working on a plan to set up multi-purpose PACS in panchayats over the next five years in order to promote various cooperative activities at the grassroots level.
- **Primary Agricultural Credit Society (PACS):** It is a village-level institution that works directly with rural residents. It encourages agriculturists to save, accepts deposits from them, makes loans to deserving borrowers, and collects repayments.
- **PACS are the lowest unit in a three-tier structure:** The other two tiers — State Cooperative Banks (StCB) and District Central Cooperative Banks (DCCB) — have already been automated by the NABARD and brought on the Common Banking Software (CBS).
- There are only 65,000 active PACS in the country at present.
- PACS will carry out activities like the sale of gas and petrol and the storage and marketing of dairy

### **1.26 Report on sustainable finance submitted to IFSCA**

An expert committee headed by former environment and forest secretary C K Mishra has submitted a report on sustainable finance suggesting the development of a carbon market.

#### **Some of the recommendations:**

- Developing a voluntary carbon market
- Framework for transition bonds
- Enabling de-risking mechanisms
- Promoting regulatory sandbox for green fintech
- Facilitating the creation of a global climate alliance among others
- Setting up a dedicated MSME platform for sustainable lending
- Use of innovative instruments such as catastrophe bonds, municipal bonds, green securitisation, blended finance

#### **What is Sustainable Finance?**

- Sustainable finance or green finance is the set of financial regulations, standards, norms and products that pursue an environmental objective, and in particular to facilitate the energy transition.

### **1.27 Mangalyaan mission over**

- The ISRO confirmed that the Mars Orbiter craft has lost communication with ground stations and the Mangalyaan mission has attained end-of-life.

#### **Mangalyaan Mission (Mars Orbiter Mission (MOM):**

- The MOM mission is primarily a technological mission to study various aspects of Mars.

#### **Objectives:**

- Study of the Martian atmosphere

- Study of Martian Surface Features
- Morphology
- Mineralogy

**Scientific payloads used:**

- Mars Color Camera (MCC)
- Methane Sensor for Mars (MSM)
- Lyman Alpha Photometer (LAP)
- Thermal Infrared Imaging Spectrometer (TIS).

**1.28 The Draft Telecommunication Bill, 2022**

The Ministry of Communications released a draft of the Indian Telecommunication Bill, 2022 for public comments.

**The three main legislations that occupy this domain are:**

- Indian Telegraph Act, 1885
- Indian Wireless Telegraphy Act, 1933
- Telegraph Wires (Unlawful) Possession Act, 1950

**What is the draft Indian Telecommunication Bill, 2022?**

- **Update the extant regulatory framework:** The draft is to update the extant regulatory framework in keeping up with the advancements and challenges in the sector.
- **Repeal legislations:** It looks to repeal three legislations and “restructure the legal and regulatory framework” for the telecommunications sector.
- **Enabling the government to order suspension of internet power:** Currently, suspension of internet services is ordered under the Temporary Suspension of Telecom Services (Public Emergency and Public Safety) Rules, 2017.
- **Telecom Service Provider to exploit its spectrum resource fully:** By enabling sharing, trading, leasing, surrendering or returning unutilised spectrum.
- The Bill also simplifies the process for restructuring, merging or demerging.
- **Land owned by a public entity:** It mandates that land owned by a public entity should be available expeditiously unless there is an express ground of refusal.
- **Universal Service Obligation Fund:** It allows this fund to be utilized for other purposes such as urban areas connectivity, research etc.

**Over-the-top (OTT) communication services:** It refers to services that provide real time person-to-person telecommunication services. E.g., Messaging platforms like WhatsApp, Telegram, Signal, Messenger, Duo, Google Meet etc.

**How does the draft affect over-the-top communication services?**

- OTT telecommunication services may be subject to the same licensing conditions as TSPs: The current draft of the Bill expands the definition of “telecommunication services” to include OTT communication services.

**Consumer protection measures in the draft Bill:**

- The identity of the person communicating through telecommunication services shall be available to the user receiving such communication. The name of the person would also be displayed along with phone number.
- To ensure that a user provides correct details it penalizes providing wrong identification details with a ₹50,000 fine and suspending the operation of the specific mobile number or barring the person from using the telecom service for a certain duration.
- Consent of subscribers: Commercial communications which are advertising and promotional in nature should be made only with the prior consent of a subscriber.

**How does the draft Bill impact the position of the TRAI?**

- It reduces TRAI to recommendatory body from a regulatory body.
- **No recommendations for licenses:** The government would no longer be required to seek recommendations from the TRAI before issuing licenses.
- **No Requisition of information:** It removes the power of the TRAI to requisition from the government information or documents that are necessary to make such recommendations.
- **No Reconsideration:** Department of Telecommunications (DoT) will no longer be required to refer back to TRAI the recommendations for reconsideration.

**1.29 AFSPA extended in Nagaland, Arunachal Pradesh**

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.

Armed Forces Special Powers Act (AFSPA), 1958:

- **Sweeping powers to the armed forces:** It allows them to open fire, even causing death, against any person in contravention to the law or carrying arms and ammunition.
- **Power to arrest:** It gives them powers to arrest individuals without warrants, on the basis of “reasonable suspicion”, and search premises without warrants.
- **Disturbed” under Section 3:** It can be imposed by the Center or the Governor of a state, in the state or parts of it, after areas are declared “disturbed’.
- **Home ministry:** 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.

**1.30 International day for older persons**

- UN marks the International Day for Older Persons (October 1), as part of the organization's efforts to draw attention to healthy ageing. As per the UN Department of Economic and Social Affairs (UNDESA), "World Population Prospects 2022:
- **People over 65 years:** 16% of the world population by 2050 is expected to be made up of people over 65 years.
- **Most populous country:** The report projects India's population to be 1.7 billion by 2050, with expanding aged population.

## 2. INTERNATIONAL RELATIONS

### 2.1 Promote common security through dialogue and cooperation: UNSC

Recently, India's Permanent Representative to the UN addressed a United Nations Security Council (UNSC) meeting on the topic 'Promote Common Security Through Dialogue and Cooperation.

The UNSC meeting was convened at the behest of China, the president of the Security Council for August 2022 and a veto-wielding member of the 15-member Council.

#### **What are the Key Highlights of the Address?**

- All countries should respect each other's sovereignty and territorial integrity and respect international agreements.
- Common security was only possible when countries stand together on terrorism and do not practice double standards on the issue and when they do not take unilateral measures to back out of agreements.
- India called for multilateral reform, particularly at the Security Council, saying common security among nations could not be aspired for if the common good of the global south was denied representation.
- The most urgent thing is to make the Security Council more representative of developing countries so as to reflect current geopolitical realities, the African continent should also have permanent representation on the Council.
- An armed conflict in one part of the world has cascading effects on the people of another.
- We have seen the effect of the Ukraine Conflict on other developing countries, particularly, on the supply of food grains, fertilizer and fuel.
- The impact of the Crisis in Afghanistan is still being felt throughout the region.
- China has repeatedly blocked the attempts of India and the US at the UN to blacklist Pakistan-based terrorists.
- While emphasizing on Common Security, India targeted China, which has violated border pacts by amassing its military in eastern Ladakh in 2020.
- The eastern Ladakh border standoff between India and China erupted on 5th May, 2020, following a violent clash in the Pangong lake areas.
- Both sides gradually enhanced their deployment by rushing in tens of thousands of soldiers as well as heavy weaponry.
- China claims nearly all of the disputed South China Sea, though Taiwan, the Philippines, Brunei, Malaysia and Vietnam all claim parts of it.

#### **What is UNSC?**

##### **About:**

- The Security Council was established by the UN Charter in 1945. It is one of the six principal organs of the United Nations.



- The other 5 organs of the United Nations are—the General Assembly (UNGA), the Trusteeship Council, the Economic and Social Council, the International Court of Justice, and the Secretariat.
- The UNSC, with a mandate to maintain international peace and security, is the centrepiece of global multilateralism.
- It selects the UN Secretary-General and plays a co-terminus role with the UN General Assembly in electing judges to the International Court of Justice.
- Its resolutions, adopted under chapter VII of the UN charter, are binding on all countries.

**Composition:**

- The UNSC is composed of 15 members, 5 permanent and 10 non-permanent.

**Five permanent members:** China, France, the Russian Federation, the United Kingdom, and the United States.

**Ten non-permanent members:**

- Elected for two-year terms by the General Assembly.
- Five from African and Asian States, one from Eastern European States, two from Latin American States, two from Western European and other States.

**India's Membership:**

- India has served seven times in the UN Security Council as a non-permanent member and in January 2021, India entered the UNSC for the eighth time.
- India has been advocating a permanent seat in UNSC.

**Voting Powers:**

- Each member of the Security Council has one vote. Decisions of the Security Council on matters are made by an affirmative vote of nine members including the concurring votes of the permanent members.
- A "No" vote from one of the five permanent members blocks the passage of the resolution.

## 2.2 Kyrgyzstan-Tajikistan conflict

Recently, nearly 100 people have been killed and scores injured in violent border clashes between Kyrgyzstan and Tajikistan.



### What Led to the Clash between the Two Countries?

#### Historical Legacy:

- The current clashes are replaying old pre- and post-Soviet era legacies.
- The borders of the two republics were demarcated under Joseph Stalin's leadership.
- Common Rights over Natural Resources: Historically, the Kyrgyz and Tajik populations enjoyed common rights over natural resources.
- The creation of the Soviet Union saw the large-scale redistribution of livestock to collective and state farms, which upset the existing status quo.

#### Present Tussle:

- Recent incidents saw groups from either side planting trees in disputed areas and engaging in a physical confrontation using agricultural equipment as weapons.
- Currently, Ferghana Valley continues to be a site of struggle and frequent violent outbursts, with the location consisting primarily of Tajiks, Kyrgyz, and Uzbeks, who have historically shared common sociological specificities, economic activities, and religious practices.
- Both countries share multiple water channels with undulating trajectories and flow, which upset equitable access to water on both sides. As a result, small-scale conflicts occur practically every year during the crucial irrigation period.
- Kyrgyzstan and Tajikistan share 971 kilometers of border territory of which about 471 kilometers remain disputable.
- Leaders of both countries have contributed to the continuation of the conflict through the imagination of a particular type of development project which resulted in the large-scale displacement of nomadic communities, hoping to stabilise the internal dynamics of their respective countries and legitimise their power.

---

**How are India-Tajikistan Relations?****Cooperation in International Forums:**

- In 2020, Tajikistan extended support for India's candidature for a non-permanent seat in United Nation Security Council for the term 2021-22.
- Tajikistan strongly supported Shanghai Cooperation Organisation (SCO) Member status for India.
- India also supported Tajikistan's candidature to United Nations' Economic and Social Council (ECOSOC) and accession to WTO in March 2013.

**Development & Aid Partnership: Development Assistance:**

- With a grant of USD 0.6 million, an Information and Technology Centre (Bedil Centre) was commissioned in 2006.
- The project ran for a full hardware cycle of 6 years and trained almost all first-generation IT experts in the government sector in Tajikistan.
- A project for setting up computer labs in 37 schools in Tajikistan was completed and delivered in August 2016.

**Humanitarian Assistance:**

- In June 2009, USD 200,000 cash assistance was given by India to overcome damage caused by floods in Tajikistan.
- After the outbreak of Polio in southwest Tajikistan, India provided 2 million doses of oral polio vaccine through UNICEF in November 2010.

**Human Capacity Building:**

- Since the establishment of the Indian embassy in Dushanbe in 1994, Tajikistan has been a beneficiary of the Indian Technical & Economic Cooperation Programme (ITEC).
- In 2019, under India-Central Asia Dialogue Process, some Tajik diplomats were trained at Foreign Service Institute, Delhi.

**Trade & Economic Relation:**

- Indian exports to Tajikistan mainly consist of pharmaceuticals, medical preparations, cane or beet sugar, tea, handicraft and machinery.
- Indian pharmaceutical products occupy approximately 25% of Tajik market.

**Cultural & People-to-People Relation:**

- Deep rooted historical and cultural linkages have helped expand and widen the relationship to a new level.
- Cooperation between the two countries encompasses all aspects of human endeavour with special focus on military and defence ties.

- Swami Vivekananda Cultural Centre in Dushanbe offers courses in Kathak & Tabla through teachers deployed by Indian Council for Cultural Relations from India. The centre also offers Sanskrit and Hindi language classes.
- In 2020 ‘My Life My Yoga’ video blogging competition saw participation from Tajikistan yoga enthusiasts.

### **Strategic:**

- India has an airbase at a place called Ayni, about thirty kilometres from Dushanbe. Over the years, it developed into an Indian Air Force (IAF) base known as Gissar Military Aerodrome (GMA).

### **Way Forward**

- The path to resolution of the conflict will require warring groups to agree upon a common map. There is a need for the international community to make efforts to solve the dispute by involving elders in the communities, as historically, elders have been used to resolve conflicts.

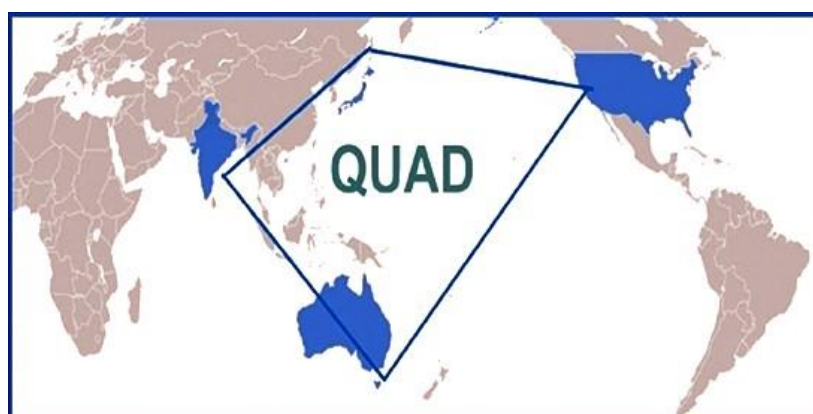
## **2.3 Quad grouping**

Foreign Ministers of the Quad (India, the U.S., Australia, and Japan) met on the fringes of the United Nations General Assembly (UNGA) to sign a Humanitarian Assistance and Disaster Relief (HADR) partnership into effect.

Under the HADR, the member countries will coordinate their disaster response operations in the Indo-Pacific region with other National and International agencies, private non- governmental organizations.

### **What is QUAD?**

- It is the grouping of four democracies –India, Australia, the US, and Japan.
- All four nations find a common ground of being democratic nations and also support the common interest of unhindered maritime trade and security.
- It aims to ensure and support a “free, open and prosperous” Indo-Pacific region.
- The idea of Quad was first mooted by Japanese Prime Minister Shinzo Abe in 2007. However, the idea couldn’t move ahead with Australia pulling out of it, apparently due to Chinese pressure.
- Finally in 2017, India, Australia, the US and Japan, came together and formed this “quadrilateral” coalition.



---

**What are the Opportunities for India under Quad arrangement?****Countering China:**

- The maritime space is a lot more important to China than engaging in opportunistic land grab attempts in the Himalayas.
- A huge chunk of Chinese trade happens via the Indian oceanic routes that pass through maritime chokepoints.
- In the event of any Chinese aggression on borders, India by cooperating with Quad countries can potentially disrupt Chinese trade.
- Hence, unlike in the continental sphere where India seems facing a ‘nutcracker like situation’ due to China-Pakistan collusion, the maritime sphere is wide open to India to undertake coalition building, rule setting, and other forms of strategic exploration.

**Emerging as a Net Security Provider:**

- There is a growing great power interest in the maritime sphere, especially with the arrival of the concept of ‘Indo-Pacific’. For instance, many European countries have recently released their Indo-Pacific strategies.
- With India, located right at the centre of the Indo-Pacific geopolitical imagination can realise the vision of a ‘broader Asia’ that can extend its influence away from geographical boundaries.
- Moreover, India can build around collective action in humanitarian assistance and disaster relief, monitoring shipping for search and rescue or anti-piracy operations, infrastructure assistance to climatically vulnerable states, connectivity initiatives and similar activities.
- Further, India with Quad countries can check imperialist policies of China in Indian ocean region and ensure Security and growth for all in the region.

**What are the Issues Related to Quad?****Undefined Vision:**

- Although there is potential for cooperation, the Quad remains a mechanism without a defined strategic mission.

**Maritime Dominated:**

- The entire focus on the Indo-Pacific makes the Quad a maritime, rather than a land-based grouping, raising questions whether the cooperation extends to the Asia- Pacific and Eurasian regions.

**India’s Aversion of Alliance System:**

- The fact that India is the only member that is averse to a treaty alliance system, has slowed down the progress of building a stronger Quadrilateral engagement.

---

**Way Forward**

- The Quad nations need to better explain the Indo-Pacific Vision in an overarching framework with the objective of advancing everyone's economic and security interests.
- India has many other partners in the Indo-Pacific; therefore, India should pitch for countries like Indonesia, Singapore to be invited to join in the future.
- India should develop a comprehensive vision on the Indo-Pacific which would ideate on the current and future maritime challenges, consolidate its military and non-military tools, engage its strategic partners.

**2.4 Group of Four (G-4) countries**

On the side lines of the 76th session of the UN General Assembly, the G-4 countries highlight 'urgent need' for reform in U.N. Security Council (UNSC).

**Who are the Group of Four (G-4) Countries?**

- The G4 is a grouping of Brazil, Germany, India and Japan which are aspiring to become permanent members of the UNSC.
- The G4 countries are supporting each other's bids for permanent membership of the UNSC.
- The G4 nations traditionally meet on the sidelines of the annual high-level UN General Assembly session.

**What are the Key Highlights of the G-4 Meeting?**

- They felt that the UN decision-making bodies needed to be urgently reformed as global issues were increasingly complex and interconnected.
- Further, they reiterated their joint commitment to work toward text-based negotiations that lead to Reformed Multilateralism.
- They highlighted that General Assembly did not make "meaningful progress" in the Inter- Governmental Negotiations (IGN) and lacked transparency.
- They reiterated their support for African countries being represented in a permanent and non- permanent capacity.
- The Ministers agreed on the need for enhanced role and presence of developing countries and of major contributors to the United Nations to enhance the capacity of the Council to respond effectively to the complex and evolving challenges on questions of international peace and security.

**Why is there a Need for UNSC Reforms?**

- UN represents a larger world and the irony is that it has only 5 permanent members in its important body.
- The current composition of the Security Council represents the post-World War II realities and thus is not in pace with the changing balance of power in the world.

- At the time of the formation of the UNSC, big powers were given privileges to make them part of the council. This was necessary for its proper functioning as well as to avoid failure like that of the organization 'League of Nations.
- The regions like far East Asia, South America, and Africa have no representation in the permanent membership of the council.

### **Why is India Demanding the Permanent Membership of the UNSC?**

#### **Overview:**

- For the first 40 years of the UN Security Council's formation, India never asked for permanent membership.
- Even in 1993 when India submitted its written proposal to the UN in response to the General Assembly resolution related to reforms, it did not specifically state that it wants permanent membership for itself.
- It is only from the last few years that India has started asking for permanent membership in the council.
- India deserves a permanent place in the council considering the size of its economy, population and the fact that it is the largest democracy in the world.
- India has become a major player not only in Asia but also in the world.
- The Security Council would be a more representative body if India would be there in it as a permanent member.

#### **Need:**

- By having veto power, one can enjoy enormous powers.
- Since 2009, India was trying to designate Masood Azhar as a global terrorist. One veto power of China kept delaying it.
- India will be able to work better for its interests.
- There was a time when the USSR actually started boycotting the UNSC and that was the time when US managed to get the resolution passed for the Korean War. From that time onwards USSR realized that it doesn't make sense to boycott the UN. It needs to keep veto if at all resolution is against them.
- India's presence as a permanent member will be an acknowledgement of its rise as a global power, ready to play a key role in the council's objectives of international peace and security.
- India will be able to enjoy the 'prestige' associated with the permanent membership of the council.

### **What is the United Nations Security Council (UNSC)?**

- Established by the United Nations charter in 1945, the Security Council has primary responsibility of maintaining international peace and security.
- The Security Council has 15 members.
- There are five permanent members: the United States, the Russian Federation, France, China and the United Kingdom.

- The non-permanent members of the Security Council are elected for a term of two years. Each member of the Security Council has one vote. Decisions of the Security Council on matters are made by an affirmative vote of nine members including the concurring votes of the permanent members. A "No" vote from one of the five permanent members blocks the passage of the resolution.
- Any member of the United Nations which is not a member of the Security Council may participate, without vote, in the discussion of any question brought before the Security Council whenever the latter considers that the interests of that member are specially affected.

### **What is Intergovernmental Negotiations (IGN)?**

- IGN is a group of nation-states working within the United Nations to further reform of the United Nations Security Council (UNSC)

### **The IGN is composed of several different international organizations, namely:**

- African Union
- G4 nations
- Uniting for Consensus Group (UfC)
- L.69 Group of Developing Countries Arab League
- Caribbean Community (CARICOM).

### **Way Forward**

- Global power hierarchies are changing and the P5 needs to realize that this is high time to initiate UNSC reforms. The declining powers should either give away their membership or should expand the size of the UNSC, opening the doors for new emerging powers.
- Other reforms might succeed earlier than the expansion of P5. None of the so-called powerful nations wants to expand the table and share their pie with another nation.
- India needs to focus on strengthening itself economically, militarily & diplomatically in order to participate in major conversations and groupings. Steadily, the UNSC will itself deem India fit to become a part of the UNSC.

## **2.5 Time to reform UNSC**

- The process of decolonisation, in which the United Nation and its Security Council played an important role, radically changed the geopolitical landscape of the world. In the past quarter century, the global order has seen massive changes, from American unilateralism to the rise of multilateral institutions and multi polarity.
- Developing nations, including India, now play a larger role in both the international economy and politics. But these changes are not reflected in the UNSC, where all critical decisions are still being taken by the veto-wielding permanent members of the Security Council.
- In his address to the 77th Session of the United Nations General Assembly, the Indian External Affairs Minister highlighted the anachrony and ineffectiveness in the current architecture of the UNSC.



- Hence, it is essential to go beyond P5's prerogatives and look for a more democratic and representative security council.

### **What is the United Nations Security Council?**

- The United Nations Security Council was established by the UN Charter in 1945.
- It is one of the 6 principal organs of the United Nations.
- UNSC has 15 members: 5 permanent members (P5) and 10 non-permanent members elected for 2-year terms.
- The 5 permanent members are: United States, Russian Federation, France, China and the United Kingdom.
- India has been a non permanent member of the Council during 1950-51, 1967-68, 1972-73, 1977-78, 1984-85, 1991-92, 2011-12 and for the 8th time, has entered the UNSC in 2021 and will stay on the council for the term 2021-22.

### **What is the Procedure for Amending UNSC Membership?**

- Changing the membership of the UNSC requires amending the UN Charter.
- This involves consent of two-thirds of the total membership of the U.N, including the concurring votes of P-5.
- This means that each of the P5 has a veto.
- The Charter was amended once in the 1960s to enlarge the Council by additional non- permanent seats.

### **What are the Issues Related to UNSC?**

- **Lack of Adequate Representation:** It was argued by several speakers that the UN Security Council is less effective because it is less representative, the most pertinent absence being that of Africa, a continent of 54 countries.
- Current global issues are complex, and interconnected. Lack of representation of geopolitical and geoeconomically important countries is leaving out a large segment of global opinion to have a voice in the highest security summit.
- Furthermore, It is matter of concern that globally important countries such as India, Germany, Brazil, and South Africa are not represented on the UNSC permanent members list.
- Misuse of Veto Power: Veto power has been always criticised by many experts as well as by most States calling it a “self-chosen club of the privileged” and non-democratic and not allowing the Council to make necessary decisions whenever it displeases any one of the P-5.
- It is also not appropriate for the current global security environment to be guided by elite decision-making structures.

### **Geopolitical Rivalry within P5:**

- The geopolitical rivalry among the permanent members has prevented the UNSC from coming up with effective mechanisms to deal with global issues.

- Taking the current world order as an example, the P5 members: United States, Russia, and China are three poles on the periphery of the globe having several geopolitical issues revolving around them (Taiwan Issue and Russia-Ukraine War).
- **Threat to State's Sovereignty:** As the principal organ of international peacekeeping and conflict resolution, the UNSC is responsible for keeping peace and managing conflict.
- Its **decisions** (referred to as resolutions) are binding on all member countries, unlike the General Assembly's.
- This means that any state's sovereignty can be encroached upon if necessary by taking action, such as imposing sanctions.

### **What should be the Way Forward?**

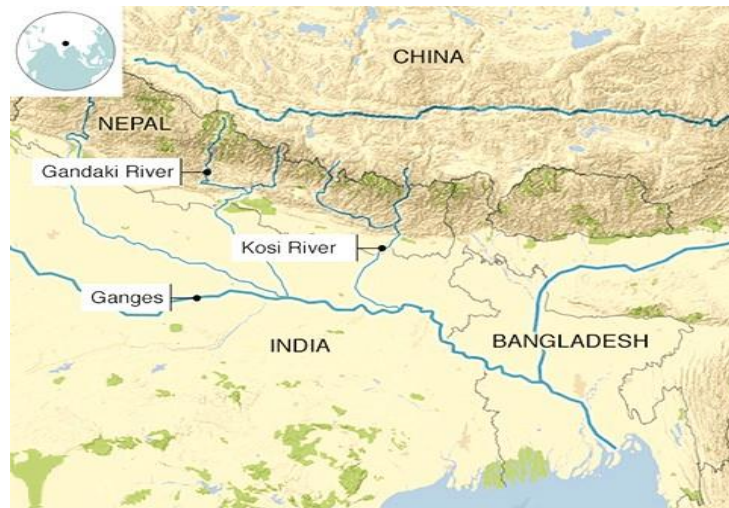
- **Welcoming Voices across the Globe:** It is perceived as deeply unfair, denying entire continents (Africa) and regions a voice in a forum that deliberates their future.
- To decentralise UNSC governing power and authority over nations, it is essential that all regions are represented equally in the UNSC.
- With this transformation, nations of all regions will have the opportunity to raise concerns affecting peace and democracy in their countries.
- Also, introducing decentralisation to UNSC decision-making will make it more representative, participatory, and democratic.
- **Global Consonance for Global Governance:** UNSC should realise there are more pressing issues to be tackled at the global level than merely preserving the prerogatives of P5 nations.
- There needs to be urgent correction of the power imbalance between the P5 and the rest of the world.
- It is necessary for the UNSC to be more democratic and more legitimate to govern, ensuring the universal respect of international peace, security, and order.
- Re-energizing Intergovernmental Negotiation (IGN): Serious negotiations on such critical matters should proceed sincerely. They must not be blocked by procedural tactics.
- The IGN process, which is the principal framework through which UNSC reform is discussed and debated, needs to be revised and re-energised.
- Recommendation of the President of the 76th UN General Assembly to gradually move the IGN process towards text based negotiations is a welcoming step.
- **Towards Reformed Multilateralism:** Calling for reformed multilateralism with reforms of the Security Council at its core enjoys considerable support among UN members.
- In order to protect faith in the principles of the United Nations, in its charter, and in reformed multilateralism as a key to achieving global goals, the core issues in UNSC must be critically examined and addressed with global cooperation.
- India from the Lens of UNSC Reforms: India's candidature for permanent seat in UNSC is legitimate and justified as it fulfils all the objective criteria for the permanent membership.

- India has initiated the International Solar Alliance in 2015 to reduce the exploitation of fossil fuels and encourage the use of solar energy and has been a frontrunner in Vaccine Diplomacy.
- With one among the largest individual contributors to the UN Peacekeeping Force, India is prepared to take up greater responsibilities at the highest security cooperation forum.
- As the same time, it also seeks to ensure that the injustice faced by the Global South is decisively addressed. India is willing and able to contribute on both counts.

## 2.6 Sapta Kosi high dam project

Recently, India and Nepal have agreed to take forward the Sapta Kosi high dam project through further studies.

- Senior officials of the two sides have met and reviewed the bilateral water-sector cooperation, including the implementation of the Mahakali Treaty.



### What is Sapta Kosi High Dam Project & Mahakali Treaty?

#### Sapta Kosi High Dam Project:

- Sapta Kosi High Dam is a multipurpose project proposed to be constructed on the Saptakoshi River of Nepal (Known as Kosi River in India).
- The project is primarily aimed to control floods in south-east Nepal and northern Bihar and to generate hydropower.
- The project will provide irrigation, control floods and generate 3,000 MW of electricity.



**Mahakali Treaty:**

- The Mahakali Treaty was signed in 1996 over the integrated development of the Mahakali River, including Sarada Barrage, Tanakpur Barrage and Pancheshwar project.
- Mahakali River is also known as Sharda River or Kali Ganga in Uttarakhand.
- It joins Ghagra river in Uttar Pradesh, which is a tributary of Ganga.

**What do we know about the Kosi River System?**

- The Kosi is a trans-boundary river which flows through Tibet, Nepal and India.
- It has its source in Tibet that includes the world's highest upland, it then drains a large part of Nepal before emerging onto the Gangetic plains.
- Its three major tributaries: the Sun Kosi, Arun and Tamur meet at one point just upstream of a 10 km gorge cut through the Himalayan foothills.
- The river crosses into northern Bihar, India where it branches into distributaries before joining the Ganges near Kursela in Katihar district.
- The Kosi carries the maximum amount of silt and sand after the Brahmaputra in India.
- It is also known as the “Sorrow of Bihar” as the annual floods affect about 21,000 sq. km. of fertile agricultural lands thereby disturbing the rural economy.

**What are some other Recent Developments in India Nepal Relations?****Build Own Operate and Transfer (BOOT):**

- A Memorandum of Understanding (MoU) was signed between the Government of Nepal and Sutlej Jal Vikas Nigam (SJVN) Limited for the project in 2008 for execution on a Build Own Operate and Transfer (BOOT) basis for a period of 30 years including five years of the construction period.

**Hydropower Projects:**

- Nepal also invited Indian companies to invest in the West Seti hydropower project in Nepal.

**Cross-border Rail Link:**

- The operationalisation of the 35 kilometers cross-border rail link from Jayanagar (Bihar) to Kurtha (Nepal) will be further extended to Bijalpura (Nepal) and Bardibas (Nepal).

**2.7 OPEC+ cuts oil production**

Recently, the Organisation of the Petroleum Exporting Countries and its allies (OPEC+) has decided to cut oil production by 2 million barrels per day (bpd).

- This is the largest cut since the beginning of the Covid-19 pandemic.
- US legislation in May 2022 passed the No Oil Producing and Exporting Cartels (NOPEC) bill, which is intended to protect US consumers and businesses from engineered oil spikes.

**What are the Reasons for Slashing Production?**

- Oil prices skyrocketed after Russia's invasion of Ukraine and have since begun to soften over the past few months, before dropping sharply to under USD 90 in September, 2022 due to fears of a recession in Europe and reduced demands from China because of its lockdown measures.
- The reductions would boost prices and be extremely beneficial for the Middle Eastern member states, to whom Europe has turned for oil after levelling sanctions against Russia since it invaded Ukraine.
- OPEC+ members are concerned that a faltering global economy would reduce the demand for oil, and the cuts are seen as a way to protect profits.
- Increased oil prices, which first occurred during the invasion of Ukraine, have helped Saudi Arabia, one of the founding members of OPEC, become one of the world's fastest-growing economies.
- It is possible that Russia might be influencing OPEC, to make it more expensive for the West to extend energy sanctions on Russia.

**What would be its Impact?****Impact on European Countries:**

- Recently, the European Union had announced its plan to implement a price cap on oil exports from Russia.
- Under the plan, countries will only be permitted to purchase Russian oil and petroleum products transported via sea that are sold at or below the price cap.
- However, the recent decision to reduce the supply is likely to keep the global oil prices high, allowing Russia to continue aiming for significant revenue from its crude export.

**Impact on the U.S:**

- The move is likely to be highly detrimental to the US, which has repeatedly asked the organisation to increase oil production.
- Slashes in reduction and subsequently increased oil prices can be particularly dangerous to the US, which is trying to reduce inflation rates before the midterm elections in November 2022.

**Impact on India:**

- As India imports nearly 85% of its crude requirement, the oil import bill will rise on account of the rise in prices. The rise in import bills will not only lead to inflation and a rise in the Current Account Deficit (CAD) and fiscal deficit but also weaken the rupee against the dollar and hurt stock market sentiment.
- As per Investment Information and Credit Rating Agency (ICRA), for every \$10 per barrel increase in the price of the Indian crude oil basket, the CAD could widen by \$14-\$15 billion, or 0.4% of GDP.

**WORLD**  
OPEC Member Countries



### What is OPEC+?

- Established in 1960 by founding members Iran, Iraq, Kuwait, Saudi Arabia and Venezuela, OPEC has since expanded and now has 13 member states.
- **Member countries are:** Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, United Arab Emirates, Venezuela.
- Qatar terminated its membership on 1st January 2019.
- With the addition of another 10 allied major oil-producing countries, the OPEC is known as OPEC+.
- OPEC+ countries include 13 OPEC member countries, Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.
- The objective of the organization is to “coordinate and unify the petroleum policies of its Member Countries and ensure the stabilisation of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry.
- Previously controlled by western-dominated multinational oil companies known as the “Seven Sisters,” OPEC sought to give the oil-producing nations greater influence over the global petroleum market.
- They account for roughly 40 % of the world’s crude oil and 80 % of the globe’s oil reserves, according to estimates from 2018.
- They usually meet every month to determine how much oil the member states will produce.
- However, many allege that OPEC behaves like a cartel, determining the supply of oil and influencing its price in the world market.

## **2.8 Science and Tech-driven diplomacy**

- In International Affairs, diplomacy, economics and technology are the most important tools for any nation. Historically, Science and Technology has been one of the main currencies for exchange and dialogue among human societies and sovereign nations.
- In modern times, it is emerging as an important instrument of techno-economic power that will shape the changing dynamics of international relations and global affairs. Technologically adept nations are developing their own strategies to integrate technology with their foreign policy and diplomatic initiatives.
- Science and Technology is a low-hanging fruit for India to employ in its soft power arsenal. Along with a multi-aligned stand on global geopolitics, the time is ripe for India to extend its science and tech ties in global geo-economics in a more comprehensive and well-rounded manner.

### **How Science and Technological Diplomacy Can Shape Global Geopolitics?**

- **Science in Diplomacy:** It means the scientific inputs going into diplomacy and foreign policy making.
- Global challenges such as weapons of mass destruction, climate change, cyber security, human health, energy and environment, outer space etc., all require scientific inputs in order to understand and deal with them.
- These challenges are trans-border and require application of science and technology in order to resolve them in addition to normal diplomatic efforts.

**Example:** Intergovernmental Panel on Climate Change (IPCC).

### **Science for Diplomacy:**

- It offers alternative channels of engagement among countries that may have political differences, thus playing an important role by influencing the dynamics of power- balance between sovereign nations.
- Scientific values of rationality, transparency and universality are the same the world over. S&T cooperation therefore provides a non-ideological environment for the participation and free exchange of ideas.

### **Diplomacy for Science:**

- It means making use of diplomacy to gain benefits in science and technology – bilaterally as well as multilaterally.
- It seeks to acquire science and technology knowledge to strengthen national economy and capacity and to participate more effectively in international discussions where science and technology are involved.

### **What is the Current Status of Science and Tech-Driven Diplomacy in India?**

- The Science, Technology and Innovation Policy (STIP) 2013 was one of the instances that an intersection of technology and diplomacy found a mention in an official government document.
- The document states that the “policy framework will enable strategic partnerships and alliances with other nations through both bilateral and multilateral cooperation in science, technology and innovation.

- Science diplomacy, technology synergy and technology acquisition models will be judiciously deployed based on strategic relationships.
- International Solar Alliance (ISA) 2015 was launched by India and France to boost solar energy in developing countries.
- It is an association of 121 signatory countries which majorly are sunshine countries (countries lying between Tropic of Cancer and Tropic of Capricorn), and is an excellent example of modern-day science diplomacy.
- Draft Science, Technology and Innovation Policy, 2020 discusses the role of Science & Technology in re-organising India's foreign policy priorities and shaping the global technology ecosystem.
- In 2020, the Ministry of External Affairs (MEA) created technically specialised divisions, such as the cyber diplomacy division, e-governance and information technology division, and the new emerging and strategic technologies division.

### **What are the Major Challenges before Science and Tech-Driven Diplomacy?**

#### **Growing Risk of Weaponization of Outer Space:**

- Given the advances in space technology, many areas of peaceful use of space are increasingly becoming double-edged and there is a growing risk of militarisation and weaponization of outer space.
- Satellites that can be used for both civil and military purposes have led to the development of anti-satellite weapons technology.
- Several countries, including the United States, Russia, China, and India, have already tested this.
- Also, as we move from exploration of the Moon and Mars to exploitation, questions of mineral and other rights on extra-terrestrial bodies are likely to surface.

#### **Rise of Cyber-Warfare and Cyber-Armies:**

- Technology has changed the nature of warfare from visible large-scale military action and violence to subtle, invisible yet decisive cyberwarfare for crippling the enemy's information environment in a war-like situation.
- Many countries around the world are maintaining military units that are specifically trained to operate in a cyberwarfare environment called cyber-armies.

#### **Threat of Bioweapons:**

- With advances in biotechnology, microbiological agents (such as bacteria, viruses, or fungi) can be used as biological weapon to intentionally cause harm to humans, animals, or plants in case of conflict and war.

#### **Data Privacy Concern:**

- Big data is often perceived as the black gold of the 21st century. As the Internet allows for the aggregation and globalisation of markets and consumers, cross-border data flow is becoming a contested issue of data privacy and global governance.



**Growing China's Influence:**

- The last two decades have seen the Chinese leapfrog in critical technology domains such as quantum information and the electric vehicles ecosystem.
- Also, the Chinese state has been actively promoting and exporting its technology infrastructure beyond its borders, thereby increasing its sphere of influence.

**How India Can Harness the Potential of Science and Tech-driven Diplomacy?****Unifying World with Unified Payment System:**

- The Unified Payment Interface (UPI) has proved a tectonic shift in the payments system for India.
- An open and multilateral digital system of payments that has been developed in India can be pushed for adoption in different countries. This can serve as a perfect soft power opportunity.
- A key diplomatic win would be when India's existing digital payments system becomes a globally accepted standard. This is already underway, with four countries (Nepal, Bhutan, Singapore and UAE) having accepted and using India's payments system.

**Torchbearer in Public Health Space:**

- In terms of global presence, India remains the world's largest supplier of generic medicines and drugs, accounting for 20% of the global demand. India has also been at the forefront of vaccine manufacturing and Vaccine diplomacy.
- This has made India a torchbearer in the public health space forging new ties around. More incentive for Research and Development activities can improve India's soft power in terms of global health cooperation.

**Fostering Multilateralism:**

- In the technology sphere, diplomacy is not about seeking entry into an exclusive alliance or club but about maximising a state's integration with the existing global value chains.
- Promoting the growth of open source technologies (and built on open standards) which have very little entry barriers in the form of licences, can be a priority on the multilateral front. In this way, technology related diplomatic engagements will increase as well as improve India's accessibility to key technologies.

**Science Tourism:**

- India can conceptualise science tourism promoting scientific locations around the nation like National Science Centre, Delhi and Birla Science Museum, Hyderabad that can be visited by the people across the globe to quench their thirst for knowledge in the various fields of science and technology.

## **2.9 India to host G20 summit in 2023**

Recently, the Ministry of External Affairs (MEA) announced that India is hosting the G-20 (Group of 20) leaders' summit in New Delhi next year 2023.

- The 17th G20 Heads of State and Government Summit will happen in November 2022 in Indonesia, after which India will assume the presidency of G20 from December 2022.
- India is assuming the Presidency of the G20 for one year.

### **What are the Key Points?**

#### **Guest Countries:**

- India, as G20 Presidency, will be inviting Bangladesh, Egypt, Mauritius, Netherlands, Nigeria, Oman, Singapore, Spain and UAE as Guest countries.

#### **Troika:**

- During the Presidency, India, Indonesia and Brazil would form the troika. This would be the first time when the troika would consist of three developing countries and emerging economies, providing them a greater voice.
- Troika refers to the top grouping within the G20 that consists of the current, previous and the upcoming presidencies (Indonesia, India and Brazil).

#### **Key Priorities:**

- Inclusive, Equitable and Sustainable Growth, LiFE (Lifestyle For Environment), Women's Empowerment, Digital public infrastructure and tech-enabled development in areas ranging from health, agriculture and education to commerce, Skill-mapping, culture and tourism, climate financing, circular economy, global food security, energy security, green hydrogen, disaster risk reduction and resilience, Developmental cooperation, fight against economic crime, and multilateral reforms.

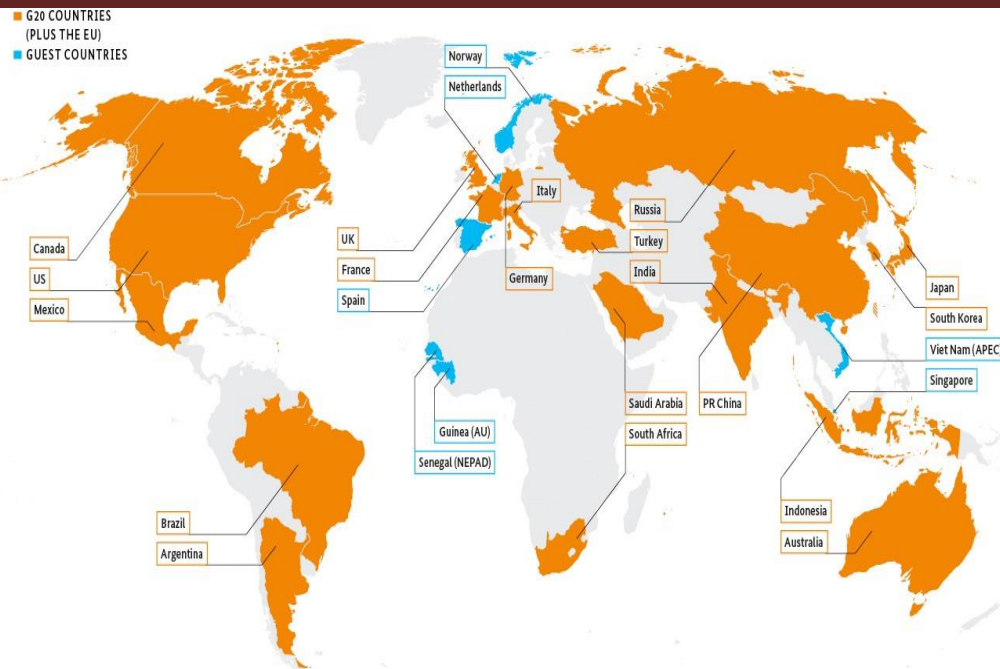
### **What is the G20?**

#### **About:**

- The G20 was formed in 1999 in the backdrop of the financial crisis of the late 1990s that hit East Asia and Southeast Asia in particular.
- It aims to secure global financial stability by involving middle-income countries. Together, the G20 countries include 60 % of the world's population, 80 % of global GDP, and 75 % of global trade.

#### **Members:**

- Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the EU.
- Spain is invited as a permanent guest.



### Presidency:

- The presidency of the G20 rotates every year among members, and the country holding the presidency, together with the previous and next presidency-holder, forms the ‘Troika’ to ensure continuity of the G20 agenda.
- Italy, Indonesia, and India are the Troika countries right now and Indonesia holds the current Presidency.

### Mandate:

- The G20 has no permanent secretariat. The agenda and work are coordinated by representatives of the G20 countries, known as ‘Sherpas’, who work together with the finance ministers and governors of the central banks.
- The primary mandate of the grouping is for International Economic cooperation with particular emphasis to prevent future financial crises across the world.
- It plays a significant role in shaping the global economic agenda.
- From 1999-2008 the forum exalted from a grouping of Central bank governors and finance ministers to Heads of states.

## 2.10 Eastern Economic Forum

Recently, Russia hosted the 7th Eastern Economic Forum (EEF) at Vladivostok.

The forum is a platform for entrepreneurs to expand their businesses into Russia’s Far East (RFE).

### What is the Eastern Economic Forum?

#### About:

- The EEF was established in 2015 to encourage foreign investments in the RFE. The EEF displays the economic potential, suitable business conditions and investment opportunities in the region.
- Agreements signed at the EEF increased from 217 in 2017 to 380 agreements in 2021, worth 3.6 trillion roubles.

- The agreements focus on infrastructure, transportation projects, mineral excavations, construction, industry and agriculture.



### Key Players:

- China, South Korea, Japan and India are the Key Players in the region, where China is the biggest investor.
- China who sees potential in promoting the Chinese Belt and Road Initiative (BRI) and the Polar Sea Route in the RFE.
- China's investments in the region account for 90% of the total investments.

### Objectives:

- Russia has strategically developed the region with the aim of connecting Russia to the Asian trading routes.
- With the fast modernisation of cities like Vladivostok, Khabarovsk, Ulan-Ude, Chita and more, Russia aims to attract more investments in the region.
- To survive the economic crisis and the sanctions with the help of China and other Asian powers.

### What is the Significance of the RFE?

- The region encompasses one-third of Russia's territory and is rich with natural resources such as fish, oil, natural gas, wood, diamonds and other minerals.
- The small population living in the region is another factor for encouraging people to move and work in the Far East.
- The region's riches and resources contribute to 5 % of Russia's GDP (Gross Domestic Product). But despite the abundance and availability of materials, procuring and supplying them is an issue due to the unavailability of personnel.
- The RFE is geographically placed at a strategic location, acting as a gateway into Asia.

**What does India Seek at the Forum?**

- India seeks to expand its influence in the RFE. During the forum, India expressed its readiness in expanding trade, connectivity and investments in Russia.
- India is keen to deepen its cooperation in energy, pharmaceuticals, maritime connectivity, healthcare, tourism, the diamond industry and the Arctic.
- In 2019, India offered a USD 1 billion line of credit to develop infrastructure in the region.
- Through the EEF, India aims to establish a strong inter-state interaction with Russia.
- Business representatives of Gujarat and the Republic of Sakha (Russia) have launched agreements in the diamond and pharmaceuticals industry.

**How does India act at Balancing between the EEF and IPEF?**

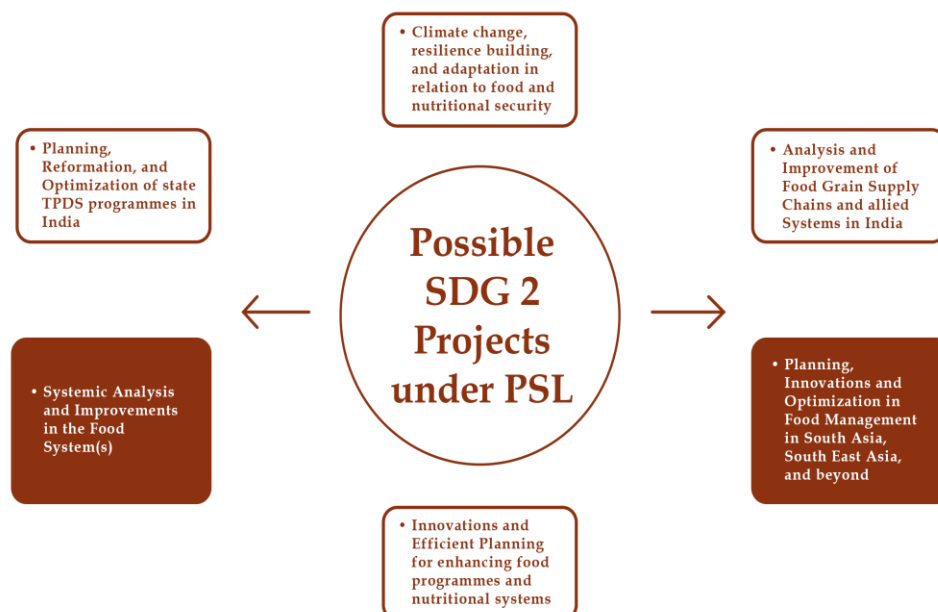
- Since the coming together of countries like Myanmar, Armenia, Russia, and China for EEF seems like the forming of an Anti-Sanctions Group in the international order, India has vested interests in both the forums, EEF and IPEF (U.S.-led Indo-Pacific Economic Framework).
- India has not shied away from investing in the Russia-initiated EEF despite the current international conditions, where western countries impose Sanctions on Russia.
- At the same time, India has given its confirmation and acceptance to three of the four pillars in the IPEF.
- India understands the benefits of being involved in the development of the RFE but it also perceives the IPEF as a vital platform to strengthen its presence in the Indo-Pacific region.
- The IPEF also presents an ideal opportunity for India to act in the region, without being part of the China-led Regional Comprehensive Economic Partnership or other regional groupings like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

### 3. ECONOMY

#### 3.1 Public Systems Lab (PSL)

PSL a perfect example of innovation that will contribute towards the development of our nation and rid the country of corruption

- With a vision to be “A global leader in providing innovative, sustainable and scalable solutions to make Public Systems more effective and efficient and enhance their access and utilisation by the communities“, the lab will work towards solving critical problems that are vital for improving the lives of millions of people who depend on public systems, by developing innovative solutions, undertaking field testing and supporting their scale-up and replication across the country and beyond. The solutions would aim to reach marginalized communities, including socially excluded castes, tribes and groups and vulnerable women, to advance a human-rights based approach and the commitment to leave no one behind and realization of SDGs. It will integrate methodological/fundamental research with strong multi-stakeholder engagement including but not limited to Governments, Multilateral organisations, Private Sector, Academia, Foundations and Civil Society Organisations. Major functional areas will center around the inevitable use of Operation Research, Data Science and Artificial Intelligence in solving complex problems related to the domains of Transportation, Food Systems and Health with a particular commitment to support and work for the relevant Sustainable Development Goals.
- The funds provided by WFP India, as a part of this multifaceted set up will focus SDG 2 goals with projects involving Operations Research, Product Development, Data-Based Innovations & Analysis.



#### 3.2 Centre walking towards modernizing foodgrain storage infrastructure in the country

- Hub and Spoke Model is a transportation system which consolidates the transportation assets from standalone locations referred to as “Spoke” to a central location named as “Hub” for long distance transportation

- The Department of Food and Public Distribution (DFPD) has received overwhelming response towards the technical bids of Design, Build, Fund, Own & Operate (DBFOT) tender under Hub and Spoke Model. Taking into consideration modernization of foodgrain storage infrastructure in the country, a new model for development of grain Silos across the country i.e. Hub & Spoke Model in Public Private Partnership (PPP) Mode has been proposed.
- Total of 38 bids have been received against 4 bundles comprising of 14 locations in the state of Uttar Pradesh, Bihar, Rajasthan, Punjab, Maharashtra & Madhya Pradesh. Total 15 prospective parties have shown their interest and submitted their bids. Technical Evaluation is expected to be completed in 3-4 weeks.
- Hub and Spoke Model is a transportation system which consolidates the transportation assets from standalone locations referred to as “Spoke” to a central location named as “Hub” for long distance transportation. Hubs have a dedicated railway siding and container depot facility while the transportation from Spoke to Hub is undertaken through road and from Hub to Hub via rail. This model by harnessing the efficiency of railway siding, promotes cost efficiency through bulk storage & movement, reduces cost and time of handling and transportation and simplifies operational complexities in addition to economic development, infrastructure development & employment generation in the country. Besides, Silo are declared as sub Mandi yard which brings ease of procurement for farmers and leads to reduction in logistics cost.
- Under Hub and Spoke Model, the Department has proposed to develop a capacity of 111.125 LMT of Hub and Spoke Model Silos at 249 locations across the country under Design, Build, Fund, Own & Transfer (DBFOT) (FCI’s land) and Design, Build, Fund, Own & Operate (DBFOO) (Land of concessionaire/other agency) mode, through implementing agency i.e. Food Corporation of India (FCI).

### **3.3 Dedication of Hooghly Cochin Shipyard Limited (HCSL) to the nation**

- HCSL was set up reviving the two-century old HDPEL ship building yard at Nazirgunge and therefore amalgamates its rich and long shipbuilding heritage with the outstanding expertise of CSL, which is the premier shipyard in India with proven experience of designing, building and delivering high quality complex vessels to clients throughout the world. This is an example of huge contribution to the nation by reviving a sick unit through another PSE and converting it into a modern shipyard. National Waterway-1 covers Ganga – Bhagirathi – Hooghly for a length of 1620 Km covering state UP, Bihar, Jharkhand, West Bengal and NW-2 covers West Bengal, Assam, Arunachal Pradesh, and Meghalaya. Jal Marg Vikas project is a Government of India initiative for capacity augmentation of shipping and navigation on the national waterways No 1. This would enable commercial navigation of 1500- 2000 ton vessels in Phase 1. The development of the national waterways will provide business opportunities for cargo movements, passenger vessel construction and operations, cruise operations, ship repairs etc. Further, under Pradhan Mantri Matsya Sampada Yojana, there is an opportunity to build Deep Sea Fishing Vessels at HCSL.

- HCSL aims to position itself as a lead player in inland waterway vessel construction in the country. It will serve the inland water transport sector by construction of inland water vessels for transport of men & material along & across the National Waterways, mainly Ganga (NW1) & Brahmaputra (NW2). HCSL will also aid in the indigenous construction of green vessels including Hybrid and Pure electric operated vessels, non-conventional fuels and fuel cells technology operated vessels, coastal and inland river vessels, river cruise vessels, river container vessels, LNG and Methanol fuel vessels and barges. HCSL can provide comprehensive support to clients by not only constructing technologically advanced vessels, but also by providing life cycle support for maintenance and upkeep of the vessels.
- The State-of-the-Art HCSL would usher in vast Socio-economic development in the immediate region. This Shipyard would also open up opportunities for setting up of ancillaries & MSME's to support the yard. It will assist in generation of considerable gainful Employment in the adjoining areas.

### **3.4 Cabinet approves enhancement in the corpus of Emergency Credit Line Guarantee Scheme for increasing the limit of admissible guarantees**

- ECLGS was rolled out in 2020 as part of the Centre's Aatmanirbhar package in response to the Covid-19 crisis.
- The objective was to support small businesses struggling to meet their operational liabilities due to the imposition of a nationwide lockdown.
- A 100% guarantee is provided by the National Credit Guarantee Trustee Company (NCGTC) to Member Lending Institutions (MLIs) - banks, financial institutions and Non-Banking Financial Companies (NBFCs).
- The credit product for which guarantee would be provided under the Scheme shall be named as 'Guaranteed Emergency Credit Line (GECL)'.

#### **ECLGS 1.0:**

- To provide fully guaranteed and collateral free additional credit to MSMEs, business enterprises, MUDRA borrowers and individual loans for business purposes to the extent of 20% of their credit outstanding as on 29th February, 2020.
- MSMEs with up to Rs 25. crore outstanding and Rs. 100 crore turnovers were eligible.
- However, the turnover cap was removed post amendment to ECLGS 2.0 in November 2020.

#### **ECLGS 2.0:**

- The amended version focused on entities in 26 stressed sectors identified by the Kamath Committee along with the healthcare sector with credit outstanding of more than Rs. 50 crore and up to Rs. 500 crores as of 29th February, 2020.
- The scheme also mandated borrower accounts to be less than or equal to 30 days past due as of 29th February, 2020, that is, they should not have been classified as SMA 1, SMA 2, or NPA by any of the lenders as of 29th February 2020.



- SMAs are special mention accounts, which show signs of incipient stress, that lead to the borrower defaulting in servicing the debt.
- While SMA-0 accounts have payments partially or wholly overdue for 1-30 days, SMA-1 and SMA-2 accounts have payments overdue for 31-60 days and 61-90 days respectively.
- The revised scheme also has a five-year repayment window up from four years in ECLGS 1.0.

**ECLGS 3.0:**

- It involves extending credit of up to 40% of total credit outstanding across all lending institutions as of 29th February 2020.
- The tenor of loans granted under ECLGS 3.0 would be 6 years, including a moratorium period of 2 years.
- Covers business enterprises in Hospitality, Travel & Tourism, Leisure & Sporting sectors, which had, as on 29th February 2020, total credit outstanding not exceeding Rs. 500 crore and overdue, if any, were for 60 days or less.

**ECLGS 4.0:**

- A 100 % guarantee to cover loans up to Rs 2 crore to hospitals, nursing homes, clinics, medical colleges for setting up on-site oxygen generation plants with the interest rate capped at 7.5 %.

**3.5 'NAMASTE' (National Action for Mechanized Sanitation Ecosystem)**

- A National Action Plan was devised with the following goals. The goals may be classified as under:

**Modernisation:** (i) Modernization of existing sewage system and coverage of non sewerred areas; (ii) Setting up of faecal sludge and septage management system for mechanized cleaning of septic tanks, transportation and treatment of faecal sludge; (iii) Equipping the municipalities, Panchayats and Private Sanitation agencies with appropriate technology and machinery for mechanized cleaning; (iv) Setting up of Sanitation Response Units with help lines

**Prevention:** (i) Eliminating human entry in sewer systems and septic tanks (ii) Amendment of Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 and Prohibition of Employment as Manual Scavengers and their Rehabilitation Rules, 2013;

**Rehabilitation:** (i) Rehabilitating persons previously engaged in manual cleaning. (ii) Training and certification of sanitation professionals;

**Strategies for achieving the goals:**

- 1) **Modernisation of existing sewage systems and coverage of non-sewerred areas:** Efforts to be made to modernise the existing sewage systems so that they are not prone to blockages and more suitable for mechanised cleaning. Further, wherever feasible, the areas serviced by septic tanks need to be covered by sewer lines, in a phased manner.

- 2) **Tackling non-sewered areas:** In such areas which continue to be non-sewered and are dependent on septic tanks and/or open drains, 'Faecal Sludge and Septage Management Systems' be set up for mechanised cleaning of septic tanks and collection, transportation and treatment of the faecal sludge.
- 3) **Equipping the Municipalities/Local Bodies:** Each local body/Municipality, and private sanitation agencies, if any, to be equipped with appropriate technology, machinery, etc. (mechanised solution) and ensure that only trained professionals are allowed to enter the sewer/septic tanks.
- 4) **Setting up of Sanitation Response Unit (SRU):** To take care of emergency situations of blockage of sewer systems and septic tanks, the major municipalities in each districts shall set up a Sanitation Response Unit (SRU).
- 5) **Training and Certification of sanitation professionals:** SRU shall develop facilities for training and certification of the sanitation professionals either inhouse or through reputed institutions.
- 6) **Compulsory licensing of private cleaning agencies:** Most municipalities/local bodies are engaging private agencies for cleaning the sewers and septic tanks as well as transporting of the septage from septic tanks to the septage treatment plants. In some cases, the septage treatment plants are also being operated by private agencies. Compulsory licensing for such agencies is necessary to avoid mishaps. Only such agencies which have facilities for total mechanized cleaning and handling of septage and professionals/trained personnel should be given licences.
- 7) **Amendments to MS Act and Rules:** Certain provisions of the Act need to be amended to include new definitions to enhance its scope and strengthen existing provisions to make it more coherent, meaningful and forceful. However, it is evident that the purview of the amendment of the Act should increase not only for incorporating finer nuances of definition, award of compensation to the families of the persons killed in fatal accidents while cleaning sewer or septic tank, quantum of punishment, provisions relating to appointment of RSA and its duties, setting up of SRUs. Therefore, the Department of Social Justice and Empowerment is of the view that amendment of MS Act, 2013 should be more effective to achieve of elimination of manual cleaning of sewers and septic tanks.

### **3.6 Draft Indian Ports Bill, 2022**

- India has a 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes. About 95% of India's trade by volume and 65% by value is done through maritime transport facilitated by ports. Under the aegis of the Sagarmala project of Ministry of Ports, Shipping and Waterways, several initiatives on port-led development have been identified and launched. The ongoing developments and committed investments (public and private) in ports needs to be aided by scientific and consultative planning, with a keen focus on ever increasing safety, security and environmental issues.
- The Indian Ports Act, 1908 ("Act") is more than 110 years old. It has become imperative that the Act is revamped to reflect the present-day frameworks, incorporate India's international obligations, address

emerging environmental concerns, and aid the consultative development of the ports sector in the national interest.

- Accordingly, the draft Indian Ports Bill, 2022 (“IP Bill 2022”) has been prepared to consolidate and amend the laws relating to ports, for the prevention and containment of pollution at ports, to ensure compliance with the country’s obligation under the maritime treaties and international instruments to which India is a party; take measures for conservation of ports; to empower and establish State Maritime Boards for effective administration, control and management of non-major ports in India; provide for adjudicatory mechanisms for redressal of port related disputes and to establish a national council for fostering structured growth and development of the port sector, and ensure optimum utilization of the coastline of India, as may be necessary, and to provide for matters ancillary and incidental thereto, or connected therewith.
- The draft IP Bill 2022 seeks to repeal and replace the existing 1908 Act. The primary objectives of the proposed bill are four-fold:
  1. promote integrated planning between States inter-se and Centre-States through a purely consultative and recommendatory framework;
  2. Ensure prevention of pollution measures for all ports in India while incorporating India’s obligations under international treaties;
  3. Address lacunae in the dispute resolution framework required for burgeoning ports sector;
  4. Usher-in transparency and cooperation in development and other aspects through use of data.
- The proposed bill will homogenize and streamline the development of the maritime sector, along with, promoting ease of doing business by eliminating unnecessary delays, disagreements and defining responsibilities. It will incorporate State Maritime Boards in the national framework. Additionally, Maritime State Development Council will ensure cooperative federalism where Centre and State/UT Governments will work together towards preparing progressive road map for the country. The redundant provisions of the Act have been deleted or replaced with contemporaneous provisions. Further, existing penalties in the Act which are outdated have been updated with respect to amounts and offences relevant to present day scenario.

### **3.7 Sovereign Gold Bond Scheme**

- The government of India launched a Sovereign Gold Scheme to provide an alternate option when it comes to owning gold.
- This scheme aims to reduce the demand for physical gold, thereby keeping a tab on gold imports and utilising resources effectively.
- With the Reserve Bank of India issuing these gold bonds, it brings in transparency and trust, providing an avenue wherein people can own gold without having to worry about its storage or safety.

**How does Sovereign Gold Bond Scheme operate?**

- Under the Sovereign Gold Bond Scheme, the Reserve Bank of India will issue the bonds on behalf of the Government of India.
- The bonds will be sold at post offices and banks and issued in denomination of gram.
- They will issue these bonds on payment of money. Later on, the bonds will be connected to the price of gold.
- From one person, the Sovereign Gold Bond Scheme would accept a minimum investment of 2 gm gold and a maximum investment of 500 gm in a single fiscal year.

**Why the scheme was introduced?**

- The gold demand rises in times of uncertainty or high inflation.
- Gold demand is mostly met through imports
- Years of high imports are the ones with high current account deficits which, in turn, have weakened the rupee.
- So, in FY12, when India imported \$56.5 billion of gold, the current account deficit increased to \$78.2 billion.
- It peaked at \$88.2 billion or 4.8% of GDP in FY13, when India imported gold worth \$53.8 billion.
- It is to reduce this huge import bill that, in November 2015, the government tried to introduce gold bonds.

**What were the shortcomings?**

- Only 2% of the average gold consumption over the past five years or less than 6% of the average investment demand of gold has been substituted by gold bonds.
- This is because of the bad design of the product which did not take into account the reason people bought gold, apart from the anonymity.
- The bonds were bought/sold on the basis of the average price five days before the transaction.
- This resulted in buyers/sellers losing out on the appreciation of gold.
- Similarly, there was a 5-year lock-in period for the bond.
- Similarly to bring in market-makers to ensure greater liquidity for the bonds, they are listed on exchanges.
- It does not make sense to have a lock-in for the bonds.
- A more liquid market will ensure the bonds can be sold, but the lock-in will mean that the price obtained from a sale will be discounted.

### **3.8 Grameen Udyami Project launched in Ranchi to promote skill development and entrepreneurship amongst the tribal youth, gives boost to Skill India Mission**

#### **Following objectives must be achieved under the project:**

- Increase in Rural/Local Economy
- Enhance employment opportunities
- Reduce forced migration due to lack of local opportunities
- Conservation of natural resources
- In the first phase of training, candidates were mobilized from rural and tribal areas of Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, and Gujarat. Since candidates were mobilized from the rural areas, transportation, boarding & lodging was provided to candidates so that they do not miss out the learning opportunity due to lack of resources. In Bhopal, Madhya Pradesh, training of 157 candidates started in seven batches in the month of May, 2022 and approximately 133 candidates completed the training successfully on June 27th, 2022. The phase-II of the pilot project launched in Ranchi today is being implemented by Yuva Vikas Society, through Seva Bharti Kendra in Ranchi. NSDC under the aegis of MSDE has supported in setting up of labs and classrooms through Sector Skill Councils (SSCs) in Seva Bharti Kendra Skill Development Center.

#### **The training under the project will be conducted in the following Job roles which are relevant to the local economy.**

- Electrician & Solar PV Installation Technician
- Plumbing & Masonry
- 2-Wheeler Repair & Maintenance
- IT/ITES with e-Governance
- Farm Mechanization
- Grameen Udyami Yojana is implemented under Sansadiya Parisankul Yojana. A two-day conference of Honorable MPs was held in Mumbai to discuss the upliftment of tribal communities in January 2020 in which various experts and government organizations shared their experiences. Further, Scheduled Tribe organizations called for a 'Parliamentary ST Cluster Development Project' which has been initiated. Under which, 49 clusters in 15 states of India have been selected by 40 tribal MPs of Lok Sabha and Rajya Sabha. Under their leadership, the scheme in respective clusters will be implemented. One development associate is appointed by the MPs in each cluster.
- Due to lack of skill and education, organized sectors have very poor contribution in tribal livelihood as compared to the national average. Therefore, initiatives like Grameen Udyami project are critical for their betterment and to ensure their livelihood generation.

### **3.9 ADB, India sign \$96.3 million loan to improve water supply and sanitation services**

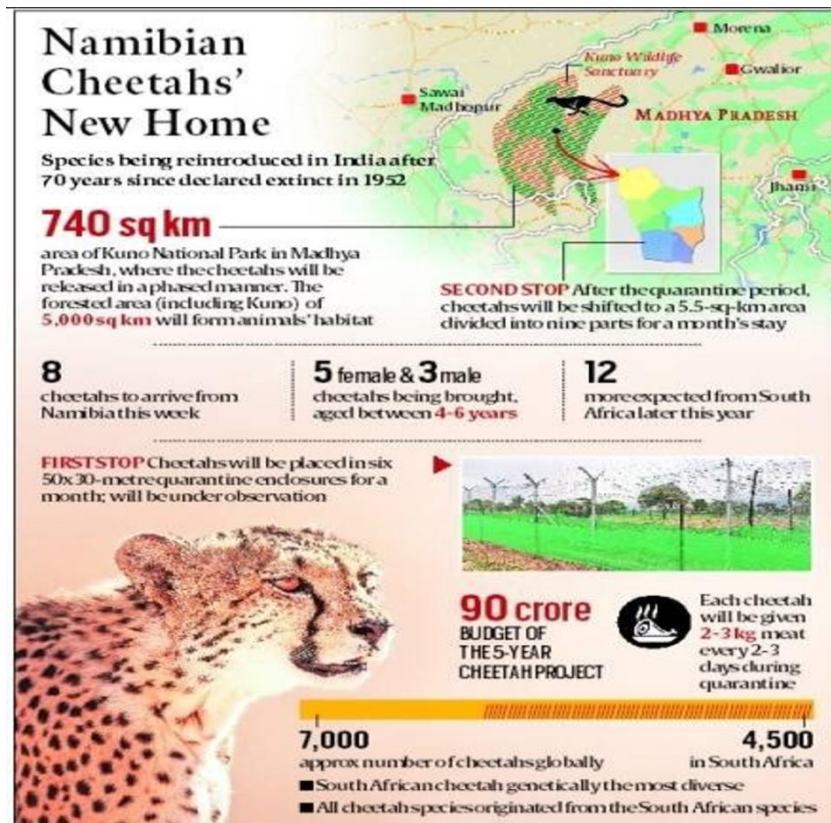
- The Asian Development Bank (ADB) and the Government of India today signed a \$96.3-million loan agreement to provide safe drinking water and improve water supply and sanitation services in the state of Himachal Pradesh.
- The Asian Development Bank (ADB) is a regional development bank established on 19 December 1966, which is headquartered in the Ortigas Center located in the city of Mandaluyong, Metro Manila, Philippines. The bank also maintains 31 field offices around the world to promote social and economic development in Asia. The bank admits the members of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, formerly the Economic Commission for Asia and the Far East or ECAFE) and non-regional developed countries. From 31 members at the time of its establishment, ADB now has 68 members.
- The ADB was modeled closely on the World Bank, and has a similar weighted voting system where votes are distributed in proportion with members' capital subscriptions. ADB releases an annual report that summarizes its operations, budget and other materials for review by the public. The ADB-Japan Scholarship Program (ADB-JSP) enrolls about 300 students annually in academic institutions located in 10 countries within the region. Upon completion of their study programs, scholars are expected to contribute to the economic and social development of their home countries. ADB is an official United Nations Observer.
- As of 31 December 2020, Japan and the United States each hold the largest proportion of shares at 15.571%. China holds 6.429%, India holds 6.317%, and Australia holds 5.773%.

## 4. ENVIRONMENT

### 4.1 Cheetah reintroduction

#### In news

- India has recently brought five females and three male cheetahs from Namibia to Madhya Pradesh's Kuno National Park.
- Before being released into the wild, the cheetahs will spend a few months being housed in a specially constructed enclosure.
- Cheetahs were declared extinct in India in 1952; this is the first time they have been brought back into the wild in the country.



#### About the Reintroduction Plan

- Releasing a species in a habitat that enables it to survive is referred to as "reintroduction."
- The plan calls for the introduction of 50 cheetahs over the course of five years in each of the nation's National Parks.
- Initially, 8 to 12 cheetahs will be relocated from South Africa, Namibia, and Botswana.
- It has never been done before to move a large carnivore from one continent to another.
- The Wildlife Institute of India (WII), which is leading the initiative on behalf of the Indian government, is cooperating with the National Tiger Conservation Authority (NTCA) and the Ministry of Environment, Forests, and Climate Change.
- Cheetahmitras have been established as part of the reintroduction campaign.
- Cheetahmitras are a group of about 400 young people been educated to increase cheetah awareness among residents of nearby villages on how their appearance and behaviour differ from leopards.

### About Cheetah

The huge cat known as the cheetah (*Acinonyx jubatus*) is native to central Iran and Africa. With a top speed of 128 km/h, it is the swiftest animal on land.

There are four subspecies of cheetah.

The cheetah differs from the leopard in a variety of ways, including how it looks and how it hunts.



### About the Extinction of Cheetahs in India



- The Maharaja Ramanuj Pratap Singh Deo of Koriya is thought to have hunted and killed the last three known Asiatic cheetahs in India in 1947, which is when the cheetah is thought to have vanished from the country's landscape.
- The Indian government proclaimed the cheetah extinct there in 1952, the only large carnivore to have gone extinct in the nation up to this point, likely as a result of habitat degradation and poaching.

### Significance of Cheetah Reintroduction Plan

- Cheetah restoration will be part of a prototype for restoring original cheetah habitats and biodiversity, assisting in the prevention of biodiversity degradation and loss.
- The reintroduction holds significance as it is a keystone species (an organism that helps define an entire ecosystem) of dry forests, scrub forests, and savannahs.
- It will revive grasslands and their biomes and habitat and also enhance local community livelihoods through eco-tourism prospects.
- Bringing back a top predator restores historic evolutionary balance, which has cascading effects on various levels of the ecosystem.
- This will also result in better management and restoration of wildlife habitats (grasslands, scrublands, and open forest ecosystems), conservation of cheetah prey and sympatric endangered species, and a top-down effect of a large predator that enhances and maintains diversity in lower trophic levels of the ecosystems.



**Difference between Asiatic and African Cheetah**

Asiatic Cheetah	African Cheetah
Smaller and paler than the African cheetah. Has smaller head and a longer neck. Usually have red eyes and they have a more cat-like appearance.	Bigger in size as compared to Asiatic Cheetah.
Around 40-50 found only in Iran.	Around 6,500-7,000 African cheetahs present in the wild.
IUCN: Critically Endangered	IUCN: Vulnerable
CITES: Appendix-I of the List	CITES: Appendix-I of the List
	

**About Kuno National Park**

- Established in 1981 as a wildlife sanctuary, Kuno National Park is a national park in Madhya Pradesh, India.
- In 2018, it was designated the status of a National park by the state government.
- It is a part of the dry deciduous forests ecoregion of the Khathiar-Gir.
- Dry savanna forests, grassland, and tropical riverine forests make up the protected area's vegetation.
- In the protected area, the sloth bear, dhole, Indian wolf, golden jackal, striped hyena, and Bengal fox are the dominant predators.

**Why Kuno has been selected as the site for relocation?**

- Most Appropriate Site as it has least management interventions among the potential sites evaluated for the feasibility of establishing cheetah populations in India based on IUCN guidelines.
- **No Human Settlements** in the region though chances of conflicts with humans are thin for cheetahs as they do not prey on humans or attack large livestock
- **Savannah Habitat:** There has been a complete relocation of roughly 24 villages and their domesticated livestock from Kuno and inside the park years ago. The village sites and their agricultural fields have now been taken over by grasses and are managed as savannah habitats.
- **Co-existence of Competing Predators:** According to the government's plan, Kuno offers the prospect of housing four large felines in India tiger, lion, leopard and cheetah and ensuring they coexist as they did in the past.

## **4.2 Climate change and Indian monsoon**

### **In news**

- According to recent research, climate change-induced global warming makes the monsoon more variable, causing both brief bursts of heavy rain and extended intervals of dry weather. Since 1902, the year 2022 has experienced the second-highest number of severe events. A frightening scenario has given rise to droughts and floods.

### **How has Climate Change impacted the Rainfall Pattern?**

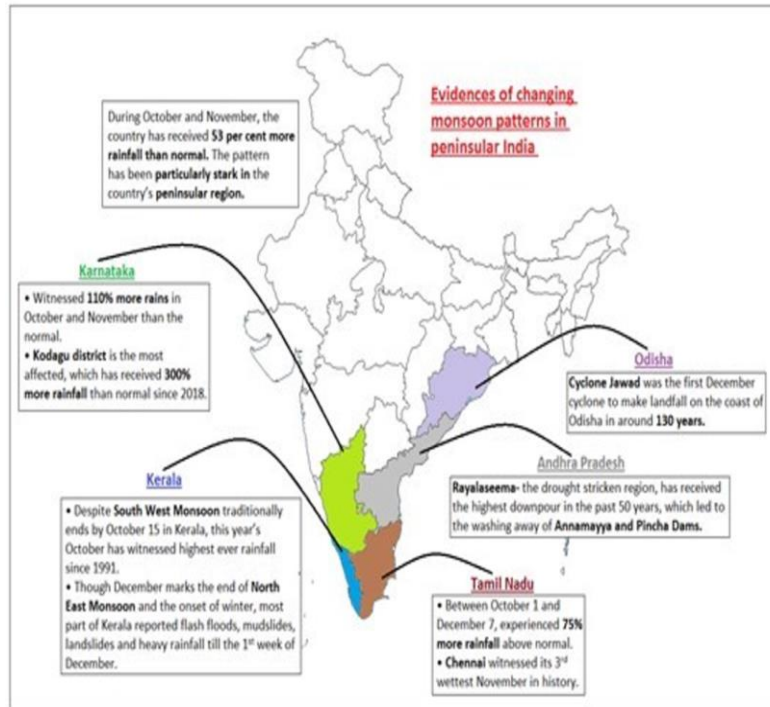
- Flash floods and low-pressure systems moving south of their positions indicate a change in the monsoon systems' course.
- Originally, the term "monsoon depression" referred to a summertime low-pressure system that affected the North Indian Ocean and the Bay of Bengal. The closed isobar's diameter can reach 1000 km, covering a rather vast area.
- In contrast to West Bengal, Jharkhand, and Bihar, which experienced below-average rainfall in 2022, Madhya Pradesh, Gujarat, Rajasthan, and portions of Maharashtra experienced above-average precipitation.
- In August 2022, two depressions that followed one another formed in the Bay of Bengal and moved across Central India.
- Although each year's summer monsoon rainfall is different, there has been significant regional and temporal variability in rainfall in 2022.

### **Impacts on Food Security:**

- In India, monsoon rains decreased in frequency but increased in intensity in the second half of the 20th century.
- A better rainfall scenario, according to scientists and food experts, might have contributed to a higher yield.
- However, these extraordinary shifts are having a severe impact on India's hundreds of millions of rice producers and consumers, raising questions about food security.

### **Impact on Kharif Crops:**

- Changes in the trajectory of the monsoon systems have a significant impact on kharif crops, notably rice production. During this time, they account for a sizeable portion—more than 50%—of the overall production of food grains.
- The decrease in Kharif output might keep rice prices high.
- Despite a robust monsoon current in July and August, the output of rice in the three states of Bihar, West Bengal, and Uttar Pradesh—which together produce one-third of the nation's total—has been severely deficient.



### Affected the Quality of Grains:

- These rains' unequal distribution could affect the grain's quality and alter its nutritional value.
- A study titled "Climate change, the monsoon, and rice yield in India" found that temperatures over 35 °C can cause heat stress in plants and have an impact on their physiological processes, which can result in spikelet sterility, non-viable pollen, and poor grain quality.

### What needs to be done?

- India must devote more funds to improving monsoon forecasting in order to achieve sustainability and dependability.
- As we live in a common planet with a shared future, we must act quickly and effectively to safeguard and sustain India's climate pattern, both domestically (National Action Plan on Climate Change) and internationally (UN Framework Convention on Climate Change).

## 4.3 La Nina and its impact on India

### In news

- According to the World Meteorological Organization (WMO), the present La Nina phase will probably last for the ensuing six months, making it a Triple dip La Nina.

### Key Terms

#### El Nino

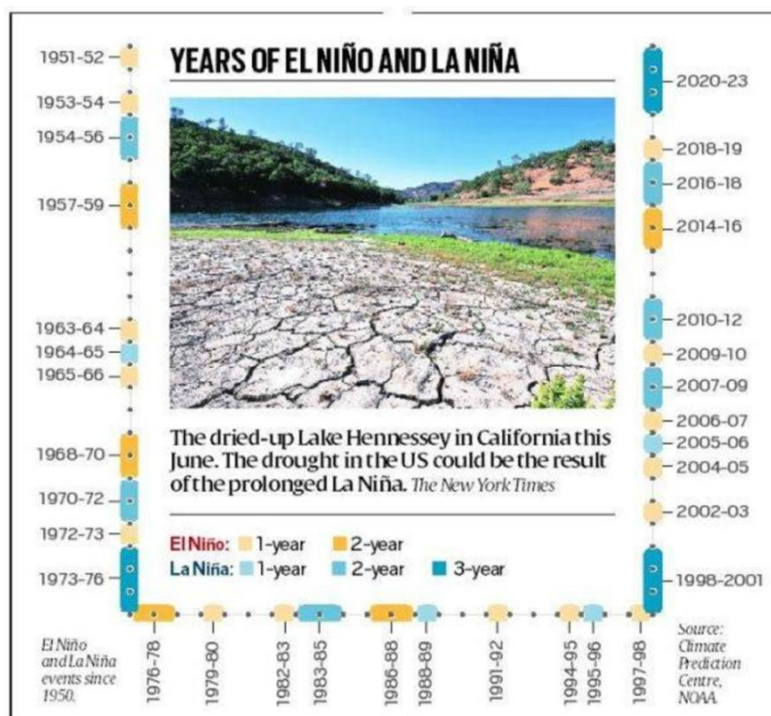
- El Nino is a term used to describe the anomalous warming of surface waters in the eastern tropical Pacific Ocean.
- It is the "Warm phase" of a larger phenomenon called the El Nino-Southern Oscillation (ENSO).
- It occurs more frequently than La Nina.

### La Nina

- The unusual cooling of the tropical eastern Pacific is referred to as La Nina, the "cold phase" of ENSO.
- Contrary to El Nino, which typically lasts little longer than a year, La Nina occurrences may last between one and three years.
- The Northern Hemisphere winter is typically when both phenomena reach their climax.
- Indian Ocean Dipole
- A discrepancy in sea-surface temperatures between the eastern (Bay of Bengal) and western Indian Oceans is what is known as the Indian Ocean Dipole (IOD), an atmosphere-ocean linked phenomenon (Arabian Sea).
- IOD and other similar ocean events, in addition to El Nino and La Nina, affect the Indian monsoon.

### What is Triple Dip La Nina?

- El Niño and La Niña episodes typically last for about nine months to a year. They usually develop in the March-June period, and are the strongest during winter (November-January in the northern hemisphere), before weakening or dissipating by March or April of next year.



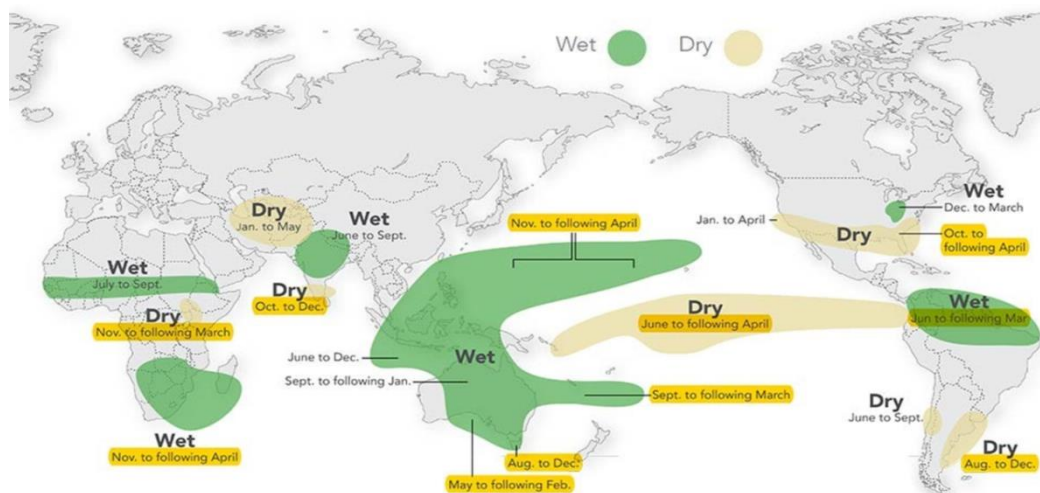
### For example,

- El Niño of 2015-16, was one of the longest on record (spread over 19 months) and was dubbed ‘Godzilla’ due to its sustained high intensity.
- The current La Niña episode started in September 2020, it has prevailed for the last 24 months, and looks set to continue for another six months, and therefore, classified as ‘triple dip’ La Niña. It will be the “First Triple-Dip La Nina” event of the 21<sup>st</sup> century.

- According to a recent paper published by Chinese researchers, almost half (six out of 13) of all La Niña events since 1950 have stretched for two years, while three, including the current one, have continued for three years. In contrast, over 75% of El Niño events (15 out of 20) ended within a year. No El Niño has ever stretched into the third year.

### Impact on India:

- A continued spell of La Nina could lead to an expectation of another year of good, or normal, rainfall during the monsoon.
- Until now, this year's monsoon season has produced 7% more rain than normal. Last year, the seasonal rainfall was almost 100%.
- But, even though powerful, the ENSO condition is only one of the several factors affecting monsoon rainfall in India.



### Other parts of the Globe

- **USA:** La Nina is associated with very dry winters in most parts.
- **Australia, Indonesia & other tropical regions** are expected to bring more rainfall.
- **Pakistan:** It is predicted to be a major cause behind the excessive rainfall in Pakistan, which is experiencing its worst flooding disaster.
- **Africa:** The persistence of La Nina may result in a worsening of the drought in Africa.

### How is it linked to Climate Change?

- **No clear evidences:** There are no distant historical records or conclusive evidences on the linkage of ENSO events with global warming.
- **Imprecise variability:** Uncertain natural variability is brought on by erratic events like El Nino or La Nina, which can appear every two years or go without for as long as seven years. As a result, estimating the impact of global warming is challenging.
- **Distinguished linkage:** Another type of connection between global warming and ENSO episodes is supported by the following evidence:

- The colder ocean surfaces help the oceans to absorb more heat from the atmosphere during La Nina years.
- La Nina's cooling influence is temporarily slowing the rise in global temperatures, but, according to the WMO, it won't be able to stop or reverse the long-term warming trend. It was also noted that average global temperatures were about 0.9 degrees Celsius higher than the average for the 20th century.

#### **4.4 Stubble burning and associated threats**

##### **In News:**

The Delhi government recently announced that it would spray Pusa bio-decomposer free of cost over 5,000 acres of paddy fields in the city.

##### **About the News:**

###### **Pusa Bio-Decomposer**

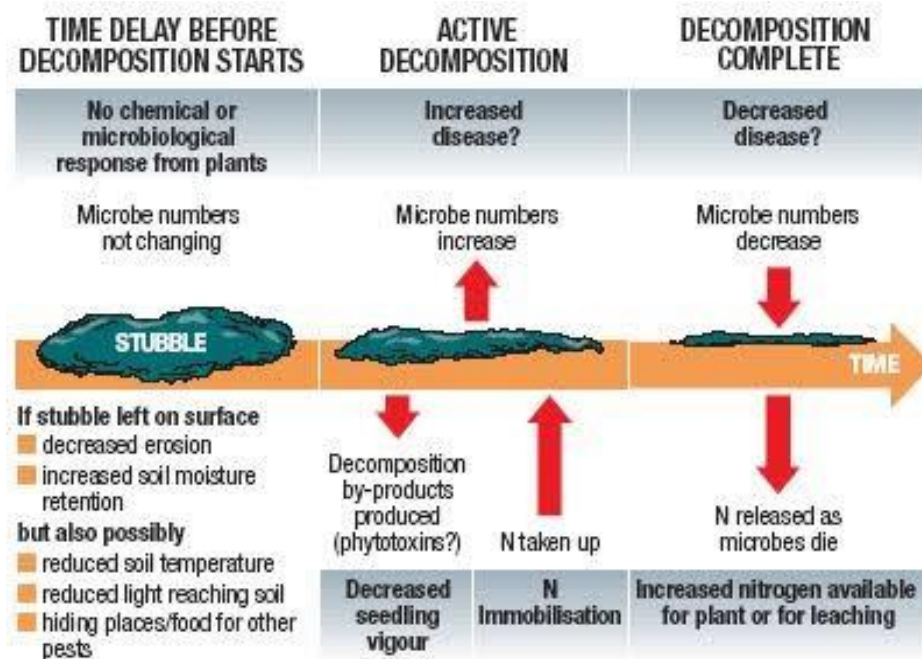
- It is a fungi-based liquid solution that can soften hard stubble to the extent that it can be easily mixed with soil in the field to act as compost.
- The fungi thrive at 30-32 degrees Celsius, which is the temperature prevailing when paddy is harvested and wheat is sown.
- It produces enzymes to digest cellulose, lignin and pectin in paddy straw.
- It is developed by the Indian Council of Agricultural Research (ICAR) and named after ICAR's campus at Pusa in Delhi.
- It rapidly converts crop residues, animal waste, dung and other waste into organic manure.
- It is an inexpensive and effective technology for agricultural waste and crop residue management.

###### **Benefits:**

- The decomposer improves the fertility and productivity of the soil as the stubble works as manure and compost for the crops and lesser fertiliser consumption is required in the future.
- It is an efficient and effective, cheaper, doable and practical technique to stop stubble burning.
- It is an eco-friendly and environmentally useful technology and will contribute to achieve Swachh Bharat Mission.

- This measure is an attempt to prevent stubble burning and winter pollution in the NCR region.
- A bio-decomposer capsule has been developed by the Indian Agricultural Research Institute which turns into a solution through a week-long process, after which it decomposes straw and stubble into manure.
- Every year, when winter sets in, Delhi's air pollution peaks with the air quality index (AQI) often plunging to the 'severe' and 'hazardous' categories impacting healthy individuals.
- A major reason behind the spike in Delhi's air pollution is stubble burning by farmers in Punjab and Haryana, which often increases to about 42% before the sowing season.
- While stubble burning is an important factor, it is not the only factor that contributes to rising air pollution in Delhi which also includes factors including vehicles and industrial emissions etc.

- Previously, the government has implemented predictions on air quality under the Graded Response Action Plan, prepared by the Commission for Air Quality Management.



### Major highlights of the plan:

- Background:** The government first used the solution in 2020-21 which has earlier shown positive results.
- Action plan:** The bio-decomposer solution is one of the 15 focus points in the government's Winter Action Plan, which is in pipeline.
- Dedicated teams:** Environment ministry will set up of 21 teams to carry out the task of spreading the solution to over 5,000 acres in the city.
- Costing:** To control stubble burning and reduce air pollution during winter, the Delhi government will spray a bio-decomposer free of cost government in all the Basmati and non-Basmati paddy farms in Delhi.

### The problem of stubble burning:

- Wheat income:** Every year, Punjab which gives around 35 lakh hectares under wheat coverage, produces around 20 million tonnes in the normal cropping season which is worth Rs 14,000 crores if the rate reaches Rs 1,000 per quintal.
- Tudi dilemma:** 'Tudi', which is made from wheat stubble, is considered to be the best dry fodder for cattle because of its nutritional value.
- Stubble curse:** Farmers actually don't burn the stubble but the upper portion of the roots because after making fodder small few centimetres of the upper part of the roots are left and farmers even set that part on fire which can be avoided easily without any damage to the next crop.
- Cost-effective:** Farmers have to burn the roots in an attempt to clean the field for the next crop growing which is mainly paddy, and burning converts the leftover into ash and then they plough the field once which cost them Rs 1000 to Rs 1200 per acre which is economic as without burning more

operations of field ploughing are required and every operation costs Rs 1,000 to Rs 1200 which is not affordable by majority farmers.

### Impact:

- Burning leads to the killing of soil-friendly insects, and organic matter, and causes considerable loss of nitrogen, DAP, and Potassium besides generating a huge amount of carbon dioxide, carbon monoxide, and black carbon, which all create environmental pollution.

## 4.5 International year of millets

### In News

- The United Nations General Assembly has declared the year 2023 as the International Year of Millet, on a proposal by India to create awareness about the health benefits of Millets.

### About Millets

#### Kharif crop

- Small-seeded grasses, including sorghum, pearl millet, ragi, small millet, foxtail millet, proso millet, barnyard millet, and Kodo millet, are commonly referred to as dryland cereals or Nutri-cereals.



- Additionally, they are tougher and drought-resistant crops.
- Millets require less water, fertilizer, and insecticides to flourish in poor soil conditions.
- They are the ideal choice for "climate-smart cereals" due to their ability to withstand greater temperatures.
- The earliest evidence of Millets was from Indus Civilization in around 3000BC.

**Major Millets in India:** Jowar (Sorghum), Bajra ( Pearl Millet), Ragi ( Finger Millet)

Indigenous Variety of “Small-millets” include Kutki, Chenna, Kodo and Sanwa.

### Adequate Climatic Conditions:

- Short Growing Season (Around 70-100 days, whereas paddy/wheat require around 120-150days)
- Require less water (350-500mm as against 600-1200mm)
- Drought-resistant crop can grow in poor soil conditions



**Production**

- India, Nigeria and China are the largest producers of millets in the world, accounting for more than 55% of the total global production.
- Indian alone accounts for 20% of global production.
- However, in recent years production of millets has exponentially increased in Africa.

**Benefits of Millets**

- They are cheap and more nutritious. For eg, Ragi has the highest calcium content and high iron content which can help in fighting anaemia.
- Millets are gluten-free, have a low glycemic index, are rich in dietary fibre and antioxidants, and can aid with health issues like obesity, diabetes, and lifestyle disorders.
- It is well known that millets, which are Nutri-cereals, have a high nutrient content, including protein, essential fatty acids, dietary fibre, B-Vitamins, and minerals like calcium, iron, zinc, potassium, and magnesium.
- It requires low investment for inputs.
- In particular for children and women, it can offer nutritional stability and safeguard against nutritional deficiencies.
- Additionally, it will be crucial for dryland climate change mitigation efforts as well as significant for smallholder and marginal farmers.
- They have anti-ageing properties and acts as antioxidants.

**Concerns/Challenges**

- Awareness regarding the nutritional value of millets is still low.
- Lesser number of players working on value-added millet products in India.
- Due to the presence of gluten in wheat, the food made is softer and hence preferred over food made with millets.
- Lack of Input subsidies and price incentives
- Absence of proper market linkages
- Changes in consumer preferences
- Low on Demand

**Government Initiatives**

- In 2018, Government declared millets as “Nutri-cereals” creating awareness about their “High-nutritive value” and “Anti-diabetic properties”.
- 2018 was also declared as “National Year of Millets”.
- Including millets in POSHAN ABHIYAN and Public Distribution System (PDS).
- Initiating Millet Mission under National Food Security Mission (NFSM).
- Millet Village Scheme started by Kerala

- Global Initiatives
- At the SCO meet, India proposed to organize the “Millet Food Festival”.

### Way Forward

- There is a need to encourage the production of more millets by offering financial assistance to farmers because these cereals provide benefits to the environment and society in addition to the social ones.
- Millets deserve support given the effects of climate change and government efforts to promote climate-smart agriculture. It can also enable rainfed sustainable farming systems that are able to adapt to climate change and feed people from all socioeconomic backgrounds.

## 4.6 Hydrogen fuel

Germany has recently launched the world’s first fleet of fully hydrogen-powered trains.

### About the News:

- These trains which are claimed to be ‘emissions-free’, can reach speeds of 140 kilometres per hour and can run about 1,000 km before the tank runs dry which can again be refuelled in 15 minutes at customised hydrogen-fuelling stations.
- These trains were produced by Alstom, a French multinational company and were inaugurated in Germany as a pilot run in 2018.
- Across the European Union, almost half (44 per cent) of the railway lines are not electrified thus leaving lines that require diesel or other long-range alternatives like hydrogen as the only option.
- However, these trains have been questioned for their environmental efficiency, considering that the CO<sub>2</sub> emitted by grey hydrogen is the same as that emitted by petrol and 1,000 times more than natural gas burnt directly.

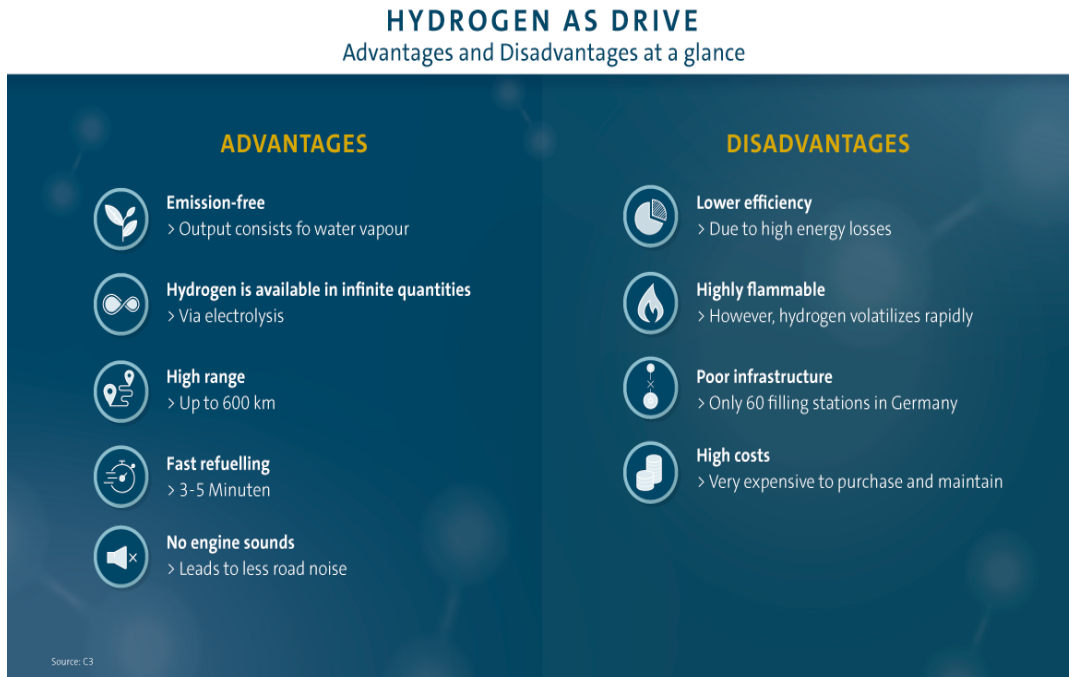
### Important features of the train:

- **Cell-based locomotives:** They are powered by fuel cells’ a special kind of battery that produces electricity when hydrogen (stored in tanks above the coaches) and oxygen (taken from the air) combine which are then used to power electric motors at the bottom of the train coach.
- **Track lines:** These trains are designed specifically for the use of non-electrified lines as, railway tracks that do not have electric lines running over them or which are too costly to electrify.
- **Reducing carbon footprint:** Replacing one diesel train with a hydrogen train reduces the yearly CO<sub>2</sub> emission by 4,400 tonnes.

### Major challenges:

- **Expensive:** Green hydrogen is up to five times more expensive than ‘grey’ hydrogen produced from natural gas or worse, ‘brown’ hydrogen produced from coal.
- **Polluted process:** Due to its production process, grey hydrogen emits 1,000 times more CO<sub>2</sub> than directly burned natural gas and is equivalent to that of gasoline.

- **Miniscule footprint:** Green hydrogen makes up only 0.03 per cent of global hydrogen production and is way too expensive than the other two.



- **Limited impact:** Although the alternative ‘blue’ hydrogen costs 1.5-3 times more than grey or even the cheaper brown hydrogen, with only 0.73 per cent of the world’s hydrogen being actually clean it is not a very promising contribution to climate change.
- **Costly affair:** Until green hydrogen becomes a cheaper alternative, it may just be the oil and gas sector’s convenient way of hoodwinking the masses into thinking it is an easy and green way into the future.

### What can be done?

- **Switching to blue hydrogen:** World should push for ‘blue’ hydrogen, which is grey hydrogen coupled with additional installations for carbon capture and storage incorporated into the production facility.
- **Recycling:** Capturing can help in reusing up to 90% of the CO<sub>2</sub> emitted during hydrogen production and prevent them from escaping into the atmosphere.
- **Switching to renewables:** Governments should implement a plan for renewables and increase in domestic production capacity of green hydrogen.

### Scope in India:

- **Status:** India currently has around 13,500 trains running every day with nearly 5,000 (37 per cent) of these being diesel locomotives and the rest fully electrified.
- **Potential:** There is a potential for India to save more than 24 million tonnes of CO<sub>2</sub> emissions every year and 2,400 million litres of diesel fuel (and associated costs) if these trains are switched to hydrogen.
- **Initiatives Taken:** The Union Budget for 2021-22 has announced a National Hydrogen Energy Mission (NHM) that will draw up a road map for using hydrogen as an energy source.

### Other associated initiatives include:

- Jawaharlal Nehru National Solar Mission. (JNNSM)

- International Solar Alliance
- PM-KUSUM
- National Wind-solar Hybrid Policy
- Rooftop Solar Scheme

	GREY HYDROGEN	BLUE HYDROGEN	GREEN HYDROGEN
Process	Reforming or gasification	Reforming or gasification with carbon capture	Electrolysis
Energy source	Fossil fuels	Fossil fuels	Renewable electricity
Estimated emissions from the production process <sup>a</sup>	Reforming: 9 – 11 <sup>b</sup> Gasification: 18 – 20	0.4-4.5 <sup>c</sup>	0

Note: a) CO<sub>2-eq</sub>/kg = carbon dioxide equivalent per kilogramme; b) For grey hydrogen, 2 kg CO<sub>2-eq</sub>/kg assumed for methane leakage from the steam methane reforming process. c) Emissions for blue hydrogen assume a range of 98% and 68% carbon capture rate and 0.2% and 1.5% of methane leakage.

#### 4.7 Battery Waste Management Rules 2022

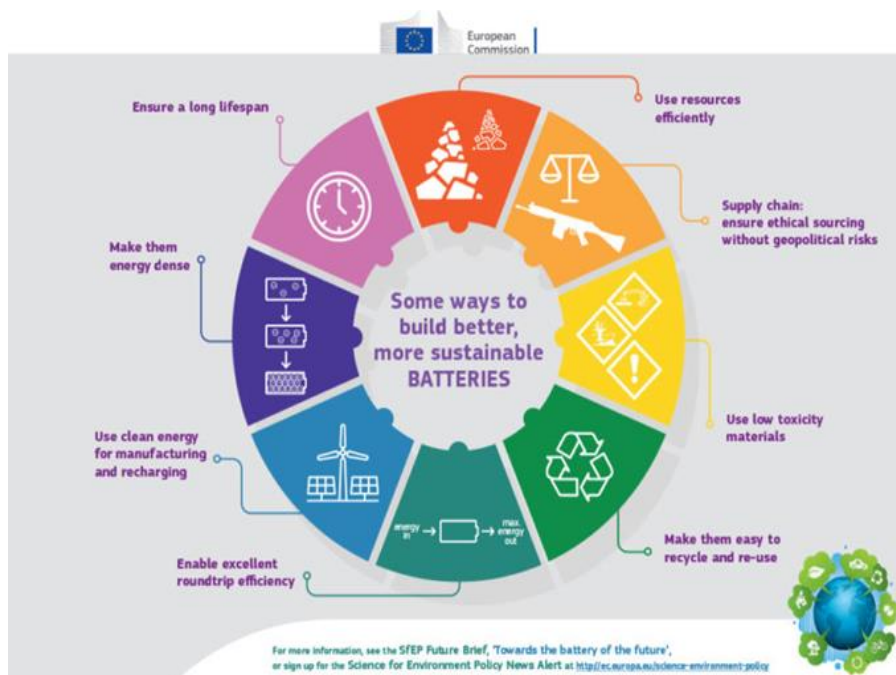
##### In news

- The Ministry of Environment, Forest and Climate Change has recently published the Battery Waste Management Rules, 2022 to ensure environmentally sound management of waste batteries.

##### About the Rules

- The notification of these rules is a transformative step towards the implementation of promoting a Circular Economy in full earnest.
- **Application:** These rules shall apply to producers, dealers, consumers, and entities involved in the collection, segregation, transportation, refurbishment and recycling of Waste batteries;
- The rules cover all types of batteries, viz. electric vehicle batteries, portable batteries, automotive batteries and industrial batteries.
- **Functions of Producer:**
  - The producer shall have the obligation of Extended Producer Responsibility (EPR) for the battery that they introduce in the market to ensure the attainment of the recycling or refurbishing obligations.
  - EPR mandates that all waste batteries be collected and sent for recycling/refurbishment, and it prohibits disposal in landfills and incineration.
- **Functions of Consumer:**
  - To discard Waste Batteries separately from other waste streams, especially from mixed waste, and domestic waste streams.

- To ensure that Waste Battery are disposed off in an environment-friendly manner by giving them to an entity engaged in collection or refurbishment or recycling.



- **Functions of Public Waste Management Authorities:**

- They are to hand over collected waste battery to the producers or agencies acting on their behalf or the entity engaged in refurbishment or recycling with a view to refurbishment or recycling of those waste battery or carry out their recycling or refurbishment themselves.

- **Centralised Online Portal:** A Central Pollution Control Board shall establish an online system for the exchange of EPR certificates between producers and recyclers/refurbishers to fulfil the obligations of producers.
- Prescribing the use of a certain amount of recycled materials in the making of new batteries will reduce the dependency on new raw materials and save natural resources.
- Online registration & reporting, auditing, and committee for monitoring the implementation of rules and taking measures required for removal of difficulties are salient features of rules for ensuring effective implementation and compliance.

#### 4.8 Loktak lake

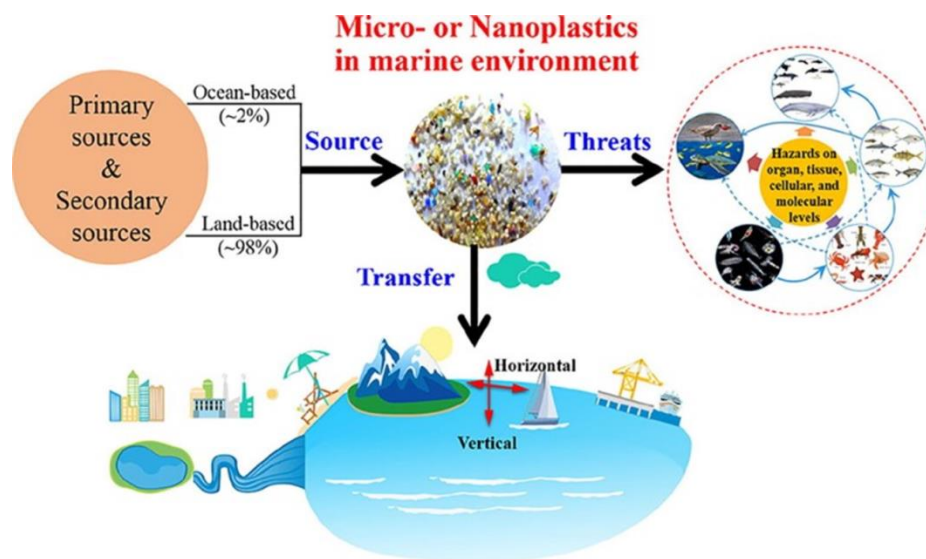
**Context:** The Central Bureau of Communication is organizing a floating photo exhibition at Loktak Lake, Manipur.

- It is the largest freshwater lake in the Northeast located in Manipur.
- The attractions of this lake are the 'phumdis' or floating biomass.
- Phumdis are a heterogeneous mass of vegetation, soil, and organic matter at various stages of decomposition floating over it.
- The Keibul Lamjao National Park, the only floating wildlife habitat on earth, is on the southwestern part of the lake and is the last natural habitat of the Sangai or brow-antlered dancing deer.

- Other Species of Loktak Lake include Hog Deer, Otter, a host of waterfowl and migratory birds.
- This ancient lake plays an important role in the economy of Manipur. It serves as a source of water for hydropower generation, irrigation and drinking water supply.
- The lake is also a source of livelihood for the rural fishermen who live in the surrounding areas and on phumdis, also known as “phumshongs”.
- Considering the ecological status and its biodiversity values, the lake was initially designated as a wetland of international importance under the Ramsar Convention in 1990.
- It was also listed under the Montreux Record in 1993, "a record of Ramsar sites where changes in ecological character have occurred, are occurring or are likely to occur".

#### 4.9 Nano plastics

- **Context:** A recent study has found that nano-plastics plastic particles that are smaller than micro plastics can move up the food chain from plants to insects and from insects to fish.
- Plastic particles below 5 mm in length are called micro plastics whereas the smaller ones, with a size equal to or less than 100 nm (1/10 000 mm) are called nano plastics, which are invisible to the naked eye or even in an ordinary optical microscope.



- It can lead to cell damage and inflammation in humans; growth impairments, larval deformities and other toxic effects in marine organisms.
- Studies have indicated the potential for fragmentation of plastic materials into nanoparticles, i.e., “nano plastics,” and their accumulation in the environment.
- Nanoparticles can show markedly different chemical and physical properties than their bulk material form.
- Nano plastic particles are dangerous because they are easily ingested and can enter the organs and body fluids of organisms and thus propagate up the food chain.
- Further, these particles are also co-contaminated with various chemicals and other pollutants.
- Consequently, such plastic particles can interfere with various physiological processes, from neurotransmission to oxidative stress and immunity levels of freshwater and marine organisms.

- Studies show that lettuce can take up nano-plastics from the soil and transfer them into the food chain, concluding that the presence of tiny plastic particles in soil could be associated with a potential health risk to herbivores and humans.

## 5. SCIENCE & TECHNOLOGY

### 5.1 Xylitol: New sugar substitute.

Recently, researchers at the Indian Institute of Technology (IIT), Guwahati have developed an ultrasound-assisted fermentation method to produce a safe sugar replacement called “Xylitol” from bagasse, which is the residue left after crushing sugarcane.



#### Key Points

- Xylitol, recently developed by researchers at IIT Guwahati, has reduced the fermentation time to 15 hours as against about 48 hours in conventional processes and also increased the yield of the product by about 20%.
- Previously only 8-15% of the D-xylose from which xylitol is made is converted to xylitol which translates to a higher price for the consumer.
- The research has also been published in the journal *Bioresource Technology* and *Ultrasonics Sonochemistry*.

#### 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.



## 5.2 Germany: Fleet of hydrogen-powered passenger trains

Germany recently launched the world's first fleet of hydrogen-powered passenger trains to replace 15 diesel trains running on non-electrified tracks in the state of Lower Saxony.



### Key Points

- The new trains are equipped with a hydrogen tank and fuel cells on the roof and will produce electricity by combining water and hydrogen. The company revealed that the excess energy produced will be stored in ion-lithium batteries.
- The estimated cost of this project is around 93-million-euro (USD 92 million).
- These bright blue Coradia iLint trains are built by French TGV-maker Alstom, which are costlier than diesel powered trains but eco-friendly.
- The green trains can travel 600 miles (1,000km) and a maximum speed of 140 kph (87 mph) on a single tank of hydrogen, similar to the range of diesel trains.

### Hydrogen trains

- Hydrogen trains are equipped with fuel cells that produce electricity by combining hydrogen with oxygen. This conversion process only emits steam and water, thus producing zero emissions. Excess energy produced is stored in ion-lithium batteries on board train.
- These trains also make very little noise. Moreover, hydrogen fuel cells have advantages over batteries. Instead of recharging, they can easily be refueled like gas or diesel engine.
- It is also easier to build refueling infrastructure for these trains at railway stations.
- These trains can run for around 1,000 km on a single tank of hydrogen, similar to the range of diesel trains.
- These trains offer attractive prospect to many cities scrambling to combat air pollution. The only disadvantage these hydrogen trains is that they are more expensive than fossil fuel-based trains.

### 5.3 Pharma Sahi Daam 2.0 App.



- The Union Minister of Chemicals and Fertilizers, Dr. Mansukh Mandaviya launched the Pharma Sahi Daam 2.0 App and Integrated Pharmaceutical Database Management System 2.0 during the Silver Jubilee Celebrations of the National Pharmaceutical Pricing Authority (NPPA).

#### **Pharma Sahi Daam 2.0 App**

- Pharma Sahi Daam 2.0 app will have updated features like speech recognition, Share button and bookmarking medicines. It also has a facility for launching complaints by consumers through the consumer complaint handling module. The app will be available in Hindi and English language in both iOS and Android versions.

#### **IPDMS 2.0**

- Integrated Pharmaceutical Database Management System 2.0 is an integrated responsive cloud based application developed by NPPA with technical support from Advanced Computing Center (C-DAC).
- It would provide a single window for submissions of various forms as mandated under Drug Price Control Order (DPCO), 2013.
- It will also enable paperless functioning of NPPAs and facilitate stakeholders to connect with the National Pharma Pricing Regulator from across the country.

#### **National Pharmaceutical Pricing Authority (NPPA)**

- NPPA is independent body under Department of Pharmaceuticals under Ministry of Chemicals and Fertilizers. It was set up in 1997. Its mandate is to fix/revise controlled bulk drugs prices and formulations, enforce prices and availability of medicines under DPCO, 2013. NPPA fixes ceiling price of essential medicines of Schedule I under DPCO 2013. The calculation for essential drugs is based on simple average of all medicines in particular therapeutic segment with sales of more than 1%. In respect of medicines that are not under price control, manufacturers are allowed to increase the maximum retail price by 10% annually.

### 5.4 India's first indigenously developed qHPV against cervical cancer



- Recently Serum Institute of India (SII) and Department of Biotechnology (DBT) launched indigenously developed quadrivalent Human Papilloma Virus (HPV) vaccine for prevention of cervical cancer.

#### Highlights

- The Drug Controller General of India (DCGI) last month granted market authorization to Serum Institute of India (SII) for the production of this indigenously developed vaccine against cervical cancer.
- It will be the first Quadrivalent Human Papillomavirus vaccine (qHPV) in India, to prevent cervical cancer.
- After the launch of this vaccine, the government will soon run a national immunization program for girls in the age group of 9-14 years.
- In 85 percent to 90 percent of cervical cancer cases, it has been seen that the cancer used to grow in the absence of a vaccine, but now it will not happen. If we give this vaccine to young children and daughters in advance, then they will be safe from infection and it is possible that they may not get cervical cancer after 30 years.

#### Cervical cancer in India

- Cervical cancer is the second most common cancers among women in India, even though it is preventable. This cancer is commonly diagnosed among women aged 15 to 44 years of age. According to Globocan 2020, cervical cancer stood at 9.4% of all cancers and 18.3% of new cancer cases in 2020. During 1990-2016, cervical cancer was the second main factor of cancer deaths for women across 12 Indian states.

#### National Cancer Control Programme (NCCP)

- National Cancer Control Programme was first started in India in 1975. Under the programme, priorities were given to equip existing cancer hospital and institutions. Central assistance of Rs 2.50 lakhs was provided to each cancer institution, in a bid to purchase cobalt machines for radiotherapy.

### 5.5 CAPF e-Awas portal



- Union Home Minister Amit Shah recently launched a new online portal ‘e-Awas’ for CAPF personnel.

#### Key Points

- With the help of this new portal, CAPF personnel will also be able to find the houses available with other forces instead of searching for accommodation available in their force. This web portal will enable online registration and allotment of residential quarters to eligible personnel of CAPFs and Assam Rifles.
- Apart from the Assam Rifles, the CAPFs also include Border Security Force (BSF), Central Reserve Police Force (CRPF), Central Industrial Security Force (CISF), Indo-Tibetan Border Police (ITBP), Sashastra Seema Bal (SSB).
- According to the data released by the Ministry of Home Affairs, at present about 19 percent of the houses of the CAPFs are vacant and through this portal, the force personnel can find the houses available with other forces.

#### Other Initiative

- The Government of India had also started the ‘Ayushman CAPF’ scheme some time back with the aim of providing better medical facilities to the families of the jawans. So far more than 35 lakh Ayushman cards have been distributed to 10 lakh workers under this scheme. At the same time, about 56 thousand bills of more than Rs 31 crore have been paid so far.

#### About CAPF

- Central Armed Police Forces (CAPFs) refers to the uniform nomenclature of seven central armed police organizations in India that are overseen by the Ministry of Home Affairs. Their mission is primarily to defend the national interest against internal threats.
- The seven organizations under the CAPF are the Central Reserve Police Force (CRPF), Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), Central Industrial Security Force (CISF), National Security Guard (NSG), Sashastra Seema Bal (SSB), and Special Protection Group (SPG).

- Central Armed Police Forces are organized with the primary function of border guarding for ITBP, BSF, SSB; CISF provides security of sensitive establishments; CRPF, NSG assists police to tackle law and order, counter-naxal operations for and counter-terrorism operations.
- Aside from their primary role, all CAPFs support the police in law and order situations, as well as the army in counter-terrorism operations. In the past, the army has been aided by BSF and CRPF during external aggression. CAPFs collaborate with both the Police and the Army to assist them in various tasks.

### 5.6 AICTE- Adobe partnership on Digital Skilling



- All India Council for Technical Education (AICTE) has recently signed a partnership agreement with Adobe to accelerate digital creativity skills across the country.
- Under this agreement, Adobe will provide curriculum and expertise with the creative and digital literacy skills needed to prepare students for the current digital-first world, and train teachers to integrate digital creativity into the curriculum.
- The partnership aims to empower over 75,000 teachers across 10,000 higher education institutions with the necessary digital creativity skills by 2024.
- This understanding from AICTE in collaboration with Adobe will build a strong skilling ecosystem in the country and empower teachers and students with new age skills to thrive in the post-pandemic digital-first world.

#### **About AICTE**

- AICTE is a statutory body as well as a national-level technical education council that falls under the ambit of the Department of Higher Education. This organization was established in 1945 first as an advisory body and in 1987 it was given statutory status. The responsibility of AICTE includes coordinated development and proper planning of the country's management education and technical education system. AICTE's headquarters is located in New Delhi. Anil Sahasrabudhe is the chairman of this organization.

## 5.7 India's first intra-nasal Corona vaccine



- The country's first intranasal COVID vaccine iNCOVACC by Bharat Biotech has recently received DCGI approval for primary immunization against the infection for people above the age of 18 years. This vaccine has been named ChAd36-SARS-CoV-S COVID-19.

### **Highlights**

- ChAd36-SARS-CoV-S COVID-19 (Chimpanzee Adenovirus Vected) Recombinant Nasal Vaccine for COVID-19 by Bharat Biotech is the first of its kind needle-free vaccine.
- Prior to the approval of this vaccine, Hyderabad-based Bharat Biotech International Limited (BBIL) conducted Phase III trials of this vaccine on around 4,000 volunteers. The vaccine proved effective in this trial. After which this vaccine has been approved under restricted use in emergency situations for age 18 years and above.

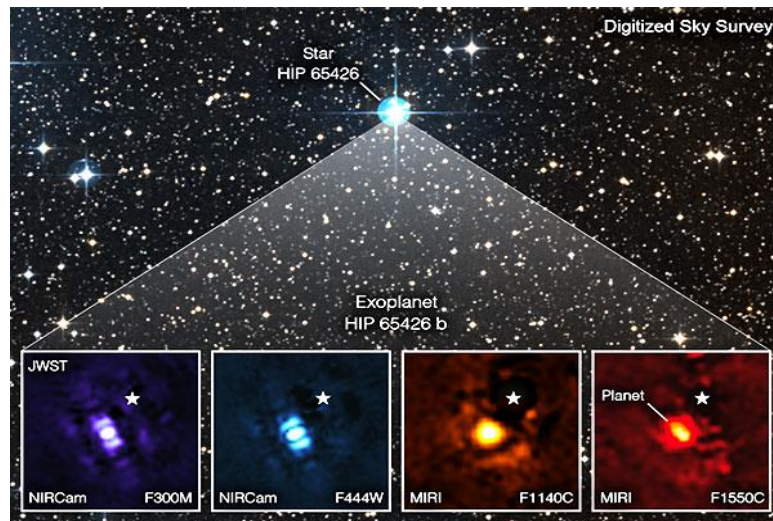
### **ChAd36-SARS-CoV-S COVID-19**

- This is a new intranasal vaccine that is given without the help of a needle (injection).
- It will prove to be a safer and more effective option for middle-income countries.
- According to the company, this vaccine enhances the broad immune response.
- In addition it inactivates IgG, mucosal IgA and T cell responses, and inhibits infection.
- Scalability will not be a problem with this new intra-nasal vaccine based on the viral vector platform.
- Through this vaccine, we can increase the thin mucus membrane immune cells of the nose and mouth, from where the Sars-CoV-2 virus enters the body.
- Therefore, it can prevent the virus from replicating upon its entry and spreading to the lungs and other parts of the body.

### **Bharat Biotech International Limited (BBIL)**

- BBIL is headquartered in Hyderabad. The company is engaged in discovering drug, developing drug, manufacturing vaccines, pharmaceuticals and health care products. It was established in 1996.

### 5.8 James Webb telescope captures ‘Super-Jupiter’ :



- Recently, the James Webb Space Telescope (JWST) captured its first image of an exoplanet at, or planet outside the Solar System.

#### **Facts about the HIP 65426 b Exoplanet**

- The captured exoplanet is named HIP 65426 b and is about six to 12 times the mass of Jupiter. It was first discovered in 2017 using the SPHERE instrument on the European Southern Observatory’s Very Large Telescope.
- This young planet is a “super-Jupiter”, meaning it is a gas giant that is more massive than Jupiter. It is composed of gas in origin and has no rocky surface, meaning that the found planet may not be habitable.
- Exoplanets have been observed through the telescope’s four different light filters, proving how James Webb’s powerful infrared technology can easily capture worlds beyond our solar system.
- NASA revealed that it is a young planet about 15 to 20 million years older than our 4.5 billion year old Earth.
- The planet is located 315 lightyears away and is orbiting at a significant distance from its Star, allowing the James Webb Space Telescope (JWST) to take a picture of the same. The distance between exoplanet and its star is about 100 times that which is between Earth and Sun.

#### **What is James Webb Space Telescope?**

- The James Webb Space Telescope is a large infrared telescope. It will study every phase in the history of universe. This includes formation of solar system, Big Bang and other theories that support life on other planets.
- The Telescope is capable of looking about the past such as the first galaxies formed in the early universe through its longer wavelengths. These wavelengths will help the telescope to peer inside dust clouds from where the planets and stars are formed.
- The telescope is to travel at a distance of 1.5 million kilometres from the earth.
- The telescope is to be launched in Ariane 5 ECA rocket from French Guiana in South America. The rocket is from the European Space Agency.

## 5.9 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.

### **Inflatable Aerodynamic Decelerator (IAD)**

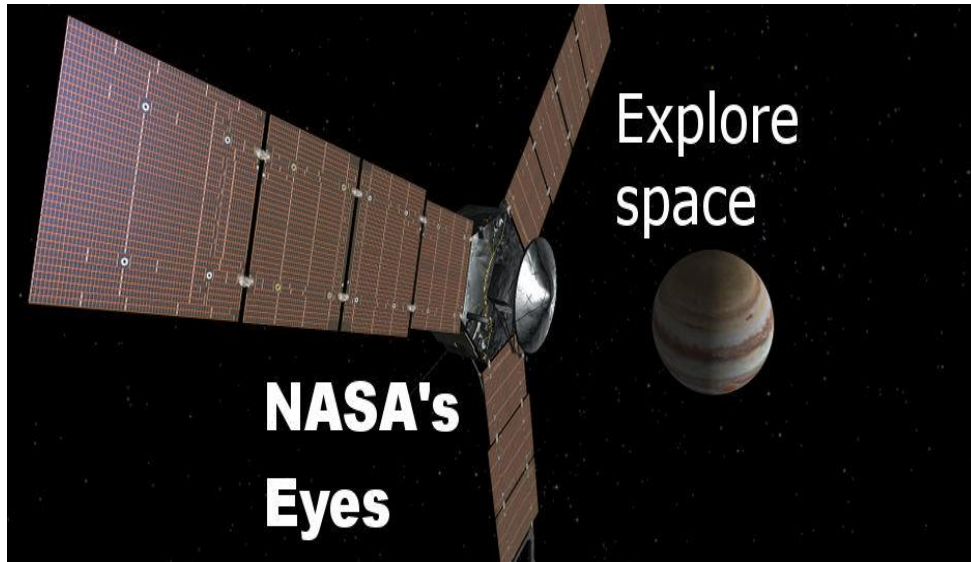
- The Inflatable Aerodynamic Decelerator has been designed and developed by Vikram Sarabhai Space Center (VSSC).
- The IAD technology has been tested from the sounding rocket Rohini-300 (RH300 Mk II). Rohini sounding rockets are regularly used by scientists from India and abroad for flight demonstrations.
- At launch, the IAD was folded inside the ‘payload bay’ and as it reached an altitude of about 84 km, the IAD was opened and inflated into the payload portion of the rocket. Due to which the velocity of the payload was affected and the speed of the rocket decreased.
- 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.

### **ISRO**

- ISRO is the space agency under the Department of Space of Government of India. It was formed in 1969. ISRO replaced its predecessor, INCOSPAR (Indian National Committee for Space Research) which was established in 1962. Current Chairman of ISRO is S. Somnath.



### 5.10 NASA – Eyes on the Solar System Tool



- Recently NASA has updated its 3D visualization ‘Eyes on the Solar System’ tool. This new and improved system now makes interplanetary travel easier and more interactive than before.

#### **Important Facts**

1. This latest edition of “Eyes on the Solar System” lets you scroll through rich interactive journeys. For example, you can enjoy Voyager’s grand tour of Jupiter, Saturn, Uranus and Neptune.
2. It took more than two years for the Visualization Technology Application and Development team at NASA’s Jet Propulsion Laboratory and Caltech to develop the system.
3. This update offers better controls, better navigation, and tons of new opportunities to learn about our own Earth, the Solar System, asteroids, and more.
4. This unique 3D instrument allows real-time 3D data visualization of the past, present and future of the Solar System.
5. The instrument allows multiple visualizations from all satellites on Earth in real time for air temperature, carbon-dioxide, sea wall, soil moisture, ozone, and more.
6. This amazing tool allows you to explore exoplanets in 3D, the search can be filtered by planet type which includes ‘Gas Giants, Terrestrial and even ‘Super Earth’ type planets.
7. This instrument highlights stars and allows the detection of exoplanets around them. One can see the “habitable zone” around the star and if an exoplanet is in that zone.

### 5.11 UGC 'e-Samadhan' portal

The University Grants Commission (UGC) has recently launched an online portal named 'e-Samadhan'.

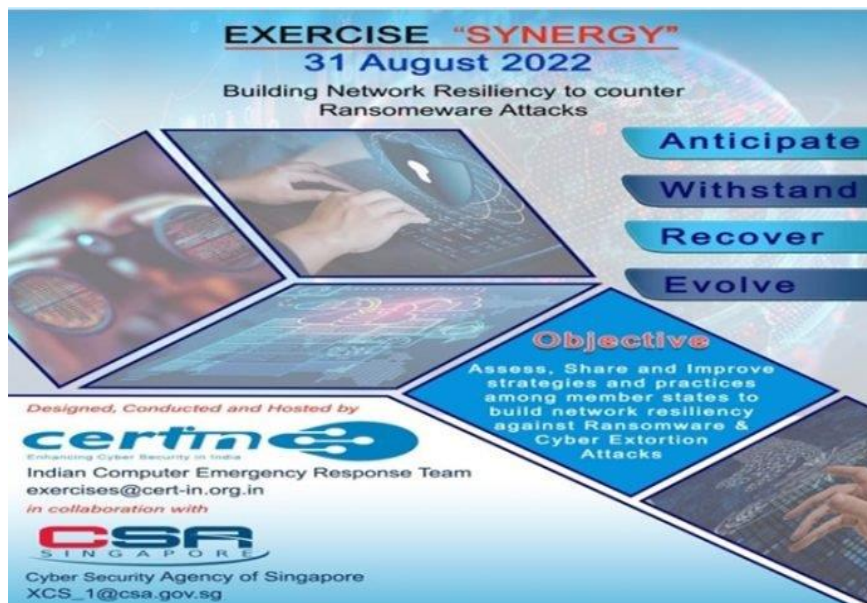
#### Key Points

- Through this portal, students taking admission in any university or facing any kind of problem after admission will be able to find solutions to their problems.
- Students will now be able to directly report their problems to the UGC for any problem in Central and State Universities, their affiliated colleges and other government and private sector higher education institutions across the country through this portal.
- This will benefit all stakeholders in the higher education sector – 1,043 universities, 42,343 colleges, 3.85 crore students and 15.03 lakh teachers.
- Through this portal, students and employees can register any grievance of theirs anytime within 24 hours. Apart from this, there will also be an option to register your problems on the UGC toll free number 1800-111-656.

#### University Grants Commission (UGC)

- UGC is a statutory body established by UGC Act 1956. It works under Ministry of Education to coordinate, determine and maintain standards of higher education. It gives recognition to universities in India, and disburse funds for recognized universities and colleges. It is headquartered New Delhi, along with six regional centres in Bhopal, Pune, Kolkata, Guwahati, Hyderabad and Bangalore.

### 5.12 Synergy: CERT-in cyber security Exercise



- The Indian Computer Emergency Response Team (CERT-In) under the Ministry of Electronics and IT, in collaboration with the Cyber Security Agency of Singapore, successfully designed and conducted a cyber security exercise "Synergy" for 13 countries.

#### Key Points

- The theme of the exercise was "Building a Strong Network to Combat Ransomware Attacks".

- It was conducted on its own simulation platform related to the exercise in which each state participated as a National Crisis Management Team consisting of various government agencies.
- The specific objective of the exercise was to assess and exchange various strategies and methodologies among member-states to build a strong network against ransomware and extortion-intensive cyber attacks.
- This exercise scenario was derived from real-life cyber incidents, in which a single incident of domestic (with limited impact) ransomware turns into a global cybersecurity crisis.
- It succeeded in meeting the objectives and provided insights on better coordination and cooperation among CRI member states to strengthen the network and deal effectively with ransomware attacks.

### Indian Computer Emergency Response Team (CERT-In)

- CERT-In is nodal agency for information technology (cyber) security under aegis of Department of Information Technology, Ministry of Electronics and IT. It was established in 2004. Its mandate is to protect Indian cyberspace and software infrastructure against destructive and hacking activities. It also responds to computer security incidents, report on vulnerabilities and promote effective IT security practices throughout country. It also issues guidelines, vulnerability notes, advisories and whitepapers regarding information security practices, prevention.

### 5.13 Sova virus in India



- CERT-In has given advisory on SOVA virus a novel mobile banking “Trojan” virus that is currently targeting Indian customers.

#### Key features

- 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 confuse the android users.
- The latest version can hide itself within fake android applications that show up with the logo of a few famous apps like Chrome, Amazon, NFT platform etc., to deceive users into installing them.

- This malware is distributed through smishing (phishing via SMS) attacks like most Android banking Trojans.
- After the installation of the fake android application, it sends the list of all application installed on the device to the command and control server (C2) of the threat actor so as to obtain targeted applications.
- Then, the C2 sends back to the malware the list of addresses for each targeted applications and stores this information inside an XML file.
- These targeted applications are then managed through the communication between the malware and the C2.
- 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.

### **CERT-In**

- The Indian Computer Emergency Response Team or CERT-In is a nodal agency of the Indian Government involved in addressing cyber security threats like hacking and phishing. It comes under the aegis of the Ministry of Electronics and Information Technology.

### **5.14 Hughes-ISRO satellite internet service.**

- Hughes Communications India (HCI) and ISRO has jointly launched India's first high-throughput satellite (HTS) broadband service.

### **Key facts**

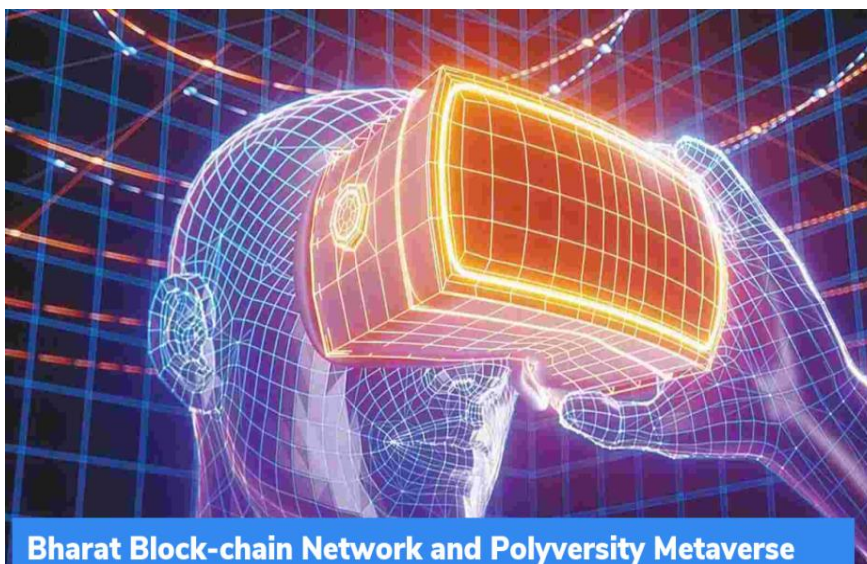
- HCI – a joint venture company of US-based Hughes Network Systems and Indian telecom operator Bharati Airtel – launched the first high throughput satellite broadband internet service in India.
- This service would provide satellite internet to remote parts of India by using ISRO's GSAT-11 and GSAT-29 satellites.
- ISRO launched the GSAT-11 and GSAT-29 in 2018 to provide higher bandwidth satellite connectivity to Indian clients in the space enterprise. The GSAT-11 is capable of providing up to 14 Gbps through satellite network.
- The newly launched HTS broadband service aims to provide high-speed broadband in regions that are inaccessible for terrestrial networks.
- For the past one year, this high-speed internet service was tested in several regions such as Jammu and Kashmir and Himachal Pradesh, which lack terrestrial connectivity because of challenges posed by terrains.

- The newly launched satellite internet service is capable of providing internet connectivity bandwidth of up to 100 Mbps – about 2GB data per day.
- It supports services such as Wi-Fi hotspots for community internet access, SD-WAN solutions, backhaul to extend mobile network reach and satellite internet for small businesses.
- The application of this satellite connectivity is currently limited to fringe markets such as remote locations.
- India currently does not have the market for very high bandwidth satellite internet in such regions and high bandwidth internet are already served by terrestrial network in other places that are having high demands for internet services.
- The Hughes' HTS service already has clients like Reliance Jio, State Bank of India and others.
- Jio utilizes Hughes' service for 4G backhaul to provide services to remote locations for its terrestrial telecom networks.
- SBI uses this satellite internet service for providing connectivity to remote bank branches and automated teller machine (ATM) outlets.

### **High-throughput satellite**

- High-throughput satellite (HTS) is a satellite connectivity that provides higher bandwidth, which increases the amount of data that can be transferred between a satellite and a ground station. A conventional satellite connectivity has low bandwidth and high latency of connectivity – time taken to transfer data between a sender and receiver. The HTS seeks to address this issue.

### **5.15 MeitY Startup Hub and Meta launch XR startup program**



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

### **Key facts**

- The XR Startup Program is an accelerator program aimed at supporting and accelerating extended reality (XR) startups in India.

- This newly launched initiative would focus on skilling and building technological capabilities for metaverse and help promote emerging technologies such as Augmented Reality (AR) and Virtual Reality (VR) in India.
- This initiative would provide assistance to 40 early-stage startups working in the extended reality technologies by providing a grant of Rs.20 lakh each.
- A Grand Challenge would be organized to encourage early-stage innovators in sectors such as education, learning and skills, healthcare, gaming and entertainment, agri-tech and climate action and tourism and sustainability.
- It would also support startups and innovators by establishing consumer connections, partnership opportunities and fundraising.
- Innovators would be provided assistance to upscale from the research and development phase to create workable products and services.
- Under this initiative, 80 innovators would be shortlisted to attend a bootcamp. Of these 16 would be provided grants to develop minimum viable products/prototypes.
- The program would be implemented by International Institute of Information Technology – Hyderabad Foundation, Hyderabad, Telangana (CIE IIIT-H); AIC SMU Technology Business Incubation Foundation (AIC-SMUTBI), Rangpo, Sikkim; Gujarat University Startup and Entrepreneurship Council (GUSEC), Ahmedabad, Gujarat and Foundation for Innovation and Technology Transfer (FITT), IIT Delhi, New Delhi.
- It would be financially backed by Meta’s XR Programs and Research Fund – a two-year investment in programs and research with industry partners, civil rights groups, governments, NGOs and academic institutions.

### **MeitY Startup Hub**

- 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.

### 5.16 What is '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.

#### **Key Points**

- 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.
- This drone can be used to carry the organ box up to a distance of 20 km. For this, an agreement has been signed with a city-based drone company.
- This experiment will prove to be a milestone in the direction of seamless transport of organs after transplantation in this service.
- India ranks third in the world after United States and China, with a maximum of 17,000-18,000 solid organ transplants every year. And to defend such circumstances, the human organ transportation drone can be a boon.

#### **Organ Transplantations in India:**

- 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. The number of heart transplants is just inching close to 500.
- *National Organ and Tissue Transplant Organization (NOTTO)* under the ministry of health and family welfare was setup in 2014 to oversee the process of Organ transplantation. Under NOTTO two organizations are present, namely, Regional Organ and Tissue Transplant Organization (ROTTO) and SOTTO (State Organ and Tissue Transplant organization)

### 5.17 India- UK conduct Counter Ransomware exercise



- Recently India's National Security Council Secretariat (NSCS) and the British Government in collaboration with BAE Systems successfully conducted a virtual ransomware drill for 26 countries to prepare for a large, widespread cyber attack.

#### **Theme**

- The theme of the exercise is “**Energy Sector**” which aims to enable national cyber crisis management teams belonging to CRI affiliates to tackle ransomware attacks on multiple power distribution companies.

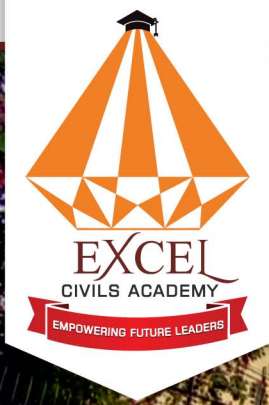
#### **Key Points**

- The exercise was part of the International Counter Ransomware Initiative (CRI)-Resilience Working Group led by the National Cyber Security Coordinator (NCSC) in India.
- The objective of conducting this virtual cyber exercise is to detect and address a large, widespread cyber security incident affecting institutions operating within a country.
- The exercise is designed to support CRI's mission, and is intended to allow participating CRI members to test their abilities to respond to a major ransomware incident at multiple power distribution companies.
- It also mentions the benefits of sharing and collaborating during such a major cyber attack.
- Such exercises also provide opportunities for CRI countries to share their perspectives on tackling ransomware.

#### **National Cyber Coordination Centre (NCCC)**

- It is an operational cyber security and e-surveillance agency in India which is intended to screen communication metadata and co-ordinate intelligence gathering activities of other agencies. It generates situational awareness about potential and existing cyber security threats and enables timely sharing of information for proactive, preventive and protective actions by individual entities. National Cyber Security Coordinator (NCSC) under National Security Council Secretariat (NSCS) coordinates with different agencies at the national level for cyber security matters.





CAMPUS



CORRIDOR

LECTURE HALL - 1



LIBRARY



LECTURE HALL- 2

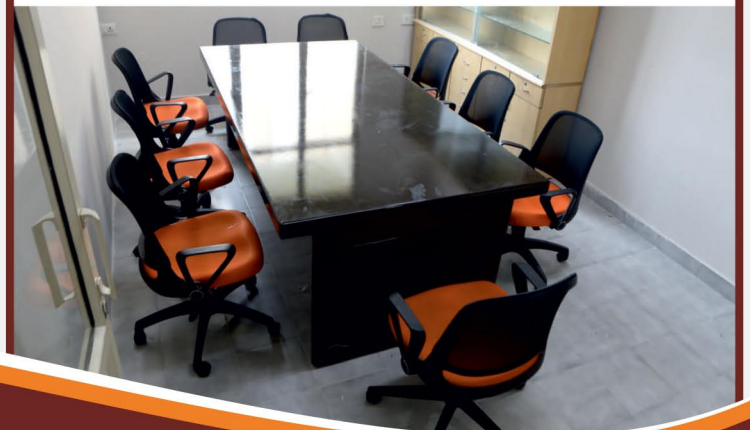


CANTEEN



LECTURE HALL - 3

MENTORING ROOM



A Monthly Magazine from  
**EXCEL CIVILS ACADEMY**  
NTR Bhavan, Rd. No. 2, Banjara Hills, Hyderabad.  
Contact: 91004 33442, 91004 33445

[www.excelacademy.com](http://www.excelacademy.com)