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A NOBEL FOR THE SENSES

Two scientists won the Nobel Prize in medicine on Monday for their discoveries into how the human body perceives temperature and touch, revelations that could lead to new ways of treating pain or even heart disease

THE WINNERS



DAVID JULIUS



ARDEM PATAPOUTIAN

WHAT DID THEY DISCOVER?

- They identified receptors in the skin that respond to heat and pressure.
- Focussing on a field known as somatosensation, they decoded how the human body turns physical sensations into electrical pulses in the nervous system

HOW DID THEY DO IT?

- It began when Julius began investigating the heat sensation of eating chilli
- The answer, he discovered, lay in how a particular receptor responds to capsaicin, the source of chilli's heat
- This paved the way for more such receptors to be discovered, including those for cold. Separately, Patapoutian was researching cells that activated a response to mechanical force or touch

DAVID JULIUS

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WHY IS IT SIGNIFICANT?

- Experts said the discoveries show how little scientists knew about how our bodies perceived the external world before their discoveries – and how much there still is to learn.
- Oscar Marin, director of the MRC Centre for Neurodevelopmental Disorders at King's College London, said: "While we understood the physiology of the senses, what we didn't understand was how we sensed differences in temperature or pressure".
- "Knowing how our body senses these changes is fundamental because once we know those molecules, they can be targeted. It's like finding a lock and now we know the precise keys that will be necessary to unlock it," he added.
- What this means is that in the future, these discoveries could underpin how research into treating pain since the first heat sensor discovered (TRPV1) is also involved in chronic pain.
- The touch receptor, PIEZO2, has multiple roles, including regulating blood pressure.

"In our daily lives we take these sensations (of temperature and touch) for granted, but how are nerve impulses initiated so that temperature and pressure can be perceived? This question has been solved by this year's Nobel Prize Laureates."

—STATEMENT BY THE COMMITTEE

LAST THREE NOBEL MEDICINE WINNERS

2020

Michael Houghton, Harvey Alter and Charles Rice for the discovery of the virus Hepatitis C.

2019

Sir Peter Ratcliffe, William Kaelin and Gregg Semenza for discovering how cells sense and adapt to oxygen levels

2018

James P Allison and Tasuku Honjo for discovering how to fight cancer using the body's immune system

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COVER STORY

- CAN A SOLAR STORM DISRUPT AN INTERNET CONNECTION?.

ECONOMY

- RETRO TAX: REPAYMENT TIMELINE FOR GOVT OUTLINED, COS TO NOTIFY FOR INDEMNITY
- DAY-NRLM DEDICATES 50,000 WOMEN SHG MEMBERS AS BUSINESS CORRESPONDENTS
- WHAT SPIKE IN CRUDE PRICES MEANS FOR ECONOMY, MARKETS
- LAUNCH OF I-SPRINT'21: IFSCA'S GLOBAL FINTECH HACKATHON SERIES "SPRINT01: BANKTECH"
- RBI MONETARY POLICY HIGHLIGHTS: MPC HOLDS REPO RATE, SAYS PRIORITY IS TO NURTURE GROWTH; RETAINS GDP TARGET
- CRITERIA FOR ECONOMICALLY WEAKER SECTIONS (EWS) CATEGORY
- 136 COUNTRIES REACH HISTORIC DEAL ON GLOBAL MINIMUM CORPORATE TAX
- MARKET BASED ECONOMIC DESPATCH (MBED) – PHASE1 FOR LOWERING THE COST OF POWER PURCHASE TO CONSUMERS
- NOBEL ECONOMICS PRIZE 2021 GOES TO 'NATURAL EXPERIMENTS' PIONEERS
- RETAIL INFLATION FALLS SHARPLY TO 4.35% IN SEPTEMBER ON DECLINE IN FOOD PRICES
- PRADHAN MANTRI FASAL BIMA YOJANA: CROP INSURANCE BEING REVAMPED FROM KHARIF 2022, PANEL SET UP
- NSE, BENGALURU BLOCKCHAIN START-UP LAUNCH 'NSE-SHINE' FOR BULLION TRADE
- EDUCATION TO TRAVEL, OUTWARD REMITTANCE IN AUGUST ALL-TIME HIGH
- NPCI ROLLS OUT MECHANISM FOR TOKENISATION OF RUPAY CARDS
- RBI ISSUES DRAFT NORMS TO IMPLEMENT BASEL III CAPITAL FRAMEWORK FOR AIFIS
- RBI ANNOUNCES SCALE-BASED REGULATORY FRAMEWORK FOR NBFCS
- SEBI PROPOSES CAPPING ISINs FOR CORPORATE BONDS TO ENHANCE LIQUIDITY
- BHARTI OPTS FOR FOUR-YEAR MORATORIUM ON DUES
- RBI'S MOVE TO ALLOW FPIs in REITs, InvITs' DEBT TO IMPROVE LIQUIDITY, LOWER COST
- INDIA COULD LOSE 1.8 TO 3.4% OF GDP BY 2050 DUE TO DECLINE IN RICE AND WHEAT YIELDS
- CENTRE RELEASES FINAL TRANCHE OF GST RECOMPENSE LOANS TO STATES
- FISCAL DEFICIT TOUCHES 35% OF ANNUAL BUDGET TARGET
- MASTERCARD PARTNERS LEAF TO DIGITISE AGRI-VALUE CHAIN



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- INDIAN ARMY WINS GOLD MEDAL AT CAMBRIAN PATROL EXERCISE IN UK
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- INDIA, ISRAEL AGREE TO CONCLUDE FREE TRADE PACT BY JUNE 2022
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Can a solar storm disrupt an internet connection?

Impact of solar storm could be a **threat to the internet**. Everything you need to know: After witnessing a pandemic, locust attack and cicada invasion in 2020, meme pages quipped that human beings are resilient and could even survive an alien attack. But can we survive without our internet? No, not aliens, but our very own Sun has the power to cause an '**internet apocalypse**', according to a new study.

The paper presented at the **ACM SIGCOMM 2021** Conference last month noted that a powerful solar storm can cause a disruption of the internet, damage submarine cables and communication satellites. Previous studies have shown that there is a 1.6 to 2 per cent chance of an extreme space weather event happening within the next decade.

A solar storm or a **Coronal Mass Ejection** as astronomers call it is an ejection of highly magnetised particles from the sun. These particles can travel several million km per hour and can take about 13 hours to five days to reach Earth.

Earth's atmosphere protects us humans from these particles. But the particles can interact with our Earth's magnetic field, induce strong electric currents on the surface and affect man-made structures.

The first recorded solar storm occurred in 1859 and it reached Earth in about 17 hours. It affected the telegraph network and many operators experienced electric shocks. A solar storm that occurred in 1921 impacted New York telegraph and railroad systems and another small-scale storm collapsed the power grid in Quebec, Canada in 1989.

A 2013 report noted that if a solar storm similar to the 1859 one hit the US today, about 20-40 million people could be without power for 1-2 years, and the total economic cost will be \$0.6-2.6 trillion.

The rapid development of technology took place in the last three decades when the Sun was in its period of low activity and there are very limited studies on whether our current infrastructure can withstand a powerful solar storm.

“The Sun goes through an **11-year cycle – cycles of high and low activity**. It also has a longer 100-year cycle. During the last three decades, when the internet infrastructure was booming, it was a low period. And very soon, either in this cycle or the next cycle, we are going towards the peaks of the 100-year cycle. So it is highly likely that we might see one powerful solar storm during our lifetime,” explains the author of the paper, Sangeetha Abdu Jyothi, on a Zoom call. She is an Assistant Professor in the Computer Science department at the University of California, Irvine.

India vs Internet

She explains that longer submarine cables may be susceptible to higher risks. Modelling studies to understand how connectivity will be affected country-scale showed that the majority of cables connecting India will be unaffected. “Even under the high-failure scenario, some international connectivity remains (e.g., India to Singapore, Middle East, etc.). Unlike in China, the key cities of Mumbai and Chennai do not lose connectivity even with high failures,” the paper adds.

She explains that compared to the US, India is less vulnerable, but we don’t know much about the strength of solar storms and whether a powerful one can affect India. “The countries in the lower latitudes are at a much lower risk. But we need more studies to fully understand the effects. I’m a computer scientist, and my models show that Asia is safe. But what is the threshold, I cannot say. We need new models that merge astrophysics, electrical engineering, and understanding of the ocean features,” she adds.

How to save our internet?

Recently, it was assessed that Internet disruption for a day in the US can cause about \$7 billion economic loss. The new paper mentions a ‘shutdown strategy’ that can help minimise the connectivity loss during and after a solar storm impact. Similar to how we power off power grids, a temporary Internet shutdown can protect our equipment during a solar event and ensure the continuation of services.

“We need a more systematic protocol for doing this. Both NASA and the European Space Agency have probes now that can detect a solar storm. So we can get about 13 hours of warning. Experts from different fields need to come together to design protocols for power companies and internet service providers. Also, today’s health care system depends on power and the internet and we need a fallback strategy,” she explains.

Prof Dibyendu Nandi from the Indian Institutes of Science Education and Research, Kolkata underlines the importance of the study when it comes to the vulnerability of “our critical internet backbone, namely undersea fibre-optic cables”. “At ground level, solar storm-induced geomagnetic variations can induce large currents in networks that can conduct electricity. This is potentially harmful. Although fibre-optic internet cables are themselves not conductors, the study claims that electronic components that are part of such networks can still be rendered useless by a very strong solar storm,” explains Prof Nandi who is part of The Center of Excellence in Space Sciences India at IISER Kolkata which is involved in developing the understanding necessary for making solar storm predictions.

“Independent solar observations show that solar superstorms capable of such large-scale damage may occur only a few times in a century. Nevertheless, given their potential to cause large-scale disruption to our modern society, such studies help us prepare and take steps for reducing their impact,” he adds.



RETRO TAX: REPAYMENT TIMELINE FOR GOVT OUTLINED, COS TO NOTIFY FOR INDEMNITY

The **Central Board of Direct Taxes (CBDT)** has notified rules that will close tax disputes with companies like Cairn Energy and Vodafone.

Highlights:

- The companies will **indemnify** the Indian government against future claims and withdraw, pending litigation before any forum in order to settle their retrospective tax cases.
- Issuance of a public notice **or press release** by the company stating that claims arising out of the relevant orders, judgment, or court order, will include an indemnity against “**any claims against the Republic of India** or any India affiliate contrary to the undertaking”.
- The companies will have to **withdraw any pending litigation** before any forum against the levy of the retrospective tax.
- They will file a **declaration with income tax authorities** along with a

legal authorization besides an indemnity bond.

- Submission of an undertaking to **withdraw all pending legal proceedings** must be done in 45 days.
- The companies must fulfil the **condition of indemnity** by all interested parties within 60 days.
- The **order granting relief** must be made within 30 days, after this the refund will be initiated.
- The declarant and all the interested parties shall indemnify, defend, and hold harmless the Republic of India from and **against all costs, expenses interest, damages**.
- **Filing and maintaining** of any claim, at any time after the date of furnishing the undertaking.

Why it was done?

- The Central Government brought in The **Taxation Laws (Amendment) Act, 2021**.
- It stated no tax demand shall be raised for any indirect transfer of Indian

assets if the transaction was undertaken before May 28, 2012.

- The central government amended the **Income-tax Act in 2012**.
- It was done in response to a Supreme Court verdict, which stated, Vodafone cannot be taxed for a 2007 transaction

that involved its purchase of 67 per cent stake in Hutchison Whampoa for \$11 billion.

- In 2014 Central government raised tax demand against Cairn Energy Plc for restructuring done in 2006.

DAY-NRLM DEDICATES 50,000 WOMEN SHG MEMBERS AS BUSINESS CORRESPONDENTS TO CELEBRATE AZADI KA AMRIT MAHOTSAV

Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (**DAY-NRLM**) under the **Ministry of Rural Development** has initiated a process of engagement of women Self Help Group (SHG) members as Business Correspondents (BC) for **providing basic banking services in every Gram Panchayat (GP)** in the rural areas of India.

Highlights:

- The initiative has been named as the “One Gram Panchayat (GP) one Business Correspondents (BC) Sakhi” mission.
- **Aim:** To boost digital transactions amongst **SHGs** and their members.
- The women SHG members are provided one week's residential training at **Rural Self Employment Training Institutes** established by the Lead bank of the district.
- More than 54000 Women SHG members have been trained and

certified by Indian Institute of Banking and Finance as Business Correspondent.

- The cost of training and IIBF Certification is borne by the **Ministry of Rural Development**.

Digi-Pay Sakhis

- **Deendayal Antyodaya Yojana-National Rural Livelihoods Mission** has signed a (MoU) with CSC e-Governance India Ltd, to engage women SHG members as '**DigiPay Sakhi**'.
- **Aim:** To provide basic banking facilities in the rural areas.
- It provides **Finger Print Device** to SHGs members to start basic banking service through Digi Pay Application.
- It will provide payment facilities for **MGNREGA** and other subsidies under Direct Benefit Transfer (DBT) to the rural community.

WHAT SPIKE IN CRUDE PRICES MEANS FOR ECONOMY, MARKETS

The price of Brent crude oil has been rising steadily from a low of **\$16 per barrel** on April 22, 2020 to **\$81** in the first week of October 2021.

Reason:

- Crude prices are risen sharply in 2021 due to the **recovery in global demand**, which was lessened due to COVID-19 pandemic.
- **Supply restrictions** are maintained by the OPEC+ grouping is also keeping international oil prices high.
 - These **oil-producing economies** have signalled a slow production increase, leading to a rise in gas prices as well.

- A **shortage of natural gas** in Europe and Asia has boosted demand for oil for power generation.

Impact on crude oil prices in India:

- The rise in crude prices has **contributed to petrol and diesel prices** hitting all-time highs in India.
 - Prices of petrol and diesel in India are pegged to a 15-day rolling average of the international prices of these fuels.
- In **sectors** where oil is a major cost component, a negative reaction on returns can be expected.

Impacts on stocks & bonds:

- A **sharp surge in oil prices** can create rise in stocks as increasing oil

prices often reflect growing demand in the economy.

- When oil futures **turned negative** in 2020 at the peak of the pandemic, stock markets bottomed out.
- **For bonds, central bank (RBI) policies** will play a far greater role than the direct impact of rising oil prices.

Depreciating Rupee:

- **Rising crude prices** tend to **depreciate the rupee**, as India being a major importer of oil needs more dollars to buy the same amount of crude.

- Crude import accounts for **nearly 20%** of India's import bill.

Rising Inflation:

- A **rise in prices** could lead to a **surge in inflation**, forcing the RBI to go for liquidity tightening measures followed by rate hikes.
- An increase in crude prices means an **increase in the cost of producing** and transporting goods. It thus **adds to inflation**; an increase of \$10/barrel in crude oil prices could raise inflation by 10 basis points.

LAUNCH OF I-SPRINT'21: IFSCA'S GLOBAL FINTECH HACKATHON SERIES "SPRINT01: BANKTECH"

International Financial Services Centres Authority (IFSCA) and **GIFT City** launched I-Sprint'21, on 7th October 2021.

Highlights:

- The first Sprint of the series "**Sprint01: BankTech**" is focused on FinTech's for the Banking sector.
- It is jointly hosted by IFSCA and GIFT city in collaboration with **NITI Aayog**.
- The Partners to the Hackathon are:
- **ICICI Bank**, HSBC Bank, Zone Startups, and Invest-India.
- IFSCA introduced "**Regulatory Sandbox**" in October 2020 which allows the FinTech entities to conduct experiment with innovative FinTech solutions including customers for a limited time frame.

Aim:

- To connect IFSCA and International financial service Centre (GIFT IFSC) with **FinTech Ecosystem**.
- To **solve business problems** for the Banking Units at GIFT IFSC.
- To promote **retail business** for the Banking Units at GIFT IFSC.
- **FinTech finalists** will be allowed to enter IFSCA Regulatory/Innovation Sandbox.

- FinTechs will work directly with the Partner Banks on the problems **like APIs, mentoring, guidance**, etc.
- Opportunity for the FinTechs to showcase during the FinTech Forum of IFSCA scheduled in December 2021.
- **Business Support Solution Partner** benefits of up to \$25,000 per startup from Zone Startups India's network.

International Financial Services Centres Authority:

- The (IFSCA) was established on April 27, 2020 under the **International Financial Services Centres Authority Act, 2019**.
- **Headquarters:** GIFT City, Gandhinagar, Gujarat.

Role of IFSCA:

- It is a unified authority for the development and **regulation of financial products**, services, and institutions in the International Financial Services Centre (IFSC), India.
- The **GIFT IFSC** is the only international financial services centre at present.
- It has been established to promote **ease of doing business** in IFSC and provide world class regulatory environment.

- The objective is to **develop** a strong global connect and focus on the needs of the Indian economy

- To **perform** as an international financial platform for the entire region and the global economy.

RBI MONETARY POLICY HIGHLIGHTS: MPC HOLDS REPO RATE, SAYS PRIORITY IS TO NURTURE GROWTH; RETAINS GDP TARGET

The Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) **kept the key interest rates unchanged** and **reduced the inflation target for the year 2021-22**.

Highlights:

- Interest rates in the banking system are expected to remain steady as the Repo Rate remains unchanged at 4 per cent, Reverse Repo rate at 3.35 per cent and the Marginal Standing Facility (MSF) rate and the Bank Rate at 4.25 per cent.
- Continuation with the accommodative stance to revive and sustain growth on a durable basis and continue to mitigate the impact of Covid-19 on the economy.

RBI inflation forecast:

- The RBI has slashed the inflation forecast for 2021-22 to **5.3 per cent from 5.7 per cent** estimated earlier.
- The inflation trajectory is set to **edge down during Q3 of 2021-22**, and several evolving factors provide comfort on the food price front.

Growth forecast:

- The RBI has retained the projection for real **GDP growth at 9.5 per cent** in 2021- 22 consisting of 7.9 per cent in Q2 of the current year.
- Almost all components of GDP registered year-on-year growth, despite a sharp loss of momentum due to the second wave.

CRITERIA FOR ECONOMICALLY WEAKER SECTIONS (EWS) CATEGORY

A Supreme Court bench has asked the Central Government to file an affidavit explaining the “basis” on which the amount of **Rs. 8 Lakh** was arrived as a classifying criteria for Economically Weaker Sections (EWS) category.

Highlights:

- The court was hearing a batch of petitions filed by NEET aspirants challenging a July 29 notification of the Central Government Centre announcing 27% quota to OBCs and 10% reservation to EWS in the all-India quota category.
- **One Hundred and Third Constitutional Amendment** of 2019, which introduced the 10% EWS quota, is itself under challenge before a larger Bench.

Economically Weaker Sections Quota:

- The **103rd** Constitutional Amendment Act provided for the EWS (for Economically Weaker Sections) **10%** quota as an economic

reservation (10% quota) in jobs and admissions in education institutes.

- **Article 15** and **16** were amended for the same.
- The act enables both Centre and the states to **provide reservation** to EWS, based on their definition for the same.
- A candidate **must not fall** under any SC/ST/OBC categories and fulfil the EWS economic criteria are to be part of the EWS category.

Concerns on EWS Quota:

- It may be **against the Basic Structure of the Constitution:**
 - Although there are constitutional special protections guaranteed to socially disadvantaged groups, EWS is on an economic basis.
- It **violates the 1992 SC judgement in the Indra Sawhney Case**, which upheld the Mandal Report and introduced the **50% cap** on reservations where the court held that economic backwardness cannot

be the sole criterion for backwardness.

- Private, unaided educational institutions cannot be imposed on to implement EWS as it is violative of **rights enshrined in Article 19**.
- 8 lakh income threshold is very high and will **practically covers nearly 85% of the population** not already covered by reservations.

Significance of EWS Quota:

136 COUNTRIES REACH HISTORIC DEAL ON GLOBAL MINIMUM CORPORATE TAX

A global deal to ensure Multinational Enterprises to pay a minimum tax rate of 15%, has been signed by 136 countries under **Organisation for Economic Cooperation and Development (OECD)** on 8th October 2021.

- According to OECD, of the 140 countries engaged in the negotiations, 136 signed on to the new outline, who together accounted for **over 90%** of the global economy.
 - Four countries had not yet joined the agreement. These are- Kenya, Nigeria, Pakistan, and Sri Lanka.

What is Global Minimum Tax?

- A **global minimum corporate tax rate** is a proposal to **reduce tax competition** between countries and the avoidance of corporate taxes by setting a world-wide minimum corporate tax rate.

Need for Global Minimum Tax:

- **Aim:** To put an end to decades of tax competition between governments to attract foreign investment.
- With budgets strained after the COVID-19 crisis, many governments want to **discourage multinationals** from shifting profits and tax revenues.
 - In order to low-tax countries regardless of their sales.
- **Rising income** from intangible sources like drug patents, software, and royalties on intellectual property, allowed companies to avoid paying higher taxes in their home countries.

Principles of GMT:

- It could highlight the need of equity to balance the **stark economic inequality** in India.
- This constitutionally recognises the **inclusion of urban and rural poor** in the backward categories that need upliftment.
- The move puts down the **social stigma** of reservation associated by lower castes.

Pillar One:

- To ensure a **fairer distribution of profits** and taxing rights among countries including the largest MNEs, with digital companies.
- It would **re-allocate** some taxing rights over MNEs from their home countries to the markets where they have earned profits.
- Taxing rights on more than USD 100 billion of profit will be reallocated to market jurisdictions every year.

Pillar Two:

- It seeks to put a floor on competition over corporate income tax, through global minimum tax rate that countries can use to protect their tax bases.

Importance:

- It will provide **support to governments**, to raise necessary revenues for their budget and balance sheet while investing in public services, and infrastructure.
- It will **optimize the strength** and the quality of the post-COVID recovery.

Economic impact of the Deal:

- As per OECD, the minimum tax will generate \$150 billion in additional **global tax revenues** annually.
- **Taxing rights** on more than \$125 billion of profit will be shifted to the countries where they have earned from the low tax countries.
- The deal will **encourage multinationals** to repatriate capital to their country, giving a boost to the economy.

FRAMEWORK FOR IMPLEMENTATION OF MARKET BASED ECONOMIC DESPATCH (MBED) – PHASE 1 FOR LOWERING THE COST OF POWER PURCHASE TO CONSUMERS

The Ministry of Power (MoP) has released the framework for implementing the **Market-Based Economic Dispatch (MBED) – Phase 1** program to **reduce consumers’ power purchase costs by 5%**.

Highlights:

- MBED will ensure that the **cheapest generating resources** across the country are dispatched to meet the overall system demand.
 - It will be beneficial for both the **distribution companies** (DISCOMs) and the generators, resulting in significant savings for electricity consumers.
 - The power demand by all states will be met through DISCOMs at the optimal price.
- MBED shall facilitate larger integration of **variable renewable energy** by enlarging the balancing area to the national level.
- It is an essential step in reforming electricity market operations and moving towards ‘**One Nation, One Grid, One Frequency, One Price.**’
- The implementation of MBED – Phase 1 will begin from April 1, 2022.
 - The **Central Electricity Regulatory Commission (CERC)** will conduct trial runs to ensure the system runs smoothly.
 - **Interstate generation facilities** will participate in the first phase, while other generation facilities will join voluntarily.
- Phase 1 would involve only the **thermal fleet** of Central Generating Stations. It would:
 - Test the efficacy of MBED mechanism.
 - Identify deficiencies or potential issues to be addressed prior to a nation-wide rollout.
 - Familiarize all key stakeholders with the framework.
 - Allow for necessary infrastructure and systems to be built out and tested before scale up.

One Nation, One Grid, One Frequency, One Price?

- **One Nation, One Grid** refers to the **integration of regional power grids** to establish a National Grid. It was launched to **improve India’s connectivity infrastructure** and ensure availability of power to states at affordable rates.
- **One Nation, One Grid, One Price** is aimed at the **uniform pricing** and facilitation of efficiency and renewable energy integration.
- India has already attained the status of ‘**One Nation, One Grid, One Frequency**’ and there are no constraints in **inter-regional transfer of power.**

Power Grids in India:

- Indian Power system for planning and operational purposes is divided into five regional grids.
 - The integration of regional grids, and thereby establishment of National Grid, was conceptualized in early nineties.
- The **initial inter-regional links** were planned for exchange of operational surpluses amongst the regions.

National Grid:

- The National Grid is the high-voltage electricity network in mainland India, connecting **power stations** and major substations.
- It is owned, operated, and maintained by state-owned **Power Grid Corporation** of India.
- It is one of the largest operating synchronous grids in the world with **371.054 GW** of installed power generation capacity as of 30 June 2020.

Evolution of National Grid:

- Grid management on regional basis started in sixties.
- **State grids** were inter-connected to form regional grid and India was demarcated into 5 regions namely

Northern, Eastern, Western, North Eastern and Southern region.

- In October 1991 **North Eastern and Eastern grids** were connected.
- In August 2006 North and East grids were interconnected.
 - Thereby 4 regional grids Northern, Eastern, Western and North Eastern grids were synchronously connected forming central grid operating at one frequency.
- On 31st December 2013, **Southern Region was connected to Central Grid** in with the commissioning of

765kV **Raichur-Solapur**

Transmission line thereby achieving 'ONE NATION'- 'ONE GRID'- 'ONE FREQUENCY'.

Benefits of Centralized Power Grid:

- **Synchronization** of all regional grids will help in optimal utilisation of scarce natural resources by transfer of Power from resource centric regions to load centric regions.
- It will pave way for establishment of **vibrant Electricity market** facilitating trading of power across regions.

NOBEL ECONOMICS PRIZE 2021 GOES TO 'NATURAL EXPERIMENTS' PIONEERS

The 2021 **Nobel Prize for economic sciences** has been awarded in one half to Canadian **David Card** and the other half jointly to Israeli-American **Joshua D Angrist** and Dutch-American **Guido W Imbens**.

Highlights:

- **David Card** has been awarded the 2021 prize "for his **empirical contributions to labour economics**."
- **Joshua D Angrist** and **Guido W Imbens** got the prize "for their **methodological contributions to the analysis of causal relationships**."
- The prize winners will share a sum of 10 million Swedish crowns or \$1.14 million.

Card: Wages and Jobs

- Card's use of "natural experiments" is exemplary and his studies from the early 1990s challenged conventional wisdom, leading to new analyses and additional insights.
 - **For example:** It is believed that **raising minimum wages lead to lower employment**.
 - Card showed that increasing the minimum wage does not necessarily lead to fewer jobs.

Angrist, Imbens: Education, Pay

- They are recognised for their **methodological contributions to the analysis of causal relationships**.

- They helped make sense of the data from such natural experiments.

- **For example:** Extending compulsory education by a year for one group of students may or may not affect everyone in the groups in the same way.

The Issue:

- Some students would have kept studying anyway and, for them, the value of education is often not representative of the entire group. So, is it possible to draw any conclusions about the effect of an extra year in school?

Result:

- In the mid-1990s, the duo solved this problem, demonstrating how precise conclusions about **cause and effect** can be drawn from natural experiments.

Why this year's prize Matters?

The India context:

- In India, it is commonly held that higher **minimum wages** will be counterproductive for workers.
- From Card's work it can be stated that minimum wages can be increased in India without worrying about reducing employment.

- **Minimum wages in India** are very low with the national minimum wage at just **Rs 180 per day**.

Importance:

- Since, India has a minimum wages code; it will extend to unorganised sector workers. So, **enhancing** minimum wages is important to improve incomes in the **unorganised sector**.

RETAIL INFLATION FALLS SHARPLY TO 4.35% IN SEPTEMBER ON DECLINE IN FOOD PRICES

India's retail inflation **fell to a five-month low** of 4.35% in September 2021 due to a **sharp dip** in food price inflation.

Highlights:

- Food inflation based on the **Consumer Food Price Index (CFPI)** eased to 0.68% in September from 3.11% in August.
 - Within the food prices, Vegetables registered a de-growth of **minus 22%**, while food and beverages segment grew 1.01%.
- Inflation in the fuel and light category remained elevated at 13.63%.
- **Index of industrial production (IIP)** for the month of August surged 11.9%.
- The Central bank (RBI) in its latest monetary policy meeting lowered the inflation forecast at 5.3% for the current financial year (2021-22) from an earlier estimate of 5.7%.

Consumer Price Index (CPI):

- CPI is a measure of **change in retail prices** of goods and services consumed by a defined population group in a given area with reference to a base year.
- This basket of goods and services represents the **level of living** or the utility derived by the consumers at given levels of their income, prices and tastes.
 - The consumer price index number measures change only in prices.
- **Published and developed by:** The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI)
- **Base Year: 2011-12.**
- **Importance:**
 - Used as an economic indicator of:
 - Inflation.

- Monitoring price stability.
- Deflator in national accounts.
- Determining dearness allowance of Government employees and wage contracts between labour and employer.
- Inflation targeting in Monetary Policy by RBI.
- The formula for calculating Consumer Price Index is **Laspeyre's index** which is measured as follows:
 - [Total cost of a fixed basket of goods and services in the current period * 100] divided by Total cost of the same basket in the base period.
- Presently the **consumer price indices** compiled in India are:
 - CPI for Industrial workers (CPI(IW))
 - CPI for Agricultural Labourers (CPI (AL))
 - CPI for Rural Labourers (CPI (RL))
 - CPI for Urban Non-Manual Employees (UNME)

Consumer Food Price Index (CFPI):

- CFPI is a measure of change in retail prices of food products consumed by a defined population group in a given area with reference to a base year.
- CFPI have been widely used as a macroeconomic indicator of inflation.
- **Published and developed by:** The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI).
- **Base Year:** 2011-12.
- Consumer Food Price Index (CFPI) is a component of all-items Consumer Price Index.

- **Three categories** -rural, urban and combined - separately on an all-India basis.

- CFPI is also calculated on a monthly basis, and methodology remains the same as CPI.

Headline Inflation vs Core inflation:

Headline Inflation	Core Inflation
<ul style="list-style-type: none"> • Refers to the rate of change in the CPI. • Refers to the change in value of all goods in the basket. • Headline inflation is more relevant for developing economies than developed economies. 	<ul style="list-style-type: none"> • Measures the change in average consumer prices after excluding from the CPI certain items with volatile price movements. • Excludes food and fuel items from headline inflation. • Since the prices of fuel and food items tend to fluctuate and create 'noise' in inflation computation, core inflation is less volatile than headline inflation.

Index of Industrial Production (IIP):

- It is an index that tracks manufacturing activity in different sectors of an economy. It is released monthly by NSO.
- Mining, manufacturing, and electricity are the three broad sectors in which IIP constituents fall.
- IIP index is currently calculated using 2011-2012 as the base year.

- It consists of **8 core Industries** that constitute 38% of the total IIP.
 1. Electricity (Highest weightage)
 2. Steel
 3. Refinery Products
 4. Crude Oil
 5. Coal
 6. Cement
 7. Natural Gas
 8. Fertilizers

PRADHAN MANTRI FASAL BIMA YOJANA: CROP INSURANCE BEING REVAMPED FROM KHARIF 2022, PANEL SET UP

The Central Government has constituted a **working group**, comprising officials from Centre, states, and executives of public sector companies to suggest sustainable, and operational models with the aim to roll out **Pradhan Mantri Fasal Bima Yojana (PMFBY)** from kharif season 2022.

Highlights:

- The move came after **many states quit** the Pradhan Mantri Fasal Bima Yojana.
- **Major issues in the scheme are:** High premium rates, lack of sufficient participation in tenders, inadequate underwriting capacity of the insurers etc.
- According to the data of 19 states, there is over **10% fall** in enrollment of farmers under crop insurance during Kharif 2021 from last season's 1.68 crore.

- The premium, paid by farmers is fixed at 1.5% for rabi crops, 2% for Kharif crops, and 5% for cash crops.
- The balance premium is **split equally** between the Centre and states.
- The working group will address the **demand of an alternative model** comprising sustainable underwriting capacity of insurers and rationalized premium pricing. It will submit its report in six months.
- The group will **find out reasons** for high premium rates and suggest mechanism to rationalize them including the option of creating a **risk pool**.
- **Role of state governments** will have to be defined as they are the implementing agencies.

Pradhan Mantri Fasal Bima Yojana:

- The Pradhan Mantri Fasal Bima Yojna was launched on 18th February 2016.
- It is administered by the **Ministry of Agriculture & Farmers Welfare**.
- It is the flagship scheme of the government for agricultural insurance in India with One Nation-One Scheme theme.
- Annual Commercial / Annual Horticultural crops, oilseeds, and food crops are covered under the scheme.

Objectives:

- To provide insurance coverage and financial support to the farmers due to failure of crops as a result of natural calamities, pests & diseases.
- **To stabilise** the income of farmers ensuring their continuance in farming.
- **Encourage farmers** to adopt innovative and modern agricultural practices.
- To ensure flow of credit to the agriculture sector.

Revamping the Pradhan Mantri Fasal Bima Yojana:

- To address the challenges in the implementation of the crop insurance scheme, the Central Government has launched **PMFBY 2.0** in 2020.
- **Aim:** To ensure quick computation and payment of claims to the farmers, proportionate to the loss of crops

through a series of technological interventions.

Highlights of PMFBY 2.0:

1. For **north-eastern states**, the Center's share in premium subsidy increased to 90% from 50% earlier.
2. **Flexibility to states:**
 - States/UTs, given an option to choose their scale of finance for any district crop combination.
 - Another option for states/UTs to run the scheme with the selection of additional risk covers.
3. **Cap on Centre's Premium Subsidy:**
 - For **unirrigated areas/crops**, the Central subsidy is limited up to 30%
 - For irrigated area/crops, the subsidy is limited up to 25%.
4. The districts having an area **under irrigation** for more than 50% will be considered as an **irrigated district**.
5. **Penalty on states:**
 - If a state delays to release requisite premium subsidy to insurance companies beyond a set time-limit, they will not be allowed to run the scheme in subsequent seasons.
6. To conduct **Crop Cutting Experiments** (CCEs), and adoption of technology solutions including Smart Sampling Technique (SST).

NSE, BENGALURU BLOCKCHAIN START-UP LAUNCH 'NSE-SHINE' FOR BULLION TRADE

National Stock Exchange of India (NSE) in collaboration with Bengaluru-based startup Chainflux has launched NSE-Shine, a blockchain platform for gold bullion trade.

Highlights:

- The platform is developed by The India Gold Policy Centre (IGPC) at the **Indian Institute of Management, Ahmedabad (IIM-A)** and the Indian Bullion and Jewellers' Association (IBJA) with the NSE and Chainflux.

- The platform will be launched in November 2021. **NSE-approved refiners** will be able to use the system to record details of their produced bullion.
- It will provide a **data framework** for bullion bar integrity for settlement of gold derivatives contracts.
- It will **create a bullion repository** for all bullion bars produced by NSE-approved refiners as per the NSE Refiner Standards (NRS).

EDUCATION TO TRAVEL, OUTWARD REMITTANCE IN AUGUST ALL-TIME HIGH

According to data released by the Reserve Bank of India, monthly outward remittances under the **Liberalised Remittance Scheme**

(LRS) hit an all-time high of \$1.96 billion in August, 2021.

Highlights:

- The high is due to the various factors such as the reopening of admissions to foreign universities, steady normalisation in foreign travel and rise in economic activity.
 - The remittances on account of “study abroad” amounted to an all-time monthly high of \$780 million.
- The previous high was **\$1.87 billion in August 2019**.
- Remittances for **travel** hit 18-month high of \$574 million– the **highest since February 2020**.
- August 2021 also witnessed remittances of \$284.8 million for the **purpose of “maintenance” of close relatives**.
- Traditionally, August witnesses high outward remittance as universities overseas start their new session in September and students remit funds for fee, accommodation, tickets and other set-up costs.
- The year **2019-20** had witnessed the **highest outward remittances of \$18.76 billion** in any financial year since LRS was introduced in 2004.
- India has witnessed a **sharp surge in remittances over the last seven years**.

Liberalised Remittance Scheme (LRS):

- The Liberalised Remittance Scheme (LRS) of the Reserve Bank of India (RBI) **allows resident individuals to remit a certain amount of money** during a financial year to

another country for investment and expenditure.

- Under the Scheme, all resident individuals, including minors, are allowed to **freely remit up to USD 2,50,000 per financial year** (April – March) for any permissible current or capital account transaction or a combination of both.
- This includes going overseas on employment, studies, travel, emigration, maintenance of close relatives, and medical treatment.

Remitted amount can be invested in:

- Shares, debt instruments, and be used to buy immovable properties in overseas market.
- Can open, maintain and **hold foreign currency accounts** with banks outside India for carrying out transactions permitted under the scheme.

LRS restricts:

- Buying and selling of foreign exchange abroad, or purchase of lottery tickets or sweep stakes, proscribed magazines.
- Any items that are restricted under Schedule II of Foreign Exchange Management (Current Account Transactions) Rules, 2000.
- Remittances directly or indirectly to countries identified by the Financial Action Task Force as “non-co-operative countries and territories”.

NPCI ROLLS OUT MECHANISM FOR TOKENISATION OF RUPAY CARDS

The launch comes after the Reserve Bank of India mandated tokenization of cards from 1 January 2022.

Highlights:

- National Payments Corporation of India (NPCI) on Wednesday launched NPCI Tokenization System (NTS) to support tokenization of **RuPay cards**.
- Acquiring banks, aggregators and merchants can get themselves certified with NPCI as token requestors and save the token reference number against all card numbers saved.

Card Tokenization:

- It refers to a process that replaces details of a card, such as its number and CVV, used for making a transaction with an **encrypted algorithmically generated token**.
- The **token is generated** either by the **card issuer or payments network**.
- The purpose of tokenization is to **protect sensitive data** while **preserving its business utility**.
- The tokens can be:

- **Single-use** (low-value) for operations such as one-time debit card transactions that don't need to be retained.
- **Persistent** (high-value) for items such as a repeat customer's credit card number that needs to be stored in a database for recurring transactions.
- They retain **certain elements** of the original data—commonly length or format—so they can be used for uninterrupted business operations.
- The **original sensitive data** is then safely stored outside of the organization's internal systems.
 - Unlike encrypted data, **tokenized data is undecipherable and irreversible**.
- There is **no mathematical relationship** between the token and its original number, tokens cannot be returned to their original form without the presence of additional, separately stored data.
- As a result, a breach of a tokenized environment will not compromise the original sensitive data.

Benefits of Card Tokenization:

- Tokens are **not** **susceptible** to personally identifiable information **fraud**.

- **Builds confidence among the investors** as it secures the money with ease.
- **Sales** can take a **boost** as customers can utilize the token information to pay without using credit card or personal details.
- Acquirers, merchants, and processors experience a lower risk of accessible, sensitive cardholder data if compromised by cyber-attacks.
- Customers do not need to enter payment details for every purchase.
- Merchants no longer deal with sensitive payment information.
- Well-suited for **in-app and mobile transactions**.
- A single PAN can be used to create an unlimited number of tokens. This means that customers can have one credit card and multiple tokens for different devices or various payment gateways.
- If a **token is compromised**, the customer **does not need to change their credit card**.
- Merchants can create a powerful mechanism that lets them innovate better retail experiences. This is because they now do not have to worry about storing and handling sensitive data.

RBI ISSUES DRAFT NORMS TO IMPLEMENT BASEL III CAPITAL FRAMEWORK FOR AIFIS

The RBI released a draft framework on master directions to implement the Basel III Capital Framework for All India Financial Institutions (AIFIs) including EXIM Bank, NABARD, NHB, and SIDBI.

Highlights:

The draft directions propose:

- Minimum capital ratio of **11.5%** of total risk weighted assets (RWA).
- AIFIs to maintain a capital conservation buffer in the form of common equity at 2.5% of RWA, in addition to the minimum capital adequacy ratio of 9%.
- Raising common equity in tier-1 capital to 5.5% of RWA.

- The minimum **tier-1** capital at 7% and the capital conservation buffer at 2.5%.
- To impose Capital distribution constraints on an AIFI when capital level falls within this range.

All India Financial Institutions:

- It is a group composed of Investment Institutions and development finance institutions.
- They fall under the jurisdiction of Reserve Bank of India.
- They assist in the proper allocation of resources, sourcing from businesses that have a surplus and distributing to others who have deficits – this also assists with ensuring the continued circulation of money in the economy.

- They act as an intermediary between borrowers and final lenders, providing safety and liquidity. This process subsequently ensures earnings on the investments and savings involved.

Basel Norms:

- Basel norms are **international banking regulations** issued by the Basel Committee on Banking Supervision (BCBS).
- It is an effort to **coordinate banking regulations across the globe**, with the goal of strengthening the international banking system.
- The BCBS consists of **representatives from central banks and regulatory authorities** from 28 jurisdictions. It has **45 members** (including India).
- The BCBS was formed without a founding treaty to address the problems presented by globalization of financial and banking markets in an era in which banking regulation remains largely under the purview of national regulatory bodies.
- The BCBS serves to **help national banking and financial markets supervisory bodies** move toward a more **unified, globalized approach to solving regulatory issues**.
- Its **secretariat** is located at the **Bank of International Settlements (BIS) headquartered** in the city of **Basel in Switzerland**. Hence, the name Basel norms.

- The Basel Committee has issued **three sets** of regulations as of 2018 known as Basel-I, II, and III.
- Basel III is a **comprehensive set of reform measures designed to improve the regulation, supervision and risk management within the banking sector**.
- Basel norms comprises of **three pillars** introduced in **Basel II Norms**:
 - **Minimum capital requirements** (Pillar 1): Banks to maintain minimum capital adequacy requirement of **8%**.
 - **Supervisory review** (Pillar 2): Develop and use better risk management system
 - **Market discipline** (Pillar 3): Requires **disclosure** of CAR, risk exposure to the Central Bank (RBI in case of India).
- Basel III aims to focus on 4 important banking parameters: **Capital, Leverage, Funding, Liquidity**.

Tier 1 capital:

- Tier 1 capital refers to the **core capital** held in a bank's reserves including common stock, as well as disclosed reserves and certain other assets and is used to fund business activities for the bank's clients.

Tier 2 Capital:

- Tier 2 capital includes **undisclosed funds** that do not appear on a bank's financial statements and revaluation reserves.
- It is **supplementary capital** because it is less reliable than tier 1 capital.

RBI ANNOUNCES SCALE-BASED REGULATORY FRAMEWORK FOR NBFCs

The Reserve Bank of India (RBI) recently announced its new scale-based regulations for the non-banking finance company's sector.

- The new guidelines will be applicable from October 2022.

Highlights:

NBFCs will be split into four layers depending on their size, activity, and perceived riskiness, to determine scale-based regulation.

1. Base Layer

- It includes NBFCs with an **asset size** below Rs 1,000 crore.

- It will include **peer-to-peer** lending platforms, account aggregators, NBFCs not accessing public funds nor having any public interface.

2. Middle Layer

- It consists of all **deposit-taking** and non-deposit taking NBFCs with an asset size of Rs 1,000 crore and above, primary dealers, infrastructure debt fund NBFCs, housing and infrastructure finance companies.

3. Upper Layer

- It comprises of NBFCs which are identified by the RBI as warranting enhanced regulatory requirement based on a set of parameters and scoring methodology.

4. Top Layer

- NBFCs in the upper layer may be moved to the top layer if the potential systemic risk from specific companies rises.

Regulatory Changes:

For Upper Layer

- The top 10 NBFCs will automatically fall into the upper layer.
- NBFCs in the **Upper Layer** must maintain a minimum common equity tier-1 capital of 9% of risk weighted assets.
- **Upper Layer** NBFCs will be required to hold differential provisioning towards different classes of standard assets.
- They must follow the **exposure framework** of the RBI.
- Large exposure of an NBFC to all counterparties and groups of connected counterparties will be considered for **exposure ceilings**.
- The RBI has prescribed an internal limit for exposure toward other NBFCs.

Base and Middle Layer NBFCs

- NBFCs in the base layer are subject to regulations as currently applicable to **non-deposit-taking** NBFCs.
- In the middle layer they will follow regulations as applicable for non-deposit-taking systemically important NBFCs.

Non-Performing Assets Initiative:

RBI has introduced an initiative for a minimum number of days before an account is recognised as a **non-performing asset**.

- NBFCs must move to a 150-day NPA recognition norm by March 31, 2024.
- NPA recognition at 120 days of overdue must be achieved by March 31, 2025.
- NBFCs must follow **90-day NPA recognition cycle** by March 31, 2026.
- NBFCs are required to make an **internal assessment** of the need for capital, commensurate with the risks in their business, like commercial banks.
- They must follow a **uniform exposure** limit of 25% and 40% of Tier-1 capital for single borrower and group borrowers, respectively.

SEBI PROPOSES CAPPING ISINs FOR CORPORATE BONDS TO ENHANCE LIQUIDITY

With an aim to **boost liquidity in the corporate bond market**, Securities Exchange Board of India (SEBI) has suggested further capping the number of ISINs for such bonds issued on a private placement basis.

- Six ISINs maturing per financial year should be allowed for plain vanilla debt securities as compared to 12 at present.

International Securities Identification Number (ISIN):

- An International Securities Identification Number (ISIN) is a **12-digit alphanumeric code** that uniquely identifies a specific security.

- The organization that allocates ISINs in any particular country is the **country's respective National Numbering Agency (NNA)**.
- It is used for **uniquely identifying securities** like stocks, bonds warrants and commercial papers. It is a unique number assigned to a security that is universally recognizable.
- ISINs are used for numerous reasons including **clearing and settlement**. The numbers ensure a consistent format so that **holdings of institutional investors can be tracked consistently across markets worldwide**.

BHARTI OPTS FOR FOUR-YEAR MORATORIUM ON DUES



Bharti Airtel will opt for the **four-year moratorium on Adjusted Gross Revenue (AGR) and spectrum payments** which was part of the recently announced telecom relief package.

- It is the second telco after Vodafone Idea to accept the offer.

Highlights:

- The Union Cabinet had in September **approved several measures to extend lifeline to the cash-strapped telecom sector**, including a four-year moratorium on payment of dues to the government arising out of the AGR judgment as well as payments of spectrum purchased in past auctions.
- The government had also gave 90 days' time to indicate if they wanted to opt for converting the interest amount pertaining to the moratorium period into equity.

Genesis:

- Leading telecom companies reported record losses for the quarter ended September 2019 after making provisions toward the Supreme Court's ruling on the definition of adjusted gross revenue (AGR).
- The judgment requires private telecom service providers to pay out higher sums towards license fee and spectrum usage fee, which are dependent on the value of AGR.

Adjusted Gross Revenue (AGR)?

- Adjusted Gross Revenue (AGR) is the **usage and licensing fee** that telecom operators are charged by the Department of Telecommunications (DoT).

- The contention is on the particulars considered to **calculate the amount payable**.
- The **spectrum usage charges and licensing fees** are pegged between 3-5 percent and 8 percent respectively.
- As per DoT, the **charges are calculated based on all revenues earned by a telco** – including non-telecom related sources such as deposit interests and asset sales.
- Telcos, on their part, insist that AGR should comprise only the revenues generated from telecom services.

National Telecom Policy:

- The telecom sector was liberalised under the **National Telecom Policy, 1994** after which licenses were issued to companies in return for a fixed license fee.
- To provide relief from the steep fixed license fee, the government in 1999 gave an option to the licensees to **migrate to the revenue sharing fee model**.
- Under this, **mobile telephone operators were required to share a percentage of their AGR with the government** as annual license fee (LF) and spectrum usage charges (SUC).
- License agreements between the Department of Telecommunications (DoT) and the telecom companies define the gross revenues of the latter.
- **AGR is then computed after allowing for certain deductions spelt out** in these license agreements.

RBI's MOVE TO ALLOW FPIs in REITs, InvITs' DEBT TO IMPROVE LIQUIDITY, LOWER COST

Recently, Reserve Bank of India (RBI) allowed foreign portfolio investors (FPIs) to invest in debt securities issued by real estate investment trusts (REITs) and infrastructure investment trusts (InvITs).

- This move was made by amending the **Foreign Exchange Management (Debt Instrument) Regulations, 2021**

Benefits of the decision:

- It will **open up the fundraising avenues** as REITs and InvITs have a constant requirement of patient capital for acquisition and to scale their portfolio up.
 - Patient capital is another name for long term capital.

- With patient capital, the investor is willing to make a financial investment in a business with aim for the profit in long term.
- It will **expand and diversify the potential capital pool** for REITs and further reduce the cost of capital for the asset class.
- It will help REITs and InvITs **raise debt at competitive rates** from foreign investors and also lead to wider participation by institutional investors.
- This will also help in **improving business trust** unit holders' risk-adjusted returns due to leveraging.

Due to lack of enabling provisions under the foreign exchange regulations by the RBI, these business trusts were unable to source debt funding from FPIs so far.

Foreign Portfolio Investment:

- Foreign Portfolio Investment (FPI) involves an investor **buying foreign financial assets**.
 - It involves an array of financial assets like **fixed deposits, stocks, and mutual funds**.
- All the investments are **passively held** by the **investors**.
 - Investors who invest in foreign portfolios are known as **Foreign Portfolio Investors**.
- On a **macro-level**, foreign portfolio investment is part of a country's **capital account and shown on its balance of payments (BOP)**.
 - BOP calculates the amount of money flowing from one country to other countries over a financial year.
- In India, **Securities and Exchange Board of India (SEBI)** operates the FPIs.

Effects of FPI:

- Foreign Portfolios **increase the volatility** that leads to increased risk.
- It diversifies the portfolio and get some handsome return on investments.

Permitted instruments under FPI:

- Shares of listed Indian Company
- Non-Convertible Debentures
- Units of domestic MF
- Government Securities
- Security Receipts
- Pass Through Certificates
- Derivatives – Exchange traded Futures and Options
- FX forwards and Interest rate swaps

Regulatory aspects:

- Investment to be **less than 10%** of the **post issue paid-up share capital** of the Indian investee company by a single FPI and 24% on a collective basis.
- Investments by an FPI (including related FPIs) to be **less than 50% of any issue of a corporate bond**.
- **Minimum residual maturity of above 1 year for corporate bond**, subject to the condition that short-term Investments in corporate bonds (less than one year residual maturity) shall not exceed 20% of the total investment of that FPI in corporate bonds
- **Not treated as Foreign Direct Investment (FDI)** or External Commercial Borrowings (ECB)
- No pricing/ sector/coupon restrictions
- Ease in capital repatriation.

Benefits:

- **Investment Diversity**
 - Diversification of portfolio by investing in other countries.
- **International Credit**
 - Investors can get access to increased amounts of credit in foreign countries and can broaden their credit base, thereby securing their line of credit.
- **Access to a Bigger Market**
 - Sometimes, foreign market can be less competitive than the domestic market. Hence, FPI gives you an exposure to a wider market.
- **High Liquidity**
 - Foreign Portfolio Investments provides high liquidity. An investor can buy and sell foreign portfolios seamlessly. This offers buying

power for investors to act when good buy opportunities arise.

- **Exchange Rate Benefit**
 - An investor can leverage the dynamic nature of international currencies.

One can register FPI in one of the below categories:

- **Category I:** This includes **investors from the Government sector.**
 - Such as central banks, Governmental agencies, and international or multilateral organizations or agencies.
- **Category II:** This category includes:
 - Regulated broad-based funds such as mutual funds, investment trusts, insurance/reinsurance companies.
 - Also include regulated banks, asset management companies, portfolio managers, investment advisors, and managers.
- **Category III:** It includes those who are not eligible in the first two categories.
 - It includes endowments, charitable societies, charitable trusts, foundations, corporate bodies, trusts, individuals.

Real Estate Investment Trust (REIT)

- A real estate investment trust (REIT) is a **company that owns, operates, or finances income-generating real estate.**
- REITs pool the capital of numerous investors.
- This makes it possible for individual investors to earn dividends from real estate investments—without having to buy, manage, or finance any properties themselves.

A company must meet the following requirements to qualify as a REIT:

- **Invest at least 75%** of total assets in real estate, cash.
- Derive at least 75% of gross income from rents, interest on mortgages that

finance real property, or real estate sales.

- Pay a minimum of **90% of taxable income** in the form of shareholder dividends each year.
- Be an entity that's **taxable as a corporation.**
- Be managed by a board of directors or trustees.
- Have **at least 100 shareholders after its first year of existence.**
- Have no more than 50% of its shares held by five or fewer individuals.

Advantages of REITs

- **Steady dividend income and capital appreciation:**
 - Investing in REITs is said to provide substantial dividend income and also allows steady capital appreciation over the long term.
- **Option to diversify:**
 - Since most REITs are traded frequently on the stock exchanges, it provides investors with an opportunity to diversify their real estate.
- **Transparency in dealing:**
 - Being **regulated by the SEBI**, REITs are required to **file financial reports** audited by professionals. It provides investors with an opportunity to avail information on aspects like taxation, ownership and zoning, hence making the entire process **transparent.**
- **Liquidity:**
 - Most REITs trade on public stock exchanges and hence are easy to buy and sell, which adds on to their liquidity aspect.
 - **Accrues risk-adjusted returns:** Investing in REITs offers individuals risk-adjusted returns and helps generate steady cash flow. It enables them to have a steady source of income to rely on even when the rate of inflation is high.

Limitations of REITs:

- **No tax-benefits:**

- When it comes to tax-savings, REITs are not of much help. For instance, the dividends earned from REIT companies are subjected to taxation.
- **Market-linked risks:**
 - One of the major risks associated with REITs is that it is **susceptible to market-linked fluctuations**.
- **Low growth prospect:**
 - The prospect of capital appreciation is quite low in the case of REITs. It is mainly because they return as much as 90% of their earnings to the investors and reinvest just the remainder 10% into their venture.

Infrastructure Investment Trusts:

- An Infrastructure Investment Trust (InvITs) enables **direct investment** of small amounts of money from possible individual/institutional investors **in infrastructure** to earn a small portion of the income as return.
- InvITs can be treated as the **modified version of REITs** designed to suit the specific circumstances of the infrastructure sector.
- InvITs can be established as a **trust** and registered with Sebi.

An InvIT consists of four elements:

- **Trustee:**
 - He **inspects the performance of an InvIT** certified by Sebi and he cannot be an associate of the sponsor or manager.
- **Sponsor(s):**
 - 'Sponsors' are people who promote and refer to any organisation or a corporate entity with a **capital of Rs 100 crore**, which establishes the InvIT.
- **Investment Manager:**
 - Investment manager is an entity or limited liability partnership (LLP) or organization that **supervises assets and investments** of the InvIT and guarantees activities of the InvIT.
- **Project Manager:**

- Project manager refers to the person who acts as the project manager and whose duty is to attain the execution of the project and in case of PPP projects.

Foreign Exchange Management Act (FEMA)

FEMA was basically introduced to **de-regularize** and have a **liberal economy** in India and to **fill all the loopholes and drawback of FERA (Foreign Exchange Regulation Act)**.

Objectives of FEMA

- Facilitate external trade and payments.
- Assist orderly development and maintenance of the Indian forex market.
- Defining formalities and procedures for all forex transactions in India.

FEMA outlines the formalities and procedures for the dealings of all foreign exchange transactions in India classified into two categories – **Capital Account Transactions and Current Account Transactions**.

Applicability of FEMA:

FEMA (Foreign Exchange Management Act) is applicable to the **whole of India** and **equally applicable** to the **agencies and offices located outside India** (which are owned or managed by an Indian Citizen). FEMA is applicable to:

- Foreign exchange/security.
- Exportation of any commodity and/or service from India to a country outside India.
- Importation of any commodity and/or services from outside India.
- Securities as defined under Public Debt Act 1994.
- Purchase, sale and exchange of any kind (i.e., Transfer).
- Banking, financial and insurance services.
- Any overseas company owned by an NRI (Non-Resident Indian) and the owner is 60% or more.
- Any citizen of India, residing in the country or outside (NRI).

INDIA COULD LOSE 1.8 TO 3.4% OF GDP BY 2050 DUE TO DECLINE IN RICE AND WHEAT YIELDS

Recently, a new report on the impact of the climate change was released by the Euro-Mediterranean Center on Climate Change (CMCC).

Highlights:

- **G20 countries** including the wealthiest like the US, European countries, Australia **will bear extreme impacts of climate change** significantly hitting their economies by the year 2050.
- Without any improvement in coastal protection or infrastructure, in a low emissions scenario, **infrastructure losses** can be 121.5 billion EUR by mid-century and by 157.3 billion EUR in a **high emission scenario**.
- Annual damages from **riverine flooding** by 2050 will be 376.4 billion EUR under a low emissions scenario and rise to 585.6 billion EUR under a high emissions scenario.
- Rising temperatures and intense heat waves could cause severe droughts and deadly fires.

Effects of Climate change in India:

- In India, declines in **rice and wheat yields** due to climate change could lead to economic losses between **43 and 81 billion EUR (or 1.8-3.4% of GDP) by 2050**.
- Among the G20, India is **lagging in the process of transformation of its energy sector**.
- **Agricultural drought** will become **48% more frequent** by 2036-2065.
- 18 million Indians could be at risk of river flooding by 2050 if emissions are high, compared to 1.3 million today.
- India's marine exclusive **economic zone (EEZ)** has mostly warm coastal waters with a mosaic of ecosystems such as coral reefs, backwaters, mangroves, and seagrasses meadows which makes it particularly vulnerable.
- Epidemiological risks from dengue and Zika will increase due to future climate change in India.

CENTRE RELEASES FINAL TRANCHE OF GST RECOMPENSE LOANS TO STATES

The Central Government released ₹44,000 crore to States and Union Territories as back-to-back loans in lieu of their GST compensation dues.

Effect of early disbursal of compensation loan:

- It will help the States and Union Territories in **planning their public expenditure** among other things, for **improving health infrastructure and taking up infrastructure projects**.
- It will help States **avoid** a bunching up of spending plans towards the end of the year and should help to **compress the size of the State Development loan auctions** in the immediate term leading to a modest cooling of bond yields.

GST Compensation?

- **The Constitution (One Hundred and First Amendment) Act, 2016**, was the law which created the

mechanism for levying a nationwide **GST** with a provision to compensate the States for loss of revenue arising out of implementation of the GST.

- The adoption of the GST was made possible by the States ceding almost all their powers to impose local-level indirect taxes and agreeing to let the prevailing multiplicity of imposts be subsumed under the GST.
- The revenue shortfalls arising from the transition to the new indirect taxes regime would be **made good** from a **pooled GST Compensation Fund** for a **period of five years** that is set to end in 2022.
- This corpus in turn is funded through a **compensation cess** that is levied on so-called '**demerit**' goods such as sin and luxury goods which include pan masala, tobacco, aerated water and luxury cars.

What options did States have to compensate the shortfall?

- **Option 1** entails the **States selling debt securities** in the market to raise the ₹97,000 crore.
 - The Centre will endeavor to keep the interest cost on these borrowings **at or close to** the yield on **G-Sec** (bonds issued by the Government of India)
 - In the event of the cost being higher, bear a part of the difference through a subsidy.
- **Option 2** allows the **States to sell debt in the market to raise the entire ₹2.35 lakh crore** shortfall but with the terms of the borrowing being far less favorable.
 - The interest cost would have to be borne by them with only the principal being serviced by the Compensation Fund.

How did the States respond?

- Several States, have **rejected the options** and made clear that the **onus is on the Centre to borrow from the market** to make good any shortfall in the Compensation Fund.

- They argued that the States had agreed to the implementation of the GST only on the basis of the “**unequivocal commitment** given by the Government of India to **compensate the States for any revenue loss**”.

Final Solution:

- The Centre made a departure from its stance that States should undertake market borrowings to bridge the ₹1.1 lakh crore of GST compensation shortfall.
- The **Government of India** will undertake the **required borrowings** in tranches and **pass it on to States** as a ‘**back-to-back loan**’ that will reflect on their own books.

Features:

- This will **not** have any **impact on the fiscal deficit** of the **Government of India (GOI)**.
- The amounts will be reflected as the **capital receipts of the State Governments** and as part of financing of its respective fiscal deficits

FISCAL DEFICIT TOUCHES 35% OF ANNUAL BUDGET TARGET

According to the data released by the Controller General of Accounts (CGA), the union government’s fiscal deficit has worked out to be **35% of budget estimates at the end of September**.

Highlights:

- The deficit figures in the current fiscal appear better than the previous financial year when it had **soared to 114.8%** of the estimates.
- For the current fiscal, the government expects deficit at 6.8% of GDP.
- The Centre’s total receipts stood at 55.6% of corresponding budget estimates (BE) FY22 up to September. Total receipts were 25.2% of the BE a year earlier.
- Of the total receipts, tax revenue was ₹9.2 lakh crore or 59.6% of BE, compared with 28% a year earlier.

Fiscal deficit:

- Fiscal deficit is the condition when the **expenditure of the government exceeds its revenue** in a year.
- The fiscal deficit of a country is **calculated as a percentage of its GDP OR as the total money spent** by the government in excess of its income.
- Fiscal deficit is calculated both in absolute terms and as a percentage of the **country’s gross domestic product (GDP)**.
- In either case, the income figure:
 - **Includes only taxes** and other revenues
 - **Excludes money borrowed** to make up the shortfall

MASTERCARD PARTNERS LEAF TO DIGITISE AGRI-VALUE CHAIN

Mastercard along with Lawrence Dale Agro Processing India (LEAF) launched LEAF Farmer Network (LFN).

- LFN is a digital platform to improve financial access and inclusion among the farmers in the country.
- LFN will **empower farmers** across Andhra Pradesh, Karnataka, and Tamil Nadu.

- It will **focus on digitization** of harvest data, enhance access to markets, provide expertise on better crops, and bring in transparency by connecting directly with buyers.
- It will bring **access to good quality produce** at scale, enable price negotiation with complete transparency and manage end-to-end logistics with quality control.



WORLD BANK TO EXTEND \$150 MILLION TO CHENNAI'S SUSTAINABLE URBAN SERVICES PROGRAMME

The World Bank will give \$150 million loan to support the Government of Tamil Nadu's Chennai City Partnership: Sustainable Urban Services Programme.

Sustainable Urban Services Programme:

- The programme seeks to help strengthen institutions, improve the financial health of service agencies, and drive significant improvements in the **quality of four key urban services**—water supply and sewerage, mobility, health, and solid waste management.

Significance:

- This programme will support to transform the city and its services,

while accelerating Chennai's shift to a lower carbon and a more resilient growth trajectory.

- It will help adopt new approaches to service delivery and bring a renewed focus on results for citizens.
- It will increase household connections and improve the quality of water and sewerage services.
- It will expand green modes of urban mobility—buses, walking, and cycling—along with improvements in their quality and inter-connectivity.
- It will also enhance disease surveillance and improve coverage and quality of primary health care services.

DEEPLY CONCERNED OVER PROLIFERATION OF WEAPONS OF MASS DESTRUCTION, THEIR DELIVERY SYSTEMS: INDIA AT U.N.

In the General Debate of the First Committee of 76th Session of the U.N. **General Assembly**, India has expressed **deep concerns** over the proliferation of weapons of mass destruction.

Highlights:

- India has been drawing the attention of the world towards **modern threats** and the need to **strengthen international cooperation** to address them.
- **Weapons of Mass Destruction** and their **delivery systems** could endanger peace and security of entire world.
- Such **weapons** in the hands of terrorists are the most threatening form of illicit small arms and light weapons.
- India values the effective implementation of the **U.N. Program of Action** to combat terrorism and transnational crime.
- India is firmly committed to the goal of universal, non-discriminatory and verifiable **nuclear disarmament**.
 - In 2007, in a working paper submitted to the **Conference on Disarmament**, India proposed for a step-by-step approach for the total elimination of nuclear weapons.
 - It calls on the **Conference on Disarmament** to negotiate a **Comprehensive Nuclear Weapons Convention**.

Weapons of Mass Destruction:

A weapon of mass destruction (WMD) is a nuclear, radiological, chemical, biological weapon that can kill and bring significant harm to numerous humans.

- Cause death or serious injury of people through toxic or poisonous chemicals
- Disseminate disease-causing organisms or toxins to harm humans, animals, or plants.

- Deliver nuclear explosive devices, or toxin agents to use them for hostile purposes and armed conflict.

Conference on Disarmament?

- It was recognized by the Tenth Session on Disarmament of the **United Nations General Assembly** in 1978 as a single multilateral disarmament negotiating forum of the international community.
- The Conference is comprised of 65 member States, including five **Non-Proliferation nuclear-weapon** States and 60 other States of key military significance.

Genesis:

- It succeeded other Geneva-based negotiating fora, which include
 - The **Ten-Nation Committee** on Disarmament (1960)
 - The **Eighteen-Nation Committee** on Disarmament (1962-68).
 - The **Conference of the Committee on Disarmament** (1969-78).
- The CD has negotiated major multilateral arms limitation and disarmament agreements such as
 - The **Treaty on the Non-Proliferation of nuclear weapons** (NPT).
 - The **Convention on the Prohibition of the Development of Bacteriological and Toxin Weapons and their destruction** (BWC).
 - The **Convention on the Prohibition of the Development and Use of Chemical Weapons and on Their Destruction** (CWC).
 - **Comprehensive Nuclear-Test-Ban Treaty** (CTBT).

Agenda:

Its permanent agenda is to deal with the following issues:

- **Cessation of the nuclear arms race** and nuclear disarmament.
- Prevention of nuclear war, including all related matters and an arms race in outer space.
- Effective international arrangements to assure non-nuclear-weapon States against the use of nuclear weapons.
- New types of weapons of mass destruction like **radiological weapons**.
- **Comprehensive Programme** of disarmament and transparency in armaments.

Organisation for the Prohibition of Chemical Weapons:

- The OPCW is the implementing body of the Chemical Weapons Convention (CWC), which came into force in 1997.
- It has 193 Member States, working together to achieve a world free of chemical weapons.

Objectives of OPCW:

- **Preventing chemical weapons** used for warfare, thereby strengthening international security.

- Destroying existing **chemical weapons** under international verification by the OPCW.
- Monitoring chemical industry to prevent **new weapons** from re-emerging.
- Aiding and protection to States Parties against chemical threats.
- **Fostering international cooperation** to strengthen implementation of the Convention and promote peaceful use of chemicals.

Policies of OPCW:

- **Goods and services** must be acquired in an effective, efficient, economical, and ethical manner.
- Access for all **qualified suppliers** competing for OPCW business must be open.
- Procurement process must be conducted in a fair and transparent manner, providing equal treatment to all vendors.
- **Conflict of interest**, both real and perceived, must be avoided.

SEYCHELLES" TIWB PROGRAMME LAUNCHED IN PARTNERSHIP WITH INDIA

A joint initiative of the United Nations Development Programme (UNDP) and the Organisation for Economic Cooperation and Development (OECD), Tax Inspectors Without Borders (TIWB) was launched in Seychelles on 4th October, 2021.

Highlights:

- **Aim:** To aid Seychelles in strengthening tax administration by transferring technical skills to tax auditors through sharing of audit practices.
- **Duration:** 12 months
- The focus will be on 'Transfer Pricing' cases of **tourism and financial services** sectors.
- India was the **Partner Administration** for the Programme.
 - It was the sixth TIWB programme which India has

supported by providing Tax Expert.

- A dedicated central unit managed by OECD and UNDP operates as a clearing house to match the **demand for auditing assistance**.
- It will **evaluate the revenue increases** which can be attributed to TIWB capacity-building support.
- **Tax audit experts** work alongside local officials of developing countries on tax audit and related issues.
- Initial phase will be accompanied by a **resource mobilisation** drive.
- Later phases will be supported by contributions from **beneficiary governments**, allocating a portion of revenue to support other countries to benefit.

NAVY TO HOST ITS LARGEST EXERCISE - MILAN

India is set to host its **largest naval exercise**, Ex Milan in February 2022 for which 46 countries have been invited.

- The exercise will see the **participation of all Quad countries** with the U.S. being invited for the first time.

About the exercise:

- Exercise Milan **began in 1995**, is held **biennially and brings together**

Navies of all the countries in the region.

- It has so far been **held at Port Blair** but is now being **shifted to Visakhapatnam** which offers more space and infrastructure.
- The invitees include all **Indian Ocean littoral states and countries from South East Asia** among others.

UNESCO LAUNCHES 2021 STATE OF THE EDUCATION REPORT FOR INDIA: NO TEACHER, NO CLASS

The third edition of the **State of the Education Report**, an annual flagship publication of UNESCO, has been published on World Teacher's Day- October 5.

Highlights:

- **Title:** UNESCO State of the Education Report: No Teachers, No class
- Findings were prepared on the basis of analytical data of Periodic Labour Force Survey (PLFS) and Unified District Information System for Education (UDISE).

Keys:

- There are around **1.2 lakh single-teacher** schools in India. It accounts for 7.15% of 11.51 lakh schools. Out of this, 89% are in rural areas.
 - India is in the need of 11.16 lakh additional teachers to meet the current shortage.
 - **Arunachal Pradesh** has the **highest percentage of single teacher schools** followed by Goa, Andhra Pradesh, Telangana and Jharkhand.
- The **gross enrolment ratio (GER)** for elementary schools has increased from 81.6 in 2001 to 93.03 in 2018-19.
 - But the **overall retention** is 74.6% for elementary education and 59.6% for secondary education in 2019-20.
- India has lack of digital Infrastructure and connectivity.
 - **Causes:**
 - Lack of devices and internet bandwidth
 - Lack of preparedness of teachers to use technology

- Lack of resources in vernacular languages

○ **Effects:**

- Only **22%** India has computer availability- wherein rural India (**18%**) significantly lags urban India (**43%**)
- Only **19%** India has **access to Internet-** only **14%** in rural and **42%** in urban
- Due to lack of preparedness of teachers to use technology, **27%** of the current workforce will need to be replaced in 15 years.
- **Pupil Teacher Ratio:** Number of teachers **increased by 17%** resulting from state's efforts to enact **the Right To Education Act.**
 - India has the Pupil-teacher ratio of **26:1** presently (2018-19).
- **Half** of India's 9.43 million school teachers are women. States and union territories (UTs) with over 70% of women teachers are ranked high in **Performance Grading Index (PGI).**
 - States and UTs with **highest woman workforce:** Chandigarh (82%), Goa (80%), Kerala (78%), Punjab and Tamil Nadu (75%)
 - States and UTs with **lowest women workforce:** Tripura (32%); Rajasthan, Jharkhand and Assam (39%); Bihar (40%)

Suggestions from UNESCO:

- States should focus on improving the **pupil to teacher ratio.**

- North eastern states should not lag.
- Recognize **teachers as frontline workers**.

- Improve the terms of employment of teachers across public and private schools.

6TH EDITION OF INDIA - UK JOINT COMPANY LEVEL MILITARY TRAINING: EXERCISE AJEYA WARRIOR

The 6th edition of India-UK joint company level military exercise Ajeya Warrior was conducted in Uttarakhand.

Highlights:

- The exercise has commenced at **Chaubatia, Uttarakhand**. It is a part of an initiative to develop interoperability and sharing expertise with friendly foreign nations
- **Participants:** Infantry Company from Indian Army and an equivalent strength from UK Army.
- The **first Ajeya warrior** exercise was held in **2013**.

Aim:

- To familiarise with each other's weapons, equipment, tactics,

techniques and procedures for carrying out joint military operations.

Exercise between India and UK:

Konkan Exercise:

- Joint military exercise between the **Navies** of both countries.
- Started in **2004**
 - **Previous Konkan exercise** was held in the **English Channel** in **2021**.

Indradhanush:

- Joint military exercise between the **Air Forces** of both countries. Previous Indradhanush Exercise was held in **2020** themed: **Base Defence and Force Protection**.

INDIA, JAPAN TO CONDUCT FIFTH EDITION OF MARITIME EXERCISE JIMEX-21

The 5th edition of the **bilateral maritime** exercise **JIMEX**, between **Japan and India**, was conducted in the Arabian Sea from 6 – 8 October 2021.

Highlights:

- The exercise included ships and aircraft of **Japan Maritime Self Defence Force (JMSDF)** and Indian Navy.
- Both countries performed **operations** focused on air, surface, and sub-surface dimensions of maritime operations, and air domain.

Operations Performed under the Exercise:

- The units exercised War with P8I aircraft of Indian Navy (IN) providing **maritime reconnaissance support** to both navies.

- They practiced **Replenishment at Sea approaches**. The exercise involved complex Targeting exercises and **surface gun shoots** on an expendable target.

Air Domain Operations:

- Advanced coordinated **anti-submarine exercise** involving an underwater target deployed by JMSDF.
- Advanced **anti-aircraft firing exercises** on Expendable Aerial Target launched from the deck of **INS Kochi**.
- **Flying operations** with MiG 29K fighters for multiple simulated air strike on surface units, from the IN's Maritime Patrol Aircraft, **Dornier**.

INDIA, CROATIA SIGN AGREEMENT FOR ACADEMIC COLLABORATION IN TRADITIONAL MEDICINE SYSTEMS

India and Croatia signed a Memorandum of Understanding (MoU) on 8th October 2021 to collaborate for academic research and competency building in **traditional medicine systems**.

- The MoU was signed between **All India Institute of Ayurveda (AIIA)**

and Croatia's **Kvarner Health Tourism Cluster**.

Highlights:

- **Aim:** To promote academic research, clinical and educational activities, medical education, training, and competency building.

- Focus will be on developing **Ayurvedic medical guidelines** for Ayurveda education in Croatia.
- The two countries will undertake academic activities in the field of Ayurveda in collaboration with the identified institutions.
- There will be close cooperation and collaboration on
 - Research, including study design and execution.
 - Developing evidence-based guidelines for **Ayurvedic principles**.
 - **Practices** with modern medicine, conducting lectures, seminars, and conferences, on Ayurveda.

Location of Croatia:

- It is situated in the northwestern part of the Balkan Peninsula, **southeast Europe**.

- It has **low mountains** and highlands near the Adriatic coastline, flat plains passing through the Hungarian border, and a multitude of islands.
- The coastal areas have a **Mediterranean climate** with hot summers and mild winters.

People and Culture:

- **Croats** are by far the largest ethnic group in Croatia, several ethnic groups can be found in the republic.

Economy:

- The 1991-95 civil war between Croats and Serbs caused massive damage to cities and industries.
- It affected the **trade** and drastically reduced industrial output.
- Croatia has progressed politically and economically. In July of 2013 it was accepted into the European Union.

FACEBOOK STORM MAKES GOVT 'RETHINK' SAFE HARBOUR FOR SOCIAL MEDIA PLATFORMS

India is considering a "rethink" of the safe harbour framework enjoyed by social media platforms in the country.

- This comes at a time when **calls to further regulate Facebook have intensified** across the world following revelations by **whistle-blower Frances Haugen**.

Key Facts:

- India is closing in on 750 million internet users and is the largest market in terms of users for many technology giants, including Facebook.

- Under **Section 79 of the IT Act**, intermediaries including **social media firms get immunity** from content posted on their platforms by third-party users.
- India's IT Rules, which were notified in May, put in place a **mechanism for social media users to flag problematic content** as soon as they see it and asks companies to submit compliance reports on such complaints each month.

INDIA GETS RE-ELECTED TO U.N. HUMAN RIGHTS COUNCIL FOR 2022-24 TERM

India was re-elected to the U.N. **Human Rights Council for the 2022-24 term** with an overwhelming majority in the General Assembly.

- India got 184 votes in the 193-member assembly, while the required majority was 97.

Genesis:

- The 76th UN General Assembly held elections for 18 new members of the U.N. Human Rights Council who will serve for a **period of three years, starting in January 2022**.

- India's current term was set **to end on December 31 2021**.
- For election for the term 2022-2024, **there were five vacant seats in the Asia-Pacific States** category - India, Kazakhstan, Malaysia, Qatar and United Arab Emirates.

U.N. Human Rights Council:

- It is an inter-governmental body within the United Nations system.

- It was created by the United Nations **General Assembly on 15 March 2006**.
- It meets at the **UN Office at Geneva, Switzerland**.
- It replaced the former **United Nations Commission on Human Rights**.
- The Council's work is reviewed in **every five years** by the UN General Assembly.
- The UNHRC holds regular sessions three times a year, in March, June, and September.

Members:

- The Council is made **up of 47 United Nations Member States** which are **elected by the UN General Assembly**.
- The 193-member General Assembly **elected by secret ballot** Argentina, Benin, Cameroon, Eritrea, Finland, Gambia, Honduras, India, Kazakhstan, Lithuania, Luxembourg, Malaysia, Montenegro, Paraguay, Qatar, Somalia, UAE and the USA for the 2022-2024 term on the Council.
- The members of the Council shall **serve for a period of three**

years and shall **not be eligible for immediate re-election** after two consecutive terms.

- The membership is based on **equitable geographical distribution**, and **seats are distributed among regional groups**.
 - Group of African States (13), Group of Asia-Pacific States (13), Group of Eastern European States (6), Group of Latin American and Caribbean States (8) and Group of Western European and other States (7).

Functions:

- It investigates allegations of breaches of human rights in United Nations member states
- Addresses important thematic human rights issues such as:
 - Freedom of association and assembly
 - Freedom of expression
 - Freedom of belief and religion
 - Women's rights
 - LGBT rights
 - Rights of racial and ethnic minorities

INDIAN ARMY WINS GOLD MEDAL AT CAMBRIAN PATROL EXERCISE IN UK

A team from **4/5 Gorkha Rifles (Frontier Force)** which represented the Indian Army at the prestigious Cambrian Patrol Exercise at Brecon, Wales, UK from 13th to 15th October 2021 has been awarded Gold medal.

- The Indian Army team **competed against a total of 96 teams** which included 17 international teams representing Special Forces and prestigious Regiments from around the world.

Ex Cambrian Patrol:

- Ex Cambrian Patrol **organised by the UK Army** is considered the **ultimate test of human endurance, team spirit**.

- It is sometimes referred as the **Olympics of Military Patrolling** among militaries in the world.
- During the exercise, teams were assessed for their performance under harsh terrain and inclement cold weather conditions which presented various challenges in addition to the complex real world situations painted to them so as to assess their reactions in combat settings.
- Out of 96 participating teams, **only three international patrols have been awarded** a gold medal till phase 6th of this Exercise.

INDIAN ARMY TO PARTICIPATE IN JOINT MILITARY EXERCISE WITH US ARMY

As part of the ongoing **Indo-US Defence Cooperation**, the Joint Military Training Exercise "Ex **Yudh Abhyas 2021**" will be

conducted at Joint Base Elmendorf Richardson, Alaska (USA) from 15 to 29 October 2021.

- This will be the 17th Edition of the joint exercise.

- The previous version of this exercise was held at Mahajan Field Firing Ranges in Bikaner, Rajasthan in February 2021.

Exercise Yudh Abhyas 2021:

- Exercise Yudh Abhyas is **the largest running joint military training and defence cooperation** endeavor between India and USA.
- It is hosted alternately between both countries.

- The exercise aims at **enhancing understanding, cooperation and inter-operability** between two Armies.
- The joint exercise will focus on Combined Arms Manoeuvres in cold climatic conditions and is primarily aimed at **sharing tactical level drills and learning best practices** from each other.

INDIA, ISRAEL AGREE TO CONCLUDE FREE TRADE PACT BY JUNE 2022

India and Israel will resume negotiations on a **free trade agreement (FTA)** from November 2021 with the intention of signing the long-pending pact by **June 2022**.

- The countries have been trying to negotiate a trade agreement over the past 14 years.

India-Israel relations:

- India and Israel have established bilateral consultation mechanisms in all sectors of collaboration, including water, agriculture, counter-terrorism, and defence.

Trade Relations:

- Bilateral merchandise trade stand at US\$ 4.14 billion (excluding defence) during the period April 2020 – February 2021 with the balance of trade being in India's favor.
- **Trade in diamonds** constitutes about 50% of bilateral trade.
- India is Israel's **third-largest trade partner** in Asia and seventh largest globally.
- **Major exports from India:** Precious stones and metals, chemical products and textiles and textile articles.
- **Major imports by India:** Precious stones and metals, chemicals and mineral products, base metals and machinery and transport equipment.

Cultural Relations:

The major areas of cooperation identified to promote cultural ties include:

- Exchange of culture and art experts.
- Yoga and Ayurveda are popular in Israel.
- Indian Cultural Centre in Tel Aviv started functioning in January 2020

and regularly organizes events to promote cultural ties.

- Devising youth exchange programmes and encouraging sports-related interaction among youth.

Defence Relations:

- India is the largest buyer of **Israeli weapons** and Israel is India's second-largest weapons supplier.
- India's Defence Research and Development Organization (**DRDO**) and Israeli Aerospace Industries (IAI) are currently collaborating on developing surface-to-air missile systems for the Indian armed forces.
- Indian armed forces have also inducted Israeli UAVs, radar systems, surveillance technology as well as anti-aircraft missiles and air-to-air missiles.

India and Israel are also part of a Joint Working Group on **Counterterrorism** that serves as a platform for dialogue.

Science and Technology:

- India and Israel have signed a MoU, with a contribution of **US \$ 20 million** from each side over 5 years, for establishing industrial R&D and Innovation fund.
- On December 21, 2020, India and Israel signed an Agreement on cooperation in the fields of health and medicine. The agreement envisages deepening of strategic partnership in the health sector, including in R&D in health, between the two countries.

Investment:

- Cumulative FDI from India, as of September 2019, was about US\$ 118 million as compared to Israel's direct FDI into India of US\$ 224.76 million during April 2000 – March 2021.

Agriculture:

- Agricultural cooperation between the two sides is formalized through **three-**

KUSHINAGAR CONNECT TO SRI LANKA

Recently, the Prime Minister of India inaugurated the **Kushinagar airport** in Uttar Pradesh that will connect the **Buddhist circuit** to Sri Lanka, Japan, Taiwan, China, Thailand, Singapore etc. a sizeable Sri Lankan contingent, led by a member of the first family, will be present.

- Sri Lanka will present to India photographs of two murals paintings.
 - Mural depicting 'Arahat **Bhikkhu**' **Mahinda**, son of Emperor Ashoka delivering the message of the Buddha to **King Devanampiyatissa of Sri Lanka**.
 - The arrival of 'Theri **Bhikkhuni**' **Sanghamitta**, the daughter of the Emperor, in Sri Lanka, bearing a **sapling of the 'sacred Bodhi tree'** under which Siddhārtha Gautama is believed to have obtained enlightenment.

Highlights:

Kushinagar

- Buddhist circuit is one the thematic circuit under **Swadesh Darshan scheme** of central government. The Buddhist Circuits are the places of holy sites of Buddhism.
- Kushinagar is a Buddhist Pilgrimage Centre, where **Lord Gautam Buddha delivered his last sermon and attained Mahaparinirvan.**

INDIA AT 71ST ON GLOBAL FOOD SECURITY INDEX 2021 OF 113 NATIONS

India has ranked at **71st position out of 113 countries** in the Global Food Security (GFS) Index.

Global Food Security (GFS) Index:

- **Developed by:** London-based Economist Impact sponsored by Corteva Agriscience.

year action plans. The two sides are currently implementing the fifth phase of the joint action plan (2021-23).

- **Twenty- nine Centers of Excellence for Horticulture** are fully active in **twelve Indian states.**

- Kushinagar is considered to be the **center of the Buddhist circuit** consisting pilgrimage sites of Lumbini, Sarnath and Gaya

Lumbini:

- The **birthplace of Lord Buddha**, is located in the Terai plains of southern Nepal.
- The area includes sandstone Ashoka pillar with its Pali inscription in Brahmi script, along with remains of Buddhists viharas and stupas.

Sarnath:

- Sarnath is a place located 10 kilometers north-east of Varanasi near the confluence of the Ganges and the Varuna rivers in Uttar Pradesh.
- Buddha gave his **first sermon** and **set the wheel of dharma in motion at Sarnath.** It is also the place of birth for the Sangha (the religious followers of Buddha).

Gaya:

- Bodh Gaya is a religious site and place of pilgrimage associated with the **Mahabodhi Temple Complex** in Gaya district in Bihar.
- It is the place where **Gautama Buddha** is said to have **attained Enlightenment (Pali: bodhi)** under what became known as the Bodhi Tree.

- Measures the underlying drivers of food security in 113 countries, based on the following **factors:**

- Affordability
- Availability
- Quality and safety
- Natural resources and resilience

- The report uses 58 unique food security indicators including income and economy.
- **Objective:** Calling attention to systemic gaps and actions needed to accelerate progress toward **United Nations Sustainable Development Goal of Zero Hunger by 2030.**

Keys:

- **Top Rankers:** Ireland, Australia, the UK, Finland, Switzerland, the Netherlands, Canada, Japan, France and the US with the overall GFS score in the range of 77.8 and 80.
- China's score improved by 9.6 points to 71.3 in 2021 from 61.7 in 2012.
- Global food security has decreased for the second year in a row after seven years of progress towards the

Sustainable Development Goal of achieving zero hunger by 2030.

- Food systems remain vulnerable to economic, climatic, and geopolitical shocks.

India's Performance:

- India has an **overall score of 57.2 points.**
- In the **food affordability** category, Pakistan and Sri Lanka scored better than India.
- In case of **availability of food**, quality and safety as well as protecting natural resources for food production, India scored better than Pakistan, Nepal, Bangladesh and Sri Lanka.
- India's incremental gains in overall food security score were lagging behind that of Pakistan, Nepal and Bangladesh as seen in the last 10 years.

SECOND QUAD: INDIA, US, ISRAEL AND UAE FOREIGN MINISTERS TO MEET VIRTUALLY

The first meeting of the foreign ministers of **India, Israel, the US and the United Arab Emirates (UAE)** was held virtually.

- The intention is to hold an in-person meeting of the ministers in the coming months at 'Expo 2020' in Dubai.

Highlights:

- The four leaders also exchanged views on shared issues of concern in the region and the importance of expanding economic and political collaboration.
- They decided together to establish an **international forum for economic cooperation.**
- They discussed joint infrastructure projects in transportation, technology, maritime security, and economics and trade, as well as additional joint projects.

- To expand economic and political cooperation in the Middle East and Asia and to enhance maritime security.
- It was decided that **each minister will appoint senior-level professionals** to a joint working group that will formulate options for cooperation in the areas identified by the ministers.
- The synergy between the four countries will help them work together on infrastructure, transport, maritime security and other issues.

Key Facts:

- **India, Israel and the UAE** have already stepped-up **trilateral cooperation**, especially in trade and investment, since the US brokered the Abraham Accords in August 2020.

INDIA TO BE PART OF 4-COUNTRY FORUM ON ECONOMIC COOPERATION

India, United States, Israel and the UAE have decided to form a forum for future economic cooperation.

Highlights:

- The meeting focused on ways to **expand economic and political cooperation** in the Middle East and

Asia and to enhance maritime security.

- **Joint infrastructure projects** in transportation, technology, Big Data, maritime security, and economics and trade, as well as additional joint projects were discussed.

- They also discussed **people-to-people ties** in technology and science, and ways to support global public health in the context of the Covid-19 pandemic.
- The objective of the forum is to **create synergies** that go beyond government level cooperation and enter business to business cooperation.
- Each country would appoint a senior level bureaucrat to be part of a joint working group to materialize the decisions taken at the ministerial level.

Significance:

- It will be **balancing act for India** to protect its economic and political

interests amidst the various fissures of the region over the decades.

- India has **robust defence, security and trade cooperation** with Israel and the US, while the UAE is a key energy partner, hence such multilateral international cooperation will further cement India's relation with these countries.
- The forum will act as a **platform for exchange of knowledge and experience**.
- This cooperation will be manifestation of India's support and effort to maintain peace and stability in West Asia.

INDIA TO HOST 'GEN NEXT' LEADERS FROM 75 DEMOCRATIC COUNTRIES

As part of Azadi ka Amrit Mahotsav, India will **host young leaders from 75 democracies** under the initiative **Gen-Next Democratic Network**.

About the initiative:

- The event is planned by **Indian Council for Cultural Relations (ICCR)**, an autonomous body under the Ministry of External Affairs, which deals with policies relating to India's external cultural relations.
- **Objective:** To give the young leaders a comprehensive idea about India's rich democratic culture.
- It is a program in which we are inviting **young leaders below the**

age of 35 from 75 different democracies.

- These young leaders will **be from the ruling party, the opposition party and other key parties** as desirable.
- Around 5-7 leaders will be invited in different groups.
- The structure includes countries **representing regions and continents** like South East Asia and Africa.
 - The first batch will include leaders from Bhutan, Sri Lanka, Bangladesh, Japan, Indonesia, Chile and Zambia.

INDIA RANKS 40TH OUT OF 43 GLOBAL PENSION SYSTEMS, AS PER SURVEY

As per the global study done by Mercer Consulting, the **Indian pension system** ranks a lowly **40th** in a comparative index of 43 systems in the Global Pension Systems Rankings 2021.

Aim: To benchmark each retirement income system using more than 50 indicators.

Mercer CFA Institute Global Pension Index (MCGPI):

- MCGPI is an annual survey by Mercer Consulting, which aims to benchmark the retirement income system.
- MCGPI uses three sub-indices, **adequacy, sustainability,**

and integrity to measure each retirement income system against more than 50 indicators.

- The **adequacy sub-index** represents the adequacy of the benefits that are being provided
- The **sustainability** sub-index represents the likelihood that the current system can provide benefits in the future.
- The **integrity** sub-index includes many legislative requirements that influence the overall governance and operations of the system which

affect the level of confidence that citizens have in their system.

- The Index is published by Mercer, in collaboration with CFA Institute and the Monash Centre for **Financial Studies**.

Highlights:

- Iceland has the **best pension system** in the world.
- India had an overall **index value of 43.3** among the countries analyzed.
- The index highlights key strengths of retirement pension systems around three sub-indices **adequacies, sustainability, and integrity**, where India scored 33.5, 41.8, and 61.0, respectively.

India's Pension System:

- The workforce in India manages pension savings on its own for the most part as the coverage under private pension arrangement is just about 6% in India.
- 90% of the total workforce being in the unorganized sector, measures should be taken to get a larger workforce under pension savings
- India had an overall index value of 43.3 among the countries analyzed, lower than the **index value of 45.7 for 2020**.

Pension plan in India:

- **There are 2 phases of pension plans in India:**
 - The **accumulation phase** and **vesting phase** are the two phases of pension plans in India.

- The investor pays annual premiums until they reach their retirement age in the accumulation phase.
- The vesting phase begins when the investor reaches their retirement age.

- **Withdrawal of the entire retirement corpus in one go at retirement is not allowed.**

- On retirement, an individual is not allowed to withdraw the entire accumulated retirement corpus.
- They can only withdraw one-third of the accumulated corpus while receiving the rest in the form of an annuity.

- **Annuities are taxable**

- Contributions made towards pension plans are exempted for tax under section 80CCC up to a maximum limit of Rs. 1 Lakh.

- **Pension plans only guarantee positive returns**

- Pension plans in India do not guarantee a fixed return on their retirement savings.
- Even the best pension plans only guarantee a positive return on the investment.

- **Freedom to choose from a variety of pension plans**

- Pension plans sponsored by government-approved mutual funds feature a balanced investment approach.
- They follow investment in both equity and debt in a **40:60 proportion**.

JAISHANKAR VISITS ISRAEL'S OVDA AIRBASE TO MEET IAF CONTINGENT TAKING PART IN BLUE FLAG EXERCISE

External Affairs Minister has visited Israel's Ovda Airbase to meet the Indian contingent participating in the biennial Blue Flag exercise involving Air Force missions from eight countries.

- The Blue Flag drill is a **bi-annual exercise** designed to strengthen Israel's military cooperation internationally.

- It aims to share knowledge and combat experience to improve operational capabilities.

- **US, UK, Germany, France, India, Italy, Greece and Israel** are the participating nations of the exercise.

- India had also **participated in this event in 2017**.

KONKAN SHAKTI: SEA PHASE OF THE MAIDEN TRI-SERVICE EXERCISE BETWEEN INDIA AND THE UK BEGINS

Konkan Shakti is one of the **biggest joint exercises** between **Indian armed forces** and **United Kingdom's** Carrier Strike Group (CSG).

- Konkan Shakti is the **first tri-service exercise** between India and the United Kingdom.
- The exercise highlights the re-entry of the **UK's Carrier Strike**

Group (CSG) into western Indian Ocean waters.

- The CSG, along with HMS Queen Elizabeth, has been on deployment in the **Indo-Pacific** waters for all summer.
- Deployment of CSG is significant for the UK as it is the biggest deployment after the end of the Cold War.

IFSC AT GIFT CITY: INDIA'S WAY FORWARD TO SET UP AN INTERNATIONAL FINANCIAL SERVICE CENTRE

Recently, International Financial Services Centre Authority (IFSCA) announced a new liberal regulatory regime for facilitating the formation of various international and Indian insurance businesses in the Gujarat International Finance Tec-City (GIFT City).

Highlights:

- India is set to become a **reinsurance hub** with the **International Financial Services Centre Authority (IFSCA)**.
- **IFSC offers zero tax provision for 10 years**, no foreign reinsurer has set up operations in the center till now.
- Global reinsurers can procure business from the region around India by setting up an **operation** in the GIFT City.

New regulations

- **Foreign insurers** and reinsurers can set up branch offices as IFSC Insurance Offices (IIOs) to undertake insurance or reinsurance business from IFSC either by setting up branches or subsidiaries.
- No onshore assigned capital will be required for foreign insurers or foreign reinsurers setting up IIOs as branches.
 - The assigned capital of \$1.5 million can be maintained in home jurisdictions.
 - No onshore solvency requirement for IIO in the IFSC.
 - The assigned capital solvency margin will have to be maintained in the home jurisdiction.

International Financial Services Centre Authority (IFSCA)

- It **regulates all financial services** in International Financial Services Centres (IFSCs) in India.
- **Headquarter:** in Gandhinagar, Gujarat).
- **Composition** of the Authority (9 members):
 - Chairperson
 - One Member each to be nominated by: Reserve Bank of India (RBI),
 - Securities Exchange Board of India (SEBI),
 - Insurance Regulatory and Development Authority of India (IRDAI) and
 - Pension Fund Regulatory and Development Authority (PFRDA)
 - **Two members** to be dominated by the **Central Government**.
 - **Two other** whole-time or full-time or part-time members.
- **Tenure:** All the members have a term of **three years, subject to reappointment**.
- **Functions:**
 - Regulate financial products (such as securities, deposits or contracts of insurance), financial services, and financial institutions which have been **previously approved by any appropriate regulator** (such as RBI or SEBI) in an IFSC.
 - Regulate all other such financial services/ products as may be **notified by the Central**

Government or permitted by Financial Sector Regulators.

- **Recommending** any other financial products/services/financial institutions to the central government, which may be permitted in an IFSC.

International Financial Services Centre (IFSC):

- An IFSC caters to **customers outside the jurisdiction** of the domestic economy.
- Such centres deal with **flows of finance, financial products and services** across borders.
- IFSC would provide Indian corporates **easier access to global financial markets**.
- It would also complement and promote **further development of financial markets** in India.

Services an IFSC can provide:

- Fund-raising services for individuals, corporations and governments.
- Asset management and global portfolio diversification undertaken by pension funds, insurance companies and mutual funds.
- Wealth management.
- Global tax management and cross-border tax liability optimization, which provides a business opportunity for financial intermediaries, accountants and law firms.
- Global and regional corporate treasury management operations that involve fund-raising, liquidity investment and management and asset-liability matching.
- Risk management operations such as insurance and reinsurance.
- Merger and acquisition activities among Trans-national corporations.

INDIA DETERMINED TO PROTECT LEGITIMATE RIGHTS IN ITS TERRITORIAL WATERS

Recently, the defence minister calls for cooperative response to deal with maritime challenges as mandated under UN Convention on the Law of Seas (UNCLOS), 1982.

Indo-Pacific Regional Dialogue (IPRD) 2021:

- The **apex international annual conference** of the Indian Navy.
- Aim: To review both opportunities and challenges that arises within the Indo-Pacific.
- Theme for 2021: **“Evolution in Maritime Strategy during the 21st Century: Imperatives, Challenges, and, Way Ahead”**.

United Nations Convention on the Law of the Sea (UNCLOS):

- Also known as **Constitution for the oceans**.
- **Aim:** Establishes the **rights and responsibilities** of the nation's **regarding the use of the world oceans**.
- **Entered into force on:** 16 November 1994.
- Replaced the **four Geneva Conventions** of April, 1958.

- Signed by **117 states**.
 - India ratified the convention in Jun 1995.
- The Convention establishes freedom of activity in six spheres: Navigation, Overflight, Laying of cables and pipelines, artificial islands and installations, Fishing and Marine scientific research.
- **Objective:**
 - To provide framework for the development of a specific area of law of the sea.
 - To promote the peaceful use of the seas and oceans;
 - To facilitate International Communications;
 - To enable equitable and efficient utilisation of ocean resources;
 - To protect and preserve the marine environment;
 - To promote Maritime safety.

Five Main Areas of Water Territories:

1. Internal Waters-
2. Territorial Waters
3. Contiguous Zone
4. Exclusive Economic Zones (EEZs)

5. Continental Shelf

GOVT SIGNS PACT WITH US TO PROCURE MK 54 TORPEDO, EXPENDABLES WORTH ₹423 CR

Recently, the **Ministry of Defence** has signed a deal with the US Government for procurement of **MK 54 Torpedo** and (**Chaff and Flares**) for the Indian Navy, under **Foreign Military Sale (FMS)**.

Highlights:

Mark 54 Lightweight Torpedo [MK 54]:

- A **cigar-shaped underwater missile**.
- Can be launched from a submarine, surface vessel, or airplane.
- **Previously known as Lightweight Hybrid Torpedo (LHT)**.
- **Function:**
 - **Launched above or below the water surface.**
 - **Self-propelled towards a target.**
 - **Capable of tracking, classifying and attacking underwater targets.**
- **India plans to use on P-8I patrol aircraft.**

Expendables:

- a) Chaff system
- b) Flares

Purpose: to confuse radar-guided or infrared-guided anti-aircraft missiles fired.

Chaff:

- Part of Counter Measure Dispensing System (CMDS)
- It is a Passive expendable electronic counter measure.
- Made up of **small aluminium or zinc coated fibres** stored on-board the aircraft in tubes.
- **Aim:** Protection of the naval ships from enemy's radar and missile seekers based on radio frequency.
- **Working:** When released/deployed by the target aircraft, it appears as a cloud of small targets to the incoming radar-guided missiles.
- **Example:** Kavach MOD II

Flares:

- **Hot, burning objects** that are released from an aircraft.
- Act as a **decoy**.
- Used to distract heat-seeking missiles surface-to-air missile or air-to-air missile.
- **Aim:** to prevent the incoming missile from hitting.

SWEDEN TO LAUNCH 'TIME FOR INDIA' CAMPAIGN IN NOVEMBER

Sweden is going to launch a **trade promotion event– Time for India–** to boost bilateral trade and hinted that the Swedish Government may take a more liberal post-COVID visa policy for India soon.

- It is a promotional campaign for Indian business.

- Sweden is allowing '**essential travels from India**' which also includes certain types of travel by business owners.
- Sweden Ambassador in India has also said that it **does not require vaccination from international travellers** including those from India.

ASEAN'S UNITY, CENTRALITY ALWAYS IMPORTANT PRIORITY FOR INDIA -PM

The year 2022, which will mark 30 years of the **India-ASEAN partnership**, will be celebrated as the ASEAN-India Friendship Year.

- During the Addressing of the India-ASEAN Summit, the Prime minister of India said India's Indo-Pacific Oceans

Initiative (IPOI) and ASEAN's Outlook for the Indo-Pacific are the framework for their shared vision and cooperation in the Indo-Pacific region.

Association of Southeast Asian Nations (ASEAN)

- It is an economic union comprising 10 member states in Southeast Asia, which promotes intergovernmental cooperation and facilitates **economic, political, security, military, educational, and sociocultural integration** between its members and other countries in Asia.
- **Group of Countries:** Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.
- **Establishment:** 8 August 1967
- **Aim:**
 - To accelerate economic growth and through that social progress and cultural development.
 - To promote regional peace and stability based on the rule of law and

the principle of the United Nations charter.

- **Headquarters:** Jakarta, Indonesia.
- **Fundamental principles:**
 - Mutual respect for the independence, sovereignty, equality, territorial integrity, and national identity of all nations;
 - The right of every State to lead its national existence free from external interference, subversion, or coercion;
 - Non-interference in the internal affairs of one another;
 - Settlement of differences or disputes in a peaceful manner;
 - Renunciation of the threat or use of force;
 - Effective cooperation among themselves.

INDIA-EU TRADE TALKS TO RESUME BY DECEMBER

India and the European Union (EU) are set to resume negotiations for a Bilateral Trade and Investment Agreement (BTIA) by December 2021.

Areas of disagreement on trade between India and EU:

- European and Indian expectations diverge on issues such as **tariffs on cars, wines, and dairy products imported from the EU**, and on the liberalisation of the visa regime for Indian professionals entering the EU.
 - Tariffs on goods imported from EU, such as wines and cars, remain at between 60 and 100 percent.
 - EU says it is unable to intervene on this issue of liberalisation of the visa regime for Indian professionals entering the EU, because **work permits and visas are under the remit of individual member states**.
- The EU and India have even had trade **disputes at the World Trade Organization (WTO)** on spirits and on pharmaceuticals.
 - The EU also seeks to strengthen intellectual property rights in India. **Existing Indian laws do not allow evergreening of**

patents (extending patents when they are about to expire by making small changes to the product) or data exclusivity, preventing various drugs and chemicals from being sold in India.

- India argues that if it were to accede to the EU's demand, the Indian pharmaceutical industry would not be able to sell cheap generic drugs.
- When **free trade agreement (FTA)** negotiations began, India had high tariffs in areas of interest to the EU and restrictions on foreign direct investment (FDI) in several sectors, including insurance and trade.
- India has also been affected by EU regulations and standards, especially on agricultural exports.
 - For example, imports of **Indian Alphonso mangoes** were banned after "non-European fruit flies" were found in some consignments, though this was lifted later.
- India is **not considered data-secure under EU legislation** and this hampers the flow of sensitive data such as information on patients, and

means that Indian firms are unable to gain market access in the EU, increasing operating costs.

- The EU wants India to first liberalise its professional services sector, specifically accountancy and legal services, which is vehemently opposed by Institute of Chartered Accountants of India and the Bar Council of India fearing overseas competition.
- The EU has sought massive cuts in India's tariffs on automobiles and auto components. Fully assembled

cars attract an import duty, from 60 percent and rising to 75 percent.

- The EU sees this as protectionism: by contrast, the tariff on Indian cars imported into the EU is 6.5 percent.
- Indian industry fears that tariff cuts would flood the domestic market with European cars, which could have an adverse impact on investment and on the "Make in India" campaign.
- There are also fears about auto components being imported into India at concessional rates.

UNION HEALTH MINISTER MANSUKH MANDAVIYA URGES G20 TO INCREASE FUNDING TO WHO

While addressing the G20 joint finance and health ministers meeting, the Union health minister urged the G20 to increase funding to the World Health Organization (WHO) to strengthen global health financing.

- World Health Organization relies on contributions from renowned scientists and medical professionals to inform its work, and is involved in vaccination campaigns, health emergencies and supporting countries in primary care.

How is WHO funded?

WHO gets its funding from **two main sources**: Member States paying their assessed contributions (countries' **membership dues**), and **voluntary contributions** from Member States and other partners.

Assessed Contributions:

- Assessed contributions (AC) are a **percentage of a country's Gross Domestic Product** (the **percentage is agreed by the United Nations General Assembly**).
- Member States **approve** them **every two years** at the World Health Assembly.
- They cover **less than 20%** of the total budget.
- The remainder of WHO's financing is in the form of voluntary contributions (VC), largely from Member States as well as from other United Nations

organizations, intergovernmental organizations, philanthropic foundations, the private sector, and other sources.

Voluntary contributions

- Voluntary contributions come from Member States (**in addition** to their assessed contribution) or from other partners.
- In recent years, voluntary contributions have accounted for **more than three quarters** of the Organization's financing.
- Voluntary contributions (VC) are further categorized based on the **degree of flexibility** WHO has in deciding **how to spend these funds**:

Core voluntary contributions (CVC)

- Core voluntary contributions are **fully unconditional** (flexible), meaning WHO has full discretion on how these funds should be used to fund the programmatic work of the Organization. These represent 3.9% of all voluntary contributions

Funding for emergencies

- WHO's Contingency Fund for Emergencies (CFE) allows WHO to respond rapidly to disease **outbreaks and health emergencies -- often in 24 hours or less**.
- WHO also funds its emergency responses from specific appeals as well as allocations from joint funds such as

the UN Central Emergency Response Fund (CERF) and Humanitarian Response plans.

Highest Contributors:

G20 Countries:

- The G20 (or Group of Twenty) is an **intergovernmental forum comprising 19 countries** and the **European Union (EU)**.
 - Spain is a permanent guest invitee.
- It works to address major issues related to the global economy, such as international financial stability, climate change mitigation, and sustainable development.

- It was **founded in 1999** in response to several world economic crises. Since 2008, the group convenes at least once a year.
- It **operates without a permanent secretariat or staff**.
- Each year, a different G20 member country assumes the presidency starting from 1 December until 30 November.
- The members of the group negotiate among themselves to take over the G20 presidency when it is their group's turn.

KEY U.S. LAWMAKERS BAT FOR CAATSA SANCTIONS WAIVER FOR INDIA

US lawmakers continue to voice their support for a sanctions waiver for India for its purchase of the S-400 missile defense system from Russia.

Highlights:

- India is likely to begin taking delivery of the **missile system** in November.
- This will lead to **U.S. sanctions** under a 2017 law, **Countering America's Adversaries Through Sanctions Act (CAATSA)**.

What is CAATSA?

- The Countering America's Adversaries Through Sanctions Act (CAATSA) is a U.S. federal law that **imposes economic sanctions** on Iran, Russia and North Korea.
- **Aim:** Countering perceived aggressions against the U.S. government by foreign powers.
- It accomplishes this goal by **preventing U.S. companies** from doing business with sanctioned entities.
- It empowers the US President to impose at least five of the 12 listed sanctions on **persons engaged in a "significant transaction"** with Russian defence and intelligence sectors.

What sanctions will be imposed?

- **Prohibition on loans** to the sanctioned person.
- Prohibition of **Export-Import bank assistance** for exports to sanctioned persons.
- Prohibition on procurement by United States Government to **procure goods** or services from the sanctioned person.
- **Denial of visas** to persons closely associated with the sanctioned person.

S-400 Missile Defense System:

- The S-400 Triumph is an **air defense missile system**.
- It is a **surface-to-air missile system (SAM)** designed by Russia in the 1990s.

Features:

- It is equipped with **targeting systems**, multifunction radar, autonomous detection, anti-aircraft missile systems, and a command-and-control Centre.
- It is capable of **engaging aerial targets**, including aircraft, unmanned aerial vehicles (UAV), ballistic and cruise missiles, within the range of **400km at an altitude of up to 30km**.
- **The radar** can detect and track aircraft, rotorcraft, cruise missiles, guided missiles, drones and ballistic rockets within the distance of 600km.



IN A FIRST, 4 WEST AFRICAN COUNTRIES COMMIT TO COOPERATE ON SENEGALO-MAURITANIAN AQUIFER BASIN

Ministers of the Gambia, Guinea Bissau, Mauritania, and Senegal signed a joint declaration 29th September 2021 to advance transboundary cooperation in the **Senegal-Mauritanian Aquifer Basin (SMAB)**.

Highlights:

- The declaration is as per the **Progress on Transboundary Water Cooperation**: global status of SDG indicator 6.5.2 and acceleration needs, by UNECE and UNESCO, 2021.

- The declaration will be first ever mechanism in **West Africa** and pave the way for strengthened collaboration on **shared groundwater resources**.
- The **Senegal-Mauritanian aquifer basin** is the largest basin in the Atlantic margin of north-west Africa.
- More than 24 million inhabitants of the region are dependent on it for drinking water and other needs.
- This includes the capitals of Guinea Bissau and Senegal, namely Bissau and Dakar.

PANDORA PAPERS: ILLEGAL RICHES OF WORLD LEADERS 'EXPOSED'

Pandora Papers is a leak of almost **12 million documents** and files exposing the secret wealth and dealings of world leaders, politicians and billionaires.

Highlights of Pandora Papers:

- These are **11.9 million leaked files** from 14 global corporate services firms which set up about **29,000** off-the-shelf companies and private trusts.
 - These were set up in not only tax haven countries but also in countries such as Singapore, New Zealand, and the United States etc.

- The data was obtained by **International Consortium of Investigative Journalists** in Washington DC.
- These documents relate to **ultimate ownership of assets** 'settled' (or placed) in private offshore trusts and the investments including cash, shareholding, and real estate properties, held by the offshore entities.
- There are **at least 380 persons** of Indian nationality in the Pandora

Papers, and the investigation is currently ongoing.

Pandora Papers reveal?

- The Pandora Papers reveal how the people involved **set up complex multi-layered trust structures** for estate planning.
- The objective of the trust was:
 1. To **hide their real identities** and distance themselves from the offshore entities so that it becomes near impossible for the tax authorities to reach them.
 2. To **safeguard investments** — cash, shareholdings, real estate, art, aircraft, and yachts — from creditors and law enforcers.

How is Pandora different from Panama Papers and Paradise Papers?

- **Panama and Paradise Papers** dealt largely with **offshore entities** set up by individuals and corporates respectively.
- **Pandora Papers** investigation shows how businesses have created a new normal after countries were forced to **tighten laws on offshore entities** with rising concerns of money laundering, terrorism funding, and tax evasion.
 - Pandora Papers reveal how **trusts are set up**, together with offshore companies for the sole purpose of holding investments.

What is a Trust?

- A **trust** can be described as an arrangement where a **third party** (or trustee) **holds assets** on behalf of individuals or organisations that are to benefit from it.
- It is generally used for **estate planning purposes** and **succession planning**. It helps large business families to **consolidate their assets** — financial investments, shareholding, and real estate property.

A trust comprises three key parties:

1. Settlor — one who sets up, creates, or authors a trust
2. Trustee — one who holds the assets for the benefit of a set of people named by the 'settlor'

3. Beneficiaries — to whom the benefits of assets are passed on.

Laws relating Trusts in India:

- The **Indian Trusts Act, 1882**, gives **legal basis** to the concept of trusts.
- While Indian laws **do not see trusts as a legal person/** entity, they recognise trust as an **obligation of trustee** to manage and use assets settled in the trust for the benefit of beneficiaries.
- India also **recognises offshore trusts** i.e., trusts set up in other tax jurisdictions.
- There are **legitimate reasons** for setting up trusts — and many set them up for genuine estate planning.
 - A businessperson can **set conditions for 'beneficiaries'** to draw income being distributed by the trustee or inherit assets after her/ his demise.
- But trusts are also used as **secret vehicles** to park illegal money, hide incomes to evade taxes, protect wealth from law enforcers, insulate it from creditors to whom huge moneys are due, and for criminal activities.

Why are overseas trusts set up?

- Overseas trusts offer **remarkable secrecy** because of **stringent privacy laws** in the jurisdiction they operate in.

Can offshore Trusts be seen as resident Indian for tax purposes?

- After the **Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015**, resident Indians — if they are 'settlors', 'trustees', or 'beneficiaries' — have to report their foreign financial interests and assets.
- **NRIs** are **not required** to do so — even though, the **Income Tax Department** has been sending notices to NRIs in certain cases.
- The **I-T Department** may consider an offshore trust to be a **resident of India** for taxation purposes if the **trustee is an Indian resident**.

- In cases where the trustee is an offshore entity or an NRI, if the tax department establishes the trustee is taking instructions from a resident Indian, then too the trust may be considered a resident of India for taxation purposes.

Reasons why trusts are set up:

i) Maintain a degree of separation:

- Businesspersons set up private offshore trusts to project a degree of separation from their personal assets.
- A 'settlor' (one who sets up/ creates/ authors) of a trust no longer owns the assets he places or 'settles' in the trust. Hence, he insulates these assets from creditors.

ii) Hunt for enhanced secrecy:

- Offshore trusts offer enhanced secrecy to businesspersons, given their complex structures.
- Income-Tax Department in India can get the information only by requesting information with the financial investigation agency or international tax authority in offshore jurisdictions, which can take months.

iii) Avoid tax in the guise of planning:

- Businesspersons avoid their NRI children being taxed on income from their assets by transferring all the assets to a trust.

- The ownership of the assets rests with the trust, and the son/ daughter being only a 'beneficiary' is not liable to any tax on income from the trust.

iv) Prepare for estate duty:

- It is feared that the estate duty, which was abolished in 1985 will likely be re-introduced soon.
- Setting up trusts in advance, business families have been advised, will protect the next generation from paying the death/ inheritance tax, which was as high as 85% then.
- India does not have a wealth tax now, most developed countries including the US, UK, France, Canada, and Japan have such an inheritance tax.

v) Flexibility in a capital-controlled economy:

- India is a capital-controlled economy. Individuals can invest only \$250,000 a year under the Reserve Bank of India's **Liberalised Remittance Scheme (LRS)**.
- To get over this, businesspersons **become NRIs**, and under FEMA, NRIs can remit \$1 million a year in addition to their current annual income, outside India.
- Further, tax rates in overseas jurisdictions are much lower than the 30% personal I-T rate in India plus surcharges.

QATAR HOLDS FIRST LEGISLATIVE ELECTIONS TO APPOINT 45-MEMBER SHURA COUNCIL

On October 2, Qatar held its first-ever legislative elections in a symbolic nod to democracy, but analysts have reckoned that it will not lead to a shift of power from the Royal household.

- The vote will result in the **election of the Shura Council**, an advisory and legislative body that is tasked with **approving, rejecting and issuing general state policies and law proposals**.
- In addendum, the council has the onus of overlooking the state budget.

Consultative Assembly of Saudi Arabia:

- The Consultative Assembly of Saudi, also known as Majlis ash-Shura or

Shura Council, is the formal advisory body of Saudi Arabia.

- It is a **legislative body that advises the King** on issues that are important to Saudi Arabia.
- It has the power to **propose laws to the King of Saudi Arabia** and his cabinet to prove it and pass it.
- It has 150 members **headed by a Speaker**.
- Since 2013, the Assembly has included **30 female members** out of the total of 150 members, after a 20 percent minimum quota for women was imposed.

- The Assembly is based in al-Yamamah Palace, Riyadh.

CYCLONE SHAHEEN HITS OMAN WITH FEROCIOUS WINDS, KILLING FOUR

Tropical Cyclone Shaheen has hit land in **Oman** causing loss to life and property.

- The severe Cyclonic Storm originated in the **Arabian Sea** from the remnants of **Cyclonic Storm Gulab**.

- Gulab originated on a low-pressure area situated over **Bay of Bengal** on September 24, 2021.

CHINA SENDS 56 JETS INTO TAIWAN DEFENCE ZONE IN ANOTHER RECORD INCURSION

Taiwan urged China to stop irresponsible provocative actions after 36 fighter jets, 12 H-6 nuclear-capable bombers and four other planes entered its southwest **Air Defence Identification Zone (ADIZ)**.

Highlights:

- Taiwan accused China of seriously damaging the **status quo of peace and stability** in the Taiwan Strait with its string of larger incursions.
- **The incursions** cause tension between the two sides of the Taiwan Strait and has threatened regional **security and order**.
- The ADIZ includes a greater area that overlaps with part of China's own air defence identification zone including some of the mainland.

Taiwan- China Relations:

- Taiwan, officially known as **the Republic of China (ROC)**, is an island separated from China by the **Taiwan Strait**.
- It has been governed independently of mainland China, officially the People's Republic of China (PRC), since 1949.

Is Taiwan part of China?

- China asserts there is only **one China** and Taiwan is part of it.
- It views the PRC as the only legitimate government of China, and seeks Taiwan's **unification** with the mainland.
- China claims, Taiwan is bound by the 1992 Consensus, which was reached between representatives of the **Chinese Communist**

Party (CCP) and the **Kuomintang (KMT)** party.

- The two sides don't agree on the content of this consensus.

United States' Relationship with Taiwan:

- In 1979, the United States established formal diplomatic relations with the PRC. It severed its diplomatic ties and abrogated its mutual defense treaty with the ROC.
- The United States maintains an **unofficial relationship** with the island and continues to sell **defense equipment** to its military.

China tried to Intimidate Taiwan?

- China has employed a variety of coercive tactics short of armed conflict.
- It has increased the frequency and scale of patrols of **PLA bombers**, fighter jets, and surveillance aircraft over and around Taiwan.
- It has increasingly sailed its **warships and aircraft carrier** through the Taiwan Strait in shows of force.
- **Cyberattacks** from China target Taiwan's government agencies.
- It suspended a cross-strait communication mechanism with the main Taiwan liaison office.
- It **restricted tourism** to Taiwan, and the number of mainland tourists visiting Taiwan has fallen.
- China has pressured global corporations, including airlines and hotel chains.

WHY CANADA MARKED FIRST NATIONAL DAY FOR TRUTH AND RECONCILIATION THIS YEAR

Canada marked its first-ever **National Day for Truth and Reconciliation** on 30 September 2021.

- The day was observed to **honour the lost children** and **survivors** of the country's indigenous residential schools, families, and communities.
- It aims to **educate and remind the citizens** of the history of indigenous children and remember their suffering. The citizens were encouraged to wear **orange** colour.

Genesis:

- 140 government-run Residential Schools were operating in Canada for **indigenous children** between **1831 and 1998**,

with the last school shutting down about 23 years ago.

- The children were **forcefully separated** from their families and **not allowed** to acknowledge their culture or speak their languages.
- The schools were **overcrowded, underfunded** and offered a **poor standard** of education. The education was **limited to imparting** practical skills.
- The girls were only taught to do **domestic chores** such as sewing, laundry, cooking and cleaning.
- Boys were only taught skills such as **carpentry and farming**.

THE STATE OF THE WORLD'S CHILDREN 2021

The **State of the World's Children report 2021**, with first ever to focus on mental health has been released by **UNICEF** recently.

Highlights:

- **COVID-19** had a strong impact on the **mental health and well-being** of the Children and young people.
- According to the latest estimates, **more than 1 in 7 adolescents** aged 10–19 is estimated to live with a **diagnosed mental disorder** globally.
- **Almost 46,000 adolescents** die from suicide each year, among the top five causes of death for their age group.
- Meanwhile, **wide gaps persist** between mental health needs and mental health funding.
 - Only about **2%** of **government health budgets** are allocated to mental health spending globally.
- **More than 1.6 billion children** have suffered some loss of education and disruption to routines, education, recreation etc.
- Even before the pandemic, too many children were burdened under

the **weight of unaddressed mental health issues**.

Concerns:

- Diagnosed mental disorders, including **ADHD**, anxiety, autism, bipolar disorder, depression, eating disorders, intellectual disability can **significantly harm children and young people's health, education, life outcomes, and earning capacity**.

Recommendations:

- The government, and public and private sector partners should **commit to communicate** and act to **promote mental health** for all children, adolescents and caregivers.
- **Urgent investment** is required in child and adolescent mental health across sectors to support a whole-of-society approach to prevention, promotion and care.
- Integrating and scaling up **evidence-based interventions** across health, education and social protection sectors is required. The interventions may include parenting programmes that:
 - Promote **responsive, nurturing caregiving** and

- support parent and caregiver mental health
- Ensure schools **support mental health** through

quality services and positive relationships.

BIDEN PROMISED TO DEFEND DISPUTED ISLANDS: KISHIDA

Newly appointed **Japanese Prime Minister** received a message from the President of United States' commitment to defending the **disputed East China Sea islets**, known as the Senkaku Islands, Japan.

Highlights:

- The allies (US & Japan) confirmed their cooperation towards achieving a free and **open Indo-Pacific**.
- U.S. President made a strong comment to defend Japan, including **Article 5** of the U.S.-Japan security treaty.

Senkaku Islands Dispute:

- **China and Taiwan** claim that the islands have been a part of Chinese territory since the 16th century.
- It states that the Chinese first discovered and named the islands **Diaoyu Dao**. The waters surrounding these islands have traditionally been Chinese fishing grounds for generations.
- The islands were used by the **Ming Dynasty** as a coastal defence against Japanese pirates.
- China argues that Japan stole the islands during the **First Sino-Japanese War** (25 July 1894 – 17 April 1895).
- They believe that the agreements signed between the United States and Japan on the Senkaku islands are **illegal** and a violation of China's territorial sovereignty.

Japan's Claim:

- The Japanese claim that when the island was surveyed by them in the 1800's, it was uninhabited and showed no signs of **Chinese occupation**.
- The islands were incorporated into Japanese territory in **1895** after their victory in the **First Sino-Japanese War**.
- Japan does not validate the points raised by China for its sovereignty.

- The Islands were included in the 1972 **Okinawa Reversion Agreement** between the United States and Japan where administrative rights were returned to Japan after American occupation.

What is China doing?

- China has been violating the islands boundaries by sending both **military and fishing ships** into the Senkaku waters, despite protests from the Japanese government.
- Several incidents have taken place due to the presence of Chinese and Taiwanese fishing vessels in the zones claimed by Japan.
- **Ships and vessels** from the Chinese military have entered the area including planes/
- China established an **Air Defence Identification Zone (ADIZ)** in an area which encompasses the Senkaku Islands.

How it affects other countries?

- China's aggressive stance is a matter of serious concern for Japan, Taiwan, and the United States.
- With its aim to dominate **the East and South China Sea**, the islands are important in determining the maritime boundaries of China and Japan.
- If China manages to claim sovereignty over the Senkaku Islands, it could be hazardous for Japan.
 - It will establish its **hegemony** over the East China Sea and military build-up on the islands could cause major problems.
 - They could use the islands to **block trade routes**.
- Control of the islands could pave the way for an **invasion of Taiwan** by the Chinese who still claims it over the country.

- The emerging security threat from China has bolstered

their **rights for territorial sovereignty** over the islands.

RUSSIA TEST FIRES SUBMARINE-LAUNCHED HYPERSONIC TSIRKON MISSILE FOR FIRST TIME

Russia tested a Tsirkon (Zircon) **hypersonic cruise missile** from a submarine in the Barents Sea in the Arctic.

Highlights:

- The missile was fired from Severodvinsk submarine which hit the target.
- Hypersonic missiles, like traditional ballistic missiles can **deliver nuclear weapons**, and fly **more than five times** the speed of sound.

Zircon missile

- **3M22 Zircon** is a scramjet powered manoeuvring **anti-ship** hypersonic cruise missile currently in testing by Russia.

Key Facts:

- A **scramjet** (supersonic combustion ramjet) is a variant of a ramjet airbreathing jet engine in which combustion takes place in supersonic airflow.
- An anti-ship missile (AShM) is a guided missile that is designed for use against ships and large boats.

THE WORLD'S MOST POWERFUL PASSPORTS FOR 2021

Henley Passport Index 2021 for the **ranking of global passports** was released recently.

Highlights:

Global Scenario:

- **Japan and Singapore** stood hold the **first rank on the passport index**. The Passport holders of these countries are allowed to travel visa-free to 192 countries.
- The list of Powerful passport index is:
 1. Japan, Singapore (Score: 192)
 2. Germany, South Korea
- The list of Least passport index is:
 1. Afghanistan (Score: 26)
 2. Iraq (28)
 3. Syria (29)
 4. Pakistan (31)

India's performance:

- India was on the **84th position** in 2020 & **slipped six places** to **90th position** in 2021.
- India passport holder can **travel up to 58** countries as **visa on arrival**.

Henley Passport Index:

LITERATURE NOBEL GOES TO NOVELIST ABDULRAZAK GURNAH

Abdulrazak Gurnah became the fifth African writer to win the Nobel Prize for Literature on 7th October 2021.

Highlights:

- He was awarded for his **contribution** in "**uncompromising and compassionate penetration of the**

- The index was first published by **Henley & Partners** in 2006.
- It lists the **world's passports** according to the **number of destinations** their holders can access **without a prior visa**.
- The ranking is based on data from **International Air Transport Association (IATA)**, a trade association of **some 290 airlines**, including all major carriers.
- The index includes **199 different passports** and **227 different travel destinations**.

Significance:

- The strength of a passport is defined as the countries to which **holders are eligible to travel** without a visa.
- The **Index** gives a fair **estimate of cross border flows** of people. The countries whose citizens can travel unhindered across borders have more vibrant economies.

effects of colonialism and the fate of the refugee in the gulf between cultures and continents."

- It was taken from his famous novel the premise of '**Paradise**' 1994.

- It explores the fate of an African Arab youth who is enlisted to fight for the Germans in **World War I**.

Abdulrazak Gurnah:

- He was born in **Zanzibar** on the Indian Ocean in December 1948, when it was ruled by the British.
- He left the island in 1968 and moved to Britain, as a refugee.
- He began writing at the age of 21, which gravitated towards English language.
- He earned his PhD from the **University of Kent**, Canterbury, where he was the professor of English.
- His academic work focused on **post-colonial** and diasporic literature.
- His writings include a multitude of languages like Swahili, Arabic, Hindi, and German.

Famous Writings:

His writing explores the immigrant experience and how exile and loss shape identities and cultures.

- Memory of Departure (1987)
- Pilgrims Way (1988)
- Paradise (1994)
- By the Sea (2001)
- Desertion (2005)
- Gravel Heart (2017)
- Afterlives (2020)

Importance:

- His books feature **African Arab protagonists** trying to come to terms with dislocation, looking in societies and cultures.
- His work draws attention to how **racism and prejudice** against communities and religions perpetuate cultures of oppression.

Awards and Honors:

- In 1994, he won **Booker Prize** for his Fiction '**Paradise**'.
- In 2001, He was awarded with **Los Angeles Times Book Prize** for '**Desertion**' and '**By the Sea**'.

WHO REPORT HIGHLIGHTS GLOBAL SHORTFALL IN INVESTMENT IN MENTAL HEALTH

Recently, the latest edition of the Mental Health Atlas 2020 released by the World Health Organization (WHO).

About the Atlas:

- The Atlas is issued every three years and is a compilation of data provided by countries around the world on mental health policies, legislation, financing, human resources, availability and utilization of services and data collection systems.
- It is also the **mechanism for monitoring progress** towards meeting the targets in WHO's Comprehensive Mental Health Action Plan.

Highlights of the report:

- Increased attention given to mental health in recent years has **yet to result in a scale-up of quality mental services** that is aligned with needs.

Lack of progress in leadership, governance and financing

- None of the targets for effective leadership and governance for mental health, provision of mental health services in community-based settings, mental health promotion and prevention, and strengthening of information systems, were close to being achieved.
- In 2020, just 51 per cent of WHO's 194 member states reported that their mental health policy or plan was in line with international and regional human rights instruments, way short of the 80% target.
- Only 52 per cent of countries met the target relating to mental health promotion and prevention programmes, also well below the 80 per cent target.
- The only 2020 target met was a **reduction in the rate of suicide by 10 per cent**, but even then, only 35 countries said they had a stand-alone prevention strategy, policy or plan.

- Steady progress was evident in the adoption of mental health policies, plans and laws, as well as in improvements in the capacity to report on a set of core mental health indicators.
 - However, the percentage of government health budgets spent on mental health has still hovering around 2 per cent.
- Just 39 per cent of responding countries indicated that the necessary human resources had been allocated and 34 per cent that the required financial resources had been provided.

Transfer of care to community is slow

- **Only 25 per cent of responding countries** met all the criteria for integration of mental health into primary care.
 - Systematic decentralization of mental health care to community settings has long been recommended by WHO.
- While progress has been made in training and supervision in most countries, the supply of medicines for mental health conditions and psychosocial care in primary health-care services remains limited.
- This indicates that centralized mental hospitals and institutional inpatient care still receive more funds than services provided in general hospitals and primary health-care centres in many countries.
 - More than **70 per cent of total government expenditure** on mental health was allocated to mental hospitals in middle-income countries, compared with **35 per cent in high-income countries**.
- There was an **increase in the percentage of countries reporting that treatment of people with specific mental health conditions** (psychosis, bipolar disorder and depression) is included in national health insurance or reimbursement schemes from 73% in

2017 to 80% (or 55% of member states) in 2020.

- Global estimates of people receiving care for specific mental health conditions remained less than 50 per cent, with a global median of 40 per cent of people with depression and just 29 per cent of people with psychosis receiving care.

Increase in mental health promotion, but effectiveness questionable

- Increase in countries reporting mental health promotion and prevention programmes, from 41 per cent of Member States in 2014 to 52 per cent in 2020.
- However, 31 per cent of total reported programmes did not have dedicated human and financial resources, 27% did not have a defined plan, and 39 per cent had no documented evidence of progress and/or impact.

New targets for 2030

- Global targets reported in the Mental Health Atlas are from WHO's Comprehensive Mental Health Action Plan, which contained targets for 2020 has now been extended to 2030.
- It includes new targets for the inclusion of mental health and psychosocial support in emergency preparedness plans, the integration of mental health into primary health care, and research on mental health.

World Mental Health Day;

- The World Health Organisation recognises World Mental Health Day on 10 October every year.
- **Objective:** To raise awareness of mental health issues around the world and to mobilize efforts in support of mental health.
- The Day provides an opportunity for all stakeholders working on mental health issues to talk about their work, and what more needs to be done to make mental health care a reality for people worldwide.
- **Theme for 2021:** 'Mental health in an unequal world'.

NOBEL PEACE PRIZE: JOURNALISTS MARIA RESSA AND DMITRY MURATOV SHARE AWARD

Maria Ressa of the Philippines and **Dmitry Muratov** of Russia have won the Nobel Peace Prize 2021.

Highlights:

- The Norwegian Nobel Committee awarded the peace prize for **defending the freedom of expression**.
- The committee expressed that **Free, Independent and Fact-based journalism** serves to protect against abuse of power, lies and war propaganda, which is instrumental in promoting peace.

Contribution of the Recipients:

- **Muratov** has been a founding member of one of the most the independent Russian newspapers **Novaya Gazeta** since and has a fundamentally critical attitude towards power.
- **Ms Ressa** in 2012 co-founded **Rappler**, a news website which documented how social media is being used to spread fake news, harass opponents and manipulate public discourse.
- Both of their works have been recognized for **fact-based journalism** and **professional integrity**.

Nobel Peace Prize:

- All Nobel Prizes are awarded in Stockholm, Sweden, except for the Nobel Peace Prize, which is awarded in **Oslo**, Norway.
 - The founder of the Nobel Prize, **Alfred Nobel**, was a Swedish cosmopolitan.
 - In his will, he declared that the Nobel Peace Prize should be awarded by a Norwegian committee.
- **According to statutes of the Nobel Foundation:**
 - Prize cannot be awarded to more than 3 persons.
 - If prize is given to separate works, the prize money has to be divided equally.

- After 1974, a prize cannot be awarded posthumously, unless death has occurred after the announcement of the Nobel Prize.

- Youngest Nobel Peace Prize laureate is **Malala Yousafzai**, who was 17 years old when awarded the 2014 peace prize.
- **Mahatma Gandhi**, was nominated in 1937, 1938, 1939, 1947 and in 1948 for Nobel prize, but was not awarded the prize.

Freedom of Speech and Expression (Art. 19) in Indian Constitution

- The **Article 19(1)** is a Fundamental Right of the Indian Constitution which guarantees the citizens the right to freedom in certain areas. It guarantees **all and only the citizens of India** their freedom to speech and expression.
- **Article 19(1)** provides citizens with the following rights:
 - Freedom of **speech and expression**
 - Freedom to **assemble peaceably and without arms**
 - Freedom to **form associations or unions**
 - Freedom to **move freely** throughout the territory of India
 - Freedom to **reside and settle** in any part of the territory of India
 - Freedom to **practice any profession**, or to carry on any occupation, trade or business.
- Freedom of Speech and Expression **is not an absolute right**.
- Restrictions were placed on it **following Romesh Thapar v. State of Madras (1950)** judgement, by the First **Amendment Bill 1951**.
- The exercise of this right is **subject to** the following:
 - Security, Sovereignty and integrity of the state

- International relations
- Public Order, Defamation, Incitement of offence or immoral display
- Suspension of rights under Article 19 when emergency is proclaimed under Article 352.

- **Freedom of Press** is not explicitly mentioned in the constitution, but in the landmark case of **Maneka Gandhi vs Union of India**, Supreme Court has stated that the Freedom of Expression is inclusive of Freedom of Press.

GLOBAL MULTIDIMENSIONAL POVERTY INDEX (MPI) - 2021

The global Multidimensional Poverty Index (MPI) produced by the **United Nations Development Programme (UNDP)** and the **Oxford Poverty and Human Development Initiative**.

Key Findings: Worldwide, across 109 countries and 5.9 billion people:

- **1.3 billion** people are **multidimensionally poor**.
- About half (644 million) are children under age 18.
- Nearly 85 percent live in Sub-Saharan Africa (556 million) or South Asia (532 million).
- **More than 67 percent live in middle-income countries.**
- 1 billion each are exposed to solid cooking fuels, inadequate sanitation and substandard housing.
- 788 million live in a household with at least one undernourished person.
- 568 million lack improved drinking water within a 30-minute roundtrip walk.

India Specific Highlights:

- In India five out of six multidimensionally poor people are from lower tribes or castes.

- In India the Scheduled Tribe group accounts for 9.4 percent of the population and is the poorest: more than half—65 million of 129 million people.

About the Index:

- The global Multidimensional Poverty Index (**MPI**) measures acute multidimensional poverty across more than 100 developing countries.
- The global MPI complements the international **\$1.90 a day** poverty rate.
- It measures each person's deprivations across **10 indicators in three equally weighted dimensions: health, education and standard of living.**
- Launched in 2010 by the Oxford Poverty and Human Development Initiative at the University of Oxford and the Human Development Report Office of the United Nations Development Programme, the global MPI is updated **annually**.
- The MPI ranges from **0 to 1**, and **higher values imply higher multidimensional poverty**.

INTERNATIONAL DAY OF THE GIRL CHILD 2021

The International day of the Girl child is celebrated every year on 11th October 2021.

Highlights:

- **Theme:** 'My Voice, Our Equal Future'
- In 2021, the **Generation Equality Forum** launched five-year commitments for bolder solutions to gender inequality as the world entered the second year of the COVID-19 pandemic.

- The pandemic has accelerated digital platforms for learning, earning, and connecting, while highlighting girls' diverse digital realities.
- The **gender digital divide** is more than connectivity.
 - Girls are less likely than boys to use and own devices, and gain access to tech-related skills and jobs.

Genesis:

- In 1995 at the **World Conference on Women** in China, the countries unanimously adopted the Declaration and Platform for Action towards girls' rights.
- On December 19, 2011, **United Nations General Assembly** adopted Resolution 66/170 to declare October 11 as **the International Day of the**

Girl Child, to recognize girls' rights and the unique challenges girls face around the world.

- The International Day of the Girl Child focuses on the need to address the **challenges girls face and to promote girls' empowerment** and the fulfilment of their human rights.

RUSSIAN PLANE CRASHES IN TATARSTAN REGION, 16 FEARED DEAD

An L-410 plane crashed near a city in Tatarstan region, Russia recently.

Tatarstan:

- **Tatarstan** is a republic of **Russia** located in Eastern Europe.
- It is a part of the **Volga Federal District**.

- It is one of the most **important cultural centres** of Russia.
- "Tatarstan" derives from the name of the **ethnic group** **Tatars** and **stan** means state.

CHINA PLEDGED \$233 MILLION INTO A NEW FUND TO PROTECT BIODIVERSITY IN DEVELOPING COUNTRIES DURING COP15

China pledged to inject \$233 million into a new fund **to protect biodiversity in developing countries** during a key UN **conservation summit**, despite disagreements among major donors on the initiative.

- The summit aims **to establish a new accord setting out targets for 2030 and 2050**.

'30 by 30' agenda:

- A key proposal being debated at the conference is the "30 by 30" agenda that would **afford 30% of the Earth's**

land and oceans protected status by **2030**.

- Global spending to protect and restore nature needs to **triple this decade to about \$350 billion annually by 2030** and \$536 billion by 2050 to meet this target.
- Some rich country donors say a new fund for conservation is **unnecessary because the United Nations' Global Environment Facility already helps developing nations finance green projects**.

THE CHINA-TAIWAN TUSSLE

The long-running conflict between **China** and **Taiwan** escalated when China recently flew over 100 fighter jets into Taiwan's air defence identification zone.

Highlights:

China-Taiwan relations:

- Taiwan has been **governed independently** of China since 1949.
 - China views the island (Taiwan) as a part of its territory and vows to eventually **"unify"** it with the mainland, using force if necessary.
- Taiwanese government **favours independence** (complete autonomy),

has rebuked China's efforts to undermine democracy.

- China has ramped up political and military pressure on Taiwan.
- China has put forward a formula, known as **"one country, two systems"**, under which Taiwan would be given significant autonomy if it accepted Chinese reunification.
 - Taiwan rejected the offer, but it did relax rules on visits to and investment in China.
- **Role of the US:** The United States maintains a robust unofficial relationship with Taiwan and sells

defence equipment to its military. There is a looming fear that war between the United States and China could erupt over Taiwan.

India and Taiwan:

- India and Taiwan share **mutual respect** underpinned by openness, democracy and diversity.
- India and Taiwan maintain “trade and cultural exchange” offices in each other’s capitals.
 - Under India’s Look East Policy, in 1995, **Taiwan and New Delhi established the Taiwan Economic and Cultural Centre (TECC)** in New Delhi and the **India Taipei Association (ITA)** in Taipei, respectively.
 - Both entities started to offer **consulate services** and also promoted economic, trade, educational, and people-to-people exchanges between the two sides.
- In 2011, India and Taiwan signed a **Double Taxation Avoidance Agreement (DTAA)** And **Customs Cooperation Agreement**.
- The signing of a **bilateral trade agreement in 2018** was an important milestone.

- There are around 200 Taiwanese companies in electronics, construction, petrochemicals, machine, Information and Communications Technology and auto parts operating in India.
- The trade volume between the two countries is rising- from \$2 bn in 2006 to \$5.5 bn in 2020.
- FDI inflows from Taiwan has increased almost ten times between FY18 and FY19.

Suggestions for India:

- There have been suggestions that India should review its **One China Policy**. India can develop more robust relations with Taiwan.
- The coordination of India’s Act East Policy and Taiwan’s New Southbound Policy can do wonders for both countries.
- India is facing a **critical semiconductors shortage**; Taiwan’s reputation as the world leader in semiconductor and electronics can be a boon for India’s semiconductor market.
- Policymakers need to coordinate better with the business community to help them navigate the regulatory and cultural landscape for better ties.

WORLD METEOROLOGICAL CONGRESS CALLS FOR INTERNATIONAL COOPERATION IN METEOROLOGY, CLIMATOLOGY, OPERATIONAL HYDROLOGY

Weather4UN is a pilot project led by **MeteoSwiss and supported by the Swiss Federal Council**.

- It is a key component of the WMO Coordination Mechanism.
- **Aim:** To improve the coordination of meteorological data production and transmission within the United

Nations system and for humanitarian organisations around the world.

- As a result of this initiative, early action can be taken and people will be better protected from extreme weather events.
 - In the last five decades (1970-2019), the number of disasters increased five times.

‘LONE WOLF TERRORIST’ FROM PAKISTAN HELD IN EAST DELHI

The Delhi Police claimed to have averted a terrorist strike during the ongoing festive season with the arrest of an alleged “lone wolf” terrorist who was sent to India 17 years ago by the Pakistani intelligence agency, Inter-Services Intelligence (ISI), for launching attacks in India.

"Lone-wolf"?

- "Lone-wolf" is the term used to describe someone who **acts alone in a terrorist attack** without the help or encouragement of a government or a terrorist organization.

- Lone wolf or lone actor attacks are a **particular kind of mass murder**, committed in public settings by

GLOBAL TUBERCULOSIS REPORT 2021

World Health Organization (WHO) has released the Global Tuberculosis Report 2021 recently.

Highlights:

- **India (41%)** contributed the **biggest drop in detection of new cases**. Indonesia (14 per cent), the Philippines (12 per cent) and China (8 per cent) and 12 other countries accounted for 93 per cent of the total global drop of 1.3 million cases.
- The **number of deaths** due to tuberculosis (TB) has increased in 2021 as compared to 2019.
 - Fewer people with the disease were diagnosed and treated, compared to 2019.
 - Overall spending on essential TB services also dropped.
 - 1.5 million people died from TB in 2020 (including 2,14,000 among HIV positive people).
- The increase in the number of TB deaths occurred mainly in the **30 countries** with the highest burden of TB, **including India**.
- TB was ranked the **13th** leading cause of **death globally** till 2019. It is now estimated to be the second leading cause, only after COVID-19.

Reasons for TB case rise cited by report:

- Disruption in access to TB services and a reduction in resources due to COVID pandemic.
- Lack of funding for 98% of reported TB cases in low- and middle-income countries.

Tuberculosis:

- Tuberculosis (TB) is an **infectious disease** usually caused by **Mycobacterium tuberculosis (MTB)** bacteria.
- TB generally affects the **lungs**, but can also affect other parts of the body such as the **kidney, spine, and brain**.

individuals who plan and commit these violent acts on their own.

- It is spread from one person to the next through the air via sneeze or cough of the infected person.
- TB infection happens in **four stages**: the initial macrophage response, the growth stage, the immune control stage, and the lung cavitation stage.

Types of TB:

- **Active TB Disease:** Active TB is an illness in which the TB bacteria are rapidly multiplying and invading different organs of the body. It is symptomatic and contagious.
- **Miliary TB:** Miliary TB is a rare form of active disease that occurs when TB bacteria find their way into the bloodstream.
- **Latent TB Infection:** The bacteria in the body are inactive and cause no symptoms. It is not contagious. Latent TB can turn into active TB, in absence of treatment.

Symptoms:

- Fever, chills, night sweats, loss of appetite, weight loss, and fatigue.
- Significant nail clubbing may also occur.

Treatment:

- It is treatable and curable.
- It is treated with **six-month course** of four antimicrobial drugs.
- Bacille Calmette-Guérin (**BCG**) is a vaccine for tuberculosis (TB) disease.
- First-line anti-TB drugs: **Isoniazid and rifampicin**.
 - **Drug-resistant tuberculosis** is a form of TB caused by bacteria that do not respond to at least first-line treatment anti-TB drugs.

TB and India:

According to annual TB report 2021:

- Tuberculosis is one of India's most critical health challenges. It accounts for 30% of the world's TB cases.
- **State TB Index:**
 - **Gujarat, Andhra Pradesh and Himachal**

Pradesh were the best performing states for TB control in category of states with 50 lakh population.

- Tripura and Nagaland were best-performing in the category of states having less than 50 lakh population.
- Dadra and Nagar Haveli, and Daman and Diu were selected as the best performing Union Territories.

Efforts to end TB:

Global Efforts:

- WHO's **End TB Strategy** sets targets to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035, and to ensure that no family is burdened with catastrophic expenses due to TB. It sets interim milestones for 2020, 2025, and 2030.

Initiatives by India:

- The **Ministry of Health and Family Welfare** releases the annual TB report with an aim to eliminate TB from the country by 2025, five years ahead of WHO's target.
- They also release a **Joint Monitoring Mission (JMM) report**, a manual on **Direct Benefit Transfer (DBT)** to TB patients under NIKSHAY system, a

Training Module, and the quarterly newsletter NIKSHAY Patrika.

- **National Tuberculosis Elimination Programme (NTEP)**
- **Nikshay Yojana:**
 - It is a direct benefit transfer (DBT) scheme for nutritional support to Tuberculosis (TB) patients rolled out in April 2018 by the Ministry of Health and Family Welfare.
 - It is a **centrally sponsored scheme** under **National Health Mission (NHM)**.
- **Nikshay Ecosystem:**
 - It is a one-stop National TB information system to manage patients' information and monitor program activity.
- **Saksham Project:**
 - It is a counselling project for DR-TB (drug resistant) patients undertaken by Tata Institute of Social Sciences (TISS).
- **TB Harega Desh Jeetega Campaign:**
 - It has three strong pillars which include clinical approach, public health component and active community participation.
 - It aims to improve and expand the reach of TB care services across the country by 2022.

G7 FINANCE LEADERS LAY OUT GUIDELINES FOR CENTRAL BANK DIGITAL CURRENCIES

Group of Seven advanced economies have recently laid out guidelines for Central Bank Digital Currencies (CBDC).

- It has been **working to set common standards** toward issuing CBDCs as some proceed with experiments.

Highlights of the guidelines:

- Any digital currency issued by a central bank **must "support and do no harm"** to the bank's ability to fulfil its mandate on monetary and financial stability, and must also meet rigorous standards.
- If issued, a **central bank digital currency (CBDC) would complement cash** and could act as a

liquid, safe settlement asset and an anchor for the payments system.

- But the currencies must be issued in a way that **do not infringe upon the central banks' mandates**, and **meet rigorous standards** of privacy, transparency and accountability for protection of user data.
- Any central bank digital currency (CBDC) should be **grounded in long-standing public commitments to transparency**, rule of law and sound economic governance.
- While CBDCs could enhance cross-border payments, a **"shared responsibility to minimize harmful spillovers"** to the

international monetary and financial system."

Central Bank Digital Currency (CBDC):

- The term CBDC refers to the **virtual form of a fiat currency**.
- A CBDC is an **electronic record or digital token** of a country's official currency.
- It is **issued and regulated by the nation's monetary authority** or central bank. They are backed by the **full faith and credit of the issuing government**.
- CBDCs can simplify the **implementation of monetary and fiscal policy** and **promote financial inclusion in an economy** by bringing the unbanked into the financial system.
- Because they are a centralized form of currency, they may **erode the privacy of citizens**.

- It is considered a **form of legal tender** that can be used for the sale and purchase of goods and services along with kinds of transactions.
- A central bank digital currency is the **virtual form of fiat money**.
- The goal is to **provide users with convenience and security of digital** as well as the regulated, reserve-backed circulation of the traditional banking system.
- They are designed to function as a unit of account, store of value, and medium of exchange for daily transactions.

Key Facts:

- Global central banks have stepped up efforts to develop **their own digital currencies to modernize financial systems** and speed up domestic and international payments. **China has been leading** the pack.

INTERNATIONAL DAY FOR DISASTER RISK REDUCTION 2021: DATE, THEME AND ALL YOU NEED TO KNOW

The UN Office for Disaster Risk Reduction (UNDRR) unveiled a report on International Day for Disaster Risk Reduction on 13th October 2021.

Highlights:

- For every \$100 spent on **development aid**, only 50 cents are invested in protecting countries from the impact of disasters.
- **Financing** for disaster risk reduction makes up a small fraction of the overall investments in development aid.
- \$133 billion of disaster-related **Overseas Development Assistance (ODA)** made available between 2010 and 2019, which is only 11 per cent of the overall aid (\$1.17 trillion).

Intergovernmental Panel on Climate Change (IPCC):

- Human-induced climate change affects weather and climate extremes in every region of the globe.
- Of the overall disaster-related ODA between 2010 and 2019.

- The \$5.5 billion spent on Disaster Risk Reduction, accounts for just 0.5 per cent of the total amount spent on disaster-related aid.

International Day for Disaster Risk Reduction:

- International Day for Disaster Risk Reduction is observed on **October 13, every year**.
- **Aim:** To promote a global culture of risk awareness and disaster reduction.
- **Theme:** "International cooperation for developing countries to reduce their disaster risk and disaster losses".
- The day celebrates, how communities around the world are reducing their exposure to disasters and raising awareness about the importance of risks they face.

History:

- The International Day for Disaster Risk Reduction was started in 1989, after a call by the **United Nations General Assembly** to promote a global culture of risk-awareness and disaster reduction.

- In 2015, during the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, the community focused on the catastrophes that severely impact at the local level, causing loss of life and significant social and economic turmoil.

Significance:

GLOBAL HUNGER INDEX, 2021

Global Hunger Index 2021, prepared jointly by Irish aid agency called 'Concern Worldwide' and German organization called 'Welt Hunger Hilfe', was released on October 14, 2021.

Highlights

- **India** has slipped to the **101st position among 116 countries** from its 2020 ranking (94).
- **Eighteen countries**, including China, Brazil and Kuwait, shared the top rank with **GHI score of less than five**.
- The level of hunger in India was marked as **alarming** with its **Global Hunger Index (GHI) score** decelerating from **38.8 in 2000** to the range of **28.8 – 27.5** between 2012 and 2021.
 - **GHI Score** is calculated on the basis of four indicators namely:
 1. **Undernourishment**
 2. **Child wasting** (share of children aged under five who are wasted i.e., those having low weight for their height.
 3. **Child stunting** (children aged under five who are having low height for their age.
 4. **Child mortality** (mortality rate of children aged under five).
- The share of wasting among children in India rose from 17.1 per cent between 1998-2002 to 17.3 per cent between 2016-2020.
- Neighboring countries like Nepal (76), Bangladesh (76), Myanmar (71) and Pakistan (92) were ranked ahead of India.
- India has **shown improvement** in other indicators such as:
 - Under-5 mortality rate

The UNDDR works with thinkers, practitioners, experts, and innovators to investigate the state of risk across the globe:

- Highlighting and spotting emerging trends
- Revealing disturbing patterns, examining behavior
- Presenting progress in reducing risk.

- Prevalence of stunting among children
- Prevalence of undernourishment owing to inadequate food

Global Hunger Index:

- The Global Hunger Index (GHI) is a tool designed to comprehensively measure and track hunger and undernutrition at global, regional, and national levels.
- The GHI determines hunger on a **100-point scale**, where **0 is the best possible score** (no hunger) and 100 is the worst.
- Each country's GHI score is classified by **severity, from low to extremely alarming**.

India against Hunger:

The various steps taken by the government of India to address the challenge of hunger are:

- **Poshan Abhiyaan:** It is a flagship programme to improve nutritional outcomes for children, pregnant women and lactating mothers.
- Public Distribution System
- Antyodaya Anna Rozgar Yojana
- Mid-day Meal Scheme
- Mahatma Gandhi National Rural Employment Guarantee Act
- Food Security Act which aims to provide subsidized food grain to up to 75 percent of the rural population and 50 percent of urban households.

The reaction of the Indian Government on GHI report 2021:

- The government of India challenged India's poor ranking in the Global Hunger Index 2021 citing that the methodology used is **devoid of ground reality and facts**.

- Publishing agencies based their assessment on the results of a **‘four question’** opinion poll, which was conducted telephonically by Gallup.
- The Government has questioned the poll-based assessment, that has

increased the value of **‘proportion of population undernourished’** from 14.0% for the previous period 2017-19 to 15.3% for the latest period 2018-20.

CHINA TESTED ‘NUCLEAR CAPABLE HYPERSONIC MISSILE’ IN AUGUST, SAYS REPORT

China’s military has carried out its first-ever test of a **“nuclear capable hypersonic missile”**, according to a report in October. 17.

Highlights:

- **The missile** circled around the globe before speeding towards its target, demonstrating an advanced space capability.
- The missile missed its target by about two-dozen miles.
- As it flew over the South Pole, the test would pose a big challenge for the **U.S. military** because its missiles defence systems are focused on the northern polar route.

Hypersonic Technology Demonstrator Vehicle:

- HSTDV is a **scramjet** vehicle with a capability to travel at six times the speed of sound.
 - The scramjets are a variant of a category of jet engines called the air-breathing engines.
 - Hypersonic speeds are those which are five times or more than the speed of sound.

Its development in India:

- The **Defence Research and Development Organisation** started this initiative in the early 2010s.
- The **Indian Space Research Organisation** has worked on the development of the technology and has successfully tested a system in 2016.
- **DRDO** has conducted a test of indigenously developed Hypersonic Technology Demonstrator Vehicle (HSTDV) in June 2019.

Advantages:

- It can be used for **launching satellites** at low cost.
- This test augurs well for the development of air-breathing in technologies in India.

Ramjet Engines

- **A ramjet** is a form of airbreathing jet engine that uses the engine’s forward motion to compress incoming air without a centrifugal compressor.
- A ramjet-powered vehicle, requires an assisted take-off like a **rocket**, to accelerate it to a speed where it begins to produce thrust.
- It works most efficiently at **supersonic speeds** around Mach 3 (3,700 km/h).

Scramjet Engines

- **Scramjet** is a variant of a ramjet airbreathing jet engine
- Here, the airflow through the engine remains supersonic, or greater than the speed of sound.
- Scramjet relies on **high vehicle speed** to compress the incoming air forcefully before combustion.
- The scramjet is composed of three basic components:
- **A converging inlet**, where incoming air is compressed.
- **A combustor**, where gaseous fuel is burned with atmospheric oxygen to produce heat.
- **A diverging nozzle**, where the heated air is accelerated to produce thrust.

BHUTAN, CHINA SIGN MoU FOR 3-STEP ROADMAP TO EXPEDITE BOUNDARY TALKS

In a step towards resolving their boundary disputes, Bhutan and China signed an agreement on a three-Step roadmap to help speed up talks, at a meeting of Foreign

Ministers of both countries held via videoconference recently.

- The roadmap **“for Expediting the Bhutan-China Boundary**

Negotiations", is expected to kickstart progress on the boundary talks process that has been delayed for five years, first due to the Doklam standoff in 2017, and then by the Covid Pandemic.

Genesis:

- The three-step roadmap had been finalised during the 10th Expert Group meeting in Kunming in April 2021.
- Since 1984, talks between Bhutan and China have **largely focused on two**

separate areas of dispute, including **Doklam** and other areas in **Bhutan's West**, near the India-China-Bhutan trijunction, and the **Jakarlung and Pasamlung valleys** located near Tibet to Bhutan's North.

- More recently, China has also laid claims to Bhutan's Eastern **Sakteng region**.

G20 BACKS IMF CHIEF'S NEW TRUST TO REACH BROADER RANGE OF COUNTRIES IN NEED

G20 finance officials backed the new **Resilience and Sustainability Trust (RST)** in their communique, and called on the International Monetary Fund and World Bank to "collaborate closely" to develop and implement financing under the new trust.

- **Aim:** To address concerns about many low- and middle-income countries that were hit hard by the COVID-19 pandemic, leaving them

fewer resources to prepare for and deal with extreme weather events.

- The RST will allow the IMF members to lend or donate their share of the IMF's \$650 billion in **new SDRs to offer long-term financing to small island states and vulnerable middle-income countries**, as well as low-income countries already served by the Poverty Reduction and Growth Trust.

WHY JAPANESE PM KISHIDA HAS PROPOSED A WEALTH REDISTRIBUTION COUNCIL

The Prime Minister of Japan unveiled a flagship council, responsible for strategizing how to tackle wealth disparities and redistribute wealth to households.

Highlights:

- The focus will be on the creation of a "**virtuous cycle of growth and distribution**" of wealth.

- Income redistribution to rebuild a broader middle class accomplished through the 1960 "**income-doubling plan**".
- Focus will be on post-covid economic recovery, in order to achieve strong economic growth.

EXPERTS CALL FOR REVIEW OF IMF ROLE, DATA INTEGRITY, COMPLETING QUOTA REFORMS

Experts have called out that the **IMF (International Monetary Fund)** should focus on lower-income countries and support their market fundraising activities.

Highlights:

- In the annual meetings of the **World Bank Group** and the **International Monetary Fund (IMF) 2021**, it was suggested the need to **review the role of IMF** due to changing economic weight of emerging countries.
- Stress was on **completing quota reforms** and **maintaining data**

integrity amid the World Bank discontinuing its Ease of Doing Business reports.

- There is a need to **complete quota reforms** in the IMF amid changing dynamics of developed and emerging economies including India.
- A **restructuring** of the **Article IV** consultations, under which the IMF holds bilateral discussions with its members usually every year is also being sought.

- **Article IV** consultation is the most powerful instrument and it needs to be restructured and sharpened to make it more useful by using the new technologies and access to public data.
- Article IV consultation reports are **utilised by credit rating agencies**, impacting the fund-raising capacity of countries like India.

Suggestions on quota reforms:

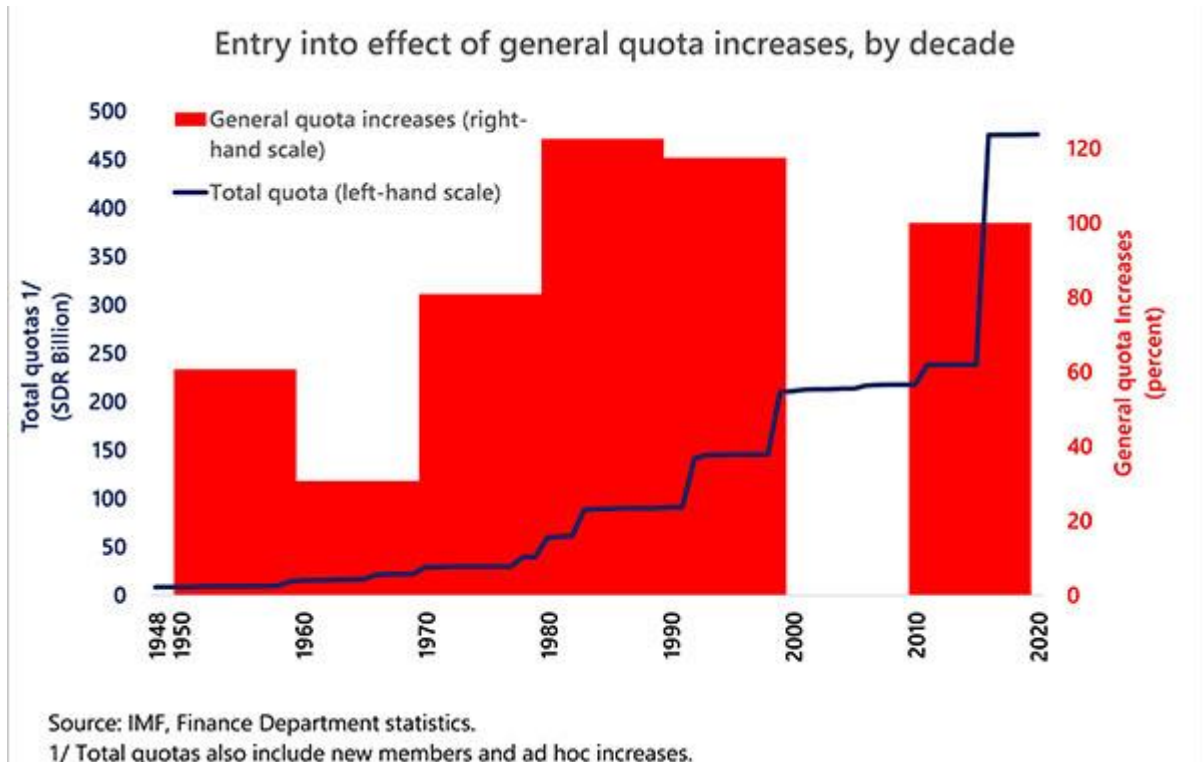
- Former **Deputy Governor of RBI** states that the US and China should jointly lead the efforts on the transformation of **relative quota shares** in the IMF and associated reforms in the international monetary system. This is needed because:
 1. **China** could approach or even surpasses the United States in its share of global GDP at market exchange rates. So, its quota share would have to be of a magnitude similar to that of the United States.
 2. The share of the **European Union** countries, including that of the UK, will have to **reduce** significantly.
 3. The quota share of **BRICS** countries would have to be **increased** significantly.
- It is suggested that the **IMF should focus on lower income countries** and support other developing countries' market funds raising activities.
 1. This is because **most of the Asian countries** including India can now raise funds on their own based on the strength of their forex reserves and do not have to necessarily go to the IMF during crisis situation.
- There should be **alignment of quotas** and the accompanying

lending windows of the IMF to reflect the changed economic positions of countries.

- Many economic experts demand to restructure country-specific consultations being done by multilateral institutions.

IMF's Quota:

- The IMF is a quota-based institution.
- Quotas are the building blocks of the IMF's financial and governance structure. Each member's quota **determines its voting power** as well as its **borrowing capacity**.
- Quotas are denominated in Special Drawing Rights (**SDRs**), the IMF's unit of account.
- The roles of Quota can be described as:
 - **Resource Contributions:**
 - Quotas determine the maximum amount of financial resources a member is obliged to provide to the IMF.
 - **Voting Power:**
 - Quotas are a key determinant of the voting power in IMF decisions.
 - Votes comprise one vote per SDR 100,000 of quota plus basic votes (same for all members).
 - **Access to Financing:**
 - Quotas determine the maximum amount of financing a member can obtain from the IMF under normal access.
 - **SDR Allocations:**
 - Quotas determine a member's share in a general allocation of SDRs.
- The IMF's Board of Governors conducts general reviews of quotas at regular intervals.
- Any changes in quotas must be approved by an **85 percent majority** of the total voting power, and a member's quota cannot be changed without its consent.



Quota formula:

$$(0.50 * GDP + 0.30 * Openness + 0.15 * Variability + 0.05 * Reserves) \text{compression factor}$$

- A quota formula is used to help **assess members' relative position** in the world economy and it can play a role in guiding the distribution of quota increases.
 - The current formula was agreed upon in 2008.

Article IV consultation:

- Under Article IV consultation, the IMF holds bilateral discussions with members, usually every year.

- A staff team visits the country, collects economic and financial information, and discusses with **officials the country's** economic developments and policies.
- A report is prepared which summarizes the views of Executive Directors, and this summary is **transmitted to the country's authorities**.

WORLD ENERGY OUTLOOK 2021-ANALYSIS

Recently the World Energy Outlook Report 2021 has been released by **International Energy Agency**.

About the Report:

- The WEO is the energy world's most authoritative source of analysis and projections.
- This is a flagship publication of the IEA since 1998.
- **Objective:** Data analysis to provide critical insights into global energy supply and demand in different scenarios and the implications for

energy security, climate targets and economic development.

- **2021 Theme:** Guide to the opportunities, benefits and risks ahead at this vital moment for clean energy transitions.

Key Findings of the Report:

- **Investment in renewable energy need to triple by the end of this decade** to contain the global temperature rise to 1.5 degree Celsius.
- **Demand for renewables** continues to grow.

- However, the **clean energy progress is still far too slow** to put global emissions into sustained decline **towards net zero by 2050**.
- More than **40% of the required emissions reductions** would come from measures that pay for themselves, such as improving efficiency, limiting gas leakage, or installing wind or solar in places where they are now the most competitive electricity generation technologies.

Two scenarios given by IEA:

The IEA analysed two possible scenarios.

- **First scenario:** With the measures and policies that governments have already put in place, the temperatures in the year 2100 would be **2.6 C** higher than preindustrial levels.
- **Second scenario:** With governments' pledges to achieve net-zero emissions & doubling clean energy investment over the next decade with timely implementation, the global average temperature increase would be around **2.1 C** by 2100.
 - This would be still **well above the 1.5 Celsius** agreed under the Paris accord.

International Energy Agency (IEA):

- **International Energy Agency** is a Paris-based

autonomous intergovernmental organisation established in the framework of the Organisation for Economic Co-operation and Development (OECD) in 1974 in the wake of the 1973 oil crisis.

- The IEA was initially dedicated to responding to **physical disruptions** in the supply of oil, and providing statistics about the international oil market and other energy sectors.
- The IEA has since evolved to act as a **policy adviser** to support energy security and advance the clean energy transition worldwide.
- **Mandate:**
 - To provide analysis, data, policy recommendations and solutions to help countries ensure secure, affordable and sustainable energy for all.
 - To support global efforts to accelerate the clean energy transition and mitigate climate change.
 - To promote rational energy policies and multinational energy technology co-operation with a view to reaching net zero emissions.
- India is an **associate member** of the IEA and not a member state.

WHO DIRECTOR-GENERAL BESTOWS POSTHUMOUS AWARD ON THE LATE HENRIETTA LACKS

Henrietta Lacks, an African-American woman who died 70 years ago of cervical cancer, was bestowed a **posthumous honour by the World Health Organization (WHO)** October 13, 2021.

- The award will bring her story the attention it deserves and will also pave the way for recognition of women, especially those of colour, who have made "incredible but often unseen contributions to medical science".
 - Her family was not rewarded for the gains made using her cells and the scientific community hid her race and story for years.

About her contribution:

- Her biopsy samples (collected without her consent or understanding) made possible innumerable breakthroughs in medical sciences and also aided research on the novel coronavirus disease (COVID-19).
- Her 'cell line' was critical for the development of "the **human papillomavirus (HPV) vaccine**, the **polio vaccine**, drugs for HIV and cancers.
- Her 'cell line' was the first immortal line of human cells to divide indefinitely in a laboratory.

- Called '**HeLa**' cells, Lack's bioses was also of paramount importance in research on Parkinson's disease,

reproductive health (including in vitro fertilisation), chromosomal conditions, gene mapping and precision medicine.

FACEBOOK INTRODUCES DATASET AND BENCHMARKS TO MAKE AI MORE 'EGOCENTRIC'

Facebook said it will make the **Ego4D data set publicly available** to researchers.

Ego4D:

- Facebook has announced a research project in which it collected 2,200 hours of first-person footage from around the world to train next-generation AI models.

- The research project is called **Ego4D (Egocentric 4D Live Perception)**.
- The Project could prove to be crucial to Facebook's Reality Labs division, which is working on smart glasses, augmented reality and virtual reality projects.

WORLD FOOD DAY 2021: SIGNIFICANCE, THEME AND ALL YOU NEED TO KNOW

World Food Day was celebrated with various themes to highlight the importance of food security throughout the globe on 16 October 2021.

Aim:

- To **encourage attention** to agricultural food production and to stimulate national, bilateral, multilateral, and non-governmental efforts to this end.
- To encourage economic and technical cooperation among developing countries and promote the transfer of technologies.
- To encourage the **participation** of rural people, particularly women and the least privileged categories, in decisions and activities influencing their living conditions.
- To heighten public awareness of the problem of **hunger** in the world.
- To strengthen **international and national solidarity** in the struggle against hunger, malnutrition, and poverty and draw attention to achievements in food and agricultural development.

World Food Day:

- Food and Agriculture Organization (FAO) of the United Nations marks the World Food Day each year on 16 October.
- It was the day on which the **FAO** was founded in 1945. World Food Day was first held on 16 Oct 1981.

- World food day is also observed by organizations like **World Food Programme and International Fund for Agricultural Development**.
- **Theme 2021:** Our actions are our future- better production, better nutrition, a better environment, and a better life.

Food and Agriculture Organization (FAO)

- It is a **specialized agency** of the United Nations that leads international efforts to defeat hunger.
- **Headquarters: Rome, Italy.** It maintains regional and field offices around the world, operating in over 130 countries.
- The FAO is composed of **197** member states.
- It helps governments and development agencies **coordinate their activities** to improve and develop agriculture, forestry, fisheries, and land and water resources.
- It also conducts research, provides technical assistance to projects, operates educational and training programs, and collects data on agricultural output, production, and development.
- The FAO is governed by a **biennial conference** representing each member country and the European Union, which elects a 49-member executive council.

Contribution of FAO in India

- Food and Agricultural Organization of the United Nations (FAO) has enjoyed a valuable partnership with **India** since it began operations in 1948.
- It continues playing a **catalytic role in India's progress** in the areas of crops, livestock, fisheries, food security, and management of natural resources.
 - The priorities set in the **NITI Aayog's seven-year National Development Agenda** and the medium-term Three-Year Action Agenda as well as the Union Budget represent the key overarching framework for the agriculture sector.
- The **main objective** of the government is to **double farmers' income** by solving the twin problems of maximizing efficiency and ensuring equity sustainably.

Strategic Objectives through alignment into Regional Initiatives and Regional Priorities:

- Sustainable and improved agricultural productivity and increased farm incomes.
 - FAO will facilitate the adaptation of Farmers Water School (FWS) in

IMF OUTLOOK AND STATUS OF JOBS

The **International Monetary Fund** unveiled its second **World Economic Outlook report** (WEO) in October 2021.

- The IMF comes out with the report twice every year in the month of April and October.

Highlights:

- The **divergence in economic prospects** among nations is a matter of major concern.
- **Aggregate output** for the advanced economy group will regain its pre-pandemic path in 2022 and exceed it by 0.9 per cent in 2024.
- The output for the **emerging market** and developing economy group will remain 5.5 per cent below the pre-pandemic forecast in 2024.

- Stronger food and nutrition security systems.
 - FAO's technical assistance will focus on providing technical assistance that drives the "Zero Hunger" initiative of FAO.
- Effective natural resource management, community development.
 - FAO will implement the GEF-funded Green Agriculture project that will provide models for successful landscape approaches to address the interface of biodiversity conservation in and around key protected areas.
- Enhanced social inclusion, improved skills, and employment opportunity in the agriculture sector.
 - FAO will focus on the building capacities and skills of the poor for gainful and sustainable livelihoods through employment-generating agribusiness and enterprise clusters.

- Resulting in a larger setback to improvements in their living standards.

- Reasons for the economic divergence are: **large disparities** in vaccine access, and differences in policy support.

Employment Growth and Output:

- The employment growth is likely to lag the **output recovery**.
- **Employment** around the world remains below its pre-pandemic levels, reflecting a mix of negative output gaps.
 - **Worker fears** of on-the-job infection in contact-intensive occupations, childcare constraints.
 - **Labor demand changes** as automation picks up in some sectors.

- Unemployment benefits helping to overcome income losses, and frictions in job searches.
- The **gap between recovery in output and employment** is likely to be larger in developing economies than in advanced economies.
- **Young and low-skilled workers** are likely to be worse off than prime-age and high-skilled workers, respectively.

Employment Level in India:

- As per the IMF; the **recovery in unemployment** is lagging the recovery in output in India.
- According to the data of **Centre for Monitoring Indian Economy (CMIE)**, the total number of employed people in the Indian economy as of May-August 2021 was 394 million.
- In May-August 2016 the number of employed people was 408 million.
- India is already facing a **deep employment crisis** before the Covid, and it became much worse after it.

Why employment lag output growth in India?

1. K-shaped recovery:

- India is witnessing a **K-shaped** recovery. That means different sectors are recovering at significantly different rates.

- Sectors like the **IT-services** have been practically unaffected by Covid.
- Many **contact-based services**, which can create many more jobs, are not seeing a similar bounce-back.
- **Listed firms** have recovered much better than unlisted firms.

2. Unorganised sectors:

- The bulk of India's employment is in the **informal or unorganised sectors**.
- The informal worker is defined as "a worker with no written contract, paid leave, health benefits or social security".
- A weak recovery implies a **drag on the economy's ability** to create new jobs or revive old ones.

How informal is India's economy?

- The share of different sectors of the economy in the overall **Gross Value Added**
 - GVA is a measure of overall output from the supply side
- The share of **informal/unorganised sector** GVA is more than 50% at the all-India level, and is even higher in certain sectors.
 - That create low-skilled jobs like construction and trade, repair, accommodation, and food services.

INTERNATIONAL E-WASTE DAY, GIVE YOUR USED ELECTRONIC DEVICES FOR RECYCLING, URGES NON-PROFIT

International E-Waste Day is observed on **October 14** every year **since 2018**.

- It was developed in 2018 by the **Waste Electronic and Electrical Equipment (WEEE) Forum**.

Occurrence:

As per the report from **The Brussels-based non-profit WEEE**:

- The weight of e-waste generated in 2021 surpasses that of China's Great Wall.
- WEEE in 2021 is about **57.4 million tonnes (MT)**, compared to that of 53.6 MT in 2019 and is predicted to reach 74 MT by 2030.
- Growing consumption of electronics, smaller periods between new product

releases and limited options for repairing broken items are some major reasons attributed to this growth.

Indian Scenario:

- India has become the **third largest producer** of e-waste after China and the United States, producing **over 3.23 million metric tonnes** of e-waste per year.
- More than **95 per cent** of this waste is handled by the informal sector.
- **Less than 5%** of e-waste in India is recycled through formally regulated units through hazardous and unsafe practices such as open-air incineration and acid leaching.

- Government and industry sectors generate more than 70% of e-waste, while households contribute around 15%.

Regulation of E-waste in India:

- The first policy effort towards addressing e-waste was the **2008 Guidelines for environmentally sound management of e-waste**.
- In 2011, the Indian government established the E-Waste (Handling and Management) Rules, which was subsequently replaced by the revised **E-waste (Management) Rules of 2016**.

E-waste (Management) Rules of 2016:

- Outlines the procedures for producers/manufacturers, dealers, recyclers, and dismantlers to obtain authorization from relevant government agencies and administrative bodies to manage e-waste.
- Mandates the Extended Producer Responsibility (EPR) mechanism.
- Introduces a Deposit Refund Scheme which allows producers to charge a deposit fee when selling a product and refunding the amount, along with interest earned, when the consumer returns it at the end of its lifecycle.

Shortcomings of E-waste (Management) Rules of 2016 are:

- Relatively weak in term of ensuring compliance.
- They do not specify the penalties imposed on EPR defaulters, or on consumers who do not dispose e-waste at dedicated recycling centers.
- It fails to directly address the major role played by informal sector workers in handling and recycling e-waste.

Challenges for E-waste management in India:

- The major challenge for India's policy makers is to improve the effectiveness of e-waste management and reduce associated environmental and health risks in cities and communities. The other major challenges are:

- Lack of market information and financial incentives.
 - **Public awareness** of e-waste hazards and recycling is **low**.
 - The majority of individual and urban household consumers sell their waste to kabadiwalas or get some discount in exchange.
- Poor infrastructure for enabling industrial-scale recovery and recycling of e-waste.
 - Formal sector recycling is limited to manual sorting and mechanical dismantling of e-waste.
 - Shortage of formally approved e-waste recycling centers.
 - The currently existing centers operate far below their capacity due to poorly organized supply chains between them and the majority of informal sector collectors of e-waste.

Solutions for linking E-waste management policy and practice:

- Providing market information regarding e-waste prices
- Incentivizing e-waste recycling
- Upskilling informal sector players
- Deploying readily available and mature recycling technologies
- Developing innovative methods and technologies for processing new forms of e-waste.

International Efforts to manage E-waste:

- **Basel Convention** started to address e-waste issues since 2002 which include:
 - Environmentally sound management
 - Prevention of illegal traffic to developing countries
 - Building capacity around the globe to better manage e-waste.
- **Australia** has considerable expertise in e-waste policymaking and management. Australian industries and researchers could also collaborate with their Indian counterparts on joint research projects to test and further develop innovative technologies.

The Global Threat Assessment Report 2021 published by **We Protect Global Alliance**, claims that COVID-19 had contributed to a significant spike in child sexual exploitation and abuse online.

Highlights:

- Child sexual exploitation and online abuse have reached their highest level in the last two years, globally.
- Child sexual abuse a chronically underfunded issue and COVID-19 has created the perfect conditions that fuelled a rise in child sexual exploitation and abuse across the globe.
- As per the report, the rise in child **'self-generated'** sexual material is another trend that challenges the existing response.
 - 77% increase in child **'self-generated'** sexual material from 2019 to 2020.
- As per the **global** study of childhood experiences of more than **5,000 young adults** (aged 18 to 20) across 54 countries.
 - 54% of the respondents had experienced at least one online sexual harm incident during childhood.
 - 34% had been asked to do something sexually explicit online they were uncomfortable with during their childhood.
- National Center for Missing and Exploited Children (NCMEC) indicated a 106% increase in reports of suspected **child sexual exploitation globally**.
 - During the COVID-19 lockdown in India, there was a 95% rise in searches for child sexual abuse material.

WeProtect Global Alliance:

Aim:

- To show how the global response to child sexual exploitation and abuse online needs a new approach.

Alliance:

- **WeProtect Global Alliance** is a global movement of people and organizations composed of more than

200 governments, private sector companies, and civil society organizations working together to transform the global response to child sexual exploitation and abuse online.

- The alliance **brings together people and organizations** with the knowledge, experience, and influence to make the digital world safer for children.
 - The Alliance is a public-private partnership.
- It is dedicated to **putting online-facilitated child sexual exploitation** and abuse on the global agenda and mobilizing a worldwide campaign to end it.

Child Exploitation in India:

- The **number of child labourers** in India is 10.1 million of which 5.6 million are boys and 4.5 million are girls.
- In India child labourers can be found in a **variety of industries**: in brick kilns, carpet weaving, garment making, domestic service, food and refreshment services (such as tea stalls), agriculture, fisheries and mining.
- **Child labour and exploitation** in India are the result of many factors, including poverty, social norms condoning them, lack of decent work opportunities for adults and adolescents, migration and emergencies.

Reasons for the Child Exploitation in India:

- **Poverty is the main driving cause of child exploitation in India:** The Child need to provide a necessary income contribution to one's household or out of an obligation to fund a family debt, especially considering the susceptibility of Indian families to enter poverty.
- **A lack of quality education also causes children particularly girls to turn to work:** Girls are two times more likely to take on domestic jobs like cleaning, cooking and general housekeeping if out of school.

- **Informal sector has little to no regulation on the production of goods.** The informal sector still constitutes 90 percent of the workforce in the country, with majority of child laborers. Recommendations to stop child exploitation in India:
- **Spread awareness:**
 - Parental awareness of the evils of child labor can prevent disruption in schooling and pushing of children into labor.
 - Lack of understanding on the part of parents creates situations where traffickers prey upon children and many trafficked children end up in child labor.
- **More stringent laws and effective implementation:**

- Policymaking is essential to long lasting social change, and lobbying for better laws involves demonstrating how change can bring considerable benefit.
- **Sending more children to school:**
 - India has the world's largest educational system, yet faces the hurdles of low literacy, due to low enrolment. Organisations like Save the Children execute several initiatives to boost children's enrolment in schools.
 - The organisation maps out-of-school children and those who are at risk of dropping out and ensures that they enter into the fold of education.

JAILED RUSSIAN OPPOSITION LEADER WINS TOP EU HUMAN RIGHTS PRIZE

Jailed Russian Opposition leader **Alexei Navalny** wins the top EU human rights prize.

- He had campaigned consistently against **the corruption of Russian President's regime**, and through his social media accounts and political campaigns.
- The **Sakharov Prize for Freedom of Thought** is the **highest tribute** paid by the **European Union** to **human rights work**.

- It gives **recognition** to individuals, groups and organisations that have made an outstanding contribution to protecting freedom of thought.
- The **European Parliament** awards the Sakharov Prize, with its **EUR 50 000** endowment, at a formal plenary sitting in Strasbourg towards the end of each year.

PENTAGON CHIEF URGES MORE BLACK SEA SECURITY TIES

U.S. Defence Secretary urged more defence cooperation among **Black Sea** ahead of a **North Atlantic Treaty Organisation** (NATO) Ministers summit.

Highlights:

- Action was needed by littoral states of the **Black Sea** amid **Russia "militarization"** of the region.
- The **security and stability** of the Black Sea are in the U.S.'s national interest and critical for the security of NATO's eastern flank.
- The region is **vulnerable** to Russian aggression like the ongoing actions in eastern Ukraine the occupations of parts of Georgia.

Location of Black Sea:

- The Black Sea is in Eurasia **surrounded by Europe**, Caucasus, and Anatolia.
- The countries that share a border with the Black Sea include Romania, Turkey, Bulgaria, Ukraine, Russia, and Georgia.
- The inland sea is a **meeting point** of several rivers like the Danube, Southern Bug, Dnieper, and Dniester.
- The Black Sea connects with the **Mediterranean Sea** through the **Bosporus Strait**, and then through the Sea of Marmara and the **Dardanelles Strait**.
- It has a unique **anoxic water**, there is a significant **absence of oxygen** in the water.

- It is home to many **small islands**. These islands also include Snake Island, which is located near the Danube Delta.
- St. Thomas Island in Bulgaria is infamous for the presence of fish-eating Grey Water Snakes.

Why Black Sea is important for Russia?

- **The Black Sea** holds a special significance for Russia for several reasons.

- It is an important **crossroads and strategic intersection** for the entire region.
- Access to the Black Sea is vital for all littoral and neighboring states, and enhances the **projection of power** into several adjacent regions.
- The region is an important transit corridor for **goods and energy**.
- It is rich in cultural and **ethnic diversity**, and due to geographical proximity, share close historical ties with Russia.

FATF RETAINED PAKISTAN ON 'GREY LIST'?

The Financial Action Task Force (FATF) has recently retained **Pakistan in the 'greylist' yet again.**

- The FATF also announced the 'greylisting' of **Jordan, Mali and Turkey**, following the conclusion of the Plenary session.

Highlights:

- FATF observed that it needed to further demonstrate that **investigations and prosecutions were being pursued against the senior leadership of U.N.-designated terror groups**, which include Lashkar-e-Taiba, Jaish-e-Mohammed, al-Qaeda and the Taliban.
- The Pakistan Government **has two concurrent action plans** with a total of 34 action plan items. It has addressed or largely addressed 30 of the items.
- Its most recent action plan **focused on money laundering deficiencies**, was issued after the FATF's regional partner- Asia Pacific Group, identified a number of serious issues.
- At the **previous Plenary in June, 2021**; the FATF had kept Pakistan in the **list of "jurisdictions under increased monitoring"** owing to its failure in prosecuting the top operatives of the Security Council-designated terror groups.

- Pakistan has been in the **greylist since June 2018.**

Financial Action Task Force (FATF):

- The **Financial Action Task Force (FATF)** is an **inter-governmental body decision-making body.**
- It was **established in 1989** during the **G7 Summit** in Paris to develop policies against **money laundering.**
- It is a "**policy-making body**" which works to generate the political will to bring about **national legislative and regulatory reforms in money laundering.**
- It has also started dealing with **virtual currencies.**
- **Secretariat: Paris.**
- **India** became an **Observer at FATF in 2006.**
- Since then, it had been working **towards full-fledged membership.**
 - On **June 25, 2010** **India** was taken in as the **34th country member of FATF.**

Objectives:

- FATF sets **standards and promotes** effective implementation of:
 - **Legal, regulatory and operational** measures for combating **money laundering.**
 - The FATF works to identify **national-level**

vulnerabilities with the aim of protecting the **international financial system from misuse.**

FATF 'grey list' and 'blacklist':

- **Black List:**
 - Countries known as **Non-Cooperative Countries or Territories (NCCTs)** are put in the **blacklist**.
 - These countries support terror funding and money laundering activities.

- The FATF revises the blacklist regularly, adding or deleting entries.

- **Grey List:**
 - Countries that are considered **safe haven for supporting** terror funding and money laundering are put in the FATF grey list.
 - This inclusion serves as a **warning to the country** that it may enter the blacklist.

GOODBYE, COLUMBUS: VIKINGS CROSSED THE ATLANTIC 1,000 YEARS AGO

A study has shown that **Vikings** crossed the Atlantic **1,000 years ago**.

Highlights:

- A **wood fragment** from the Norse layers at the L'Anse aux Meadows Viking settlement established 1,000 years ago near **Hay Cove, Newfoundland, Canada** is found.
 - Scientists revealed that the settlement was occupied in **1021 AD**.
- A **scientific dating technique** was used on **three pieces of wood** cut for the settlement, all pointing to the same year.
 - The new dating method relies on the fact that there was a significant solar storm, a burst of high-energy cosmic rays from the sun in **992 AD**.
- The settlement offers the **earliest-known evidence** of a transatlantic crossing, 471 years before the first voyage of Christopher Columbus.
- The trip was both a **voyage of discovery and a search for new sources** of raw materials.

Who were Vikings?

- The Viking age revolved around **700 to 1100 AD**.

- The Vikings or Norse people were **seafarers with Scandinavian homelands:** Norway, Sweden and Denmark.
- They possessed extraordinary **boat-building and navigation skills** and established settlements on Iceland and Greenland.
- They travelled by longboat to other countries, like Britain and Ireland.
- The **first Viking raid** occurred in 787 AD. It was the start of a fierce struggle between the **Anglo-Saxons** and the Vikings.
 - **Christian monasteries** in Britain were easy targets for the Vikings.
 - The monks had no weapons and the buildings were filled with valuable treasures, like gold, jewels, and books.

Viking Settlements:

- They travelled from Scandinavia to **Britain**. They mostly settled in the Danelaw, to the north and east of England.
- **Norwegian Vikings** sailed to Scotland. They made settlements in the north, and on the Shetland and Orkney Islands.
- **In Ireland**, the Vikings founded the city of Dublin.

JAPAN'S MT ASO ERUPTS, PEOPLE WARNED TO STAY AWAY

Mount Aso, a tourist destination on the Japanese main southern island of Kyushu, spewed plumes of ash 3.5km high when it erupted at about 11:43am.

- Mount Aso is an **active volcano in the center of Kyushu, Japan**.
- Aso's ancient caldera **ranks among the world's largest**, with a diameter of up to 25 **kilometers** and a

circumference of over 100 kilometers. It is surrounded by five peaks, known collectively as **Aso Gogaku**.

- In the center of the caldera stand the mountain's active volcanic peaks, including **Mount Nakadake**, whose spectacular crater is accessible to tourists.

GLOBAL AGRICULTURAL PRODUCTIVITY NOT GROWING AS FAST AS FOOD DEMAND: REPORT

Recently, Global Agricultural Productivity Report 2021 was launched by the Virginia Tech, a U.S. university.

Highlights:

- **Total factor productivity (TFP)** is growing at an annual rate of 1.36 per cent (2020-2019).
 - TFP tracks changes in how **agricultural inputs** like land, labour, fertiliser, machinery, are transformed into **outputs** like crops, livestock, and aquaculture products.
- **Climate change** has reduced productivity growth globally by 21 per cent since 1961.

TFP rates:

- **Low-income countries:** contracting by 0.31 % per year due to minimal investments in agricultural research and development (R&D).
- **Middle-income countries** (including India): continued to have strong TFP growth rates.
- **High-income countries** (including North America and Europe): modest TFP growth.
- **Drier regions of Africa and Latin America:** slowed productivity growth at 34 % per year.

Productivity Growth in India:

CLIMATE CHANGE IN THIRD POLE: AS GLACIERS MELT, TWO LAKES GROW LARGER; NASA RELEASES IMAGES

The climate crisis is altering the geography of the Third Pole — the Tibetan plateau.

Highlights:

According to the report released by The NASA Earth Observatory:

- The two lakes — **Chibzhang Co and Dorsoidong Co** - a small range in the **central part of the Tibetan**

Key Facts:

- Japan has 110 active volcanoes and monitors 47 constantly.
- Japan accounts for about 20 percent of the world's earthquakes of magnitude 6 or greater.

- In India an average **annual TFP growth** stood at 2.81 percent and output growth is 3.17 percent (2010–2019.)
- **Rising temperature**, and changes in rainfall patterns, could cut yields for India's major food crops by 10 percent by 2035.
- As per the **Ministry of Agriculture**, out of the 147 million landholdings in India, 100 million are less than two hectares in size.
- The inefficient use of labor contributes to high rates of rural poverty and food insecurity.

Strategies to create Sustainable Agricultural Growth:

- Invest in agricultural research and development.
- Embrace science-and-information-based technologies.
- Improve **infrastructure** for transportation, information, and finance.
- Cultivate partnerships for sustainable agriculture, economic growth, and improved nutrition.
- Expand and improve local, regional, and global trade.
- Reduce **post-harvest loss** and food waste.

Plateau, west of the **Tanggula Mountains** — grew larger between 1987 and 2021 due to glacial melting.

Hindu Kush Himalayas:

Geography:

- The Hindu Kush is an 800-kilometre-long (500 mi) mountain range in

Central and South Asia to the west of the Himalayas.

- It extends **across 3,500 km over eight countries**—Afghanistan, Bhutan, Bangladesh, China, India, Myanmar, Nepal and Pakistan.
- The eastern end of the Hindu Kush in the north merges with the Karakoram Range. Towards its southern end, it connects with the Spin Ghar Range near the Kabul River.
- It is referred to as the **Third Pole**.
- It is also known as the **Water Tower of Asia** due to its reserve of frozen water.
 - They are the **biggest reserves of water** in the form of ice and snow outside the polar regions, and source of 10 of the largest rivers in Asia.
- The glaciers are the lifeline for **one-third of the population** across the globe.
- It has the world's highest amount of snow and ice outside the polar region.

Physiology:

- Much of the Hindu Kush comprises **metamorphic rock**, including metamorphosed granodiorite and **metamorphosed sedimentary rocks** of amphibolite and greenschist facies.

Climate:

- **Rainy or snowy summers** (from July to September) and dry winters.
- The central and western Hindu Kush borders the Mediterranean climatic zone, characterized by hot, dry summers and cold, wet or snowy winters (from December to early March).

Flora:

- Forests cover many southern slopes of the eastern and central Hindu Kush.
- Large stands of **deodar cedar and blue pine** cloak the eastern and central spurs of the Hindu Kush.
- In the western Hindu Kush, forest is almost absent, and cultivated fodder

trees such as **poplar, willow, and Russian olive predominate**.

- Other planted trees in irrigated mountain passes include plane trees and economically valuable species such as mulberry, jujube, and walnut.
- Meadowland is intermittent, depending on sunny and shady exposure, with substantial pastures found on slopes where snow accumulates.

Fauna:

- The **Siberian ibex** and the **Markhor (both wild goats)** are found in the high crags.
- **Marco Polo sheep** and **Urial** (another wild sheep) occasionally are found in the high Pamir.
- **Black and brown bears** exist in isolated valleys.
- **Chitral valley wildlife** preserve is a domain of the rare **snow leopard**.
- Birdlife of the mountains includes **vultures and eagles**.
- The streams of the northern slope contain **brown trout** in abundance.

Resources:

- Forage, timber, and water are highly exploited resources.
- Human settlements occur where land can be irrigated.
- Large seasonal migrations of livestock, driven by herders, fully utilize the pasturelands of remote mountain areas.
- Thousands of sheep and goats from the high pastures of Badakhshan travel through the Anjoman Pass down to the markets of Kabul.
- Small hydroelectric power plants generate electricity for mountain villages
- Small irrigated plots of wheat, barley, millet, corn (maize), potatoes, and peas and beans constitute the region's agriculture.

BARBADOS REMOVES QUEEN ELIZABETH AS HEAD OF STATE AND ELECTED ITS FIRST-EVER PRESIDENT TO BECOME A REPUBLIC.

- Barbados is not the first former British colony in the Caribbean to become a republic, before Guyana, Trinidad, and Tobago declared themselves republic states.

Republic form of government:

- **Definition:** It is a form of government in which the power is held by the people and their elected representatives.
- **Principles:**
 - The power and authority of government come from the people, not some supreme authority, or king.
 - The rights of the people are protected by a written **constitution** and through the vote of the people.
 - The citizens give power to **elected representatives**, based on majority rule, to serve their interests and act on their behalf.
 - The representatives are responsible for helping all the people in the country, not just a few people.
 - The stability of government rests with the people and is dependent on civic involvement.
- **Advantage:**

- Laws made by elected representatives are meant to be fair. If people find laws unfair, they can elect other leaders who can change those laws.
- A republic allows greater freedom and prosperity. Economic pursuit benefits the entire nation and people can live well.
- When government serves the interests of the entire country, we say it is serving **the common welfare**.
- There is wider participation in the political process. According to the Declaration of Independence, all men are created equal; therefore, it did not matter if you were a small farmer or a powerful aristocrat. Ordinary people are welcome to participate in government.
- Leaders emerge based on people's talents, not their birthright.
- Civic virtue is promoted. **Civic virtue** includes **demonstrating civic knowledge** (how government and the political process works), self-restraint, self-assertion, and self-reliance.
- Change and reform come about by vote, not by force.

Difference between Democracy and Republic

Categories	Democracy	Republic
Definition	It is the form of a government where people choose their representatives to legislate them. This means it is a government by the people, for the people, of the people. It is a form of government where the people have the authority.	It is the type of Government where the country is considered a Public Matter. It is derived from the term Res Publica.
Types	There are 3 major types of democracy – Direct democracy, Representative Democracy, Constitutional Democracy	The 5 types of Republics are Constitutional Republic, Parliamentary Republic, Presidential Republic, Federal Republic, Theocratic Republic.
Power	In Democracy the people have the power to themselves.	In Republic form of Government, the power belongs to individual citizens
Constraints	There are no constraints on the Government in a Democracy.	There are constraints on the Government in a Republic.
Focus	Democracy majorly focuses on the general will of the people	Republic mainly focuses on the Constitution.

Laws	In a democratic system of Government, all laws are made by the majority	In the Republic form of Government, the laws are made by those who are elected representatives of the people of the land.
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FOURTH ASSEMBLY OF THE INTERNATIONAL SOLAR ALLIANCE CLOSES WITH A PROMISE TO ACHIEVE \$1 TRILLION GLOBAL IN SOLAR INVESTMENTS BY 2030

The fourth general assembly of the International Solar Alliance (ISA), was held recently.

Highlights:

- Deliberated on the USD 1 trillion **Solar Investment Roadmap** for 2030 including a blended finance risk mitigation facility.
- Approved the “**One Sun**” political declaration for the launch of Green Grids Initiative-**One Sun One World One Grid** (GGI-OSOWOG) at COP 26.
- ISA forged partnership with Bloomberg Philanthropies and Global Energy Alliance for People and Planet.
- It focused on strategy for Private Sector Engagement, and initiatives like **Viability Gap Financing** scheme to provide affordable finance for solar energy projects across all members of the ISA.

Programmes launched by the Assembly:

1. Solar Hydrogen programme:

- **Aim:** Enabling the use of **solar electricity** to produce hydrogen at a

more affordable rate than what is available currently.

- Making hydrogen cost competitive with natural gas presents major challenges for both supply and performance.

2. Waste Management Programme:

- It will address the challenges of
 - Growing volume of **waste**, toxic materials
 - lack of waste-specific legislation, high cost of waste treatment.

International Solar Alliance:

- ISA is an international organization comprising 98 member countries that have signed the **ISA Framework Agreement**.
- It was launched in Paris, France on November 30, 2015.
- **Headquarters:** Gurugram, India.
- It helps governments across the world in **improving energy access** and security around the globe
- It focuses on **promoting solar energy** as a sustainable way to transition to a carbon-neutral future.

SOUTH KOREA LAUNCHES OWN SPACE ROCKET FOR FIRST TIME

South Korea has launched its first homegrown space rocket **Nuri** recently from Goheung, Seoul.

- Weighing 200 tonnes, Nuri is fitted with **liquid-fueled engines**.

- South Korea plans to carry out four more launches of the Nuri until 2027 to increase reliability.

FACEBOOK IS FAILING TO CONTAIN HATE SPEECH IN INDIA: REPORTS CITING INTERNAL DOCUMENTS

According to US media reports, the percentage of inciting content on WhatsApp - a Facebook platform - increased multifold from December 2019.

Hate Speech?

- Hate speech is understood as any kind of communication in speech, writing or behavior, that attacks or uses

pejorative or discriminatory language with reference to a person or a group on the basis of who they are, in other words, based on their religion, ethnicity, nationality, race, color, descent, gender or other identity factor.

- As recognized by the Law Commission Report and by the Supreme Court in **Shreya Singhal versus Union of India**, speech can be restricted under **Article 19(2)** of the Indian Constitution only when the speech reaches the threshold of incitement.

Cause of Hate Speech:

- **Political Propaganda:** Political parties around the world revolve their political agenda around certain communities to influence and create a vote bank, by ways of hate speech.
- **Superiority Complex:** There is always a prevailing superiority complex in the so called upper section of the society on the base of **race, religion, caste and sex** which comes out in the form of hate speech towards the other sections of the society.
- **Social media:** The rise in the online social media platforms that provides **anonymity** enables anyone with access to internet, post hate speech comments online.

Impacts of Hate speech:

- It hurts the dignity of the victim.
- It gives rise to gender based and communal violence.
- The communities get polarized.
- Extreme form of hate speech can turn into terrorism.
- It harms the peace and harmony of the society.
- Towns, cities and gradually the whole country can get engulfed in riots.
- It harms the internal security of a nation.

Legislations Around Hate speech:

Presently, in India the following legislations have bearing on hate speech, namely: -

(i) Indian Penal Code (IPC), 1860

- Section 124A IPC penalises seditious
- Section 153A IPC penalises 'promotion of enmity between different groups on grounds of religion, race, place of birth, residence, language, etc., and doing acts prejudicial to maintenance of
- harmony'.

- Section 153B IPC penalises 'imputations, assertions prejudicial to national-integration'.
- Section 295A IPC penalises 'deliberate and malicious acts, intended to outrage religious feelings of any class by insulting its religion or religious beliefs'.
- Section 298 IPC penalises 'uttering, words, etc., with deliberate intent to wound the religious feelings of any person'.
- Section 505(1) and (2) IPC penalises publication or circulation of any statement, rumour or report causing public mischief and enmity, hatred or ill-will between classes.

(ii) the Representation of The People Act, 1951

- Section 8 disqualifies a person from contesting election if he is convicted for indulging in acts amounting to illegitimate use of freedom of speech and expression.
- Section 123(3A) and section 125 prohibits promotion of enmity on grounds of religion, race, caste, community or language in connection with election as a corrupt electoral practice and prohibits it.

(iii) the Protection of Civil Rights Act, 1955

- Section 7 penalizes incitement to, and encouragement of untouchability through words, either spoken or written, or by signs or by visible representations or otherwise

(iv) the Religious Institutions (Prevention of Misuse) Act, 1988

- Section 3(g) prohibits religious institution or its manager to allow the use of any premises belonging to, or under the control of, the institution for promoting or attempting to promote disharmony, feelings of enmity, hatred, ill-will between different religious, racial, language or regional groups or castes or communities.

(v) the Cable Television Network Regulation Act, 1995

- Sections 5 and 6 of the Act prohibits transmission or retransmission of a

programme through cable network in contravention to the prescribed programme code or advertisement code. These codes have been defined in rule 6 and 7 respectively of the Cable Television Network Rules, 1994.

Steps to be taken against Hate Speech:

- Education system has a prominent role to play in promoting and understanding compassion with others.
- Awareness programs and initiatives about maintaining cordial relationship must be taken by not only the government but also by private people.
- Although there are many laws regarding hate speeches but **stricter penalizing** is required as religious

sentiments and beliefs are a precious thing for an individual.

- Fight against hate speech cannot be isolated. It should be discussed on a wider platform such as the United Nations.
 - Every responsible government, regional bodies, and other international and regional actors should respond to this threat.
- Cases of hate speech can be addressed through **Alternative dispute resolution** as it proposes a shift from the long procedures of the court to the settlement of the dispute between parties by way of negotiation, mediation, arbitration and/or conciliation.

43 COUNTRIES CALL ON CHINA AT UN TO RESPECT UIGHUR RIGHTS

In a statement read at the United Nations, forty-three countries have called on China to “**ensure full respect for the rule of law**” for the Muslim Uighur community in Xinjiang.

Highlights:

- The declaration accused China of a litany of human rights violations against the Uighurs, including torture, forced sterilisation and forced disappearances.
- It was signed by the United States, several European and Asian member states and others.
 - In answer, China accused the U.S. for “ethnic cleansing” against Native Americans and accused France of committing “crimes against humanity” in its former colonies.

Who are Uyghurs?

- The Uyghurs are a group of people who live mostly in the Xinjiang area of China.
- There are about 12 million Uyghurs, mostly Muslim, living in Xinjiang, which is officially known as the **Xinjiang Uyghur Autonomous Region (XUAR)**.
- They have been living there **for at least several hundred years**.

- They are generally regarded as a **Turkic people**, which means they speak a language related to **Turkish** and have ancestors who came from the **traditional homeland of the Turks** - north of central Asia.
- But studies of their genetic make-up suggest that they also have ancestors who came from other parts of the world, with European DNA mixed with Chinese, south Asian, Siberian, and central Asian.
- They see themselves as **culturally and ethnically close to Central Asian nations**.
- Recent decades have seen a mass migration of Han Chinese (China's ethnic majority) into Xinjiang, allegedly orchestrated by the state to dilute the minority population there.

Where is Xinjiang?

- Xinjiang lies in the **north-west of China** and is the country's largest region.
- Xinjiang is a mostly desert region and produces about a **fifth of the world's cotton**.
- It is autonomous, meaning - in theory - it has some powers of self-governance. But in practice, **both regions are subjected to major**

restrictions by the central government.

- The region is also **rich in oil and natural gas** and because of its proximity to Central Asia and Europe.

- In the early 20th Century, the Uyghurs briefly declared independence for the region but it was **brought under the complete control of China's new Communist government in 1949.**

GLOBAL COALITION PLANS TO HELP SMALL ISLAND STATES MITIGATE CLIMATE CRISIS

Coalition of Disaster Resilient Infrastructure will launch a programme to help small island states boost climate resilience at the upcoming United Nations climate summit in Glasgow.

Losses for small Island nations

- The small island nations suffer losses to as much as **10%** of their GDP due to natural disasters.
- Two-thirds of the countries in the world suffer the highest relative losses due to disasters.
- The highest hazard risks relative to the size of their capital stock.
- Some countries have lost **80% to 90%** of their GDPs in single disaster events in the past.

Coalition of Disaster Resilient Infrastructure (CDRI)

- **Launched by:** Prime Minister of India at the 2019 UN Climate Action Summit in September 2019.
- **Aim:**
 - To promote disaster-resilient infrastructure.
 - To promote research and knowledge sharing in the fields of **infrastructure risk management, standards, financing, and recovery mechanisms.**

- **Secretariat:** New Delhi
- **Responsibility:**
 - Its focus is on developing disaster resilience in ecological, social, and economic infrastructure.
 - It goals to achieve substantial changes in member country's policy frameworks and future **infrastructure investments**, along with a major decrease in the economic losses suffered due to disasters.
- **Significance:**
 - It is the second major coalition launched by India outside of the UN.
 - It is seen as India's attempts to obtain a **global leadership** role in climate change matters.
- **Members:** 22 countries and 7 organisations.
- **Main thematic areas that guide CDRI's work:** Governance and Policy, Risk Identification and Estimation, Standards and Certification, Capacity building, Innovation & Emerging Technology, Recovery and Reconstruction, Finance and Community based approaches.

INTERNATIONAL SNOW LEOPARD DAY: WHY WE CELEBRATE IT

October 23 is recognised as International Snow Leopard Day.

Highlights:

- Aim- To conserve and protect Snow Leopards
- History- International Snow Leopard Day came into existence with the adoption of **Bishkek Declaration** by 12 countries on the conservation of snow leopards.
 - The 12 countries were- India, Nepal, Bhutan, China, Mongolia,

Russia, Pakistan, Afghanistan, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan

Snow Leopard (*Panthera uncia* or *Uncia uncia*):

- **It is a long-haired Asian cat.**
- **Habitat- They lives in the mountains of Central Asia and the Indian subcontinent.**
 - **They inhabit alpine and subalpine zones in the Himalayas.**

- **Indian Habitat:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand (Western Himalayas), Sikkim & Arunachal Pradesh (Eastern Himalayas).
- **World habitat:** Afghanistan, Northern Pakistan the Himalayas and the Tibetan Plateau, to Southern Siberia, Mongolia, and Western China.
- They are **pale greyish with dark rosettes** and a dark streak along the spine.
- Snow Leopard capital of the world: **Hemis, Ladakh.**
- They are the **National Heritage Animal of Afghanistan and Pakistan.**

Threat:

- Reduction in prey populations
- Illegal poaching and increased human population infiltration into the species habitat.
- Illegal trade of wildlife parts and products among others.

Protection:

- IUCN Red List- **Vulnerable**
- Convention on International Trade in Endangered Species (CITES)- Appendix I
- Convention on Migratory Species (CMS)- Appendix I
 - Appendix I includes species threatened with extinction.
- **Indian Wildlife (Protection) Act 1972- Schedule I**

- Schedule I provides absolute protection and offences with the highest penalties.

Conservation Efforts at National and International Level:

- **The Project Snow Leopard (PSL)**
 - It is launched in 2009.
 - Aim- to promote an inclusive and participatory approach to conserve snow leopards and their habitat.
- **The Global Snow Leopard and Ecosystem Protection (GSLEP) Programme**
 - Aim- to address high-mountain development issues using conservation of the snow leopard as a flagship.
- Snow Leopard is **listed in 22 critically endangered species** of the Ministry of Environment Forest & Climate Change.
- **SECURE Himalaya: Global Environment Facility (GEF):**
 - **United Nations Development Programme (UNDP)** funded the project on conservation of natural ecosystem.
 - The project is now operational in four snow leopard range states, namely, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, and Sikkim.
- Community volunteer programme "**HimalSanrakshak**" to protect snow leopards was launched in 2020.

UNITED NATIONS DAY 2021: A LOOK AT SOME OF THE GLOBAL BODY'S MILESTONE ACHIEVEMENTS

Recently, United Nations celebrated its 76th anniversary on October 24th.

UN Day:

- United Nations Day, on **24 October**, marks the anniversary of the day in 1945 when the UN Charter entered into force.

United Nations:

Headquarters: New York City

Aim:

- To maintain international peace and security

- To develop friendly relations among nations
- To achieve international cooperation
- To be a center for harmonizing the actions of nations.

Functions:

- United Nations plays a very crucial role in maintaining international peace and security
- It works on protecting human rights, delivering humanitarian aid,

promoting sustainable development, and upholding international law.

United Nations Structure

The structure of the UN is sub-divided into five principal organs:

- **General Assembly**
 - It is the main policy-making organ of the Organization.
 - It Comprises of all Member States, it provides a unique forum for multilateral discussion of the full spectrum of international issues covered by the Charter of the United Nations.
- **United Nations Security Council (UNSC)**
 - The fifteen-member UN Security Council seeks to address threats to international security.
 - Out of fifteen, five members are permanent, which are: China France Russia United Kingdom the United States, and non-permanent members are: India, Estonia, Ireland, Kenya, Mexico, Niger, Norway, Saint Vincent, and the Grenadines, Tunisia, and Vietnam.
- **Economic and Social Council (ECOSOC)**
 - It is responsible for coordinating the economic and social fields of the organization.

- It serves as the central forum for discussing international economic and social issues, and formulating policy recommendations addressed to member states and the United Nations System.

- **International Court of Justice**

- It settles disputes between states in accordance with international law and gives advisory opinions on international legal issues.
- It is the only international court that adjudicates general disputes between countries, with its rulings and opinions serving as primary sources of international law.

- **UN Secretariat**

- It is an important role in setting the agenda for the deliberative and decision-making bodies of the UN, and the implementation of the decision of these bodies.
- It is the United Nation's executive arm.

- **Trusteeship Council**

- It was established to provide international supervision for 11 Trust Territories and to make sure that adequate steps were taken to prepare the Territories for self-government or independence.

ISRAEL APPROVES 1,300 NEW SETTLEMENT HOUSING UNITS IN THE OCCUPIED WEST BANK

The Israeli government recently announced construction tenders for 1,355 housing units in the West Bank.

Conflict between Israel and Palestine:

- **Britain** took **control** of the area known as **Palestine** after the ruler of that part of the Middle East, **the Ottoman Empire**, was **defeated in World War One**.
- By the end of **World War II**, there was a strong demand from **Jews fleeing Nazi Europe** for a **homeland within Palestine**, an Arab-dominated region.
- Jerusalem has been at the center of a religious dispute between the Arabs and Jews for centuries, which was inside the British-mandated Palestine.

- When the British mandate ended in 1947, the **United Nations (UN)**, by **adopting Resolution 181**, **proposed an Arab-Jewish partition of Palestine** — between Palestine and the new state of Israel.
 - This partition plan mandated **53 per cent of the land to the Jewish-majority state (Israel)** and **47 per cent to the Palestinian-majority state (Palestine)**.
- But the idea of creating a new-Jewish majority state didn't bode well for the Arab countries in the Middle East.
- Jewish paramilitary groups, however, formed the state of Israel **by force** in 1948.

- Israel ended up occupying more land than previously envisaged in the 1947 UN partition plan.
- By the end of the war in 1949, Israel had taken up **78 per cent** of the historical Palestine. Palestinian territory shrank to 22 per cent of what it had earlier been.
 - Meanwhile, the West Bank and East Jerusalem came under Jordan's rule while West Jerusalem to Israel.
- In 1967, the Arab countries again refused to recognize Israel as a state, which led to another war – known as the **Six-Day War**.
- **Israel won this war too and occupied even more parts of Palestine.** The West Bank, the Gaza Strip and East Jerusalem – which houses the holy Old City – came under Israel's control.
- Since 1967, a large part of the Palestinian population had been living under Israeli-occupied territories in both West Bank and the Gaza Strip.

West Bank:

- The West Bank is a **landlocked territory** near the **Mediterranean coast** of Western Asia, bordered by **Jordan and the Dead Sea to the east** and by **Israel to the south, west and north**.
- Under Israeli occupation since 1967, the area is split into Palestinian islands and Israeli settlements.
- The "West Bank" name was given to the territory after it was captured by Jordan in the 1948 Arab–Israeli War because it is located on the **west side of the Jordan River**.
- Jordan held it until 1967 when it was occupied by Israel during the 1967 Six-Day War.

Gaza:

- Since the Battle of Gaza in June 2007, Gaza been **governed by Hamas, a militant, Palestinian, fundamentalist Islamic organization**.
- It has been placed under an Israeli and US-led international economic and political boycott from that time onwards.

Bottlenecks in peace process:

There are a number of issues which Israel and the Palestinians cannot agree on.

The questions include:

- What should happen to Palestinian refugees?
- Whether Jewish settlements in the occupied West Bank should stay or be removed?
- Whether the two sides should share Jerusalem?
- Whether a Palestinian state should be created alongside Israel?

There have been attempts to negotiate peace by US under different presidents but nothing has come out of it as each time the peace plan seems biased to at least one of the parties.

Abraham Accord

- Recently, Israel, UAE and Bahrain have signed the Abraham Accord. The Abraham accord is the first Arab-Israeli peace deal in 26 years.

Importance of the Accord:

- The accord seeks to **normalize ties between Israel, UAE and Bahrain**.
 - UAE and Bahrain will establish **embassies, exchange ambassadors** with Israel and will cooperate and work together with Israel across a range of sectors.
 - **Muslims can visit the Al-Aqsa Mosque in Jerusalem** (third holiest site in Islam). Kaaba in Mecca and Prophet's Mosque in Medina are the other two holiest site in Islam.

6th ANNUAL MEET OF ASIAN INFRASTRUCTURE INVESTMENT BANK (AIIB)

Union Minister of Finance & Corporate Affairs participates in the 6th Annual Meeting of the Board of Governors of Asian Infrastructure Investment Bank (AIIB) in New Delhi.

Asian Infrastructure Investment Bank:

- It is a **multilateral development bank**.
- **Aim:** To improve social and economic outcomes in Asia.

- **Formation:** 25 December 2015 (Entry into force Articles of Agreement)
- Headquarters- Beijing, China.
 - It was **proposed by China in 2013.**
- **Total Member Countries-** 103
 - Regional Members: 46
 - Non-Regional Members: 41
 - Prospective Members: 16
- Membership in the AIIB is **open to all members of the World Bank or the Asian Development Bank** and is divided into **regional** and **non-regional** members.
- Fourteen of the G-20 nations are AIIB members including France, Germany, Italy and the United Kingdom.
- **Voting Rights:**
 - India is a Founding Member.
 - The second largest shareholder in AIIB.
 - The regional members hold 75% of the total voting power in the Bank.

Goals:

- **Sustainable Infrastructure**
 - Promoting green infrastructure.
 - Supporting members to meet their environmental and development goals.
- **Cross-border Connectivity**
 - Prioritizing cross-border infrastructure

- **Private Capital Mobilization**
 - To catalyse private capital.

Governance:

- **The Board of Governors-**
 - one Governor and one Alternate Governor appointed by each member country.
 - **Powers-**
 - To admit new members.
 - To decide the authorized capital stock of the Bank;
 - To elect the Directors of the Bank
 - To elect the President,
 - ✓ suspend or remove him from office
 - ✓ determine his remuneration and other conditions of service;
 - To amend the 'AIIB Articles of Agreement'
- **The Board of Directors-**
 - Composed of **twelve members** that are not the members of the Board of Governors.
 - Nine are elected by the Governors from regional members;
 - Three are elected by the Governors from non-regional members.

SOUTH ASIA HAS LOST MOST HUMAN CAPITAL DUE TO AIR POLLUTION: WORLD BANK

The report named **Changing Wealth of Nations** released by the world bank claims that environmental degradation is leading to a decline in overall wealth.

Report:

- The report has measured wealth creation and distribution in **146 countries covering 20 years from 1995-2018.**
- In this report, World Bank included gross domestic product, human-produced capital, human capital, and natural capital like renewable and non-renewable natural resources in its measurement of wealth.

- The World Bank defines human capital as **earnings over a person's lifetime.**

Highlights:

- South Asia suffers the most among all regions of the world in terms of loss of **human capital** due to air pollution.
- Human capital is the largest source of worldwide wealth, comprising **64 %of total global wealth** in 2018.
- Middle-income countries increased their investment in human capital and turn, saw significant increases in their share of global human capital wealth.

- **Human capital in South Asia** accounts for 50 %of the region's wealth which did not change during the survey period from 1995-2018.

South Asia

- The air pollution badly impacted the wealth generation in south Asia.
 - South Asia as a region was the most severely affected by the estimated loss of human capital due to air pollution.
 - South Asia's per capita wealth is among the lowest in the world.
- With the rapid increase in population growth in the same period, **per capita**, wealth remains among the lowest in the world in south Asia.

World bank

- It is an international financial institution that provides loans and grants to the governments of low- and middle-income countries to pursue capital projects.
- **Established in:** July 1944
- **Headquarters:** Washington D.C.
- **Aim:** To grant loans to the governments of low- and middle-income countries to pursue capital projects.
- **Total Members:** 189 member countries (Including India)
 - Countries must first join the **International Monetary Fund (IMF)** to be eligible to join the World Bank Group.

It consists of five organizations:

- **IBRD:** International Bank for Reconstruction and Development provides loans, credits, and grants.
- **IDA:** International Development Association provides low- or no-interest loans to low-income countries.
- **IFC:** The International Finance Corporation provides investment, advice, and asset management to companies and governments.
- **MIGA:** The Multilateral Guarantee Agency insures lenders and investors against political risk such as war.
- **ICSID:** The International Centre for the Settlement of Investment Disputes

settles investment disputes between investors and countries. India is not a member of ICSID.

Roles of World Bank

- **Eradicate Extreme Poverty and Hunger:**
 - The trend indicates that the world as a whole can meet the goal of halving the percentage of people living in poverty.
- **Achieve Universal Primary Education:**
 - The percentage of children in school in developing countries increased from 80% in 1991 to 88% in 2005
- **Promote Gender Equality:**
 - The tide is turning slowly for women in the labor market, yet far more women than men worldwide more than 60% are contributing but unpaid family workers.
- **Reduce Child Mortality:**
 - An estimated 10 million-plus children under five died in 2005.
- **Improve Maternal Health:**
 - The half-million women who die during pregnancy or childbirth every year live in Sub-Saharan Africa and Asia
- **Combat HIV/AIDS, Malaria, and Other Diseases:**
 - Annual numbers of new HIV infections and AIDS deaths have fallen.
- **Ensure Environmental Sustainability:**
 - Deforestation remains a critical problem, particularly in regions of biological diversity, which continues to decline. Greenhouse gas emissions are increasing faster than energy technology advancement.
- **Donors have to fulfill their pledges to match the current rate of core program development. Develop a Global Partnership for Development:**
 - Emphasis is being placed on the **Bank Group's collaboration** with multilateral and local partners to quicken progress toward the **MDGs'** realization.

INTERNATIONAL MIGRATION OUTLOOK 2021 -OECD

The Organisation for Economic Co-operation and Development (OECD) recently unveiled The International Migration Outlook 2021.

Highlights of the Report:

- Covid-19 crisis caused the sharpest drop of more than 30% in permanent migration flows to the OECD countries.
- In 2019, the **permanent migration** stood at 53 lakhs.

India related highlights

- India ranks **second** origin country for migrants to OECD in 2018-2019.
- Nearly 4 lakh Indians migrated to OECD countries during 2019.
- **Migration from India** represents about 6% of the overall migration to OECD countries.
- There were 3.94 lakh migrants from India to these countries in 2019.

Migration of Students

- **Indian students** were the second largest cohort, after China, in the OECD countries.
- In 2019, 60% of the 3.7 million holders of study permits came from Asia particularly China (25%), India (9%) and Vietnam (3%).
- 2.93 lakh Indian students went to the **OECD countries** for education with student visas.

Acquiring Citizenship:

- **China** continued to retain its top slot as the largest source country of new immigrants, followed by India
- Nearly 1.56 lakh Indians acquired **citizenship** of an OECD country during 2019.

OECD:

- The Organisation for Economic Co-operation and Development (OECD) was established in 1961.
- **Headquarters:** Paris, France.
- **Member Countries:** 38
- India is **27th member** of the OECD Development Centre.
- OECD members are **democratic countries** that support free-market economies.
- It is known as a **statistical agency**, as it publishes comparable statistics on a wide number of subjects.

Objectives:

- To **promote economic** and social well-being of people around the world.
- To stimulate **economic progress** and world trade.
- To **provide a forum** in which governments can work together and seek solutions to common problems.

Functions:

- **Restore confidence** in markets and the institutions that make them function.
- **Re-establish** healthy public finances as a basis for future sustainable economic growth.
- **Foster and support** new sources of growth through innovation environmentally friendly "**Green Growth**" strategies.
- It maintains a "**blacklist**" of nations that are considered uncooperative tax havens.
- It helps to **eradicate tax avoidance** by profitable corporations.
- It **encourages** the G-20 countries to promote tax reforms.

WORLD INEQUALITY REPORT 2022

World Inequality Report 2022 was recently published by the World Inequality Lab at the Paris School of Economics.

World Inequality Report 2022:

- It measures **income and wealth inequality** in a systematic and transparent manner.

- This report **showcases inequality across the world**, providing a comparative perspective across countries.

Highlights:

- Global minimum corporate tax rate is progressing but is still below the statutory rate.
- Tax ranging from 1 % of wealth owned over \$1 million to 3 % for global billionaires can generate 1.6 per cent of global income.
- Average increase in the wealth of billionaires is over 9 % per year.
- **15 % minimum corporate tax deal** is very low as compared to the statutory tax rate paid by low-end and middle-size companies/corporations.
 - Recently, at a meeting under the Organisation for Economic Co-operation and Development (OECD) finalized that Multinational Enterprises (MNEs)

will be subject to a **minimum 15% global tax rate from 2023.**

- **Aim:** to make it harder to avoid taxation by MNEs.
- 15 % minimum corporate tax would lead to revenue gains
 - €83.3 billion in EU,
 - €57.0 billion in US,
 - €6.1 billion in China
 - €0.5 billion in India.
- Women make just a third of global labour incomes.
- In terms of global carbon emissions, the bottom 50 % of the population is responsible for 12 % of world emissions
- The 10 % highest emitters are responsible for half of world individual emissions.

EYE ON AFGHANISTAN, CHINA TO BUILD MILITARY BASE IN TAJIKISTAN

China will take full control of a military base in Tajikistan near the Afghan border that it has been quietly operating and will also build a new base for the Tajik government.

- Tajikistan is a **landlocked country in Central Asia.**
- It is bordered by:
 - **Kyrgyzstan** to the north,
 - **Uzbekistan** to the northwest and west,
 - **China** to the East,
 - **Afghanistan** to the south,
- It is the **smallest nation in Central Asia.**

- **Capital:** Dushanbe

Facts about Tajikistan

- Tajikistan is a **mountainous nation.**
- Tajikistan is **home to the world's second-tallest dam.** The Nurek Dam (300 m) is located on the Vakhsh River in Tajikistan.
- Fedchenko Glacier in Tajikistan is the longest glacier outside the Polar Regions.
- Tajikistan is located in a **seismically active zone** which makes it highly susceptible to earthquakes.



GOVERNMENT DISSOLVES ORDNANCE FACTORY BOARD, TRANSFERS EMPLOYEES AND ASSETS TO 7 PSUS

The Central Government issued orders for the dissolution of Ordnance Factory Board (OFB) from 1st October 2021.

What is OFB?

- The Ordnance Factory Board was established in 1979, comes under the Ministry of Defence.
- **Headquarters:** Kolkata.
- It **supplies ammunition**, and weapons used by the armed, police, and paramilitary forces.
- The products include **military-grade arms and ammunition**, chemicals for missile systems, explosives, propellants, armored vehicles, parachutes, troop clothing, support equipment etc.

Why it was done?

- The decision was taken as a part of 'Aatma Nirbhar Bharat Abhiyan'.
- Government will **dismantle** the conglomerate into smaller companies for better autonomy, efficiency, and accountability in ordnance supplies.
 - 41 factories, 9 training institutes, 4 regional controllers of safety, and 3 regional marketing centres of OFB will be restructured into 7 **Defence Public Sector Units (DPSUs)**.

- The 7 DPSUs will be 100% state-owned.

New DPSUs are:

1. Gliders India Limited
2. India Optel Limited
3. Yantra India Limited
4. Troop Comforts Limited
5. Advanced Weapons and Equipment India Limited
6. Armoured Vehicles Nigam Limited
7. Munition India Limited

Assurance to OFB Workers:

- The employees across the Group A, B, & C will be transferred without any deputation allowance initially for two years from the date of appointment.
- The employees of Kolkata and New Delhi, will be transferred to the **Directorate** of Ordnance Factories under the Department of Defence Production for two years.
- The pay scales, allowances, medical facilities, career progression, and other services will be governed by the regulation and orders as applicable to the Central government servants.
- The **pension** of existing employees and retirees will be taken care by the government.

EC ALLOTS NAMES, SYMBOLS TO BOTH LJP FACTIONS

The Election Commission of India (ECI) has frozen the **'Bungalow'** election symbol of the Lok Janshakti Party due to an **ongoing dispute** between the two factions of the party.

Highlights:

- The two factions of the party won't be able to use the symbol in the elections for the Kusheshwar Asthan and Tarapur seats in **Bihar**.
- Neither of the two groups will be permitted to use the name of the party **Lok Janshakti Party** unconditionally.
- They will be known by the names as they may choose, and will be allotted **different symbols** from the list of free symbols.

Role of EC on Symbol Dispute:

- **Para 15 of the Symbols Order 1968** states that; when the Commission is satisfied that there is a dispute between the two factions regarding the party's claim, the decision of the Commission shall be considered final.
- It applies when there is a **dispute** between the recognized parties at the national and state level.

- In case of parties which are registered but not recognized, the Commission may explain to the factions.
- Before 1968, the commission **used to issue notifications and executive orders** under the Conduct of Election Rules.

What happens to a group that doesn't get the old party symbol?

- Under the new rules, the new group is required to **register itself as a separate party**.
- It can claim the status of **National or State Party** based on performance in the state and central elections.
- In June 2021, the LJP had split into two factions. One led by Chirag Paswan and another by Pashupati Kumar Paras.
- A tussle over the election symbol, have been seen about the Samajwadi Party (Cycle) and the AIADMK (Two leaves) in 2017.
- The Indian National Congress (INC) was split in 1969. It was broken into Congress (O) and Congress (J).
 - Congress (O) was led by S Nijalingappa and Congress (J) by Indira Gandhi.

CHOLA INSCRIPTIONS DETAIL QUALIFICATIONS FOR CIVIC OFFICIALS

The Chola inscriptions at **Thenneri village** Kancheepuram, Tamil Nadu bear testimony to the qualifications required for members of the village administrative council.

Highlights:

- The inscriptions at **Thenneri village** shed light on how farm produce was **taxed**.
- For areca nuts, only 50% tax would be collected for the first 10 years after cultivation.
 - Farmers would pay full tax only after the trees started yielding fruits.
- 50% tax was imposed on **banana crops** until the yield.
- Thenneri inscriptions talks about qualifications for candidates to village administrative committees.

- The inscriptions of **Uthiramerur**, Kancheepuram dwells upon **'Kudavolai'** system.

Chola Kudavolai system:

- The system was a **unique feature** of the village administration of the **Cholas**.
- It is a **system to elect members** to annual committee ('variyaam'), garden committee, tank committee and other committees for 30 wards.
- There were **30 wards** in each village. A representative for each ward was elected through Kudavolai system.
- Names of the contestants were written on **palm leaf** tickets. These palm leaves were put into a pot and shuffled.

- A small boy picked up palm leaves from the pot. Persons whose name tickets were picked up by the boy were **declared elected**.
- Similarly, 30 members for thirty wards were elected.
 - Twelve members were appointed to the **Annual committee**, twelve were appointed as the members of the **Garden committee** and six to the **Tank committee**.

Essential Qualifications:

- A person must have age from 35 to 70.
- He should possess some land and a house built in a **taxable land** on his own site.
- He should have knowledge about **Vedas and mantras**.
- Persons who killed **brahmins**, women cow, and children were disqualified.
- Thieves, and people who had undergone **punishments** were disqualified

M. VENKAI AH NAIDU PRESENTED LOKAPRIYA GOPINATH BORDOLOI AWARD

Vice President of India has conferred Assam Government's biennial **Lokapriya Gopinath Bordoloi Award for National Integration and National Contribution** at a special function in Guwahati.

- The awardees are:
 - Assam branch of Kasturba Gandhi National Memorial Trust
 - German based Assamese litterateur Dr. Nirod Kumar Barooah

- Shillong Chamber Choir at Srimanta Sankardeva Kalakshetra

About the Award:

- The award **carries five lakh rupees each**, a citation and an angavastram.
- The Award is named after the **first chief minister of Assam** after independence and he was a freedom fighter. He was awarded the **Bharat Ratna in 1999 posthumously**.

SKILL INDIA TO ORGANIZE "NATIONAL APPRENTICESHIP MELA" ON OCTOBER 4TH

Skill India with due support from Directorate General of Training (DGT) and National Skill Development Corporation (NSDC) is organizing a day long "**National Apprenticeship Mela**" across the country in over 400 locations on October 4th, 2021.

About the initiative:

- **Aim:** To support the hiring of nearly one lakh apprentices and assist employers in tapping the right talent and develop it further with training and providing practical skillsets.
- The event is expected to witness participation from more than 2000 organisations operating in more than 30 sectors such as Power, Retail, Telecom, IT/ITeS, Electronics, Automotive and more.
- The aspiring youth will have the opportunity to engage and select from more than 500+trades including Welder, Electrician, Housekeeper, Beautician, Mechanic etc.

- 5th to 12th pass students, Skill Training Certificate holders, ITI students, Diploma holders and graduates are eligible to apply at the Apprenticeship Mela.

Genesis:

- The National Policy of Skill Development and Entrepreneurship, 2015 launched by the Hon'ble Prime Minister on July 15th, 2015 recognises apprenticeship as a means **to provide gainful employment to skilled workforce with adequate compensation**.
- MSDE has also taken several efforts to increase the number of apprentices hired by enterprises in the country.
- **Aim:** To fill the gap in supply and demand for skilled workforce and meet the aspirations of the Indian youth through gaining on-the-job training and securing better opportunities for employment.

- This training is under the **Apprentices Act, 1961**. And

support through National Apprenticeship Promotion Scheme.

KAMDHENU DEEPAWALI CAMPAIGN LAUNCHED TO PROMOTE COW ENTREPRENEURSHIP AND COW BASED PANCHGAVYA PRODUCTS

The former Chairman of Rashtriya Kamdhenu Aayog launched **Kadhenu Deepawali 2021** campaign to manufacture and market more than **100 Crore Cow dung-based Deepak lamps** and Laxmi-Ganesh Idols.

Highlights:

- **Aim:** To make Cows to be **economically useful** by proper economic use of Cow Dung and Cow Urine along with its Milks, Curd, Ghee.
- More than 300 items are made by **Panchgavya** from Cow.
 - This includes Deepawali items like – Deepak, Lamps, Candles, Sambrani cup, incense sticks, Hard board, Wall piece, Laxmi-

Ganesh idols etc made up of Cow dung.

- The **Gomaya lamps** made by Cow owners will save the environment by providing eco-friendly alternative to chemical based Chinese lights.
- In 2020 **Cow dung Deepak**, lamps were manufactured across India.
- The initiative will promote large number of Cow dung based Start Ups; **cow entrepreneurs** will get benefitted by the campaign.
- The Eco-friendly campaign will help Gaushalas to become **Self Sustainable**.

WHAT ARE THE SECTIONS OF NDPS ACT INVOKED AGAINST ARYAN KHAN IN DRUGS BUST CASE?

Eight persons, claimed a part of an alleged drug bust on a cruise ship recently are charged with various sections of the Narcotic Drugs and Psychotropic Substances (NDPS) Act.

NCB has invoked 4 sections of the NDPS Act so far. These include:

- **Section 8(c):** The section has wide provisions for **producing, manufacturing, possessing, selling, purchasing, transporting, using, consuming, importing, exporting** any narcotic drug or psychotropic substance, except for medical or scientific purposes, and requires a licence or permit by the concerned authorities.
- **Section 20 (b):** possession of cannabis is a punishable offence.
 - There will be rigorous imprisonment for a term which may extend to ten years and will also be liable to a fine which may extend to Rs 1 lakh.
- **Section 27:** consumption of any narcotic drug or psychotropic substance is a punishable offence.
 - Whoever consumes any narcotic drug or psychotropic substance

shall be punishable with rigorous imprisonment for a term which may extend to one year, or with fine which may extend to Rs 20,000 or with both.

- **Section 35:** presumed that the accused knew what they were doing. Hence, the accused will be guilty unless proven innocent.
 - Under this section, “culpable mental state” includes intention, motive, knowledge of a fact, or reason to believe a fact.
 - Consumption of **cocaine carries up to one year** of imprisonment, whereas consumption of **charas or cannabis carries up to 6 months** imprisonment.

Narcotic Drugs and Psychotropic Substances (NDPS) Act:

- The Narcotic Drugs and Psychotropic Substances Act, 1985, commonly referred to as the NDPS Act, is an Act of the Parliament of India that **prohibits a person the production/manufacturing/cultivation, possession, sale, purchasing, transport, storage, and/or**

consumption of any narcotic drug or psychotropic substance.

- The bill was passed in the Parliament in September 1985, and came into force on 14 November 1985.
- The NDPS Act has since been amended four times – in 1989, 2001, 2014 and 2016.
- The Act extends to the whole of India and it applies also to **all Indian citizens outside India** and to **all persons on ships and aircraft** registered in India.
- The Act provides for lawmakers to **expand the list of psychotropic substances** or remove items from it on the basis.

Drugs banned under NDPS Act:

- As per the Act, “narcotic drug” means coca leaf, cannabis (hemp), opium, poppy straw and includes all manufactured drugs.
- Further, “psychotropic substance” refers to “any substance, natural or synthetic, or any natural material or any salt or preparation of such substance or material included in the list of psychotropic substances specified in the Schedule”.

Punishment prescribed under the NDPS Act:

- The punishment is graded into **three categories** depending on the quantity of drugs seized and also provides for

judicial discretion as far as the severity of punishment is concerned.

1. Punishment for the cultivation of any cannabis plant may **extend to rigorous imprisonment for up to 10 years** and can also involve a fine which may **extend to Rs 1 lakh**.
2. Punishment for the **seizure of a “small quantity” of cannabis** can involve rigorous imprisonment of up to **one year** and include a fine of up to **Rs 10,000**.
3. When the seizure is of a “quantity lesser than commercial quantity but greater than small quantity”, the convict can be awarded rigorous imprisonment of up to 10 years and be asked to pay a fine of up to Rs 1 lakh.
4. Possession of a commercial quantity of cannabis is to be punished with rigorous imprisonment for a term that **“shall not be less than 10 years** but which may extend to 20 years” while a fine “which shall not be less than one lakh rupees but which may extend to two lakh rupees” can also be imposed with the court authorised to also “impose a fine exceeding two lakh rupees”.

INDIA STARES AT ENERGY CRISIS WITH COAL STOCKS DOWN TO DAYS

According to a **Central Electricity Authority (CEA)** report, majority of power plants in India are left with just a few days of coal stocks.

Highlights:

- CEA **monitors coal stocks** at 135 power plants that have a cumulative generation capacity of 165 GW on a daily basis.
- On October 3, 2021, the **total coal stocks** available at these 135 plants was 78,09,200 tonnes, which were only sufficient for four days.

- The daily coal requirement of these plants is 18,24,100 tonnes.

Genesis:

- Coal accounts for **over 70%** of India's electricity output, and utilities account for about **75%** of India's coal consumption.
- **National Coal Development Corporation (NCDC)**, was setup in 1956 for planned development of coal sector in India.
- **Coking Coal Mines** (Emergency Provisions) Act, 1971; Coking Coal Mines (Nationalisation) Act, 1972;

Coal Mines (Taking Over of Management) Act, 1973 **nationalized coal mining**. The distribution in India was brought under a PSU Bharat Coking Coal Limited (BCCL).

- **Liberalisation reforms** in 1993 allowed for private captive consumption (for usage in private venture, not for distribution) of coal.
- In 2012 demand-supply gap increased to 20% and Coal Mines (Special Provisions) Act was enacted in 2015, allowing **allocation of coal mines** through auctions.
- In 2018, privatization of commercial coal mining was allowed to further **bring parity between demand and supply**.
- Despite these measures, India is still the **second largest importer** of coal. Coal is imported chiefly from **Indonesia, Australia and South Africa**.
 - **Coking Coal** is imported by Steel Authority of India Limited (SAIL) among other manufacturing units to compensate the demand not fulfilled by domestic supply of coal.
 - **Non-coking coal** is imported by coal-based power plants, cement plants, captive power plants, sponge iron plants, industrial consumers and coal traders.
 - **Coke** is imported for industries using blast furnace operation.

Reasons for crisis:

CENTRE ORGANISES 'BUDDHIST CIRCUIT TRAIN FAM TOUR AND CONFERENCE' TO PROMOTE RELIGIOUS TOURISM

The **Ministry of Tourism** organised a Buddhist Circuit Train Familiarization Tour and Conference in the first week of October, which covered the prominent Buddhist sites.

Highlights:

- Organized by the **Ministry of Tourism** under **Swadesh Darshan Scheme**.
 - **Swadesh Darshan Scheme** is a **central sector theme-based scheme** launched in 2014-15.

- **Surge in energy demand** due to reopening of economy after the second wave of the coronavirus pandemic from 106 billion units in August 2019 to 124 billion units in August 2021.
 - Demand has outweighed supply despite increase in buying from Coal India.
- **Power Plants failed** to build their pre-monsoon stocks due to heavy rains in September 2021, leading to delays in production and delivery.
- **Global resetting of economy** in the post-pandemic months has resulted in driving up the fuel prices and imports of coal have fallen as a result.
 - For instance, the recent power crisis in China has hiked global energy pricing due to higher demand.

Impact of crisis:

- **Power outage** can cause delay in economic reopening due to downscaling of production. It can further drive-up global fuel price.
- It can also cause **domestic fuel price to rise** which will have a domino effect on inflation and power prices.
 - This will **cause state-run distribution companies** to run into losses and delay cash flow to the generation sector.
 - Further, it will disincentivise **investments** in the power sector.

- A total of **15 themed** circuits have been identified under this scheme.
- A circuit can be limited to a single state or can span across states.
- Under this scheme, **5 projects** are sanctioned to develop **Buddhist circuit** in **Madhya Pradesh, Bihar, Andhra Pradesh, Gujarat and Uttar Pradesh**, with an outlay of 325.53 Cr. rupees.

- Key issues with regard to the development and **promotion of tourism** in the circuit were discussed.

Destinations Covered:

- **Lumbini (Nepal):** Buddha's birthplace
- **Bodh Gaya (Bihar):** He attained Enlightenment
- **Sarnath (Uttar Pradesh):** Place of his first sermon
- **Nalanda (Bihar):** World's first learning place
- **Rajgir (Bihar):** Buddha spent several months meditating
- **Sravasti (Uttar Pradesh):** Place he taught many of his Suttas
- **Vaishali (Bihar):** Buddha Delivered his last sermon

Buddhism:

- **Lord Buddha-** founder of Buddhism was in Mid-6th century BC.
- **Major Schools of Thoughts:**
 - **Theravada:**
 - Translates to "**Doctrine of Elders**"
 - **Most ancient** form of Buddhism, dominant in **SE Asia**
 - Emphasis on **monastic communities**

PALK BAY SCHEME TO GET A FILLIP

The Union Government is considering **increasing the unit cost of deep-sea fishing vessels** under the Palk Bay scheme to make it more attractive to fisherfolk.

Highlights:

- Admitting that the **present unit cost of vessel** for deep sea fishing under the Palk Bay Scheme (PBS) of **Rs. 80 Lakhs is inadequate**, the Union government is considering to boost the unit cost to approximately **Rs. 1.3 Cr** per unit.

Palk Bay scheme:

- The scheme was launched by Prime Minister in **July 2017**, being financed by the Union and the State Governments with beneficiary participation.

- Believe Buddha was a Human who found a way to Nirvana
- **Mahayana:**
 - Focuses on the idea of compassion and bodhisattvas
 - Believe Buddha is a **God** who came down to Earth to help people
- **Vajrayana:**
 - Last of the 3 ancient forms
 - Encourages rituals, chants and tantra techniques
 - Quicker path to enlightenment than other two.

India to promote pilgrimage tourism:

- **PRASAD Scheme:** Pilgrimage Rejuvenation and Spirituality Augmentation Drive by **Ministry of Tourism**.
 - **Aim:** To develop and beautify the identified pilgrimage sites and local art and culture.
- **HRIDAY Scheme:** National Heritage City Development and Augmentation Yojana by **Ministry of Housing and Urban Affairs in 2015**.
 - **Aim:** To develop core heritage infrastructure like roads, street lights, footpaths, sanitation etc.

- It is under the **aegis of Blue Revolution scheme** and funded by the Centre - 50 per cent and state government - 20 per cent for a boat costing Rs 80 lakh.
- Of the balance 30 per cent, **10 per cent is contributed by the beneficiary (fisherman)**, and the remaining **20 per cent is funded by banks**.
- **Aim:** Encouraging fishermen to take up deep-sea fishing and put an end to disputes arising between India and Sri Lanka.
- The scheme envisaged the provision of 2000 vessels in three years to the fishermen of the State and motivate them **to abandon bottom trawling**.
- The state-of-the-art boats, called '**Tuna long lining and gillnetting fishing vessels**,' are

equipped with modern navigation and communication equipment, advanced net hauling and liner winches.

- Other facilities include **galleys, bio-toilet, refrigerated seawater system** and **stainless steel-cladded PUF (Polyurethane Foam)** insulated Fish Hold to preserve the catch.
- Two fishing harbours, **Kunthukkal and Mookaiyur**, in Ramanathapuram district are also being readied under the scheme for the deep-sea fishing boats.

Pradhan Mantri Matsya Sampada Yojana (PMMSY):

- Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship scheme for focused and sustainable **development of fisheries sector in the country.**
- It has an estimated investment of Rs. 20,050 crores for its implementation during a period of 5 years from FY 2020-21 to FY 2024-25 in all States/Union Territories, as a part of **Aatma Nirbhar Bharat Package.**

Aim:

- **Enhancing fish production** by an additional 70 lakh tonnes by 2024-25.
- Increasing **fisheries export** earnings to Rs.1,00,000 crores by 2024-25D
- Doubling of incomes of fishers and fish farmers.
- Reducing post-harvest losses from 20-25% to about 10%.
- Generation of additional 55 lakhs direct and indirect gainful employment opportunities in fisheries sector and allied activities.

Features:

- Designed to address critical gaps in fish production and productivity, quality, technology, post-harvest infrastructure and management, modernization and strengthening of value chain, traceability, establishing a robust fisheries management framework and fishers' welfare.
- Adopting Cluster or Area based approaches and creation of Fisheries clusters through backward and forward linkages.

- Species diversification, critical infrastructure, marketing networks and employment generation activities.
- New technologies like Re-circulatory Aquaculture Systems, Biofloc, Aquaponics, Cage Cultivation etc.
- Coldwater fisheries development and expansion of Aquaculture in Brackish Water and Saline Areas.
- Establishment of a national network of Brood Banks for all commercially important species, Genetic improvement and establishing Nucleus Breeding Center for self-reliance in Shrimp Brood stock.
- Aquaparks as hub of fisheries and aquaculture activities.
- Insurance coverage for fishing vessels introduced for the first time.

Funding Pattern:

1. Central Sector Scheme (CS):

- 100% Central funding for non-beneficiary orientated activities.
- Central assistance for:
 - General category: up to 40% of project cost
 - SC/ST/Women category: up to 60% of project cost

2. Centrally Sponsored Scheme:

- North Eastern & Himalayan States: 90 (center):10 (State)
- Other States: 60:40
- UT: 100% Central Share
- Centre + State assistance same as above.
- This assistance will be shared in same manner as for sharing of non-beneficiary orientated activities under Centrally Sponsored Scheme.
 - In efforts to promote fishing as an allied activity, Government of India launched the Blue Revolution Scheme with an aim to double the income of fishermen.
- PBS is a Tamil Nadu specific scheme aimed at providing **2000 deep sea fishing vessels** within a span of 3 years.
- Funding pattern:
 - 50% by Central Government
 - 20% by State Government

- 10% by the beneficiary
- 20% by institutional funding like banks.

Key Points about Marine Fisheries Bill, 2021:

Present Scenario:

As per the Tamil Nadu Marine Fisheries Regulation Act, 1983:

- Fishing is permitted on country craft boats within 5 nautical miles (nm) and on mechanised vessels between 5 and 12 nm.
- Over the years, fishermen on country craft boats and mechanised vessels have moved far beyond the 12 nm mark, as the availability of fish reduced in the terrestrial sea.
 - The **State government** has control up to 12 nm from the base line, while the rest is vested with the Union government.

The Union government's Indian Marine Fisheries Bill, 2021 proposes to:

- Only grant licenses to vessels registered under the Merchant Shipping Act, 1958, to fish in the EEZ.
- Put the **Indian Coast Guard (ICG)** in charge of Monitoring Control and Surveillance (MCS).
- Punish the fishermen breaching the EEZ without a licence, not complying with ICG orders, and obstructing ICG officials.

Criticism for the bill:

- Fishermen **primarily depend** on the continental shelf area and the EEZ because of the availability of fish in the terrestrial sea is shrinking.
- There has been a **drastic decline** in fishing resources in the Indian ocean, attributing it to destructive fishing practice by trawlers, climatic changes, the continental plate drift during the

About the vessels:

- Known as Tuna Long lining and gillnetting fishing vessels, the boats are equipped with:
 - Modern navigation and communication equipment

2004 tsunami, and excess fishing by international long liners in the EEZ.

- The prospects of Conch collecting fisherman will be destroyed by the Bill as they collect **conches beyond 12 nm.**
 - **Traditional fishing** includes conch collection from the seabed. Several hundreds of fishermen depend on conch diving.
- It is alleged that the Bill is against the interests of **traditional fishermen**, who contribute several crore rupees to the Gross Domestic Product, and should be withdrawn as it was not drafted in consultation with traditional fishermen along the coast.
- Territorial zone - 12 nautical miles (nm) from shore baseline
- Contiguous zone - 12 nm from end of territorial zone
- Exclusive Economic Zone (EEZ) - 200 nm from end of territorial zone
- High seas - from end of the Exclusive Economic Zone.

Centrally Sponsored Scheme Component activities are done under three broad heads:

- Enhancement of Production and Productivity
- Infrastructure and Post-harvest Management
- Fisheries Management and Regulatory Framework

Key Facts:

- Bottom trawling is a fishing practice that herds and captures the target species by towing a net along the ocean floor.
- Bottom trawling, an ecologically destructive practice, involves trawlers dragging weighted nets along the sea-floor, causing great depletion of aquatic resources.
 - Advanced net hauling and liner winches
 - Galleys
 - Bio- toilets
 - Refrigerated seawater systems
 - Stainless steel-cladded PUF (Polyurethane Foam) insulated Fish Hold to preserve the catch.

3 ATTEMPTS, 20 YEARS: WHY GOVERNMENT WAS ABLE TO SELL AIR INDIA

Government of India announced its decision to sell all its stake in Air India (AI) as well as AI's stake in Air India Express Ltd (AIXL) and Air India SATS Airport Services (AISATS) on 8th October 2021.

- The government will **offload 100% of its stake** in Air India, compared with 76% put on the block last time.

History of Air India:

- Air India was started by the **Tata Group** in 1932.
- After independence the Central Government bought **49%** stake in AI.
- In 1953, the government bought the remaining stake, and AI was nationalized.

Why was Air India sold?

1. End of Monopoly

- With **economic liberalisation** and the growing presence of private players, the dominance came under serious threat.

2. Authority Under Government

- The government running an airline did not quite gel with the mantra of liberalisation.

3. Continuous Loss

- By 2007, AI was merged with the domestic carrier, **Indian Airlines**, to reduce losses.
 - But it has never made a profit since 2007.
- As of August 2021, AI's debt was Rs 61,562 crore. Every additional day that AI remains operational, the government suffers a loss of Rs 7,300 crore annually.

4. Amalgamation

- The **merger** between Air India and Indian Airlines in 2006-07, has remained only on paper. The resources, aircraft, men, material, and machines remained divided.
- The merger without employee led to problems like **excess manpower**.

5. Poor Maharajah but rich Employees

- Air India paid a heavy price for "**buying peace**" with unions during mid-1990s.

- Paying huge salaries to its pilots and aircraft maintenance engineers hit the airline hard.

Why wasn't it sold earlier?

- The first attempt to reduce the government's stake; disinvestment was made in 2001.
 - The attempt to sell **40% stake failed**. As the viability of running AI worsened with every passing year.
- In 2018, government made another attempt to sell the stake with **76%**. But it did not elicit even a response from the bidders.
- The **latest attempt** was initiated in January 2020; hence the government has been able to conclude the sale.

How was it managed this time?

There were two main hurdles previously.

- The government kept a certain shareholding of AI, hence **private players** did not seem interested.
 - As the private firms wonder, if they would have the operational freedom to turn around a loss-making airline.
- Earlier, the government expected the **bidders** to pick up certain amount of the debt along with the airline, this approach did not work.
- This time, the government **let the bidders decide** the amount of debt they wanted to pick up.

Key Points:

Significance of the deal:

From the government's perspective:

- It underscores government's commitment to reducing the government's role in the **economy**.
- It will save the **taxpayers** paying for the daily losses of AI.

Success for Tatas:

- From the Tatas' perspective, AI's acquisition is a long-term deal.
- They will invest more assets than what they have paid the government, if this deal goes in favour for them.

EXPLAINED: PUNJAB GOVT'S PROPOSAL TO USE PADDY STRAW AS CATTLE FEED IN GAUSHALAS

Punjab has proposed to use the paddy crop residue as fodder for animals, especially cattle.

- Punjab is producing over 20 million tonnes of paddy straw every year, most of which is burnt in fields by farmers, leading to widespread air pollution that even spreads to neighbouring states.

Facts on the paddy straw in Punjab:

- Nearly 30.4 per cent of rice straw is used for animal feed in Southeast Asia, Mongolia and China.
- In Punjab, the total availability of paddy straw is about 20 million tones per annum.
- The total value of this straw is Rs 400 crore approx., calculated on an average rate of Rs 200/quintal.
- If all of it is burnt in fields, it accounts for **economic loss apart from the loss of 77,000 tonnes of nitrogen and 5.6 million tonnes of Total Digestible Nutrients (TDN)** which could be used for ruminant production.
- **Nutritional value:** 10 lakh tonnes of crude protein (CP), 3 lakh tonnes of digestible crude protein (DCP), 80 lakh tonnes of total digestible nutrients (TDN) and phosphorous.

Can animals be fed paddy straw directly?

- High silica and lignin content **reduces its digestive properties**. Higher selenium content in paddy straw also limits its use as fodder in animals as compared to wheat straw.
- However, if given in **moderate quantities** (up to 5 kg per animal per day), selenium poses no health hazard to the animal.
- Paddy straw also contains oxalates (2-2.5%) which leads to **calcium deficiency**. So mineral mixture should **always be fed along with the straw**.

Two methods of treatments recommended before feeding paddy straw to animals:

1. Urea-only treatment:

- The paddy straw is chaffed and moistened (physical) with urea solution (chemical), the breakdown of urea release ammonia gas, a part of which is utilised by microbes (biological) for their proliferation (enriching the straw with microbial protein), resulting in rise of stack temperature, which facilitates the penetration of ammonia in the cell wall, resulting in **breakage of lingo-cellulosic bonds** making cellulose and hemi-cellulose assessable for utilization by microbes in the rumen.
- The **digestibility of cellulose increases** from 40-45% in untreated paddy straw **to 70-75 per cent** in fermented wheat straw.

2. Urea plus molasses treatment

- Also called "Urea-Molasses impregnated straw".
- It involves treating paddy straw with urea and molasses. Urea and molasses mixed with water. Then it is mixed with chaffed paddy straw and fed to animals on same day.
- This treated straw along with mineral mixture and salt makes up a maintenance ration for non-producing animals.
- However, maintenance of body weight in animals, paddy straw alone is not sufficient. Minerals and green fodder supplementation are required.

Potential harmful effects of silica, oxalates and selenium:

- **Silica:** Intake of siliceous forages has been associated with **urinary siliceous calculi** in drier regions where water may be limited.
- It commonly formed in sheep and cattle.
- **Oxalates** are broken down in the rumen to carbonates and bicarbonates, absorbed, and then excreted in the urine. The pH of water extracts of rice straw is about 8 and that of urine from stock-fed rice straw as high as 9.

- The high oxalate content has been **implicated in the greater need for calcium supplementation.**

- **High selenium** (0.5 to 4.5 %) content which can cause a serious health problem in dairy animals.

INDIAN RAILWAYS HAS SUCCESSFULLY OPERATED TWO LONG HAUL FREIGHT TRAINS "TRISHUL" AND "GARUDA" FOR THE FIRST TIME OVER SOUTH-CENTRAL RAILWAY (SCR).

- SCR is a one of the five major freight loading railways on IR.

'Trishul':

- Trishul is SCR's first long haul comprising of **three freight trains**, i.e., 177 wagons.
- This train was started on 7th October from **Kondapalli station of Vijayawada division to Khurda division of East Coast Railway.**

'Garuda':

- Garuda was started from **Raichur of Guntakal division to Manuguru of Secunderabad division.**
- Long haul trains, which are **twice or multiple times longer than the normal composition** of freight trains, provide a very effective solution to the problem of capacity constraints in critical sections.
- Both the long haul trains comprised of **empty open wagons** for loading of coal meant for predominantly thermal power stations.

REVIEW OF DELHI POLICE 'TEJASWINI' FINDS IMPROVEMENT IN LAW-AND-ORDER SITUATION

In the last three months, women police officers have played a major role to curb crime against women in the city's northwest district of Delhi.

About the Initiative:

- The Initiative was launched to **curb crime against women**, implemented on July 10, 2021."
- This initiative was named as "**TEJASWINI: Women Centric Safety & Empowerment Initiative' of North-West District**".
- Under the initiative, **46 Women Beat Constables were deployed** in crime-infested and sensitive areas of various

police stations, including JJ clusters of Jahangirpuri, Shakarpur and Pitampura residential areas.

- **Aim:** To reach out to women belonging to all strata of society and female senior citizens and also to safeguard the rights and dignity of women and children in North-west district.
- To create a conducive atmosphere where women feel at home while interacting with women constables and share their issues and concerns.

UNION FISHERY MINISTER LAUNCHES NATIONWIDE RIVER RANCHING PROGRAMME

The union minister for Fisheries, Animal Husbandry & Dairying has recently launched the River Ranching Programme at **Brijghat, Garh Mukteshwar, Uttar Pradesh.**

- At the same time, the programme was also **launched in another four states** namely, **Uttarakhand, Odisha, Tripura and Chhattisgarh.**

River Ranching Programme:

- River Ranching Programme is **introduced as a special activity** under **Pradhan Mantri Matsya Sampada Yojana (PMMSY)** for **augmenting and enhancing fish production** and productivity through expansion, intensification, diversification and productive utilisation of land and water.

- **Nodal agency for implementing the programme:** National Fisheries Development Board (NFDB), Hyderabad.
- It is programmed to:
 - Address increased fish catch,
 - Improve the livelihood of fishers and
 - Maintain the cleanliness of the river as they feed on organic remnants.
 - Uplift the depleted fish stock and to **enhance the production of the ranched fish species.**

Significances:

- The Programme can achieve sustainable fisheries, reducing habitat degradation, conserving biodiversity, maximising socio-economic benefits and assessing ecosystem services.
- River ranching also **ensures the up-gradation of the traditional fishery**, ecosystem sustainability, trade and social protection of inland communities.

Phase –1 of the programme:

- **Targeted three major river systems** namely: the **Ganges** and its tributaries, **Brahmaputra & Barak** tributaries and **Mahanadi** rivers.
- **Six major inland states** focusing on the length of river belt namely

Uttar Pradesh, Tripura, Chhattisgarh, Odisha, Uttarakhand and Bihar were selected along with targeted sites for releasing of fish fingerlings.

Achievements:

- States have followed the **breeding protocol and standard measures** that required for ranching the fingerlings of native fish species into the rivers.
- For river ranching, the suggested **fingerling size is 80-100mm**, as the fingerlings have reached the preferable size for Ranching Programme in the selected state.
 - Hence, NFDB in collaboration with six states under DoF guidance launched the programme at the national level.

Pradhan Mantri Matsya Sampada Yojana (PMMSY):

- Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship scheme for focused and sustainable **development of fisheries sector in the country.**
- It has an estimated investment of Rs. 20,050 crores for its implementation during a period of 5 years from FY 2020-21 to FY 2024-25 in all States/Union Territories, as a part of **Aatma Nirbhar Bharat Package.**

INDIA POST CELEBRATES BANKING DAY AS PART OF AZADI KA AMRIT MAHOTSAV

The Department of Posts celebrated **Banking Day** as part of the National Postal Week and Azadi ka Amrit Mahotsav (AKAM) on **11th October 2021.**

National Postal Week:

- The **Postal department** celebrate the National Postal Week in the month of October, starting with the World Post Day on 9th October.
- **Ministry of Culture** has allocated the week from 11th to 17th October, 2021 to Department of Posts for celebration of **Azadi ka Amrit Mahotsav (AKAM).**

World Post Day 2021:

- It is celebrated every year on **October 9** to mark the establishment of the Universal Postal Union (UPU) across the world.
- **Theme: 'Innovate to Recover'.**

Significance:

- It is celebrated to create awareness about the role the postal sector plays in people's and businesses' lives and the contribution of the post to the **social and economic development** of nations.

- As part of the celebration, member nations are encouraged to **participate** in programme activities to create awareness of their Post's role on a national scale.
- It is celebrated in more than 150 countries across the globe as many nations observe the day as a **working holiday**.
- **Many Posts** use the event to promote new postal products and services while some use the day to reward their employees for good service.

India Post:

- The Department of Posts (DoP) was established on **1st October 1854**.
- It has been the backbone of the country's communication and has played a crucial role in the country's social **economic development**.
- It acts as an **agent for Government of India** in discharging services for citizens like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) wage disbursement and old age pension payments.
- With more than 1,55,000 post offices, the DoP has the most widely

distributed postal network in the world.

Functions:

- To **provide mail parcel**, money transfer, banking, insurance and retail services with speed and reliability.
- To provide services to the customers on value-for-money basis.
- **To deliver social security** services and to enable last mile connectivity as a Government of India platform.

Universal Postal Union (UPU):

- UPU is a **specialized agency** of the United Nations that coordinates postal policies among member nations, in addition to the worldwide postal system.
- It was established in 1874.
- **Aim:** To ensure a truly universal network of up-to-date products and services.
- **Headquarters: Berne, Switzerland.**
- With its 192 member countries, the UPU is the primary forum for cooperation between postal sector players.
- The UPU consists of **4 bodies**

PM MODI LAUNCHES INDIAN SPACE ASSOCIATION TO ACT AS COLLECTIVE VOICE OF SPACE INDUSTRY

The **Indian Space Association (ISpA)** was formally launched by the Prime Minister of India as an industry body representing the various stakeholders in the Indian space domain.

Highlights:

- ISpA aspire to fulfil the vision of a technologically-enabled **Aatma Nirbhar Bharat**.

Indian Space Association (ISpA):

- ISpA, **an industry body** comprises of both government and private companies to supplement Centre Government's efforts in commercial space exploration and space-based communication.
- Its **founding members** include Bharti Airtel, Larson & Toubro, Nelco (Tata Group), OneWeb, Mapmyindia,

Walchandnagar Industries and Alpha Design Technologies.

- It will act as an **independent and "single-window"** agency for enabling the opening up of the space sector to **start-ups** and the **private sector**.
- It will perform the role of policy advocacy and engage with **stakeholders** in the space sector, including New Space India Ltd (**NSIL**) and Indian National Space Promotion and Authorisation Centre (**IN-SPACE**).
- ISpA, is based on **"four pillars"** of space technology:
 - Freedom to innovate in the private sector
 - Making the government act as an enabler

- Preparing the next generation for the future of the space industry
- Ensuring the space sector is used as a common resource for the progress of humanity.

Aim:

- To contribute towards the **accelerated development of India's space industry** and making the country a leading player in this segment.
- To contribute to the Government of India's vision of **making India Atma Nirbhar and a global leader in the space arena.**

Functions:

- ISpA will undertake **Policy Advocacy** and engage with all stakeholders in Indian Space domain, including the Government and its Agencies, to make India self-reliant, technologically advanced and a leading player in the space arena.
- ISpA will be focused on **capacity building and creation of space hubs** as well as incubators in the country for private space start-ups.
- It will work in tandem with NSIL, a central public sector enterprise under the **Department of Space (DOS)**.
 - NSIL functions as the commercial arm for ISRO and secures launch contracts from customer satellites.

Significance:

LAL BHADUR SHASTRI NATIONAL AWARD FOR EXCELLENCE TO DIRECTOR OF THE ALL INDIA INSTITUTE OF MEDICAL SCIENCES (AIIMS), DR. RANDEEP GULERIA

The Vice President has presented the **22nd Lal Bahadur Shastri National Award for Excellence** to eminent pulmonologist and Director of the All India Institute of Medical Sciences (AIIMS), Dr. Randeep Guleria at Upa-Rashtrapati Nivas.

Lal Bahadur Shastri National Award:

- The Lal Bahadur Shastri National Award is an **annual prestigious award** instituted from Lal Bahadur Shastri Institute of Management, Delhi.

- It will **enable the private sector companies**, both global and domestic, to take interest in India's space domain, with space-based communication networks coming to the fore.
- It will be essential for **broadband inclusion** in remote areas and sparsely populated locations.
- It will bring India **at par with US and EU** in terms of satellite communications customers.

Growth in space-based communication network:

- **OneWeb**, a Bharti Enterprise, is building its initial constellation of 648 low-earth orbit satellites and has already put 322 satellites into orbit.
- **StarLink** and **Amazon** are also in discussions with the Indian government for a license to offer satellite-based internet services.
- **SpaceX** has a plan to create a network of 12,000 satellites of which over 1,300 are already sky-borne.

Important Upcoming ISRO missions:

- **Gaganyaan:** First indigenous spacecraft to take 3 Indian astronauts into space for 5 to 7 days.
- **Xposat- X-ray Polarimeter Satellite:** Planned space observatory to study polarization of cosmic X-rays
- **Aditya L-1:** India's first Solar Mission
- **Chandrayaan 3:** Mission repeat of Chandrayaan 2
- **Shukrayaan:** Mission to Venus

- This consists of a cash award of **5,00,000 rupees** plus a **citation and a plaque.**
- The award was **started in 1999** and is provided to a business leader, management practitioner, public administrator, educator or institution builder for his/her sustained individual contributions for achievements of high professional order and excellence.
- This award is **given by the President of India.**

- The Award is **presented on October 1** each year, the eve of the birth

anniversary of Shri Lal Bahadur Shastri.

CABINET APPROVES NUTRIENT BASED SUBSIDY RATES FOR P&K FERTILIZERS; NET SUBSIDY OF RS 28,655 CRORE FOR RABI SEASON

The Cabinet Committee on Economic Affairs has approved the proposal of the Department of Fertilizers for fixation of **Nutrient Based Subsidy Rates for P&K Fertilizers** for the year 2021-22.

- The CCEA also approved the inclusion of Potash derived from Molasses (0:0:14.5:0) under the NBS Scheme.

Nutrient Based Subsidy:

- The subsidy on P&K fertilisers is governed by the Nutrient Based Subsidy (NBS) Scheme from April 2010.
- The subsidy on P&K fertilizers will be provided **based on the NBS rates** approved by the CCEA to **ensure smooth availability of these fertilizers** to the farmers at affordable prices.

Genesis:

- Government is making available fertilizers, namely **Urea and 24**

grades of P&K fertilizers to farmers at subsidized prices through fertilizer manufacturers/ importers.

- The subsidy on P&K fertilizers is **being governed by NBS Scheme** w.e.f. 01.04.2010.
- In accordance with its farmer friendly approach, the Govt. is **committed to ensure the availability of P&K fertilizers** to the farmers at affordable prices.

Benefits:

- This will enable smooth availability of all P&K fertilizers to the farmers during Rabi Season 2021-22 at the subsidized/affordable prices.
- It will **support the agricultural sector by continuing the present subsidy levels** and giving special packages of additional subsidy for DAP and three mostly consumed NPK grades.

GANDHI ASKED SAVARKAR TO FILE MERCY PLEA BEFORE BRITISH

The Defence Minister of India has said that **Vinayak Damodar Savarkar** had filed a **mercy petition** before the British on Gandhiji's suggestion.

- He said this during the launch of the book **Veer Savarkar: The Man Who Could Have Prevented Partition**—authored by Uday Mahurkar and Chirayu Pandit.

Mercy Petition?

- As per the Constitutional framework in India, a mercy petition to the President is **the last constitutional resort** a convict can take when the court of law sentences him.
- The act of mercy is **not** the right of the prisoner.
 - The Supreme Court in **Kehar Singh vs Union of India** restated that the pardon from the President is an act of mercy and therefore cannot be claimed as a right.

- A convict can present a mercy petition to the President of India under **Article 72** of the Constitution of India.
- Similarly, the **power to grant pardon** is conferred upon the **Governors of States** under **Article 161** of the Constitution of India.

Grounds of Appeal:

- The mercy or clemency is granted on the grounds based on his **health, physical or mental fitness, his family financial conditions as he is the only sole earner of bread or butter or not.**

Article 72:

- (1) The President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend or commute the sentence of any person convicted of any offence—
- (a) in all cases where the punishment or sentence is by a Court Martial
 - (b) in all cases where the punishment or sentence is for an offence against any law

relating to a matter to which the executive power of the Union extends
(c) in all cases where the sentence is a sentence of death.

There are **five** different types of pardoning mandated by law.

- **Pardon:** means completely absolving the person of the crime and letting him go free.
- **Commutation:** means changing the type of punishment given to the guilty into a **less harsh** one, for example, a death penalty commuted to a life sentence.
- **Reprieve:** means a delay allowed in the execution of a sentence, usually a death sentence, for a guilty person to allow him some time to apply for Presidential Pardon or some other legal remedy to prove his innocence or successful rehabilitation.
- **Respite:** means reducing the quantum or degree of the punishment to a criminal in view of some exceptional circumstances, like pregnancy, mental condition etc.
- **Remission:** means changing the quantum of the punishment without changing its nature, for example reducing twenty-year rigorous imprisonment to ten years.

Article 161:

- The **Governor of a State** shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence against any law relating to a matter to which the executive power of the State extends.

Procedure of making a mercy petition:

- There is **no statutory written procedure** for dealing with mercy petitions.
- But in practice, after extinguishing all the reliefs in the court of law, **either the convict in person or his relative on his behalf** may submit a written petition to the President.
- The President's secretariat receives the petitions **on behalf** of the President, **then forwards** them to

the **Ministry of Home Affairs** for their comments and recommendations.

- A convict under the sentence of death is allowed to make the petition within seven days after he gets informed about the dismissal of the appeal or special leave to appeal by the Supreme Court.
- The Home Ministry in consultation with the concerned State Government, discusses the **merits of the petition**.
 - After the consultation, recommendations are made by the Home Minister, and then, the petition is sent back to the President for his decision.
- The President and Governor **cannot exercise their discretion** with regard to their powers under Articles 72 and 161. Both are required to **act on the advice** of the appropriate government—**Central and State Government**.
 - The advice of the appropriate Government **binds** the Head of the state.
- The Constitution **doesn't provide** for a specified **time limit** to **accept/reject** the mercy petition. The President **can keep the petition in abeyance** for a **n indefinite period** if he wishes to.

Difference between pardoning powers of President and Governor:

President:

- The scope of the pardoning power of the **President is under Article 72**.
- The President's power to grant pardon **extends** to the cases where a Court Martial has awarded the sentence or punishment.
- The President can grant a **pardon in all cases**, including the death sentence.

Governor:

- The pardoning power of the **Governor is under Article 161**.
- The Governor's power **does not extend** to the cases where a Court Martial has awarded the sentence or punishment.

- The pardoning power of the Governor **doesn't extend to the death sentence.**

PM LAUNCHES GATI SHAKTI- NATIONAL MASTER PLAN FOR INFRASTRUCTURE DEVELOPMENT

Prime Minister of India launched the **PM Gati Shakti**, a 'national masterplan' for multi-modal connectivity to economic zones in the country on October 13, 2021.

Highlights:

- GatiShakti means the power of speed, is an ambitious, **comprehensive geospatial digital platform** that promises integrated planning and coordinated execution by connecting all concerned departments on one platform.
- The platform uses powerful technologies like **Geographic Information System**-based Enterprise Resource Planning with 200+ layers of evidence-based decision making, planning tools for route planning, dashboard-based periodic monitoring, and the latest satellite imagery.
- It has been developed by **BISAG-N** (Bhaskaracharya National Institute for Space Applications and Geoinformatics).
- The plan will include all **existing & planned initiatives** of various ministries and departments in one centralised portal, enabling different departments to prioritise their projects through cross-sectoral interactions.
- **Sixteen central government departments**, including Railways, Roads and Highways, Petroleum and Gas, Power, Telecom, Shipping, Aviation and others, **will be part of this initiative.**
- Gati Shakti will incorporate the infrastructure schemes of various Union ministries and state governments – **Bharatmala, Sagarmala, UDAN, inland waterways, dry/land ports** etc.

Objectives of the plan:

- To holistically integrate the interventions of various

Ministries/Departments and address missing gaps to ensure **seamless movement** of people, goods & services to minimise disruptions, ensuring quick completion of works with cost-efficiency.

- To provide a **macro and micro view** of existing and developing **infrastructure** in layers that depict completion timelines.

Six Pillars of 'PM GatiShakti - National Master Plan':

1. **Comprehensiveness:** Each department will now have visibility of each other's activities providing critical data while planning and executing projects.
2. **Prioritisation:** Through this, different departments will be able to prioritise their projects through cross-sectoral interactions.
3. **Optimisation:** The Plan will assist different ministries in planning for projects after the identification of critical gaps.
4. **Synchronisation:** PM GatiShakti will help synchronise the activities of each department and different layers of governance holistically by ensuring coordination of work between them.
5. **Analytical:** The plan will provide the entire data at one place with GIS-based spatial planning and analytical tools having 200+ layers, enabling better visibility to the executing agency.
6. **Dynamic:** All ministries and departments will now be able to visualise, review, and monitor cross-sectoral projects' progress through the GIS platform.

Targets Under Gati Shakti:

- The plan includes **11** industrial corridors. The national master plan fixes target up to 2024-25 for all infrastructure ministries.
- **For Road Transport and Highways Ministry**, the target is:

- Having National Highways of 2 lakh km,
- Completion of four or six-lane national highways along coastal areas and
- All state capitals in north-east to be connected with four-lane national highways or two two-lane national highways.
- **Railways**, the target by 2024-25 is decongesting 51 per cent of the Railway network by completing additional lines and implementing two Dedicated Freight Corridors (DFCs).
- **Civil Aviation**, the target is to double the existing aviation footprint by 2025.
- **Shipping**, the national masterplan says the target by 2024-25 is to have total cargo capacity to be handled at the ports at 1,759 MMTPA from 1,282 MMTPA in 2020.
- **Gas pipeline network** in the country is aimed to be doubled by 2024-25 by

building an additional trunk pipeline connecting major demand and supply centers for industries, as per the plan.

- **Power lines**, the total transmission network by 2024-25 is targeted to be 4.52 lakh circuit km and the renewable energy capacity will be increased to 225 GW from 87.7 GW presently.

Significance:

- Will remove the bottlenecks of **multiplicity of approvals** and **delayed clearances**.
- **Multiplier effects** would lead to **faster implementation of projects** and keep costs under control.
- **Hugely benefit** the **MSME sector** in becoming a part of high-speed growth of economy.
- Ensure a widespread reach of **basic amenities** to the remotest areas of our country
- Enhance **business opportunities** for inclusive growth.

ENHANCED POWERS OF BORDER SECURITY FORCE

The Union Home Ministry has enhanced the powers of the Border Security Force (BSF) to “arrest, search and seize” within 50 km from the international boundary in Assam, West Bengal and Punjab.

- Such operational powers of the BSF, a Central armed police force under the Union, will **also be applicable to the newly created Union Territories of Jammu and Kashmir and Ladakh**.
- The violations for which the BSF carries out search and seizure include **smuggling of narcotics**, other prohibited items, **illegal entry of foreigners** and offences punishable under any other Central Act among others.

Genesis:

- The October 11 notification **replaces a 2014 order under the BSF Act, 1968**, which also covered the States of Manipur, Mizoram, Tripura, Nagaland and Meghalaya.
- Earlier, the BSF’s limit was fixed up to **80 km from the international boundary in Gujarat** and **15 km in**

Rajasthan, Punjab, West Bengal and Assam.

Border Security Force (BSF):

- Until 1965, India's borders with Pakistan were guarded by the **State Armed Police Battalion**. However, it proved **inadequate** in countering the armed offensive.
- This led to the creation of Special Border Security Force on **1st December 1965**.
- Border Security Force is **India's First Security Line**.

Functions:

In Peace:

- To **promote a sense of security** among the people living in the border areas.
- Prevention of **trans-border crimes** and prohibiting **unauthorized entry** and **withdrawal** into Indian territory.
- Prevention of **smuggling** and other **illegal activities**.
- Deployed for **anti-insurgency and internal security duty**.

In the event of war:

- **Stay in low danger areas** until the main attack develops in a particular area and it is felt that the it is competent to deal with the local situation.
- Its units can be deployed in special area even in **case of war to free the army for offensive operations.**

Others:

- Along with **neutralizing the infiltration of anti-national elements** on Indian soil, it guards the **Line of Control** in Jammu and Kashmir.

- With its fleet of watercrafts, it is guarding the **Sundarbans Delta in the Bay of Bengal and Sir Creek** in the Arabian Sea.
- It **assists the state administration** in maintaining **law and order and conducting peaceful elections in the state.**
- It is establishing peace by taking on the **Naxalites / rebels in Naxalite affected states.**
- It contributes to the **dedicated services for the United Nations Peace Mission.**
- It also works **against a natural disaster.**

KARUPPUR KALAMKARI PAINTINGS, GEOGRAPHICAL INDICATION (GI) TAGS

In Tamil Nadu, the Karuppur kalamkari paintings and the Kallakurichi wood carvings recently received the geographical indication (GI) tags.

- Both of these art forms are traditional in nature.
- The application for registering Karuppur kalamkari paintings for the tag was moved by the Tamil Nadu Handicrafts Development Corporation (Poompuhar).

Kalamkari paintings:

- Kalamkari is a traditional Indian art form of **hand-painting or block-printing** on cloth and derives its name from the word 'kalam,' which means pen or brush.
- Originating from the Indian states of **Andhra Pradesh and Telangana**, Kalamkari painting was first practiced to **decorate temple chariots and backgrounds** for the idols of Gods.
- While the paintings are **intricately made on a cotton cloth** using pens or brushes made out of bamboo tree and coconut tree stems.
- Traditionally, **only three colours are used** — black, red and yellow. But lately, 'pale blue' has also started being used.
- The artists take a **twig and wind a cloth around it** and then dip it in the dye, which they make themselves.

KALLAKURICHI WOOD CARVINGS GET

First, they treat the cotton cloth (canvas) by dipping it in milk and other things.

- **Two distinctive styles of Kalamkari art** in India:
 - **Srikalahasti technique**— the 'kalam' is used for the freehand drawing of stories from the Ramayana, Mahabharata, Purana and other mythologies.
 - **Machilipatnam style**— artists use carved wooden blocks and vegetable dyes to print patterns and motifs onto fabric, including wall hangings, clothing, bedsheets, curtains and saris.

Kallakurichi wood carvings:

- These carvings are done for **ornamentation and designs.** These are native to the Madurai region.
- The wood carving is essentially one wherein the craftsmen are specialised in carving **temple-related items and also furniture**, using traditional designs.

What is GI?

- A geographical indication or GI is a **sign used on products that have a specific geographical origin** and possess qualities or a reputation that are due to that origin.

- Such a tag conveys **an assurance of quality and distinctiveness which is essentially attributable to the geographical origin of the product.**

- The owner of the GI tag has **exclusive rights over the product** and can sue others for trying to duplicate the product.

INDIA POST CELEBRATES PHILATELY DAY AS PART OF NATIONAL POSTAL WEEK

India Post celebrates **Philately Day** as part of National Postal Week and Azadi ka Amrit Mahotsav celebrations on 13th October 2021.

Highlights:

- Under Philately the collectors through various philatelic items develop a better appreciation of the history, culture, personalities and of their societies.
- Department of Posts, promotes philately through a series

of **Commemorative Postage Stamps.**

- Definitive Postage Stamps, Special Covers, Pictorial Cancellations, and other philatelic items.
- 103 special covers on Unsung Heroes of India were issued by **22 Postal Circles**, spread across the country.
- The release events were organized at the birth place of the unsung heroes, ensuring Jan Bhagidari etc.

VISHWAKARMA VATIKA TO BE SET UP AT HUNAR HAATS TO PROMOTE & PRESERVE PRECIOUS TRADITIONAL SKILLS OF ARTISANS, CRAFTSMEN

First “Vishwakarma Vatika” has been set up in “**Hunar Haat**” at **Rampur, Uttar Pradesh** was inaugurated by Union Minister for Education and Skill Development and Entrepreneurship on 16th October, 2021.

- The “Hunar Haat” was organised as a part of series of 75 "Hunar Haat", to be organised across the country under "Azadi Ka Amrit Mahotsav" to celebrate 75 years of India's Independence.

About the “Hunar Haat”:

- **Aim:** To promote and preserve precious traditional **skills of artisans and craftsmen** where they will display live how India's traditional exquisite and elegant indigenous handmade products are made.
- “Hunar Haat” has become a “**credible platform**” to strengthen “**Swadeshi-Swavlamban**” and “**Vocal for Local**” and providing market to indigenous products of traditional artisans and craftsmen.

BPCL LAUNCHES AUTOMATED FUELLING TECHNOLOGY 'UFill' FOR CUSTOMERS

Bharat Petroleum Corporation Limited (BPCL) has announced the launch of “UFill”.

- The UFill proposition has been **launched in 65 cities across India** and will soon be launched across the country.

UFill:

- UFill is a digital customer experience which delivers on BPCL's promise of **ensuring that their customers have complete control over Time, Technology and Transparency** as part of their fuelling experience.
- It is aimed to **improve customer's turn-around time (TAT) at fuel outlet** and increase transactional transparency, thereby providing enhanced retail like experience.

Features:

- Its functionality does **not need any App download.**
- It is **payment App agnostic** (i.e. customer can **use any payment app** already downloaded on his / her phone like GPay, PayTM, PhonePe etc).
- It offers real time QR and voucher code through SMS and is **accepted at all BPCL Fuel Stations** where the functionality is enabled.
- If the amount paid in advance is partially used, the balance amount is immediately refunded to the bank account of the customer.
- If not used within 48 hours, the money paid in advance is automatically refunded to the bank account from where debited.

- Provides the customer with **control of fuelling** as well as **touch less pre-payment solution**. with the dispensing unit getting automatically preset for the value of fuel paid for by him/her in advance and eliminates any manual intervention at the point of sale.

- Thus, **no need to check zero before fuelling or final reading**, the dispensing unit will automatically dispense the exact quantity of fuel.
- It is **effective across the stakeholder chain** including Dealers, Managers and Driveway Salesmen (DSM).

RAKESH TIKAIT ON SINGHU LYNCHING: NIHANGS SAID IT IS RELIGIOUS ISSUE, NO LINK WITH FARMERS' PROTEST

Nihang Sikhs are recently in news for lynching of a man for disrespecting holy scripture at Singhu protest site in Sonapat, Haryana.

Nihang?

- **Nihang** is an order of Sikh warriors, characterized by **blue robes**, antiquated arms like swords, spears, and decorated turbans surmounted by steel quoits.
- The characteristics of Nihang's came from the sanskrit word '**nihshank**' which means 'without fear, unblemished, carefree and indifferent to worldly gains and comfort'.

History:

- The order can be traced back to the creation of the **Khalsa** by **Guru Gobind Singh** in 1699.
- The word Nihang, occurs in a hymn in the **Guru Granth Sahib**, where it alludes to a fearless and unrestrained person.

Who can become a Nihang?

- Any person **irrespective of caste, creed or religion** having unshorn hair and following Sikh traditions can become Nihang.
 - He must remember five banis, perform daily ablutions by waking up at 1 am and perform morning and evening prayers.
- The **baptized Sikh** willing to become a Nihang and fulfilling conditions is given robes and weapons similar to the ones carried by **Guru Gobind Singh** when he founded the Khalsa.

Nihang's in Sikh History:

- Nihang's had a major role in defending the **Sikh Panth** after the fall of the first Sikh rule (1710-15).

- They took control of the religious affairs of the Sikhs at **Akal Bunga** in Amritsar.
- They did not consider themselves subordinate to any Sikh chief and thus maintained their independent existence.
- At **Akal Takht**, they held the grand council of Sikhs and pronounced the resolution **Gurmata**.
- Their clout came to an end after the **fall of Sikh Empire in 1849**, when the British authorities of Punjab appointed a manager for the administration of the Golden Temple in 1859.

Key Facts:

- Nihang's observe the Khalsa code of conduct in its strictest sense. They do not profess any **allegiance** to an earthly master.
- Instead of saffron they hoist a **blue Nishan Sahib flag** atop their shrines.
- They use the slogans '**chhardi kala**' (forever in high spirits) and 'tiar bar tiar' (state of ever preparedness) for unforeseen events.
- **Sukhnidhan** (treasure of comfort) is a popular drink of Nihang's containing grounded almonds, cardamom seeds, poppy seeds, black pepper, rose petals, melon seeds and small amount of cannabis.
- **Shaheedi deg** (sacrament of martyrdom) was the drink with a **higher dose of cannabis** in it. It was taken (while) battling enemies.

SELA TUNNEL WILL BE ARUNACHAL'S LIFELINE

The Defence Minister of India conducted the final breakthrough of the **Sela Tunnel** in Arunachal Pradesh.

- The 12 km long tunnel will enhance **military capabilities** in combating the threat of China's Western Theatre Command.

Highlights:

- The **Sela Pass** is located between the Tawang and West Kameng districts of Arunachal Pradesh.
- The construction of the tunnel started on April 01, 2019, and is expected to be over by June 2022.

- Being constructed by the **Border Roads Organisation (BRO)**, it will be the **world's longest bi-lane road tunnel** in the world at an altitude above 13,000 feet upon completion.
- The tunnel would cut the travel time between the **Army's 4 Corps headquarters** at Tezpur in Assam and Tawang by **at least an hour**.
- It will contribute towards **security** as well as **socio-economic development** of the region.

MOUNT HARRIET IN ANDAMAN TO BE NAMED MOUNT MANIPUR IN TRIBUTE TO FREEDOM FIGHTERS

Government of India has decided to rename Mount Harriet in Andaman and Nicobar Islands, as **Mount Manipur** as a tribute to the freedom fighters of **Manipur**.

Highlights:

- Manipur played a **significant role** in resisting the British in the Northeast during the 1857 revolution and in 1891.
 - It was the only state to **implement its own constitution**.
- During the Anglo-Manipur War 1891, the Manipur war hero **Yubraj Tikendrajit** and General **Thangal** were publicly hanged in Fida, Imphal.
- After that, Maharaja **Kulachandra Dhwaja Singh** and 22 freedom fighters were sent to **Kalapani** and imprisoned on **Mount Harriet**.
- In their memory and contribution, the Mount Harriet was renamed as the **Mount Manipur**.

Anglo-Manipur War:

- The **Anglo-Manipur War** was an **armed conflict** between the British Empire and the Kingdom of Manipur.

- The war lasted between 31 March and 27 April 1891, **resulting in a British victory**.
- The Manipuri soldiers fought against **three sides of British attack i.e.**, from Silchar, Kohima and Myanmar.
- The battle was fought at the **Kheba hills** of Khongjom in Manipur, hence called Khongjom war.

Mount Harriet National Park:

- Mount Harriet National Park is located in the Andaman and Nicobar Islands. The Park was established in 1969 and covers about 4.62 km².
- **Mount Harriet** (383 metres), which is part of the park, is the **third-highest peak** in the Andaman and Nicobar archipelago.
 - It is next to **Saddle Peak** (732 metres) in North Andaman and **Mount Thullier** (568 metres) in Great Nicobar.
- **Important fauna:** Andaman wild pigs (an endangered species), saltwater crocodiles, turtles, and robber crabs. The Park is also a butterfly hotspot.

Eid Milad-un-Nabi: PM MODI, PRESIDENT KOVIND EXTEND GREETINGS TO NATION

The President of India extended greetings to all fellow citizens on the eve of Eid-e-Milad or Milad-un-Nabi.

Mawlid:

- Milad-un-Nabi or Eid-e-Milad or Mawlid is celebrated on the occasion

of the **birthday of the Prophet of Islam, Hazrat Mohammad Saheb.**

- The festival is observed by many **Muslims from the Sufi or the Barelvi school** of thought.
- It is also known as Un-Nabi by the name of E-Milad, Nabi Day, Mohammad's birthday or the Prophet's birthday.
- First celebrated as an **official festival in Egypt**, the celebrations of Eid-e-

Milad became more popular during the 11th century.

- It is believed that Sunni Muslims celebrate Eid Milad-un-Nabi on the 12th of the Islamic **month of Rabi al-Awwal**, and Shia Muslims observe it on the 17th of Rabi al-Awwal.
- Muslims from Salafi and Wahhabi schools of thought do not mark the tradition of festivities.

PIYUSH GOYAL INAUGURATES 250MM SEER WATER SUPPLY PROJECT IN KASHMIR

Minister of Commerce & Industry concludes his two-day visit as part of the **public outreach programme of the central government** inaugurated 250mm Seer Water supply scheme in **Kashmir**.

- The project will benefit around 10000 people and will be **completed under**

the ambit of Jal Jeevan Mission within three months.

- The scheme will work towards realizing the Prime Minister's dream of **tap water for all households**.

AADHAAR HACKATHON 2021

Unique Identification Authority of India (UIDAI) is hosting a Hackathon titled "**Aadhaar Hackathon 2021**" from 28th to 31st October 2021 for young innovators at various Engineering institutes.

Highlights:

- **Enrolment and Update:** It will cover the real-life challenges being faced by the residents while updating their address.

- **Identity and Authentication:** UIDAI will provide innovative solutions to prove Identity without sharing the Aadhaar number or any demographics information.
 - It is looking for innovative applications around face authentication API.
 - The objective is to popularize some of the existing and new APIs to solve the needs of residents.

SP REBEL MLA NITIN AGARWAL ELECTED DEPUTY SPEAKER OF U.P. ASSEMBLY

Nitin Agrawal has been elected as the Deputy Speaker of the Uttar Pradesh Assembly recently.

Constitutional Provisions about Deputy Speaker:

- **Article 93 says:** The House of the People shall choose two members of the House to be respectively Speaker and Deputy Speaker.
- **Article 178** contains the corresponding position for Speaker and Deputy Speaker of the Legislative Assembly of a state.

Election:

- The Deputy Speaker is elected by the **Lok Sabha** amongst its members right after the election of the Speaker.
- The date of election of the Deputy Speaker is fixed by the **Speaker**.

Term of Office and Removal:

- Like the Speaker, the Deputy Speaker remains in office usually during the life of the Lok Sabha (5 years).
- He may vacate his/her office earlier in any of the following three cases:
 - If he **ceases** to be a member of the Lok Sabha
 - If **he resigns** by writing to the Speaker

- If he is removed by a **resolution** passed by a majority of all the then members of the Lok Sabha.
- Such a resolution can be moved only after giving 14 days' advance notice.

Power and Functions:

- The Deputy Speaker performs the **duties** of the Speaker's office when it is vacant.
- He/She acts as the Speaker when the latter is **absent** from the sitting of the House.

PM's 60-POINT ACTION PLAN

The Central Government has prepared a **60-point action plan** which includes linking birth certificates to citizenship, drafting a single environment Act, promoting a family databased design, and pushing for jobs while negotiating trade pacts.

Highlights:

Leveraging IT and technology for governance:

- The plan focuses on **leveraging IT** and technology for governance, improving business climate, and upgrading the civil services.
- There is no proof of citizenship in India, therefore **citizenship** will be linked to **birth certificate** through technology.
- It recommends using **Aadhaar** for bringing together beneficiary oriented schemes of different ministries.
- A '**family database design**' has been developed by the ministry of social justice and empowerment and which will be promoted like Aadhaar.
- It aims to streamline **disbursement of scholarships** to bridge **digital divide** for underprivileged students & developing indigenous tablets and laptops.
- **Digitising all land records by 2023** under the central database called '**Matribhumi**.'
 - It would be integrated with e-Courts system to provide transparency on title/possession related issues.

- He/She presides over the **joint sitting of both the Houses of Parliament**, in case the Speaker is absent from such a sitting.
- The Deputy Speaker, like the Speaker, has the privilege of the **Casting Vote** in case of tie.
- The Deputy Speaker has a **special privilege**, when he/she is appointed as a member of a parliamentary committee, he/she automatically becomes its chairman.

Improving business climate:

- Doing away with certain permissions, reducing the cost of starting a business in select sectors.
- **Automatic notification** of clearances, single-point access to all government services,
- **Incentives** to states for timely land acquisition and forest clearances.
- One comprehensive **Environment Management Act** that subsumes various laws in the sector.

Upgrading the civil services:

- **Capacity building**- training of officers on various aspects of infrastructure in both the Centre and states.
- **Infusion of expertise** and exposure to latest technologies for higher civil services, performance-based working.
- **Clear and specific targets** for ministries and departments just like that for public sector undertakings.
- Institutional mechanisms for **addressing issues of states** given their limited capacities and restructuring of departments through Government Process Re-Engineering **every 10 years**.
- Appointment of more **Chief Information Officers (CIOs)** and Chief Technology Officers (CTOs) as data is not being used efficiently.
 - All government data should be made accessible to all ministries.

BHASKARABDA TO BE ADDED TO OFFICIAL ASSAM CALENDAR

The Assam government will use the **Bhaskarabda** (lunisolar calendar) calendar as a part of the official calendar in the state.

Highlights:

- **Bhaskarabda**, an era counted from the date of the ascension of a 7th-century local ruler Bhaskarvarman, will be added to the Saka and Gregorian.
- The Assam government also decided to have theme-based calendars every year. The theme could include wildlife, plants, culture, cuisine and other aspects of Assam.

Bhaskarabda Calendar:

- The **Bhaskarabda** calendar is a **luni-solar** calendar based on both the phases of the moon and the solar year.
- It differs from the **Gregorian** calendar by **593 years** and is counted from the date of the **ascension of Kumar Bhaskarvarman to the throne of Kamrup**.
- It **begins and ends at sunrise** over 24 hours unlike the Gregorian, where a day starts at midnight.

Varman dynasty of Kamrupa and Bhaskarvarman:

- The **earliest known dynasty** to rule Assam was the **Varman dynasty of Kamrupa** which ruled for over 300 years, from mid-4th century CE.
- King **Pushyavarman** was the **founder** of the dynasty.
- **Bhaskarvarman** was the **last** king of the dynasty, who ruled from 600 CE-650 CE.
- He was a **contemporary and political ally** of northern Indian ruler **Harshavardhana**.
- Banabhatta, a noted Sanskrit scholar, in his biography of Harshavardhana - Harshacharita, has compared this alliance to Shiv-Kuber and Karna-Duryodhana.
- He issued the **Dubi and Nidhanpur copper plate grants** and a **clay seal** found in **Nalanda**.
- He was visited by **Xuanzang (Hiuen Tsang)** and **Li Yi-piao**, the envoy of the **Tang dynasty** who have left accounts of the king and the kingdom. Bhaskarvarman was referred to as **Kumara Raja** in Chinese accounts.
- As per the accounts, Bhaskarvarman was lover of learning and a great patron of scholars.

PM MODI TO ATTEND ABHIDHAMMA DAY PROGRAMME IN UP'S KUSHINAGAR

The Prime Minister visited Uttar Pradesh to attend **Abhidhamma Day** Programme.

Key Points:

- On the occasion, the Prime Minister inaugurated the **Kushinagar International Airport** & laid the foundation stone of development projects in Kushinagar.
- The inauguration of the Airport was marked by landing of first flight at the airport from Colombo, Sri Lanka.
 - The flight carried Sri Lankan delegation comprising **125 Buddhist Monks & dignitaries**.
- A 12-member Holy Relic entourage brought **Holy Buddha Relics** for Exposition.

Services provided by the Airport:

- The airport has been built at the estimated cost of Rs. 260 crores.

- It will be facilitating domestic as well as **international pilgrims** to visit the Mahaparinirvana sthal of Lord Buddha.
- Inauguration of the airport is an attempt of connecting **Buddhist pilgrimage** holy sites from across the world.
- It is an important step of boosting investment & employment opportunities in the region.

What is Buddhist Circuit?

- Buddhist Circuit is one of the fifteen thematic circuits identified for development under the **Swadesh Darshan Scheme** of Ministry of Tourism in 2015.
- All sites in the country related to Buddhism including **Kapilvastu** are

covered under the Buddhist Circuit for development.

For Example:

Madhya Pradesh (2016-17)	Development of Buddhist Circuit in Sanchi-Satna-Rewa-Mandsaur-Dhar in Madhya Pradesh.
Uttar Pradesh (2016-17)	Development of Sarawasti, Kushinagar, & Kapilvastu.
Bihar (2016-17)	Construction of Convention Centre adjacent to Maya Sarovar on the western side at Bodhgaya, Bihar
Gujarat (2017-18)	Development of Junagadh- Gir-Somnath- Bharuch-Kutch- Bhavnagar- Rajkot-Mehsana in Gujarat

Abhidhamma Day:

- The day marks the end of **three-month** rainy retreat.
 - **Varshavaas** or Vassa – observed as a retreat by monks and nuns by staying in vihara during rainy season, is a time of giving, for the laity to express gratitude to Sangh.

Genesis:

- **Abhidhamma Day** is celebrated on the full moon day of the 7th Burmese Lunar month.
- It is celebrated to mark Buddha's return to this earth after preaching the Abhidhamma Pitaka.
- In Buddhism the **Abhidhamma Pitaka** is an important scripture.
- He is believed to have gone to the heaven to teach Abhidhamma Pitaka to his mother.
- The teaching took **three months** after which Buddha came back to Earth.

Famous Buddhist Pilgrimage sites in India:

1. Bodh Gaya:

- This is one of four main **Buddhist pilgrimage** site in Gaya, Bihar.
- Under the Bodhi Tree, the Buddha attained enlightenment.

2. Sarnath:

- This is a sacred site where the Buddha delivered his first **sermon**, taught the Dhamma and formed the Sangha.
- In Sarnath lies the **Dhamek Stupa** as well as relics of other ancient stupas. The Ashoka Pillar remains are also here.

3. Kushinagar:

- Kushinagar is the place in Uttar Pradesh where the Buddha attained **Parinirvana**.
- The Parinirvana Stupa has the reclining statue of '**dying Buddha**'.
- The site is mainly visited by devout Buddhist followers and monks.

4. Shravasti:

- It is a significant pilgrimage site for Buddhists and travellers in Uttar Pradesh.
- Buddha spent most of the time after enlightenment in **Shravasti**.
- It has Jetavana Monastery, **Angulimala Stupas** and Anandabodhi Tree.

5. Sankasya:

- Here the Buddha is said to have returned after preaching **the dhamma** in the world of gods.
- He descended here accompanied by Indra and Brahma after preaching the dhamma to his mother in heaven.

6. Rajgir:

- The **Vulture Peak** at Rajgir, Bihar was Buddha's favorite retreats.
- He delivered many important sermons. Buddhist caves of **Saptaparni** is where the first Buddhist council was held after his death.
- This place has **Shanti Stupa** to see four beautiful Buddha statues,
- Nalanda about 15 kms away to see the world heritage site of Nalanda Mahavihara.

7. Vaishali:

- The ancient city of Vaishali in Bihar was considered one of the earliest examples of a republic.
- Here the Buddha preached his **last sermon** before he attained his parinirvana.
- **The Ashoka Pillar** can be seen near the remains of a brick stupa where the last sermon was delivered.

8. Lumbini:

- Located in Nepal, **Lumbini** forms the fourth important pilgrimage places in Buddhism.
- This is the place where the Buddha was born.
- **Buddhist temples**, the Lumbini Museum and the Japanese Peace Stupa are found here.

POONCH-RAJOURI: THE LONGEST ANTI-TERROR OPERATION IN AREA SINCE 2003 HIL KAKA STRIKES

The Indian Armed Forces carried out **Operation Sarp Vinash** in the **Hilkaka Poonch-Surankot** area of the **Pir Panjal range** in **Jammu and Kashmir** during April–May 2003.

Highlights:

- The operation was to **eliminate the terrorists** who made bases in the region.
- The clearing of Hilkaka was the **biggest counter insurgency operation** in Jammu & Kashmir.

- The operation took place in a 150-sq-km area between three major ridges on the western part of the **Pir Panjal**.
- According to the Indian Army, the total number of militants killed was 62.
- **15,000 troops** were involved in the operation that lasted for two weeks.
- **Mi-17 helicopters** were used to airlift troops to Hilkaka, and Lancer attack helicopters were used to bust concrete bunkers at high altitudes.

CIGARETTE MAKERS DECLINE AFTER GOVT HIKES EXCISE DUTY

Shares of three cigarette makers fell 0.19% to 3.61% after the **government hiked the excise duty on cigarettes and tobacco products** in the Union Budget 2020-21.

- In the Union Budget 2020, excise duty was raised as a revenue measure, by way of National Calamity Contingent Duty on cigarettes and other tobacco products. However, **no change is being made in the duty rates of bidis**.

National Calamity Contingent Duty (NCCD):

- National Calamity Contingent Duty (NCCD) is levied as a duty of excise on certain manufactured goods specified under the **Seventh Schedule of Finance Act, 2001**.
- The National Calamity duty chargeable shall be **in addition to any other duties of excise chargeable on such goods** under the **Central Excise Act, 1944 (1 of 1944)** or any other law for the time being in force.

SCHOOL STUDENTS TO PREPARE PROJECTS ON LIVES OF GALLANTRY AWARD WINNERS UNDER 'VEER GATHA' INITIATIVE

The project '**Veer Gatha**' aims to make school students aware of the gallantry award winners.

- **Central Board of Secondary Education (CBSE)** has launched the '**Veer Gatha Project**' for students from grades 3-12.
- The project aims to:
 - To commemorate the courage of the armed force officers and personnel.

- To honour the acts of bravery and sacrifice of the officers/personnel of the Armed Forces, other lawfully constituted Forces, and Civilians.
- The students can frame different projects on gallantry award winners and the best project will be awarded by the **Ministry of Defence (MoD)** and **Ministry of Education (MoE)** on the forthcoming Republic Day.

- Interdisciplinary and art-integrated activities like the poem, essay, painting, multi-media presentation,

etc. can be done by individual students as a project to participate.

ROCKET SYSTEMS, BRAHMOS ADD OFFENSIVE PUNCH ALONG LAC IN TAWANG SECTOR

India's military posture in the Tawang sector of Arunachal Pradesh has added Pinaka and Smerch rocket launch systems and BrahMos supersonic cruise missiles in the region.

Tawang:

- **Sela pass** connects Tawang and the plains of Assam.
- **Tawang Monastery** is the largest Buddhist monastery in India.
- Primarily inhabited by the **Monpa tribes**.
- **Flora:** Wide variety of tree species, blue pines and orchids
- **Fauna:** High altitude birds, snow leopard, musk deer, barking deer and bear.

Pinaka MLRS:

- It is an **indigenous** multi rocket launcher system (MLRS) designed by **Defence Research and Development Organization**.
- It is an **autonomous rocket artillery system** that can engage area targets up to 38km at mean sea level.
- It delivers very high volume of firepower on critical and time-sensitive enemy targets in a very short time.
- It has quick reaction time and the highly accurate.
- **Pinaka** is named after the **bow of Lord Shiva**.

Smerch MLRS:

DRDO SUCCESSFULLY TESTS HIGH-SPEED EXPENDABLE AERIAL TARGET ABHYAS

Defence Research and Development Organisation (DRDO) successfully flight-tested ABHYAS from the Integrated Test Range (ITR), Chandipur in Odisha.

ABHYAS:

- Abhyas is a High-speed Expendable Aerial Target (HEAT) being developed by DRDO's Aeronautical Development Establishment (ADE), Bengaluru.

- It is procured from **Russia**.
- It is the longest-range conventional rocket system in Indian army inventory having a maximum range of **90 Km**.
- The Smerch MLRS is composed of a **launch vehicle, transloader, rockets, training facilities and arsenal equipment**.

BrahMos Missile System:

- The BrahMos is a **medium-range ramjet supersonic cruise missile** that can be launched from **submarine, ships, aircraft, or land**.
- It is the **fastest supersonic cruise missile** in the world.
- It is a joint venture between the **Russian Federation's NPO Mashinostroyeniya** and India's **Defence Research and Development Organization (DRDO)**.
- The name BrahMos is a portmanteau formed from the names of two rivers, **the Brahmaputra of India and the Moskva of Russia**.
- BrahMos has a flight range of up to **290km** and can reach a maximum speed of **Mach 3**.
- The **Fire and Forget** type missile weighs 3t and intercepts surface targets at an altitude of **10m up to 14,000m**.

- It is **used as an aerial target for evaluation of various missile systems**.
- The target aircraft is

Features:

- Has an **Acoustic Miss Distance Indicator (AMDI)** to indicate the missed distance.
- Equipped with **Inertial Navigation System (INS)** along with the Flight

Control Computer (FCC) for guidance and control.

- It offers a realistic threat scenario for practice of weapon systems.

- The vehicle is programmed for fully **autonomous flight**.

EXPLAINED | WHAT IS 'CONSCIOUS POSSESSION' OF DRUGS?

A special court in Mumbai denied bail to a famous Bollywood actor son on the grounds of the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.

Highlights:

- The court rejected the Bollywood actor's son's bail application on the ground that he had "conscious possession" of drugs.
- The Supreme Court defines the word 'conscious' as "awareness about a particular fact" a state of mind which is deliberate or intended.
- He is accused of consumption, attempting to commit offenses under the NDPS Act, abetment/conspiracy, and offenses under Section 8(c).
- Section 35 of the Act recognizes the 'presumption of culpable mental state'.
 - Possession need not be physical and could be constructive.
- The liability is on the accused to dispel the court's presumption of his culpable mental state. Section 54 of the Act also allows for a similar presumption in the possession of illicit articles.

Narcotic Drugs and Psychotropic Substances (NDPS) Act:

- **Aim:** It prohibits a person from the production, possession, sale, purchasing, transport, storage, and/or consumption of any narcotic drug or psychotropic substance.
 - The Act is designed to fulfill India's treaty obligations under the Single Convention on Narcotic Drugs, Convention on Psychotropic Substances, and United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.
- **Applicability:** The Act extends to the whole of India and it applies also to **all**

Indian citizens outside India and to **all persons on ships and aircraft** registered in India.

Drugs banned under NDPS Act:

- As per the Act, "narcotic drug" means coca leaf, cannabis (hemp), opium, poppy straw and includes all manufactured drugs.
- Further, "psychotropic substance" refers to "any substance, natural or synthetic, or any natural material or any salt or preparation of such substance or material included in the list of psychotropic substances specified in the Schedule".

Punishment prescribed under the NDPS Act:

- The punishment is graded into **three categories** depending on the quantity of drugs seized and also provides for judicial discretion as far as the severity of punishment is concerned.
 1. Punishment for the cultivation of any cannabis plant: **rigorous imprisonment for up to 10 years** and can also involve a fine which may **extend to Rs 1 lakh**.
 2. Punishment for the seizure of a small quantity of cannabis: rigorous imprisonment of up to one year and include a fine of up to Rs 10,000.
 3. When the seizure is of a "quantity lesser than commercial quantity but greater than small quantity": rigorous imprisonment of up to 10 years and fine of up to Rs 1 lakh.
 4. Possession of a commercial quantity of cannabis is to be punished with rigorous imprisonment for upto 10 years which may extend to 20 years and while a fine of 1 lakh rupees but which may extend to two lakh rupees.

INDIAN TEXTILES MINISTRY SIMPLIFIES AMENDED TUF

Union Minister of Textiles reviewed the Amended Technology Up-gradation Fund Scheme (ATUFS) with the different Ministries, Departments, Textiles Industry Associations and Banks etc. at the 5th Inter Ministerial Steering Committee (IMSC) meeting organized by the Ministry of Textiles.

Highlights:

- ATUFS was reviewed to boost the Indian Textile Industry by enabling ease of doing business, bolstering exports & fuelling employment.
- To facilitate implementation, some of significant decisions to resolve pending issues and way forward include:
 - Reduction of Compliance burden by accepting only single certificate from the concerned bank instead of multiple documents regarding evidence of payment for claimed machineries
 - Rationalisation of GR related to cases of consortium finance
 - Consideration of Standalone embroidery machines wef inception of the ATUFS.
 - Facilitating Industry by providing Condonation of filing for UIDs to 1795 pending cases besides the cases in which cut off dates falls during 23rd March 2021 and 22 October 2021(COVID Second wave period) with time line of its submission to Office of Textile Commissioner/iTUFs within 90 days (i.e., total period for unit & banks).
 - Condonation for the submission of JIT request to 814 units besides the unit in which cut off date for submission of JIT request in post COVID-19.
 - Ministry of Textiles will **simplify the procedure for Joint inspection using a calibrated approach to linking joint inspect** to subsidy support size by reducing burden on bracket lower than Rs 50 lakh instead of present 100 %.

Amended Technology Upgradation Fund Scheme (ATUFS):

- Ministry of Textiles had introduced Technology Upgradation Fund Scheme (TUFS) in **1999 as a credit linked subsidy scheme.**
- It is intended for **modernization and technology up-gradation** of the Indian textile industry, promoting ease of doing business, generating employment and promoting exports.
- **Aim:** To facilitate employment, investment, quality, productivity, as well as import and export substitution in the textile industry while also indirectly promoting investments in the manufacturing of machinery for textiles.

Genesis:

- Modifications carried out in scheme guidelines in 2018 and further **streamlining of procedures have simplified the process** for availing the subsidy under the scheme.
- In 2019, **IMSC decided to introduce physical verification** of machinery and computation of subsidy before releasing committed liability under previous versions of scheme (MTUFS, RTUFS & RRTUFS).

Features:

- **Capital Investment Subsidy is provided** to benchmarked machinery installed by the industry after physical verification.
- The scheme is **being administered with a two stage monitoring mechanism** by Technical Advisory-cum-Monitoring Committee (TAMC) and Inter-Ministerial Steering Committee (IMSC).
- The ongoing ATUFS has been **approved in 2016** and implemented through **web based iTUFS platform.**
- ATUFS was **approved for a period from 2015-16 to 2021-22** with an allocation of Rs. 17,822 crore.
- Eligible individual entities (not units) are **entitled to avail reimbursement of the Capital Investment Subsidy (CIS)** according to the rates given below:

Entities eligible for the scheme:

- Silk sector
- Handloom sector
- Technical textiles
- Jute sector
- Madeup/garment manufacturing

- Processing fabrics, fibres, garments, madeup, and yarns
- Weaving preparatory, weaving, and knitting

ASSAM OVERSHOTS DETENTION CAMP DEADLINE

The Assam Government has overshot a 45-day deadline set by the Guwahati High Court for the completion of a standalone detention centre for declared foreigners.

Highlights:

- Earlier, the high court asked the State Government to complete the construction of the detention centre, at Matia in Goalpara district and file a status report within 45 days.
- The court sought the shifting of 177 inmates across **six existing detention** centres.

Who is a declared Foreigner?

- A declared foreigner is a person marked by **Foreigners' Tribunals (FTs)** in Assam, allegedly failing to prove their **citizenship** after the State police's Border wing marks him or her as an **illegal immigrant**.

Foreigners Tribunal:

- Foreigners' Tribunals are **quasi-judicial bodies** established as per the Foreigners Tribunal Order, 1964 and the **Foreigners' Act, 1946**.
- It is for those who have been left out in the **National Register of Citizens (NRC)** list or have been marked as '**D**' meaning doubtful.

- Under the provisions of **Foreigners' Act, 1946** only Foreigner Tribunals have the right to declare a person as a foreigner.
- **Non-inclusion** of a person's name in the NRC does not by itself amount to him/her being declared a foreigner.

Need for Foreigner Tribunal:

- **Election Commission of India (ECI)** can refer cases of Doubtful voters to the local superintendents of police, who refers them to a tribunal to verify their citizenship.
- The persons excluded from the final draft of National Register of Citizens (NRC) can appeal before the FTs to prove their citizenship

Powers of the Tribunal:

In the Foreigners' Tribunal Order, 1964 the powers of the Tribunal have been laid down: -

- The Tribunal have the powers of a civil court while trying a suit under the **Code of Civil Procedure, 1908**.
- **It can summon** and ask for the attendance of any person and examine him/her on oath.
- It can ask anyone to **produce** the required documents.
- The Tribunal can commission examining any witness, as and when required.

PM MODI LAUNCHES AYUSHMAN BHARAT HEALTH INFRASTRUCTURE MISSION

Recently, Prime Minister of India launched Ayushman Bharat Health Infrastructure Mission.

Pradhan Mantri Ayushman Bharat Health Infrastructure Mission:

It is a **Centrally Sponsored Scheme** worth of a ₹ 5,000-crore with some Central Sector components.

Components:

- **Centrally Sponsored Scheme (CSS)**

Components:

- **Ayushman Bharat - Health & Wellness Centres (AB-HWCs) in rural areas:**
- Support for infrastructure development for Sub-Health Centres in 7 High Focus States (Bihar, Jharkhand, Odisha, Punjab, Rajasthan, Uttar Pradesh and West Bengal) and 3 North Eastern States (Assam, Manipur and Meghalaya).
- **Ayushman Bharat - Health & Wellness Centres (AB-HWCs) in Urban areas:**

- Support for 11044 Urban Health & Wellness Centres across the country.
 - **Block Public Health Units (BPHUs):**
 - Support for 3382 BPHUs in 11 High Focus States/ UTs (Assam, Bihar, Chhattisgarh, Himachal Pradesh, UT - Jammu and Kashmir, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand).
 - **Integrated District Public Health Laboratories in all districts.**
 - Critical Care Hospital Blocks in all districts with a population more than 5 lakhs, in state government medical colleges / District Hospitals.
 - **Central Sector (CS) Components**
 - **Critical Care Hospital Blocks in 12 Central Institutions.**
 - Strengthening surveillance of infectious diseases and outbreak response.
 - Support for 20 Metropolitan Surveillance Units, 5 Regional NCDCs and implementation of IHIP in all states.
 - Strengthening surveillance capacities at Points of Entry.
 - Support for 17 new Points of Entry Health Units and Strengthening of 33 existing Units.
 - Strengthening Disaster and Epidemic Preparedness. Support for 15 Health Emergency Operation Centres & 2 Container based mobile hospitals.
 - Under the mission various infrastructure will be setup including;
 - A national institution for one health
 - **Four** new national institutes for virology
 - A regional research platform for WHO South East Asia Region
 - **Nine** biosafety level-III laboratories
 - **Five** new regional national centre for disease control
- Objectives:**
- To **fill gaps in public health infrastructure**, especially in critical care facilities and primary care in both urban and rural areas.
 - To establish an **IT-enabled disease surveillance system** through a network of surveillance laboratories at block, district, regional and national levels.
 - Ensure a **robust system for detecting, investigating, preventing, and combating public health emergencies and disease outbreaks**
- Significance:**
- **Critical care services** will be available in **all the districts** of the country **with more than five lakh population** through **Exclusive Critical Care Hospital Blocks**, while the **remaining districts** will be covered through **referral services**.
 - The scheme will **aid the other health schemes like Ayushman Bharat Digital Mission (ABDM)**, a flagship digital initiative involving the creation of a unique health ID for every citizen, and also a digital healthcare professionals and facilities registry.
 - People will have access to **a full range of diagnostic services** in the public healthcare system through a network of laboratories and integrated public health labs across the country.

PUNJAB'S OPERATION RED ROSE UNFURLS TO CURB ILLICIT LIQUOR TRADE

Under the 'Operation Red Rose' of Punjab's Excise Department, it has been made compulsory for transporters of extra neutral alcohol (ENA) and spirits to install GPS systems in their vehicles.

- **Aim:** To ensure that there should not be illicit or illegal movement of liquor in Punjab.
- The conviction rate for 2021-22 (till April-August) is 90%, which in 2019-20

was at around 67%; and in 2020-21, the conviction rate was 77%.

Extra Neutral Alcohol (ENA)?

- Extra Neutral Alcohol (ENA) is the primary **raw material for making alcoholic** beverages.
- It is a **colourless food-grade alcohol** that does not have any impurities.
- It has a **neutral smell and taste**, and typically contains over **95 per cent alcohol by volume**.
- ENA is a **byproduct of the sugar industry**, and is formed from molasses that are a residue of sugarcane processing.

Uses:

- ENA is used in the **production of alcoholic beverages** such as whisky, vodka, gin, cane, liqueurs, and alcoholic fruit beverages.
- ENA also serves as an essential ingredient in the **manufacture of cosmetics and personal care** products such as perfumes, toiletries, hair spray, etc.
- ENA also finds **industrial use** and is utilised in the production of some lacquers, paints and ink for the printing industry, as well as in **pharmaceutical products** such as antiseptics, drugs, syrups, medicated sprays.

SC DIRECTS PANEL TO SPECIFY MAXIMUM WATER LEVEL AT MULLAPERIYAR DAM

The Supreme Court directed the Supervisory Committee to take an immediate and firm decision on the maximum water level that can be maintained at Mullaperiyar dam amidst torrential rains in Kerala.

- Kerala said the water level should not go above 139 feet, as per the supreme court ordered in 2018 when the State was hit by flood.
- Tamil Nadu, informed the court that the level in the dam was 137.2 ft.

Mullaperiyar Dam:

- **The Mullaperiyar Dam** is a masonry gravity dam on the **Periyar River** in Kerala.
- It is located on the **Cardamom Hills** of the Western Ghats in Thekkady, Idukki District of Kerala, South India.
- It was constructed between 1887 and 1895 by **John Pennycuick**.
- **Purpose:** To redirect the river flow **towards the Bay of Bengal**, instead of the Arabian Sea and provide water to the arid rain region of Madurai in Madras Presidency.
- The dam was given to British-ruled Madras Presidency on a **999-year lease in 1886**.
- The **Periyar National Park** in Thekkady is located around the dam's reservoir.

What is Mullaperiyar Dam Issue?

Genesis:

- **A petition** was filed by a resident of Idukki district of Kerala to lower the water level of Mullaperiyar dam to 130 feet.
 - The reason was due to the danger of **earthquakes and floods** in the area as monsoon progresses in the State.

The Dispute:

- The dam is in Kerala but is operated and maintained by **Tamil Nadu**.
- The **catchment area** of the Mullaperiyar Dam itself lies entirely in Kerala and thus not an inter-State River.
- The **lease agreement** was renewed in the 1970s by both Tamil Nadu and Kerala giving the former rights to the land and water from the dam, to develop **hydropower projects** at the site.
- The first cracks in this agreement surfaced in 1979 when a minor **earthquake** had resulted in cracks in the dam.
- The **Central Water Commission**, conducted a study and recommended lowering the water stored in the dam's reservoir to 136 feet from 142 feet.
 - It said that if definitive measures were implemented, only then Tamil Nadu administration can raise water

levels to the dam's full capacity of **152 feet**.

- In November 2014, the water level hit 142 feet for first time in 35 years.

Tamil Nadu's Argument:

- Tamil Nadu government wants to increase the height of the dam from 136 feet from 142 feet.
- The Kerala government has blocked any attempt to raise the reservoir water level, resulting in losses for Madurai farmers.

Kerala's Stand:

- Kerala highlights fears of devastation by residents living downstream in the earthquake-prone district of Idukki.

Verdict of Supreme Court:

- **2006:** the **Supreme Court** gave Tamil Nadu legal sanction to raise the water level to 142 feet.

- **2012:** the Supreme Court stated, the dam was "**structurally and hydrologically safe**" and that the Tamil Nadu government could raise water levels up to 142 feet.
- In response, Kerala amended the **2003 Kerala Irrigation and Water Conservation Act**, restricting the water level to 136 feet.
- **2014:** the Supreme Court struck down the amendment to the 2003 Kerala Irrigation and Water Conservation Act, calling it **unconstitutional**.
- The Supreme Court had directed the Centre and the governments of Kerala and Tamil Nadu to set up **three panels** to prepare a contingency plan in case of a disaster.

UPDATED NPR FORM APPEARS TO RETAIN CONTENTIOUS QUESTIONS

Recently, a committee formed under the Registrar General of India said that the Updated NPR form appears to retain contentious questions such as mother tongue, place of birth of father and mother, and last place of residence.

NPR (National Population Register):

- The National Population Register (NPR) is a **Register of usual residents of the country**.
 - A usual resident is defined as a person who has resided in a local area for the past six months or more or a person who intends to reside in that area for the next six months.
- **Objective:** To create a comprehensive identity database of every usual resident in the country. The database would contain demographic as well as biometric particulars.
- It is prepared at the **local (village and sub-town), subdistrict, district, state and national levels under provisions of the Citizenship Act, 1955 and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003**.
- According to the Citizenship Rules 2003, NPR is the first step towards the

compilation of the National Register of Indian Citizens (NRIC) or NRC.

- **Demographic Particulars:**
 - The following demographic details of every individual are required for every usual resident:
 - Name of person
 - Relationship to head of household
 - Father's name
 - Mother's name
 - Spouse's name (if married)
 - Sex
 - Date of Birth
 - Marital status
 - Place of birth
 - Nationality (as declared)
 - Present address of usual residence
 - Duration of stay at present address
 - Permanent residential address
 - Occupation/Activity
 - Educational qualification
- **Current Phase:**
- The data for National Population Register was collected in 2010 along with the house listing phase of Census of India 2011.

- The updating of this data was done during 2015 by conducting door to door survey.
- NPR was first compiled in 2010 and updated in 2015. Along with Census

2021, the database of NPR collected in 2010 and updated in 2015 would be **further updated in the first phase of the census.**

PROMISING PUSA ARHAR-16 MAY CUT INDIA'S DEPENDENCE ON IMPORTS

The Indian Agricultural Research Institute (IARI), released the Pusa Arhar-16 for the National Capital Territory of Delhi (NCT) region recently.

- Arhar is the second-most produced and consumed pulses after chana in India.

Highlights:

- Pusa Arhar-16 is a **dwarf pigeon pea** created by Indian Agricultural Research Institute.

Features:

- Matures in about **120 days** against the maturity time in the range of 165 to 190 days for all the other varieties.
 - The short duration will ensure that farmers get adequate time for

preparation of rabi or winter crops besides helping the soil in **nitrogen fixation.**

- Increases the **cropping intensity** because of semi-dwarf size of plant application of insecticide is easier.
- **Conducive for the usage** of combine harvester machine
 - Which makes reaping, threshing, and winnowing into a single process mechanized harvesting.
- Has a **higher mean yield** as compared to the check varieties VLA-1 and PS 4242.
- Quality is better than other varieties with relatively lesser cooking time.

UNION MINISTER NITIN GADKARI LAUNCHES KNOWLEDGE APP, PLATFORM CUNSLT

Road Transport and Highways Minister has launched knowledge App and platform CUNSLT.

- CUNSLT app is the first such global facility by which **people who need information, advice, counsel, guidance can contact and call up experts** in multiple sectors on-the-go.
- CUNSLT app will be a **forum for mentors to share their life**

experiences. The app will allow people to learn from the wisdom which has been acquired over the lifetime.

- CUNSLT uses the framework of context and convergence to instantly connect knowledge seekers and knowledge givers.

KERALA WINS 'CITY WITH THE MOST SUSTAINABLE TRANSPORT SYSTEM' AWARD

Kerala has won the award for the 'city with the most **sustainable transport system**'.

Highlights:

- The award has been given in recognition of the projects implemented– like **Kochi Metro, Water Metro and e-mobility**– to enhance the transport facilities in the city of Kochi.
- The state formed the **Kochi Open Mobility Network**, which digitized and integrated various transport facilities.

Sustainable Transport Award (STA):

- The Sustainable Transport Award (STA) is presented annually to a city that has shown leadership and vision in the field of sustainable transportation and urban liveability in the preceding year.
- Nominations are accepted from anyone, and winners and honourable mentions are chosen by the Sustainable Transport Award Steering Committee.

- Since 2005, the award has been **given out annually to a city or major jurisdiction** that has implemented

innovative transportation strategies, especially in several different areas of sustainable transportation.

MINISTRY OF CIVIL AVIATION LAUNCHES THE KRISHI UDAN 2.0 SCHEME FOR FACILITATING MOVEMENT OF AGRICULTURAL PRODUCE

The Ministry of Civil Aviation (MoCA) launched the Krishi UDAN scheme to focus on transporting perishable food products from the hilly areas, northeastern states, and tribal areas.

Krishi UDAN scheme 2.0

- **Aim:** To facilitate and incentivize movement of Agri-produce by air transportation in North-east, Hilly, and tribal regions.
- **Implementation:** At 53 airports across the country, such as Leh, Srinagar, Nagpur, Nashik, Ranchi, Bagdogra, Raipur, and Guwahati.

Key features of the scheme

- **Facilitating and incentivizing movement of Agri-produce by air transportation:**
 - Full waiver of Landing, Parking, Terminal Navigational Landing Charges (TNLC), and Route Navigation Facilities Charges (RNFC) charges for **Indian freighters** and passenger to cargo (P2C) at selected Airports of the **Airport Authority of India**.
 - Primarily, focusing on North-east regions (NER) Hilly, and tribal regions.
- **Strengthening cargo-related infrastructure at airports and off airports:**
 - Facilitating the development of a hub and spoke model and a freight grid.
- **Airside transit** and transshipment infrastructure will be created at **Bagdogra and Guwahati** airports.

- **Concessions sought from other bodies:**

- Seek support and encourage States to reduce Sales Tax to 1% on Airline Terminal Fee (ATF) for freighters / P2C aircraft as extended in UDAN flights.

- **Resources-Pooling through establishing Convergence mechanism:**

- Collaboration with other government departments and regulatory bodies to provide freight forwarders, airlines, and other stakeholders with Incentives and concessions to enhance air transportation of Agri-produce.

- **Technological convergence:**

- Development of **E-KUSHAL** (Krishi UDAN for Sustainable Holistic Agri-Logistics).

- **Aim of E-KUSHAL:** To facilitate information dissemination to all the stakeholders.

- Integration of E-KUSHAL with the National Agriculture Market (e-NAM) is proposed.

- Airports for implementation of KrishiUdan 2.0 are selected to provide benefit to the entire country. Opted airports not only provide access to regional domestic market but also connect them to international gateways of the country.

Krishi Udan scheme 1.0

- **Launched in:** September 2020
- Under this, air cargo operators are exempted from various charges such as parking charges, terminal navigation landing charges etc.

AGNI-5 BALLISTIC MISSILE, WITH 5,000-KM RANGE, SUCCESSFULLY TEST FIRED IN ODISHA

India successfully test-fired surface-to-surface Agni-5 ballistic missile recently to provide major boost to its military forces.

Highlights:

- The test was conducted by the **Strategic Forces Command** of

the Indian Army from the APJ Abdul Kalam Island, Odisha coast.

Agni-V:

- It is a **surface-to-surface** intercontinental ballistic missile (ICBM).
- **Developed by:** Defence Research & Development Organisation (DRDO) and Bharat Dynamics Limited.
- **Speed:** 29,401 kmph (24 times faster than the speed of sound).
- The missile is equipped with a ring **laser gyroscope inertial navigation system** (NavIC) that works with satellite guidance.
- The 1,500-kg warhead will be placed on top of the three-stage rocket boosters powered by solid fuel.

- It can hit its target with pinpoint precision and can be launched from mobile launchers.
- **Range:** Over 5000 km.
 - The missile can range the **whole of Asia**, Europe, and parts of Africa.
- Once inducted, Agni-V will be maintained by the **Strategic Forces command**.

Key Facts:

- India already has in its armory the **Agni missile series**
 - Agni-I with a range of 700 km
 - Agni-II with a range of 2,000 km
 - Agni-III and Agni-IV with 2,500 km to 3,500 km range.
- India had recently tested the nuclear-capable ballistic missile **Agni-P (Prime)** from Dr APJ Abdul Kalam Island of Odisha coast.

INDIA NOTIFIES FRAMEWORK FOR TRAFFIC MANAGEMENT OF DRONES IN LOWER AIRSPACE

The Centre has issued a framework of **National Unmanned Aircraft System Traffic Management policy** for drones that will manage their movement in the airspace **under 1000 feet**.

Highlights of the framework:

- The framework allows both public and private third-party service providers **to manage the unmanned aerial vehicles in lower airspace**.
- It allows third-party service providers to give services such as **registration, flight planning, dynamic deconfliction and access to supplementary data** like weather, terrain and position of manned aircraft.
- All drones (except Nano drones operating in the green zone) shall be required to **mandatorily share their real-time location** through the network to the Centre either directly or through third-party service providers.
- With rapid technological evolution of unmanned aircraft, the number of aircraft operating in the Indian airspace is poised to increase rapidly.

- It has also taken into consideration the scenarios which will **require flying multiple drones near manned aircraft**, especially on lower levels of the airspace where drones are allowed to fly.
- Current Air Traffic Management (ATM) systems have **not been designed to handle the traffic from unmanned aircraft**.
- The creation of a separate, modern, primarily software-based, automated UAS (unmanned aircraft system) Traffic Management (UTM) system, and such systems may subsequently be integrated into traditional ATM systems.
 - The integration will be important to continuously separate manned and unmanned aircraft from each other in the airspace.
- A set of **supplementary service providers will be permitted** under the framework to provide services such as **insurance and data analytics** to support the UTM ecosystem.
- **DigitalSky platform** shall continue to be the interface for government

stakeholders to provide approvals and permissions to drone operators wherever required.

- The third-party service providers will **first be deployed in small geographical areas** that could be increased gradually.
- These service providers will be **permitted to charge drone operators a service fee** and a small portion of it might have to be shared with the **Airports Authority of India (AAI)**.
- The framework allows third-party service providers **to deploy highly automated, algorithm-driven software services** for managing drone traffic across the country.

Key Facts:

- The Centre had on September 15 approved a production-linked incentive (PLI) scheme for drones and drone components with an allocation of ₹120 crore spread over three financial years.
- The civil aviation ministry had on August 25 notified the **Drone Rules, 2021** that eased the regulation of drone operations in India by **reducing the number of forms that need to be filled to operate** them from 25 to 5 and **decreasing the types of fees charged** from the operator from 72 to 4.

SAMBHAV: MSME MINISTER INAUGURATES AWARENESS PROGRAMME TO PROMOTE ENTREPRENEURSH

Union Minister of MSME has launched “SAMBHAV”, a National Level Awareness Programme-2021 being organised by Ministry of Micro, Small & Medium Enterprises.

- It is a mass outreach programme, and **one-month long initiative** under the Ministry of MSME in which students from different colleges/ITIs from all

parts of the country will be **encouraged by field offices** of the Ministry to take up entrepreneurship.

- During the campaign the college students will be **made aware of the various schemes** being implemented by the Ministry of MSME through Audio/Video film presentations.

SC FORMS PROBE PANEL IN PEGASUS SNOOPING ROW, SAYS STATE CAN'T GET 'FREE PASS' EVERY TIME NATIONAL SECURITY RAISED

The Supreme Court ordered the constitution of an independent expert committee, headed by RV Raveendran, to look into the allegations of widespread and targeted surveillance using the Pegasus spyware.

Highlights:

The Court was constituted to pass this order due to the following compelling circumstances:

- **Right to privacy and freedom of speech** are alleged to be impacted, which needs to be examined.
- **No clear stand** taken by the **Respondent-Union of India** regarding actions taken by it.
- Seriousness accorded to the **allegations by foreign**

countries and involvement of foreign parties.

- Possibility that some foreign authority, agency or private entity is involved in placing citizens of this country under surveillance.
- Allegations that the Union or State Governments are party to the **rights' deprivations of the citizens.**
- Limitation under writ jurisdiction to delve into factual aspects.
 - For instance, even the question of usage of the technology on citizens, which is the jurisdictional fact, is disputed and requires further factual examination.

Why a committee?

- Committees, which act as **an agent of court**, can take up a **task of determining the facts**, when they are disputed or unknown.
- Committees or fact-finding teams can **summon individuals, prepare ground reports, and inform the court**.

Terms of reference of the Committee:

The terms of reference of the Committee are as follows:

- To **enquire, investigate and determine**:
 - Whether the Pegasus suite of spyware was used on phones or other devices of the citizens of India to **access stored data, eavesdrop on conversations, intercept information and/or for any other purpose**.
 - The **details of the victims** and/or persons affected by such a spyware attack.
 - Whether any Pegasus suite of spyware was **acquired** by the Respondent Union of India, or any State Government, or any central or state agency for use against the citizens of India?
 - If any governmental agency has used the Pegasus suite of spyware on the citizens of this country, **under what law, rule, guideline, protocol or lawful procedure** was such deployment made?

- Any other matter or aspect which may be connected, ancillary or incidental to the above terms of reference, which the Committee may deem fit and proper to investigate.

The procedure of the Committee:

The Committee constituted by this Order is **authorized to**:

- **Devise its own procedure** to effectively implement and answer the Terms of Reference.
- Hold such **enquiry or investigation** as it deems fit.
- Take statements of any person in connection with the enquiry and call for the records of any authority or individual.

What is Pegasus?

- Pegasus is **spyware** developed by the **Israeli cyberarms firm NSO Group** that can be **covertly installed on mobile phones and other devices**.
- It is a **Trojan horse computer virus** that can be sent "flying through the air" to infect cell phones.
- The spyware is named after **Pegasus, the winged horse of Greek mythology**.
- Pegasus is stated as intended to be used against criminals and terrorists.
- It can infect a device without the target's engagement or knowledge, also **called zero-click**.

SUICIDES INCREASE 10% TO HIGHEST SINCE 1967, ACCIDENTAL DEATHS DOWN 11%: NATIONAL DATA

As per the recently published 2020 National Crime Records Bureau (NCRB) report, the number of road accidents and associated deaths fell sharply, while suicides saw a large increase.

- The report covers the period from January to December 2020.

Highlights of the Report:

- There was a **sharp rise** in the number of deaths by suicides, students and small entrepreneurs saw the biggest jump.
- There were **153,052 deaths by suicides**, the highest since 1967.

- The number of deaths by suicide, was 11.3% in 2020.
 - This is the highest rate in the last 10 years. It was 11.4% in 2010.

Annual Accidental Deaths and Suicides (ADSI) Report:

Impact of Lockdown:

- Students committed suicide due to **inability to access resources** to continue their education online.
 - 29 million students did not have access to digital devices in India.

- Students, who make up 7%-8% of deaths by suicide every year, registered a 21.2% increase in 2020.
 - Professionals or salaried persons (16.5%) and daily wage earners (15.7%) saw the second and third largest increase, respectively.
- **Small businessmen** suffered more than salaried professionals. Deaths by suicide of vendors and tradesmen increased by 26.1% and 49.9% respectively.

Causes of Suicidal Deaths

- **Poverty** (69%) and unemployment (24%) registered the biggest increase.
- **Drug abuse**, alcohol addiction (17%), illness (16%), and family problems (14%).
- Suicide due to **failure in examination** declined by 24%. But due to professional/career problem increased by 11%.

Accidental Deaths:

- There were **374,397 accidental deaths in 2020**. This is the lowest number since 2009 which was 357,021.
- The accidental deaths, of which **traffic accidents** are about 40%, declined by 11%, in 2020.
- Number of deaths due to **natural causes** declined by 9.1%.
- Deaths **due to sunstroke** fell by 744 between 2019 and 2020
- **Drowning**, sudden deaths, and poisoning were the only non-natural causes of deaths where there was an increase in 2020 compared to 2019.
- Deaths by **floods** increased from 948 to 959.

National Mental Health Programme:

- The Government of India has launched the National Mental Health Programme (NMHP) in 1982.

Aim:

- **Prevention and treatment** of mental and neurological disorders and their associated disabilities.
- **Use of mental health** technology to improve general health services.
- Application of mental health principles in national development to improve quality of life.

Components of NMHP:

- Treatment of Mentally ill
- Rehabilitation
- Prevention and promotion of positive mental health.

Significance:

- It will ensure availability and accessibility of minimum **mental health care** for the most vulnerable and underprivileged sections of population.
- It will **promote community participation** in the mental health services development.
- This will lead to stimulate efforts towards **self-help** in the community.

District Mental Health Program:

It envisages provision of basic mental health care services at the community level.

Objective:

- **To provide** sustainable basic mental health services to the community.
- Early detection and treatment of patients within the community itself.
- To reduce the stigma of **mental illness** through public awareness.
- **To treat and rehabilitate** mental patients within the community.

INDIAN COAST GUARD SHIP 'SARTHAK' DEDICATED TO THE NATION

Director General Indian Coast Guard (ICG) has commissioned the indigenously built Coast Guard Ship 'Sarthak' at a ceremony held in Goa.

- ICGS Sarthak will be **based at Porbandar, Gujarat** and will operate on **India's Western Seaboard** under the Operational and Administrative

Control of the Commander, Coast Guard Region (Northwest).

ICGS Sarthak:

- The 105-metre long 'Sarthak' is indigenously built and is **fourth in the series of five offshore patrol vessels (OPVs)** being built by **Goa Shipyard Limited for the ICG**.

- It is powered by **two 9100 kilowatt diesel engines**, the vessel is capable of attaining a top speed of 26 knots.
- Being fitted with **state-of-the-art equipment, machinery, sensors and weapons** enables the vessel to

function as a command platform and undertake mandated Coast Guard charter of duties including search and rescue, combating maritime crimes, preserving and protecting the marine environment.

UIDAI WANTS EXEMPTION FROM DATA PROTECTION BILL

The Unique Identification Authority of India (UIDAI) has asked for exemption from the Personal Data Protection (PDP) Law.

- The authority is **already being governed by the Aadhaar Act** and there cannot be duplicity of laws.

Unique Identification Authority of India (UIDAI):

- The Unique Identification Authority of India is a statutory authority established under the provisions of the Aadhaar Act, 2016.
- It is established under the **Ministry of Electronics and Information Technology (MeitY)**.
- UIDAI was created to **issue Unique Identification numbers (UID), named as "Aadhaar"**, to all residents of India.
- The UID had to be:
 - Robust enough to eliminate duplicate and fake identities, and
 - Verifiable and authenticable in an easy, cost-effective way.

Mandates:

- Aadhaar enrolment and authentication
- Operation and management of all stages of Aadhaar life cycle
- Developing the policy, procedure, and system for issuing Aadhaar numbers to individuals
- Perform authentication and the security of identity information and authentication records of individuals.

Personal Data Protection Bill, 2019:

- The bill seeks:
 - To provide for protection of personal data of individuals
 - Create a framework for processing such personal data
 - Establishes a Data Protection Authority for the purpose.

Applicability:

- The Bill governs the **processing of personal data** by: (i) government, (ii) companies incorporated in India, and (iii) foreign companies dealing with personal data of individuals in India.
- The Bill categorises certain personal data as sensitive personal data. This includes financial data, biometric data, caste, religious or political beliefs etc.

Obligations of data fiduciary:

- A data fiduciary is an entity or individual who decides the purpose of processing personal data. Such processing will be subject to certain purpose, collection and storage limitations.
- For instance, personal data can be processed only for specific purpose and all data fiduciaries must undertake certain transparency measures such as implementing security safeguards, instituting grievance redressal mechanisms etc.

Rights of the individual:

- Obtain confirmation from the fiduciary on whether their personal data has been processed,
- Have personal data transferred to any other data fiduciary in certain circumstances, and
- Restrict continuing disclosure of their personal data by a fiduciary, if it is no longer necessary.

Grounds for processing personal data:

- The Bill allows processing of data by fiduciaries only if consent is provided by the individual.

Social media intermediary:

- Notify social media intermediary as a significant data fiduciary.

Adjudicating officer:

- Provide for Adjudicating Officer for deciding penalties and award compensation for violations.

Appellate Tribunal:

- Appellate tribunals should be established to hear appeals against cases of privacy breach.

Offences:

- Processing personal data in violation of the Bill, punishable with a fine of Rs 15 crore or 4% of the annual turnover of the fiduciary, whichever is higher, and
- Failure to conduct a data audit, punishable with a fine of five crore rupees or 2% of the annual turnover of the fiduciary, whichever is higher.

Provisions under the bill:

- **Section 35** of the bill invokes “sovereignty and integrity of India,” “public order”, “friendly relations with

foreign states” and “security of the state” to give powers to the Central government to suspend all or any of the provisions of this Act for government agencies.

- **Section 12** of the Bill gives UIDAI some leeway from the rigours of the Bill as it enables for processing data for provision of a service or benefit to the data principal. However, even then prior notice has to be given.

Key Facts:

- The genesis of Data Protection Bill 2019 lies in the report prepared by a **Committee of Experts headed by Justice B.N. Srikrishna**.
- The committee was constituted by the government in the course of hearings before the Supreme Court in the **right to privacy case** (Justice K.S. Puttaswamy v. Union of India).

‘GANGA UTSAV 2021 – THE RIVER FESTIVAL’

This year’s Ganga Utsav is being organised from 1st to 3rd of November.

- **Aim of this year:** To take Ganga Utsav to the various river basins in India and promote the celebration of River Festival.
- ‘Ganga Utsav 2021 – **The River Festival**’ will be celebrating not just River Ganga but all the rivers across the country.

Ganga Utsav:

- Ganga Utsav is a **3-day festival** celebrating river Ganga.
- The **National Mission for Clean Ganga (NMCG)** had been celebrating the day of declaration of river Ganga

as ‘**National River**’ on **4th November** of every year.

- **Objective:** To promote stakeholder engagement and ensure public participation under aegis of Ganga Knowledge Center.
- The utsav celebrates mystical and cultural river Ganga through various cultural events.

Key Facts:

- Every year on the **fourth Sunday of September**, World River Day is observed to raise awareness regarding **water bodies and to promote their conservation**.



PROCESS OF RENUNCIATION OF INDIAN CITIZENSHIP SIMPLIFIED

The **Ministry of Home Affairs (MHA)** has simplified the process for Indians who want to renounce their citizenship.

Highlights:

- Provisions have been made for applicants to **upload documents online**, with an **upper limit of 60 days** for the renunciation process to be completed.
 - The **online process** has been initiated to **check fraudulent documents** and reduce the compliance burden for declaration of renunciation of citizenship.
- The form after being filled online has to be downloaded, signed and submitted at the **District Magistrate's office** if the applicant is in India, or at the **nearest Indian mission**, if applicant is in a foreign country.
 - The applicant **will be interviewed** by the DM before the certificate is issued.
- Other than the passport, the applicant **needs to submit proof of address** and **proof of payment of fee**.

Other Facts:

- According to the **2009 Citizenship Rules**, the fee to **renounce citizenship** in India is ₹5,000, and for someone applying through an Indian mission in a foreign country is ₹7,000.
- When a person ceases to be a citizen of India under **Section 8(1)** of

Citizenship Act, 1955, every minor child of that person thereupon ceases to be a citizen of India.

- The **minor child** within one year of attaining full age may apply to resume Indian citizenship.
- The guidelines are not clear if minors would also lose citizenship if only one of the parents gives up her/his Indian citizenship.

How Citizenship can be Acquired in India?

- Indian citizenship can be acquired by: **birth, descent, registration, and naturalization**.
- The provisions are listed under sections 3, 4, 5(1) and 5(4) of the **Citizenship Act, 1955**.

1. By birth:

- Every person born in India on or after 26.01.1950 but before 01.07.1987 is an Indian citizen irrespective of the nationality of his/her parents.
- A person born between 01.07.1987 and 02.12.2004 is a citizen of India given either of his/her parents is a citizen of the country at the time of his/her birth.
- A person born on or after 3.12.2004 is a citizen of the country given both his/her parents are Indians.

2. By Registration:

- A person of **Indian origin** who has been a resident of India for 7 years before applying for registration.

- A person of Indian origin who is a resident of any country outside undivided India.
- A person who is **married** to an Indian citizen and is ordinarily resident for 7 years before applying for registration.
- **Minor children** of persons who are citizens of India.

3. By Descent:

- A person **born outside India** on or after January 26, 1950 is a citizen of India by descent if his/her father was a citizen of India by birth.
- A person born outside India on or after December 10, 1992, but before December 3, 2004 either his/her parent was a citizen of India by birth.

4. By Naturalisation:

- A person can acquire citizenship by **Naturalisation** if he/she is ordinarily resident of India for 12 years and fulfils all qualifications in the third schedule of the Citizenship Act.

Modes of Losing Indian Citizenship:

1. Renunciation of Citizenship [Section 8]

- An Indian Citizen of full age and capacity can renounce his Indian citizenship by making a **declaration** to that effect and having it registered.
- If a declaration is made during **any war**, the registration shall be withheld until the Central Government otherwise directs.
- When a male person renounces his citizenship, every minor child of him ceases to be an **Indian citizen**.

2. Termination of Citizenship [Section 9]

- If a citizen of India voluntarily acquires the citizenship of another

country, he shall cease to be a citizen of India.

- During the war period, the provision does not apply to a citizen of India, who acquires the citizenship of another country in which India may be engaged voluntarily.

3. Deprivation of Citizenship [Section 10]

It is a compulsory termination of citizenship of India. A citizen of India by naturalization, registration, domicile, and residence, may be deprived of his citizenship by an order of the Central Government if:

- The citizen has obtained the citizenship by means of **fraud**, false representation, or concealment of any material fact.
- The citizen has shown **disloyalty** to the Constitution of India.
- The citizen has unlawfully traded or communicated with the enemy during a war.
- The citizen has, been **imprisoned** in any country for two years.
- The citizen has been ordinarily resident out of India for seven years continuously.

Key Facts:

- As per the official records till February 2021, over 6.7 lakh Indians renounced their citizenship between 2015-19.
- **In 2018**, the **Ministry of Home Affairs** revised the **Form XXII** under the Citizenship Rules for declaration of renunciation of citizenship, which for the first time included a column on "circumstances/reasons due to which applicant intends to acquire foreign citizenship and renounce Indian citizenship".

NEW RULES TO EMPOWER STATES TO BUY POWER ON SHORT TERM CONTRACT

Ministry of Power has promulgated **Electricity** (Transmission System Planning, Development, and Recovery of Inter-State Transmission Charges) **Rules-2021** to pave way for power sector utilities to easily access the electricity transmission network across India.

Highlights:

- The power plants will **no longer have to specify their target beneficiaries**, a deviation from the present system of taking transmission access.
 - At present, generating companies apply for **long-term access** (LTA) based on their supply tie-ups while **medium-**

India defined the term "**public interest litigation**" in the Indian context.

Significance of PIL:

- It gives a wider description to the **right to equality**, life, and personality, guaranteed under part III of the Constitution of India.
- It is an effective instrument for changes in the society or **social welfare**.
- Any person can seek remedy on behalf of the oppressed class by introducing a PIL.
- PIL **hold public bodies** to account by ensuring that they make appropriate decisions, act fairly and within the remit of their powers.
- Helps to develop the law by giving judges the opportunity to interpret legislation.
- Give **vulnerable people** a voice by highlighting an issue and providing a platform for advocating for their rights.

- **Raise awareness** of important issues encouraging public debate and media coverage.

Weaknesses of PIL:

1. Problem of Competing Rights

- PIL actions may give rise to the problem of **competing rights**.
- When a court orders the closure of a polluting industry, the interests of the workmen and their families who are deprived of their livelihood may not be considered by the court.

2. Disadvantaged Groups

- PIL matters concerning the exploited and **disadvantaged groups** are pending for many years.
- Inordinate delays in the disposal of PIL cases, render leading judgments merely of academic value.

3. Problem of Judicial Directions

- The courts are unwilling to punish the violators of their own orders through the exercise of their contempt power.
- Frequent, defiance of judicial order might dilute the credibility of the courts.

HEALTH BENEFIT PACKAGE UNDER AYUSHMAN BHARAT REVISED

The **National Health Authority** (NHA) has revised the Health Benefit Package (HBP) Master under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (**AB PM-JAY**).

- NHA is the **apex body** for implementing AB PM-JAY.

Highlights:

- The revised the Health Benefit Package (HBP) or HBP 2.2 is expected to be rolled out from November, 2021.
- In HBP 2.2, **rates of some health packages** have been increased by 20 percent to 400 per cent under PM-JAY.
- Around, **400 procedure rates** have been revised and one new additional medical management package related to black fungus has also been added.
- NHA has undertaken rate revision in the following categories:
 - Radiation oncology procedures
 - Medical Management procedures like procedure for dengue, acute febrile illness

- Surgical package treatment for black fungus

Significance:

- HBP 2.2 will **strengthen** the empanelled hospitals to provide better healthcare services to the beneficiaries under Ayushman Bharat PM-JAY.
- The revised packages for oncology will **enhance cancer care** for the beneficiaries in the country.

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY):

- PMJAY was launched on 23rd September, 2018 in **Ranchi, Jharkhand**.
- It is the **largest health assurance scheme** in the world.
- **Aim:**
 - To provide a **health cover of Rs. 5 lakhs per family per year** for secondary and tertiary care hospitalization.
 - To cover more than **10.74 crores** poor and vulnerable

families (over 50 crore Indian citizens) without any limitations pertaining to family size and age.

- The **beneficiaries get an e-card** that can be used to avail services at an empanelled hospital, public or private, anywhere in the country to obtain **cashless treatment**.
 - The coverage includes **3 days of pre-hospitalisation** and **15 days**

of post-hospitalisation expenses.

- It subsumed the then existing **Rashtriya Swasthya Bima Yojana (RSBY)** which had been launched in 2008.
- The households in PMJAY are included based on the deprivation and occupational criteria of **Socio-Economic Caste Census 2011 (SECC 2011)** for rural and urban areas respectively.

DEMAND FOR 'RIGHT TO HEALTHCARE' LAW REVIVED IN RAJASTHAN

Jan Swasthya Abhiyan (JSA), a network of civil society organisations has raised the demand for the enactment of a legislation on the **right to healthcare in Rajasthan**.

Highlights:

- **Representatives of health rights groups and public health specialists** have demanded that the state government should bring a bill on the right to healthcare in the Assembly on the basis of the **draft** provided by the JSA.
- The legislation aims to ensure access to basic healthcare services to every citizen within 3 km of his or her residence.

Right to Health:

- The **right to health** was first articulated in the **WHO Constitution (1946)** which states it as the enjoyment of the highest attainable standard of health.
- The 1948 **Universal Declaration of Human Rights** mentioned health as part of the right to an adequate standard of living (Article 25).
- It recognised as a **human right** in 1966 in the **Article 12** of International Covenant on Economic, Social and Cultural Rights.
- **UN Sustainable Development Goal 3** aims at ensuring healthy lives and promoting well-being for all at all ages.

Constitutional provisions related to Right to Health:

- Indian Constitution **does not expressly guarantee** a fundamental right to health.
- The Directive Principles of State Policy in **Part IV** of the India Constitution provide a basis for the **right to health**.
- **Article 39 (E)** directs the State to secure health of workers.
- **Article 42** directs the State to just and humane conditions of work and maternity relief.
- **Article 47** casts a duty on the State to raise the nutrition levels and standard of living of people and to improve public health.

Challenges:

Low expenditure on healthcare:

- Healthcare expenditure accounts for only 1.2% of GDP, much lower than WHO recommendation of 5%.
- Out of pocket expenditures amount to 625 of the expenditure.
- 76% of the population has no health insurance.

Insufficient infrastructure:

- Public healthcare institutions are under-funded and private ventures are expensive.
- Most of the specialists and specialized equipment are concentrated in private hospitals.

Unavailability of adequate healthcare in rural areas:

- Primary healthcare centres do not have enough number of doctors.

- Only 30% of healthcare services are present in rural areas, while 70% of population resides in rural India.

Dual Disease burden:

- Lifestyle diseases such as hypertension, diabetes, obesity is to be dealt with along with a hoard of communicable and endemic diseases.

Lack of resources:

- Hospitals and healthcare institutions function in extreme conditions due to

lack of transport, shortage of trained staff, overcrowded wards etc.

- Hospital administration is short of funds and do not deploy adequate number of resources.

Low Doctor-Patient Ratio:

- The doctor patient ratio in India is 1:10189, which is dismally low than WHO's recommendation of 1:1000.
- This is due to **expensive medical education** and **bottle-necked speciality availability** post MBBS.

PM MODI TO DEDICATE 35 OXYGEN PLANTS TO NATION AT AIIMS RISHIKESH

The Prime Minister of India dedicates **35 oxygen plants** to the nation from AIIMS Rishikesh.

Highlights:

- The plants are established under the **PM CARES FUND**, across **35 states and union territories**. They are considered to be a vital healthcare infrastructure.
- Till now, a total of **1224 oxygen plants** have been setup under the fund, with an output of over **1750 MT of oxygen per day**.

Pressure swing adsorption (PSA):

- PSA is the process by which **ambient air passes** through an **internal filtration system** (such as a

molecular sieve) which has a large enough total surface area to separate nitrogen (N₂) from the air while concentrating the remaining oxygen (O₂) to a known purity.

What are PSA plants?

- **Pressure swing adsorption (PSA)** oxygen generating plants are a source of **medical-grade oxygen from ambient air**.
- Medical grade **oxygen 93** contains between 90% V/V and 96% V/V of Oxygen. Remainder mainly consists of argon and nitrogen.
- They are easy to install: preassembled and skid-mounted, or containerised.

GOVT DEVELOPS APPLICATION ECOSYSTEM TO EXPEDITE PROCUREMENT OF FARMERS' PRODUCE

Department of Food and Public Distribution has developed an integrated ecosystem for the integration of procurement portals of all state governments by associating **Minimum Threshold Parameters (MTPs)** to procurements for monitoring and strategic decision making.

Highlights:

- The integration began with the initiative of KMS (Knowledge Management Systems) 2021-22 in October, 2021.

Need for the move:

- **Due to variations in the procurement systems** of Food Corporation of India and State Governments, there emerge both

systemic and implementation challenges for implementing the schemes of Centre Government.

- This can lead to avoidable delays in the release of funds for Minimum Support Price (MSP) to States.
- **Standardization of the operations** are essential in achieving greater levels of transparency and efficiency in procurement operations, which ultimately lead to fulfilling the goals of National Food Security Act.

Significance:

- To enable farmers to **get the best value** for their produce and avoid resorting to distress sale.

- To **avoid middlemen** in procurement process.
- For **better management of procurement operations** by the State agencies and FCI (Food corporation of India) with the limited resources.
- For **automation and standardization** of procurement operations and facilitate storage in godowns.

Minimum Threshold Parameters:

- These are necessary parameters to **ensure uniformity and interoperability** in all procurement portals for the proposed Central Foodgrains Procurement Portal to function efficiently.
- The **parameters** are:
 - Online Registration of Farmers/Sharecroppers.
 - Integration of registered farmer data with State’s land record portal.
 - Integration of Digitized Mandi/Procurement centre operations.
 - Online payment through Expenditure Advance Transfer (EAT) module of PFMS (Public financial management System).
 - Wheat delivery management.

MSP (Minimum Support Price)

Mechanism:

- MSP is the rate at which Government of India (GoI) **purchases crops** from farmers.
- MSP was introduced in the mid-sixties when India was **food-deficit**.
 - The government was keen to boost **domestic production and crop**

diversification through the Green Revolution technologies.

- The farmers were reluctant to invest in input-intensive-high yield varieties unless guaranteed a minimum price for produce.
- **Mechanism:**
 - Crops offered by farmers, within the stipulated period & conforming to the specifications prescribed by GoI are purchased at MSP by the State Government agencies and Food Corporation of India (FCI) for Central Pool.
 - If producer/farmer gets better price in comparison to MSP, they are free to sell their produce in open market i.e., to private trader/ anyone.
- MSP is set by the Central Government on the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**. It is **fixed prior** to the sowing season and is not altered.
- In 2021, Government has fixed MSPs for **23** crops:
 - 7 kinds of cereal (Paddy, Wheat, Maize, Bajra, Jowar, Ragi and Barley)
 - 5 pulses (Chana, Arhar/Tur, Urad, Moong and Masur)
 - 7 oilseeds (Rapeseed-Mustard, Groundnut, Soybean, Sunflower, Sesamum, Safflower and Nigerseed)
 - 4 commercial crops (Cotton, Sugarcane, Copra and Raw Jute).
- Minimum rate for MSP= 1.5*Cost of production.

Types of Cost of production:

- **CACP** considers both A2+FL and C2 costs while determining MSP

A2	A2+FL	C2
All cost incurred in terms of cash or kind. Example: price of seeds, fertilisers, pesticides, hired labour, leased-in land, fuel, irrigation, etc.	A2+ value of unpaid family labour.	Comprehensive cost covering rentals and interest forgone on owned land and fixed capital assets, in addition to A2+FL.

CYBERSECURITY NORMS: CISO AT EACH ‘RESPONSIBLE ENTITY’

The **Central Government** has released cybersecurity guidelines for the power sector which will apply to all responsible entities.

Highlights:

- The guidelines are a **precursor** to cybersecurity regulations that the Central Electricity Authority is working on.
- It will **apply** to power generation utilities, distribution utilities, transmission companies and load dispatch centres, system integrators, equipment makers, vendors, service providers, IT hardware and software OEMs engaged in power supply system.
- The key requirements include appointment of a **Chief Information Security Officer (CISO)** at each “**responsible entity**” as well as the setting up of an **Information Security Division** headed by the CISO.
- The entities will also be required to incorporate a **procedure for identifying and reporting of any disturbances** suspected or confirmed to be caused by sabotage.
 - They have to submit the report to the sectoral Computer Emergency Response Team (CERT) and the Indian CERT within 24 hours.

Need for the move:

- Four of India’s five **regional load dispatch centres** of India have faced cyberattacks in past some months.
- **Red Echo**, a hacker group affiliated with the **Chinese government** is speculated to targeting India’s power grid.

CISO (Chief Information Security Officer):

- CISO is a senior-level executive responsible for **developing and implementing** an information security program.
 - The program includes **procedures and policies** designed to protect enterprise communications, systems and assets from both internal and external threats.
- CISO is tasked with anticipating, assessing and actively managing new and emerging threats.

Cyber Security:

- Cyber security refers to **the body of technologies, processes, and practices designed to protect** networks, devices,

programs, and data from attack, damage, or unauthorized access.

• Need for Cyber security:

- Government, military, corporate, financial, and medical organizations collect, process, and store unprecedented amounts of data on computers and other devices.
- A significant portion of data can be sensitive information, whether that be intellectual property, financial data, personal information, or other types of data for which unauthorized access or exposure could have negative consequences.

Threats to Cyber-security:

- A cybersecurity threat is a **malicious and deliberate attack** by an individual or organization to gain unauthorized access to another individual’s or organization’s network to damage, disrupt, or steal IT assets, computer networks, intellectual property, or any other form of sensitive data.

Types of threats:

- **Malware attacks:** Malware is defined as malicious software, including spyware, ransomware, viruses, and worms, which gets installed into the system when the user clicks a dangerous link or email.
- **Phishing:** Cybercriminals send malicious emails that seem to come from legitimate resources.
- **Spear phishing:** A more sophisticated form of a phishing attack in which cybercriminals target only privileged users such as system administrators.
- **Man in the Middle (MitM) attack:** This occurs when cyber criminals place themselves between a two-party communication.
- **Denial of Service attack:** Aims at flooding systems, networks, or servers with massive traffic, thereby making the system unable to fulfil legitimate requests.
- **Structured Query Language (SQL) injection attack:** This occurs when cybercriminals attempt to access the

database by uploading malicious SQL scripts.

- **Zero-day Exploit attack:** Occurs when software or hardware vulnerability is announced, and the cybercriminals exploit the vulnerability before a patch or solution is implemented.
- **Advanced Persistent threat:** Occurs when a malicious actor gains unauthorized access to a system or network and remains undetected for an extended time.

- **Ransomware:** A type of malware attack in which the attacker locks or encrypts the victim's data and threatens to publish or blocks access to data unless a ransom is paid.
- **Domain Name System (DNS) attack:** Attackers leverage the DNS vulnerabilities to divert site visitors to malicious pages (**DNS Hijacking**) and exfiltrate data from compromised systems (**DNS Tunnelling**).

PEOPLES' ASSESSMENT OF THE RTI REGIME IN INDIA - SATARK NAGRIK SANGATHAN (SNS)

According to an analysis by the **Satark Nagrik Sangathan (SNS)**, a citizen's vigilance group, there is a **huge backlog in processing Right to Information** applications.

Highlights:

- Twelve State Information Commissions plus the Central Information Commission would need at least a year to dispose of their appeals, as the nationwide backlog has crossed **2.55 lakh cases**.
 - **For Example:** At the current rate of operations, a complaint filed under the Right to Information Act (RTI) in 2021 in Odisha would not be disposed of by the State's Information Commission until 2028.
- The **delays in disposing of cases** are due to both shortage of personnel and inefficient operations.

Right to Information:

- Right to Information Act came into force on **October 12, 2005**.
- **Initiative by:** Department of Personnel and Training, Ministry of Personnel, Public Grievances and Pensions.
- It is a big step towards **making the citizens informed about the activities of the Government**.
- The RTI related information is published on the web by various Public Authorities under the government of India as well as the State Governments.

Objectives:

- To empower the citizens, promote transparency and accountability in the working of the Government.
- To contain corruption, and make Indian democracy work for the people in real sense.

Functions:

- It mandates timely response to citizen requests for government information.
- It provides a RTI Portal Gateway to the citizens for quick search of information on the details of first Appellate Authorities, PIOs etc. amongst others.

Mechanism:

- Any citizen of India may request information from a "public authority" (Central or State Government), which is required to reply expeditiously or **within thirty days**.
- In case of matter involving a petitioner's life and liberty, the information has to be provided **within 48 hours**.

Governance:

RTI in India is governed by two major bodies:

1. **Central Information Commission (CIC)** – Chief Information commissioner who heads all the central departments and ministries- with their own public Information officers (PIO)s. CICs are directly under the President of India.
2. **State Information Commissions** – State Public Information Officers or SPIOs head over all the state

department and ministries. The SPIO office is directly under the corresponding State Governor.

- State and Central Information Commissions are independent bodies and Central Information Commission has no jurisdiction over the State Information Commission.

Issues relating RTI:

- There is **low public awareness** among the public, especially from the disadvantaged communities regarding how to exercise their rights contemplated under the Act.
- There are **several constraints** in implementation of RTI guidelines. Further, there is a non-availability of user guides, in some states.
 - Lack of user guide results in hardship to information seekers to gather knowledge about the process for submitting a RTI request.
- Due to lack of infrastructure and adequate processes to comply with the

RTI Act, the **quality of information provided is very low.**

- The information provided is either incomplete or lacks the substantial data and transparency.
- There is a **delay of the Public Authority** in providing information within 30-45 days once the complaint is filed.
- There is **no centralized database** of RTI applicants which results in delay in accurate and timely compilation.

Key facts:

- The right to information has been recognised as a Fundamental right under **Part III** of the Constitution by the Supreme Court in several cases.
 - It protects the fundamental rights to Freedom of Expression and Speech under **Article 19(1)(a)** and Right to Life and Personal Liberty under **Article 21.**
- There are an estimated **40 lakh to 60 lakh RTI** requests being filed every year.

POWER MINISTRY MANDATES ENERGY ACCOUNTING OF DISCOMS TO CUT ELECTRICITY LOSSES

The Ministry of Power has mandated energy accounting of Distribution Companies (Discoms) on a periodic basis to reduce electricity losses.

Highlights:

- The regulations have been issued by the **Bureau of Energy Efficiency (BEE)** under the provisions of the **Energy Conservation Act, 2001.**
- **Objective:** To reduce distribution sector inefficiency and losses, hence moving towards the economic viability of discoms.

Key Points:

- It stipulates **quarterly energy accounting** by discoms through a certified energy manager within 60 days.
- There will an annual energy audit by an energy auditor. The reports will be published in the public domain.

- The reports will provide information about **electricity consumption** by consumers, the transmission and distribution losses in various areas.

- It will identify areas of high losses and theft and enable corrective actions.
- It will enable the fixation of responsibility on officers for **losses and theft.**
- The data will enable the discoms to take appropriate measures for reducing their electricity losses.
- **The discoms** will be able to plan, suitable infrastructure up-gradation and demand-side management (DSM) efforts in an effective manner.
- This initiative will contribute towards India's climate actions in meeting **Paris Agreement goals.**

What is Energy accounting?

- Energy accounting is a system to record, analyse and **report energy**

consumption and cost on a regular basis.

In the power sector, energy accounting involves preparation of a “**balance sheet**” of energy, the preparation of accounts of:

- The energy flow to various segments.
- **Energy consumption** by various categories of consumers.
- Energy losses including both technical and commercial losses at various stages.
- Energy required for meeting the technical requirements of the system out of the total energy available over a specified time period.

Objectives of Energy Accounting:

For power distribution utilities, the objectives are:

- **To segregate losses** into technical/non-technical losses.
- To identify areas of mismatch between billing and revenue collection and improve metering, billing, and collection.
- To **identify high loss areas** and remedial steps for reduction of both technical and commercial losses.
- Initiate benchmarks of actual system losses with the standards.

Functions:

- Monitoring conformity with meeting requirements.
- **Preparing energy flow diagrams** and energy balancing.
- Performance Degradation analysis and benchmarking.
- **Fuel procurement** and handling efficiency.
- Estimation of Non-Metered Consumption.
- Generating management information systems reports.

Significance:

- It helps to establish the **energy input** consumed by various consumers, identify high loss areas, and evolve strategies to reduce losses.
- It is as fundamental to energy management as cost accounting is to financial management.
- It is one of the most **cost-effective tools** to cut energy costs and conserve energy.
- It can raise awareness about reducing energy demand and help in energy conservation efforts.

INDIA EMBARKS ON LARGE SCALE BATTERY ENERGY STORAGE SYSTEM FOR 1 GW/HOUR PROJECT

The Central government has given its approval for inviting the expression of interest for installation of 1000 MWh Battery Energy Storage System (BESS) as a pilot project.

- The decision comes as a big support to the Ministry of New and renewable which intends to achieve 450 GW renewable energy target by 2030.
- The government has allowed the state-owned **Solar Energy Corp of India (SECI)** to call expressions of interest (EoI) for **setting up a 1 gigawatt-hour (GWh) grid-scale battery storage system.**

India’s plans to use energy storage system in 6 Areas:

- In a push towards “**Green Energy**” goals, the government intends to use energy storage system for integration

of India’s Renewable energy with the country’s power system.

- Then, the energy storage system will be **used as a grid element to maximize the use of the transmission system and strengthen grid stability.** The objective is to save investment in the augmentation of transmission infrastructure.
- Energy Storage will be useful as an asset to **balance services and for flexible operation.**
 - The system operator or load dispatchers (RLDCs and SLDCs) may use these storage systems for frequency control and balancing services to manage the inherent uncertainty/variations in the load due to un-generation.

- Energy Storage will be **manoeuvred for the distribution system**. It may be placed at the load centre to manage its peak load and other obligations.
- Under business cases, India plans to use the energy storage system developer as a **merchant capacity and thereby sell it in the power market**.
- Moreover, it may be **utilized for any other future business models** as a combination of all the above.

India's Renewable Energy goals:

- Currently, India is conducting the **world's largest clean energy programme**, under which it aims to achieve 175 GW of renewable capacity, including 100GW of solar power by 2022.
- According to the Central Electricity Authority of India, there will be a need for 27GW of grid-scale battery energy storage systems by 2030 with four hours of storage.
- Till date, India has crossed 100 gigawatts (GW) of installed solar and wind capacity, with another 63GW under construction as a part of its' green energy targets.

What is battery energy storage system (BESS)?

- Battery Energy Storage System (BESS) is a technology developed for **storing electric charge by using specially developed batteries**.
- The underlying idea being that **such stored energy can be utilized at a later time**.
- BESSs are a **sub-set of Energy Storage Systems (ESSs)**.
- Energy Storage System is a general term for the ability of a system to store energy using thermal, electro-mechanical or electro-chemical solutions.

- A BESS typically utilizes an **electro-chemical solution**.

Need of BESS for India:

- Increasing electricity demand, due to the increase in population, industrialization, and urbanization in the country, is likely to drive the India battery energy storage systems market.
- BESS can provide energy when there is a shortage of it, thus making the workflow smooth.
 - Many areas in the country face several power cuts during the day, which creates hindrance in the workflow.
- BESS can hold extra power that the solar and wind energies produced for its later use, thus maximizing the use of energy generated.
 - In 2019, the total electricity generated in India was 1561.1 terawatt-hours (TWh), which was higher than what is produced in 2017, 1470.3 terawatt-hours (TWh).
- In 2019, Tata Power, AES Corporation, and Mitsubishi Corporation inaugurated India's first **grid-scale battery-based energy storage system** in Rohini, Delhi.
 - The 10 megawatts (MW) grid-connected system, owned by AES and Mitsubishi Corporation.
- Battery-based energy storage **enables electricity to be stored and then delivered within milliseconds**, reducing the instability of the electric grid and enabling more energy to be captured and delivered on-demand.
- Hence, increasing energy demand is expected to drive the India battery energy storage systems market during the forecast period.

NOKKUKOOLI NOT A RIGHT, SAYS RAJEEVE

According to Kerala Industries Minister, **Nokkukooli** or the **practice of insisting on compensation for notional works**, should not be considered a right.

Highlights:

- Focus will be on **workers' opportunities**, which should not be denied and creation of new opportunities.

- It covered areas like the **Code on Society Security 2020, Occupational Safety, Health and Working Conditions Code 2020.**

- **The labour code** will be steeped in the idea of ease of doing business, for this the state government would ascertain the opinion of stakeholders that included workers and the management.

'QUASHING '21 TRIBUNAL LAW VIOLATES SEPARATION OF POWERS'

The **Supreme Court** has criticized the **Central Government** on overruling the court's judgement on **Tribunal Reforms Act 2021.**

Genesis:

- In July 2021, the Supreme Court of India had **struck down** the old provisions for administration of tribunals relating to **tenure** and some other service conditions.
- However, the Central Government brought back the **very same provisions** for administration of tribunals in the **2021 Tribunal Reforms Act**, which were struck down in July.
- The SC in September **expressed its dissatisfaction** over Central Government for the move, terming it as an **overrule** the court's judgment.
- In response, the Union government has argued that the top court is violating the **constitutionally mandated separation of powers provision**, by quashing the laws already passed by the Parliament.

Separation of powers:

- The system of separation of powers divides the tasks of the state into three branches: **legislative, executive and judicial.**
- These tasks are assigned to different institutions in such a way that each of them can **check** the others.

- As a result, **no one institution can become so powerful in a democracy** as to destroy this system.
- The theory of separation of powers signifies mainly three formulations of Governmental powers:
 - The same person should not form part of more than one of the three organs of the state.
 - One organ should not interfere with any other organ of the state.
 - One organ should not exercise the functions assigned to any other organ.
- India follows **constitutional democracy** which offers a clear separation of powers.
 - **Judiciary** is independent of the other two branches with the power to interpret the constitution.
 - **Parliament** has the legislative powers.
 - **Executive** powers are vested in the President who is advised by the Union Council of Ministers headed by the Prime Minister.
- All three branches have "**checks and balances**" over each other to maintain the balance of power and not to exceed the constitutional limits.

NITI AAYOG LAUNCHES GEOSPATIAL ENERGY MAP OF INDIA IN COLLABORATION WITH ISRO

NITI Aayog has recently launched a Geospatial Energy Map of India.

Highlights:

- NITI Aayog has collaborated with **Indian Space Research Organisation (ISRO)** and Energy

Ministries of Government of India to produce this map.

- The map provides a **holistic picture** of all energy resources of the country-- installations such as conventional power plants, oil and gas wells, petroleum refineries, coal fields

and coal blocks, district-wise data on renewable energy power plants and renewable energy resource potential etc.--which enables visualisation of energy through 27 thematic layers.

Utility of the GIS map:

- To **identify and locate** all primary and secondary sources of energy.
- To locate **transportation/** transmission networks of energy resources.
- To provide a **comprehensive view** of energy production and distribution in India.
- To **integrate energy data** scattered across multiple organizations and present it in a consolidated, visually appealing graphical manner.
- To **ensure real-time and integrated planning** of energy sector of India.
- To serve as a **research tool** in energy policy making.

Geographic Information System (GIS):

- A geographic information system (GIS) is a system that **creates, manages, analyses, and maps** all types of data.
- GIS connects data to a map, **integrating location data** (where things are) with all types of **descriptive information** (what things are like there).
- GIS provides the capability to relate previously unrelated information, through the use of location as the "**key index variable**".
- GIS data represents **real objects** (such as roads, land use, elevation, trees, waterways, etc.) with digital data determining the mix.
- It is an important tool in spatial analysis.
 - **Spatial analysis** is used to evaluate suitability and capability, estimate and predict, interpret and understand, and lend new perspectives to a decision-making process.

WEB-BASED PROJECT MONITORING PORTAL FOR MILITARY ENGINEER SERVICES

RakshaMantri has launched **Web Based Project Monitoring Portal (WBPMP)** for Military Engineer Services (MES) at New Delhi recently.

- The portal conceptualized in accordance with the **Digital India Mission** of the Union Government.

Web Based Project Monitoring Portal:

- It has been developed by **Bhaskaracharya National Institute**

for Space Applications and Geoinformatics (BISAG-G).

- The unified portal is the **first project management e-Governance** to be implemented by the MES.
- It will enable **real time monitoring of projects** from its inception to completion.
- All stakeholders not only from MES but also Armed Forces users can gain access to the project information.

152 SAKSHAM CENTRES (CENTRE FOR FINANCIAL LITERACY & SERVICE DELIVERY) LAUNCHED AS PART OF AMRIT MAHOTSAV

The Ministry of Rural Development launched 152 Centre for Financial Literacy & Service Delivery (SAKSHAM) across 77 districts of 13 states as part of Azadi ka Amrit Mahotsav under Deendayal Antyodaya Yojana and National Rural Livelihoods Mission (DAY-NRLM).

Highlights:

- Centre for **Financial Literacy & Service Delivery (CFL&SD)** will provide basic financial needs of Self-

Help Group (SHG) households in rural areas.

- The Centers will be managed by **SHG network**, largely at Cluster Level Federations (CLFs), with the help of trained Community Resource Persons (CRPs).
- Ministry of Rural Development (MoRD) developed a mobile & web-based application "**SAKSHAM**" used by the community resource person of the Centre

- To know the penetration of various **financial services** for each SHG & village.

- Identify major gaps and accordingly provide training and deliver the required financial services.

WEST BENGAL'S POWER TO WITHHOLD CONSENT TO CBI INVESTIGATION NOT ABSOLUTE: CENTRE TO SC

The Union Government has told the Supreme Court that the West Bengal State Government does not have any absolute power to keep the Central Bureau of Investigation (CBI) from investigating crimes inside the State.

Highlights:

- The Union Government was responding to a suit filed by the West Bengal Government against the Union of India under Article 131 of the Constitution.
- **Article 131** gives the Supreme Court original jurisdiction (i.e., the Supreme Court can hear the case first-hand rather than reviewing a lower court's judgment) **to mediate disputes between states or between the Centre and states.**

General Consent:

- General consent is given to help the CBI conduct its investigation into cases of corruption against central government employees in the concerned state. Almost all states have given such consent. Otherwise, the CBI would require consent in every case.

- The CBI **must mandatorily have the consent** of that **state government**, in order to conduct an investigation in a state
- The general consent is **given by State governments for periods ranging from six months to a year** to the CBI and all agencies under the Delhi Special Police Establishment (DSPE) Act, 1946.
- There are two kinds of consent: **general and specific.**
 - When a state gives a **general consent** to the CBI for probing a case, the agency is not required to seek fresh permission every time.
- When a **general consent is withdrawn, CBI needs to seek case-wise consent** for investigation from the concerned state government.
- If **specific consent is not granted, the CBI officials will not have the power** of police personnel when they enter that state.
- There are **seven states which have withdrawn general consent** to the CBI: Mizoram, West Bengal, Rajasthan, Maharashtra, Chhattisgarh, Kerala and Jharkhand.

OVER 700 HELD IN J&K AHEAD OF AMIT SHAH'S VISIT

Highlights:

- Post-civilian killings and in the days running up to Union Home Minister's visit to Srinagar, around 700 people have been detained in Jammu and Kashmir, including a few under the stringent **Public Safety Act (PSA).**

Public Safety Act (PSA), 1978:

- This is a **preventive detention law** that allows to **detain** a person up to **two years without a trial** to prevent him or her from acting in any manner that is prejudicial to the security of the state or the maintenance of the public order.

- It comes into force by an **administrative order** passed either by **Divisional Commissioner or the District Magistrate**, and not by a detention order by police based on specific allegations or for specific violation of laws.
- It was brought in to prevent timber smuggling, and keep the smugglers in prison.
- It is similar to the **National Security Act**, but this was enacted two years before the NSA came into being.

What happens after PSA is used?

- When a person is detained under the PSA, the **DM communicates** to the person within **five days**, in writing, the reason for the detention or can take up to **10 days in exceptional circumstances**, or as per Section 13(2), can refrain from it altogether if he or she thinks the disclosure of the facts is against public interest.
- Within **four weeks** of passing the detention order, the government has to **refer the case** to an **Advisory Board**.
- This Advisory Board will have to give its recommendations within **eight weeks** of the order.
- If the Board thinks that there is cause for preventive detention, the government can hold the person up to two years.

Issues with the law:

- When a person is arrested under the PSA, they do not have the right for legal representation before the Advisory Board unless sufficient grounds can be established that the detention is illegal.
- The PSA **allows for detention** of a person **without a formal charge** and without trial. It can be **slapped on a person already in police custody**; on someone immediately **after being granted bail by a court**; or even on a **person acquitted by the court**.
- A person who is detained under the PSA need **not** be produced before a magistrate within 24 hours of the detention.
- The detained person **does not have the right to move a bail application** before a criminal court, and **cannot engage any lawyer** to represent him or her before the detaining authority.
- However, if the order is quashed, there is **no** bar on the government passing another detention order under the PSA and detaining the person again.

Safeguards to the detainees:

- This administrative preventive detention order can be **challenged** through a **habeas corpus** petition

filed by relatives of the detained person.

- The **High Court** and the **Supreme Court** have the **jurisdiction to hear petitions** and pass a final order seeking quashing of the PSA, thereby providing judicial safeguard to the detainee.
- **Article 22(a)** of the Constitution states that no person who is arrested shall be detained in custody without being informed, of the grounds for such arrest, nor shall he be denied the right to consult, and to be defended by, a legal practitioner of his choice.
- **Article 22(b)** states that every person arrested and detained shall be produced before the nearest magistrate within a period of 24 hours and no such person shall be detained beyond this period without the authority of a magistrate.
- However, **Article 22(3)(b)** allows for preventive detention and restriction on personal liberty for reasons of state security and public order.

Provisions for District Magistrate:

- The DM is under a legal obligation to analyze all the circumstances and material before depriving that person of his or her personal liberty.
- As the DM can detain a person multiple times under the PSA, he or she has to produce fresh facts while passing the subsequent detention order.
- He/She has to show that the detention order **follows the procedure established by law**.
- The District Magistrate who has passed the detention order has protection under the Act, which states that the order is considered “done in good faith”. Therefore, there can be no prosecution or any legal proceeding against the official who has passed the order.
- After an amendment by the Governor, persons detained under the PSA in Jammu & Kashmir **can be detained in jails outside the state**.

GOVERNMENT AMENDS INDIAN TELEGRAPH RIGHT OF WAY RULES, 2021

The Central Government has notified the **Indian Telegraph Right of Way (Amendment) Rules, 2021** recently.

- It incorporates the provisions related to nominal one-time compensation and uniform procedure for establishment of Overground Telegraph Line in the Indian Telegraph Right of Way Rules, 2016.

Genesis:

Amendments:

- The amount of one-time compensation for establishment of overground telegraph line will be **maximum one thousand rupees per kilometre**.
- Documentation for RoW application for overground telegraph line has been made simple.
- There will be **no fee other than Administrative fee and Restoration charges** for establishing, maintaining, working,

repairing, transferring or shifting the underground and over ground telegraph infrastructure.

- These amendments will ease **Right of Way related permission procedures** for establishment and augmentation of Digital Communications Infrastructure across the country.

Significance:

- With a robust pan India digital infrastructure, the **digital divide** between rural-urban and rich-poor will be bridged.
- **E-governance and financial inclusion** will be strengthened; doing business will be easy; information and communication needs of citizens and enterprises will be fulfilled.
- Ultimately, the dream of India's transition to a **digitally empowered economy and society** will be translated into reality.

STATE ENERGY EFFICIENCY INDEX, 2020 RELEASED BY UNION GOVT

The State Energy Efficiency Index has been recently released by Bureau of Energy Efficiency (BEE) and Alliance for an Energy Efficient Economy (AEEE).

Highlights:

- **27 States and UTs improved** their scores compared to SEEI 2019.
- Out of these, seven States — Assam, Andhra Pradesh, Karnataka, Maharashtra, Punjab, Rajasthan and Tamil Nadu — improved by more than 10 points.

State Energy Efficiency Index:

- The index categorized States into four based on the score.
 - Those with **above 60** points are '**front-runners**', states with **50-60** points are '**achievers**', **30-49.5** points are '**contenders**'

and **less than 30 points** would get '**aspirant**' status.

- The performance has been measured through 68 indicators across six sectors: buildings, industry, municipalities, transport, agriculture and distribution companies (Discoms), and cross sector initiatives.

Objectives:

- Help drive **Energy Efficiency (EE) policies** at the state and local level.
- Highlight best practices and **encourage healthy competition** among states.
- **Track progress** in managing the states' and India's energy footprint.
- Set a baseline for EE efforts and provide a foundation to set state specific EE targets.
- **Institutionalize data capture** and monitoring of EE activities by states.

GOVT LAUNCHES PHASE-II OF MAHATMA GANDHI NATIONAL FELLOWSHIP

Recently, Union Minister launched the phase-II of Mahatma Gandhi National Fellowship.

Mahatma Gandhi National Fellowship:

- It is a two-year Certificate Program in **Public Policy and**

Management offered by **Indian Institute of Management (IIMs)**.

- **Initiative of:** Ministry of Skill Development and Entrepreneurship (MSDE)
- It is being implemented in collaboration with **State Skill Development Missions (SSDMs)**.

Aim-

- To create strong convergence between education and skills.
- Focus on developing skills for local needs gives impetus to the "vocal for local".

Objective-

- To create opportunity for young, dynamic individuals to enhance skill development at the grassroots.
- To create credible plans and identify barriers in raising employment, economic output, and promote livelihoods in rural areas.
- It is designed under **Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP)**.
- **Eligibility-**
 - One must be in **21-30** years age-group
 - a **graduation degree** from a recognized university
 - A **citizen of India**.
- It is launched on a pilot basis in **75 districts** across Gujarat, Karnataka,

Meghalaya, Rajasthan, Uttar Pradesh and Uttarakhand.

All About Skills Acquisition and Knowledge Awareness for Livelihood (SANKALP) Scheme:

- It is launched by the Ministry of Skill Development and Entrepreneurship in 2018.
- It is a **centrally sponsored scheme**.
- **Aim:**
 - To improve short-term skill training through strengthening institutions.
 - To bring in better market connectivity.
 - To include marginalized sections of the society.
- **Objective:**
 - To enhance institutional mechanisms for skills development.
 - Increase access to quality and market-relevant training for the work force.
 - To reduce the mismatch between the supply and demand of skilled manpower.
- **Frame work:**
 - Institutional Strengthening (at National, State & District level);
 - Quality Assurance of skill development programs;
 - Inclusion of marginalized population in skill development;
 - Expanding Skills through Public-Private Partnerships (PPPs).

POWER MINISTER LAUNCHES THE 'GREEN DAY AHEAD MARKET'

Union Minister of Power & New and Renewable Energy, launched the new market segment- Green Day Ahead Market (GDAM).

Green Day Ahead Market (GDAM):

- National Load Despatch Centre (NLDC), POSOCO is the Nodal Agency for facilitating the Green Day Ahead Market.
- The Green Day-ahead market will **operate in an integrated way** with the **conventional day-ahead market**.
- The Exchanges will **offer the market participants to submit bids together** for both conventional and

renewable energy through the separate bidding windows.

- The clearance will take place in a sequential manner - **renewable energy bids will be cleared first** in accordance with the must run status of the renewables, **followed by conventional segment**.
- This mechanism will allow **renewable energy sellers to subsequently bid in the conventional segment** should their bids remain uncleared in the green market.

- There will be **separate price discoveries for the both** the conventional and renewables.

Salient features of Green Day Ahead Market (GDAM):

- This **will deepen the green market and will provide competitive price signals**, besides offering an opportunity to the market participants **to trade in green energy**, in the most transparent, flexible, competitive, and efficient manner.
- The market-based competitive prices will **provide option to renewable generators** to sell power as well as **accelerate the renewable capacity addition** towards the Government's vision of building India as a sustainable and efficient energy economy.
- The distribution utilities would be **able to sell surplus renewable power** generated in their area.
- The **obligated entities** (distribution licensee, open access consumers and

captive power consumers) would also be able to **meet the RPO target by directly buying green power** from the power exchange.

- The **non-obligated entities** will be able to buy power on voluntary basis and help increasing the share of green power.

Significance:

- The introduction of GDAM is expected to **create a domino effect that will lead to a gradual shift from PPA based contract** to market-based models which will build and deepen the markets to the next level, paving the way for India to **meet its ambitious target of 450 GW green capacity by 2030**.
- The GDAM participation would be reduction of curtailment of green power, unlocking untapped renewable energy potential, ensuring instant payment to RE generators i.e., on the day of delivery itself.

SRINAGAR MEDICOS BOOKED UNDER UAPA

The J&K police lodged two FIRs under the Unlawful Activities Prevention Act (UAPA) a day after multiple videos showed students of two medical colleges in Srinagar celebrating the Pakistan cricket team's victory over India in the T20 World Cup.

Unlawful Activities (Prevention) Act:

- It is an Indian law aimed at **prevention of unlawful activities associations in India**.
- It acts as a predecessor of Terrorist and Disruptive Activities (Prevention) Act (TADA) and Prevention of Terrorism Act (POTA).
- **Objective:** To make powers available for dealing with activities directed against the integrity and sovereignty of India.
- **Aims:**
 - Effective prevention of unlawful activities.
 - Unlawful activity refers to any action taken by an individual or association to disrupt the

territorial integrity and sovereignty of India.

- Absolute power to the central government
- Punishments: death penalty and life imprisonment.
 - Both **Indian and foreign nationals** can be charged.
 - Punishment is applicable if crime is committed on a **foreign land**.
 - Chargesheet **can be filed in a maximum 180** days after the arrests.

The Unlawful Activities (Prevention) Amendment Act, 2019:

Definition of terrorist

- **Earlier Act:** The Central Government may designate an organisation as a terrorist organisation if it: (i) commits or participates in acts of terrorism, (ii) prepares for terrorism, (iii) promotes terrorism, or (iv) is otherwise involved in terrorism.

- **Amended act:** empowers the government to designate individuals as terrorists on the same grounds.

Approval for seizure of property by National Investigation Agency (NIA):

- **Earlier Act:** Under the Act, an investigating officer is required to **obtain the prior approval of the Director General of Police (DGP)** to seize properties that may be connected with terrorism.
- **Amended act:** Empowers **Director General of NIA** to forfeit a property which represents proceeds of terrorism in relation to an investigation being conducted by NIA.

Investigation by NIA:

- **Earlier Act:** investigation of cases may be conducted by **officers of the rank of Deputy Superintendent or**

Assistant Commissioner of Police or above.

- **Amended act:** Due to the shortages of Deputy Superintendent of Police (DSPs) in NIA, the amended act additionally **empowers the officers of the NIA, of the rank of Inspector or above, to investigate cases.**

Insertion to schedule of treaties:

- **Earlier act:** defines terrorist acts to include acts committed within the scope of any of the treaties listed in a **schedule to the Act.** The Schedule lists **nine treaties**, including the Convention for the Suppression of **Terrorist Bombings (1997)**, and the **Convention against Taking of Hostages (1979)**.
- **Amended act:** Adds another treaty of **International Convention for Suppression of Acts of Nuclear Terrorism (2005)**

CERT-IN AUTHORIZED AS CVE NUMBERING AUTHORITY (CNA) FOR VULNERABILITIES IMPACTING ALL PRODUCTS DESIGNED, DEVELOPED AND MANUFACTURED IN INDIA

Indian Computer Emergency Response Team (CERT-In) has been authorized by the CVE Program, as a **CVE Numbering Authority (CNA) for vulnerabilities impacting all products** designed, developed and manufactured in India.

- CERT-In has been undertaking responsible vulnerability disclosure and coordination for **vulnerabilities reported to CERT-In** in accordance to its vulnerability coordination role as a National CERT since its inception.
- CERT-In has partnered with the Common Vulnerabilities and Exposures (CVE) Program to move a step further in the direction to **strengthen trust in “Make in India”** as well as to **nurture responsible vulnerability research** in the country.

Computer Emergency Response Team - India (CERT-In):

- It is the national nodal agency for responding to computer security incidents as and when they occur.

- It comes under Ministry of Electronics and Information Technology.
- It is operational since January 2004.

Functions

- After the Information Technology Amendment Act 2008, CERT-In has been designated to serve as the national agency to:
 - Collection, analysis and dissemination of information on **cyber incidents**.
 - Forecast and alerts of cybersecurity incidents
 - **Emergency measures** for handling cybersecurity incidents
 - **Coordination** of cyber incident response activities.
 - Issue **guidelines** relating to information security practices and reporting of cyber incidents.

Common Vulnerabilities and Exposures (CVE):

- CVE is an international, community-based effort and relies on the community to discover vulnerabilities.

- The vulnerabilities are discovered then **assigned and published to the CVE List** from around the world that have partnered with the CVE Program.
- Information technology and cybersecurity professionals use CVE Records to **ensure they are discussing the same issue**, and to coordinate their efforts to prioritize and address the vulnerabilities.
- CVE Program is aimed to identify, define, and catalogue publicly disclosed cybersecurity vulnerabilities.
- The CVE Records published in the catalogue **enable program stakeholders to rapidly discover**

and correlate vulnerability information used to protect systems against attacks.

CVE Numbering Authority (CNA):

- CNAs are organizations responsible for the **regular assignment of CVE IDs to vulnerabilities**, and for creating and publishing information about the **Vulnerability in the associated CVE Record**.
- The **CVE List is built by CVE Numbering Authorities (CNAs)**. Every CVE Record added to the list is assigned by a CNA.
- Each CNA has a specific Scope of responsibility for vulnerability identification and publishing.

UP INVOKES SEDITION OVER CHEERING FOR PAK

Recently, Uttar Pradesh Chief Minister announced that the charge of sedition will be invoked against those celebrating Pakistan's victory against India at the recent T20 World Cup match.

Sedition

- **Section 124-A of IPC**, also known as **the Sedition Law**, was introduced in **1870 by the British**.
- It was originally drafted by **Thomas Macaulay**.
- It states that Whoever, by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards, **the Government established by law** in [India].
- The law was first used to prosecute **Bal Gangadhar Tilak** in 1897. That case led to Section 124A of the IPC being amended, to add the words '**hatred**' and '**contempt**'.
- **After independence**, the law was retained in the IPC, adding some further explanations.
- **Example:** Words or speech that incite people to rebel against the government or **governing authority**. Words that inspire a revolution that overthrows the government.

Punishment under Section 124A:

- Sedition is a **non-bailable** offence.
- Punishment under the law varies from imprisonment up to three years to a life term and fine.
- A person charged under this law can't apply for a government job.
- They have to live without their passport and must present themselves in the court as and when required.

Arguments in support of Section 124A:

- Section 124A of the IPC has its utility in **combating anti-national, secessionist and terrorist elements**.
 - Many districts in different states face a Maoist insurgency and rebel groups virtually run a parallel administration. These groups openly advocate the overthrow of the state government by revolution.
 - Against this backdrop, the abolition of Section 124A would be ill-advised merely because it has been wrongly invoked in some highly publicized cases.
- It **protects the elected government** from attempts to overthrow the government with violence and illegal means.

Arguments against Section 124A:

- Section 124A is a **relic of colonial legacy and unsuited in a democracy**.
- It is a **constraint** on the legitimate exercise of constitutionally guaranteed **freedom of speech and expression**.
- The British, who introduced sedition to oppress Indians, have themselves abolished the law in their country. There is no reason, why should not India abolish this section.
- The terms used under Section 124A like **'disaffection'** are **vague** and subject to different interpretation to the whims and fancies of the investigating officers.

Related landmark Cases

- **Tara Singh Gopi Chand Vs Punjab (1951)**: Section 124A was indisputably a **restriction on the freedom of speech** and expression and invalidated the provision on the basis that:

- It was in **contravention of the fundamental right of freedom of speech** and expression under Article 19 of the Constitution of India.
- **Debi Soren & Ors Vs Bihar (1954)**: upheld the validity of Section 124A, holding that the **law does not violate Article 19**.
- **Ram Nandan Vs Uttar Pradesh (1958)**: **Declared Section 124A void** in that case and held the government must be ready to face a strong opposition apart from popular approval or disapproval.
- **Kedar Nath (1962)**: upheld the validity of the sedition law under IPC, holding that the purpose of the **crime of sedition was to prevent the government established by law** from being subverted because "the continued existence of the Government established by law is an essential condition of the stability of the State".

AMARINDER SINGH SAYS WILL FORM NEW PARTY AHEAD OF PUNJAB POLLS, TARGETS SIDHU

Recently, the Punjab chief minister announced that he will be forming his political party in Punjab ahead of the state assembly elections.

Process of registration of a political party

- The registration of all political parties is governed by the provisions of **Section 29A** of the Representation of the People Act, 1951.
- As per the Election Commission, any party seeking **registration** has to apply to the **Commission** within 30 days following the date of its formation.
- As per existing guidelines, the applicant is asked to publish a proposed party name in two **national daily newspapers and two local daily newspapers**
- The applicant is given **two days** for submitting objections if any, about the proposed registration of the party before the Commission within 30 days from the publication.

The notice for publication is displayed on the website of the Election Commission.

Registering a political party

- An application for registration is to be submitted to the Secretary, **Election Commission of India**, in the proforma prescribed by the Commission

Recognition as a National Party:

For any political party to be eligible for recognition as a National Party, it has to satisfy any of the three conditions listed below:

- **Secure at least 6% of the valid vote** in an **Assembly or a Lok Sabha General Election** in **any four or more states** and **win at least 4 seats in a Lok Sabha General Election** from any State or State.
- **Win at least 2% of the total Lok Sabha seats** in a Lok Sabha General Election and these seats have to be won from at least 3 states.
- The party is **recognized as a State Party in at least four states**.

Recognition as a State Party:

For any political party to be eligible for recognition as a State Party in a state, it has to satisfy any of the five conditions listed below:

- Secure at least 6% of the valid vote & win at least 2 seats in an **Assembly General Election**.
- Secure at least 6% of the valid vote & win at least 1 seats in a **Lok Sabha General Election**.

- Win at least 3% of the seats or at least 3 seats, whichever is more, in an Assembly General Election.
- Win at least 1 out of every 25 seats from a state in a **Lok Sabha General Election**.
- Secure at least 8% of the total valid vote in an Assembly or a **Lok Sabha General Election**.

URBAN AFFAIRS MINISTRY LAUNCHES OPERATIONAL GUIDELINES FOR SBM 2.0 & AMRUT 2.0

Union Minister for Ministry of Housing and Urban Affairs (MoHUA) launched the operational guidelines of Swachh Bharat Mission – Urban 2.0 and AMRUT 2.0.

Highlights:

- The Centre plans to free up 15,000 acres of land, currently used as dumping sites, and provide 24x7 water supply to households in 500 cities across India in the second phase of Swachh Bharat Mission and AMRUT.

SBM-U 2.0:

- Government of India, in partnership with States/UTs and ULBs, is committed to make all cities '**Garbage Free**' and '**Water Secure**', in order to contribute to the achievement of the Sustainable Development Goals (SDG) 2030.
 - This will ultimately improve the quality of life and ease of living of urban populations, thus leading to urban transformation.
- SBM-U 2.0 envisions to ensure **grey and black water (used water) management** in all cities other than those covered under AMRUT, making all **urban local bodies ODF+** and those with a population of less than 1 lakh as **ODF++**, and **Water+**.
 - By ensuring that **no untreated used water is discharged in open** to pollute water bodies, thus achieving the vision of safe sanitation in urban areas.
- The Mission will focus on source segregation of solid waste, utilizing the principles of 3Rs (reduce, reuse,

recycle), scientific processing of all types of municipal solid waste and remediation of legacy dumpsites for effective solid waste management.

- The Mission has **revolutionized the sanitation space in urban** India by building over 70 lakh household, community and public toilets, thus providing safe and dignified sanitation solutions for all.
- The Mission has **prioritized the needs of women, transgender communities, and persons with disabilities (Divyangs)**.
- The thrust on scientific waste management is evident with waste processing in India going up by over four times from 18% in 2014 to 70% today.
 - This has been aided through **100% door-to-door waste collection in 97% wards** and source segregation of waste being practised by citizens across 85% wards.

AMRUT 2.0:

- In the spirit of "Transformation to Saturation", Prime Minister launched AMRUT 2.0 on 1 October, 2021.
 - AMRUT, first focused water Mission was **launched in June 2015 in 500 cities**.
- AMRUT 2.0 is a step towards **achieving water secure cities** to support the spirit of AatmaNirbhar Bharat.
- **ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION (AMRUT)**

2.0 targets providing household water tap connections in statutory towns and household coverage of sewerage/septage services in 500 AMRUT cities.

- Under AMRUT 2.0, cities will submit **City Water Balance Plans (CWBP)**s online on a robust Mission portal of MoHUA.
 - CWBPs will give the status of water availability, water demand and supply in the city culminating in gaps in services.
- With target of filling these gaps projects will be **formulated in from of City Water Action Plan**. These plans will be aggregated at State level in form of **State Water Action Plan (SWAP)**.
- Mission mandates **implementation of 10% worth of funds** allocated to million plus cities in PPP mode.
- Taking up projects on **24x7 water supply in 500 AMRUT cities** which have population above one lakh is encouraged.

Key components of Mission:

- **Pey Jal Survekshan:** Assess quality and quantity of water supplied to the citizens and will instill healthy competition among cities to provide better water related services to the citizens.
- **Information, Education & Communication (IEC):** Targets to convert water conservation into a Jan Aandolan.
- **Technology sub-Mission:** Start-ups in water sector will be encouraged through this mission.

- **Capacity Building:** Impart training to elected representatives, Municipal functionaries and larger audience comprising contractors, managers, plumbers, plant operators, workmen, consultants, students, women, and citizens.

Funding:

- **Funding will be done to the States and Union Territories** for project implementation, Administrative & Other Expenses.
- Project funds will be released in **three instalments of 20:40:40**.
- Implementation of reforms on Property Tax and user charges is mandatory to **get uninterrupted funding from third year onwards**.
- Cities will submit **City Aquifer Management Plans** with focus on maintaining positive ground water balance in aquifers.
- Mission will also fund the **outcomes achieved through sources** other than AMRUT.

Major reforms:

- Reducing non-revenue water to below 20%;
- Recycle of treated used water to meet at least 20% of total city water demand and 40% for industrial water demand at State level;
- 24x7 water supply with 'Drink from tap' facility;
- Rejuvenation of water bodies;
- GIS based master plans of the cities & efficient town planning;
- Credit rating of cities and raising funds through issuance of municipal bonds.

Dr. MANSUKH MANDAVIYA LAUNCHES THE SIXTH EDITION OF NATIONAL FORMULARY OF INDIA (NFI)

Union Health Minister launched the sixth edition of the National Formulary of India (NFI) published by Indian Pharmacopoeia Commission (IPC).

Highlights:

- NFI is launched with a view to **promote rational use of medicines in the country**.

- It would act as a **guidance document** for all the healthcare professionals such as clinicians, pharmacists, nurses, dentists while prescribing the medicines to the patients.
- The NFI is aligned with the **National Health Programmes and National**

List of Essential Medicines (NLEM).

National Formulary of India:

- Formulary is a **manual** containing **clinically oriented summaries** of pharmacological information **about selected drugs**.
- The manual may also include **administrative and regulatory information** pertaining to the **prescribing and dispensing of drugs**.
- A national formulary generally **concentrates on available and affordable medicines** that are relevant to the treatment of diseases in a particular country.
- **The first, second and third editions of National Formulary of India (NFI)** were published in **1960, 1966 and 1979** respectively by the **Ministry of Health, Government of India**.

Pharmacopoeia:

- A pharmacopoeia, in its modern technical sense, is a **book containing directions** for the **identification of compound medicines**, and **published by the authority of a government or a medical or pharmaceutical society**.
 - Descriptions of preparations are called **monographs**. In a broader sense it is a reference work for pharmaceutical drug specifications.

History:

A number of early pharmacopoeia books were written by Persian and Arab physicians.

- These included **The Canon of Medicine of Avicenna in 1025**, and works by **Ibn Zuhr** in the 12th century and **Ibn Baytar** in the 14th century.
- The **Shennong Ben Cao Jing** is the **earliest known Chinese pharmacopoeia**.

- The text describes **365 medicines** derived from plants, animals, and minerals; according to legend it was written by the Chinese god Shennong.

- Pharmacopoeial synopsis were recorded in the **Timbuktu manuscripts of Mali**.

Indian Pharmacopoeia Commission:

- Indian Pharmacopoeia Commission (IPC) is an **Autonomous Institution of the Ministry of Health and Family Welfare, Government of India**.
- The IPC was formed according to the **Indian Drugs and Cosmetics Act of 1940** and **established by executive orders of the Government of India in 1956**.
- IPC is created to set standards of all drugs that are manufactured, sold and consumed in India.

Functions:

- To **update regularly the standards of drugs** commonly required for treatment of diseases prevailing in this region.
- **Publish official documents** for **improving quality of medicines** by way of adding new and updating existing monographs in the form of Indian pharmacopoeia (IP).
- **Promote rational use of generic medicines** by publishing national formulary of India.
- **Prescribe standards for identity, purity and strength of drugs** essentially required from health care perspective of human beings and animals.
- **Provide IP reference substances (IPRS)** which act as a finger print for identification of an article under test and its purity as prescribed in IP.



SCIENCE & TECHNOLOGY

NEW SPECIES OF SWAMP EEL DISCOVERED IN MUMBAI

A new species of swamp eel belonging to the genus **Rakthamichthys**, endemic to India, was discovered in Mumbai in a well.

Highlights:

- The new species was found by **Wildlife Foundation of Mumbai** in a 40-foot deep well.
- It was named as **Rakthamichthys mumba**.
- The mumba lacks eyes, fins, and scales, has jaws equal in forward extent, different gill aperture, crescentic-shaped cephalic.

Key:

- The species has a **slender**, sub-cylindrically elongated body and is thread-like with striations on the muscle.
- The middle portion of the head is the deepest and widest part of its body.
- All teeth of the species are, small, stout, pointed, recurved, and closely set, the body is **pinkish-red** with numerous blood vessels all over.
- The present known habitat of the species is **only the Mumbai well**.
- The family consists of 26 valid species and are unique among teleost's by lacking paired, median, and caudal fins.

BP, CHOLESTEROL CONTROL KEY FOR TYPE1 DIABETICS, SAYS STUDY

A first-of-its kind report of **long term survivors of T1D from India**, a multi-centric study was published recently.

- The study compared survivors for over 40 years with people who did not survive up to 40 years.

Highlights:

- Survivors had better glycemic and blood pressure control, more favourable lipid profiles and lower prevalence of complications compared to non-survivors.
- Good control of not only blood sugar, but also blood pressure and cholesterol

are essential for survival and a good quality of life among Type 1 diabetics (T1D).

- The survivors also had **better height and weight parameters** compared to the other group.
- **Individuals with T1D have increased morbidity and excess premature mortality** compared to those without diabetes. Their life expectancy is reduced by an estimated 15-20 years, even with the life-saving insulin to their assistance.
- However, **long-term survival with T1D is possible** and 40% of European individuals with T1D are reported to survive for more than 40 years with life expectancy now **extending almost up to 70 years.**
 - Two patients in the study have lived over 70 years with T1D.
- India is home to more than 95,000 children with T1D, reported to be the highest in the world, according to the 9th International Diabetes Federation Atlas, but most reports on long term survival were from the U.S. and Europe and none from India.
- Given that **life expectancy in India is in general lower**, the subject definitely needs attention.
- A significant differentiation in blood glucose, blood pressure and cholesterol levels determining better survival and quality of life, it was interesting that many of the long term survivors in the study **were not prescribed intensive insulin therapy in the first 10 years** or so after diagnosis, and they still seemed to be protected from complications.

Diabetes:

- Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when

the **body cannot effectively use the insulin** it produces.

- Insulin is a hormone that regulates blood sugar.
- Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.
- There are two main types of diabetes: type 1 and type 2.

Type 1 diabetes:

- Type 1 diabetes (previously known as **insulin-dependent**) is characterized by **deficient insulin production** and requires daily administration of insulin.
- **Symptoms:** excessive excretion of urine, thirst, constant hunger, weight loss, vision changes, and fatigue.
- **Type-1 diabetes** needs lifelong insulin injections.

Type 2 diabetes:

- Type 2 diabetes (formerly called **non-insulin-dependent**) results from the **body's ineffective use of insulin.**
- The majority of people with diabetes have type 2 diabetes.
- In type 2 diabetes, pancreas will try to compensate by producing more insulin. Because body is unable to effectively use insulin, glucose will accumulate in bloodstream.
- This type of diabetes is largely the **result of excess body weight and physical inactivity.**
- Until recently, this type of diabetes was seen only in adults but it is **now also occurring increasingly frequently in children.**
- **Type-2 diabetes** often being managed with **diet or tablet treatment.**

IAO HANLE: A PROMISING ASTRONOMICAL OBSERVATORY

According to a study, The **Indian Astronomical Observatory (IAO)** at **Hanle in Ladakh** is becoming one of the promising observatory sites globally due to clear nights,

minimal light pollution, dry atmospheric condition, and uninterrupted monsoon.

Highlights:

- The study classified quality of observable nights for different

astronomical usages like **photometry and spectroscopy**.

- It analysed datasets for the Indian Astronomical Observatory (IAO) in **Hanle & Merak** (Ladakh), and **Devasthal** (Nainital).
- The Hanle site has around 270 clear nights in a year and is one of the emerging sites for **infrared optical astronomy**.
 - This is because water vapour absorbs electromagnetic signals and reduces their strength.
- **Paranal** in Chile, is the best site in terms of clear skies with around 87% of clear nights in a year.
- **Devasthal** has a larger number of clear nights compared to the other sites in the sub-continent but are highly affected by **monsoons**.

Highlights:

- Night observations at IAO-Hanle from **2M-Himalayan Chandra Telescope** (HCT) is possible without any interruption due to monsoons.
- The **cloud cover** fraction for Hanle, Merak, and Devasthal were 66-75%, 51-68%, 61-78%, and 61-75%, at various time resolutions using reanalysis data.
- The study found decreasing trends for the cloud cover fraction over the central region of Africa, the Eurasian continent, and the American continents.
- It found **increasing trends** in the maritime and land regions in the Sahara Desert, the Middle East, Indian sub-continent, the Tibetan Plateau, and the Southeast Asian islands.
- This was caused by global warming and associated water vapour changes in land-oceanic regions.

Trans-Himalayan Region:

- The region is located to the north of the **Great Himalayas** which consists of **Karakoram, Ladakh, Zaskar and Kailash** Mountain ranges.

- It is also called the **Tibet Himalayan Region** as most of the part of these ranges lies in the Tibet.
- The Karakoram Range is known as the '**backbone of high Asia**'.

Karakoram Range:

- It is situated in the northern most range of the **Trans-Himalayan ranges**.
- It forms India's frontiers with Afghanistan and China and acts as watershed between India and Turkestan.
- It extends eastwards for about 800 km. The average width is 120-140 km.
- It is abode to some of the greatest Glaciers of the world outside the Polar Regions.
- **K2** is the second highest peak in the world and highest in the Indian Territory.

Ladakh Range:

- It lies to the north of the Leh and merges with the Kailash range in Tibet.
- The important passes that lie in the region are- **Khardung La, and Digar La**.

Zaskar Range:

- It runs parallel to the great Himalayan Range. The **Nanga Parbat** (8126 mt) is the highest point in the north-west.
- Ladakh range is in the north of the Zaskar range which runs parallel to it.
- It has an average elevation of the 5,800 mt. above sea level and 300 km long.
- The **Rakaposhi-Haramosh** ranges are extension of the Ladakh range to the northwest.

Kailash Range:

- It is a branch of Ladakh range situated in the western Tibet.
- Its average elevation is 5,500-6,000 mt above sea level and width is 30 km.
- Mount Kailash (6,714 mt) is the highest peak of this range.
- **River Indus** originates from the northern slope of the Kailash range.

EXPLAINED: THE 2021 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

This **2021 Nobel for Medicine** was awarded jointly to **David Julius** and **Ardem**

Patapoutian, both of the United States, for their **discoveries of receptors** for temperature and touch.

Highlights:

- **Nobel Prize for Physiology or Medicine** is awarded for **significant discovery** in life science or medicine.
- **Karolinska Institute** (now The Nobel Assembly at Karolinska Institute) selects the winner.
- The award comes with a **gold medal** and **10 million Swedish kronor** (over \$1.14 million).
- The prize money comes from a fund left by Swedish inventor **Alfred Nobel**, who died in 1895.

Why was the Nobel given?

- The scientists have **won the Nobel** for their discoveries of **receptors for temperature and touch**.
 - The discoveries have allowed understanding how heat, cold and mechanical forces can **initiate the nerve impulses** that enable us to perceive and adapt to the world around us.

Research:

- Dr Julius studied the **different compounds** in chilli peppers and spider venom to understand **how our bodies** sense heat and chemical irritants.
 - Decoding the **neuroscience of pain** can help develop **new targets** for pain therapy.
- **Dr Patapoutian** helped discover a **novel class of sensors** in our skin and internal organs that respond to cold and other mechanical stimuli.

- In 1997, Dr Julius and his team published a paper detailing how **capsaicin** (the chemical compound in chilli peppers) causes the burning sensation.
- They created a library of **DNA fragments** to understand the corresponding genes and finally discovered a new capsaicin receptor and **named it TRPV1**.
 - This discovery paved the way for the identification of many other **temperature-sensing receptors**.
- Both Dr Julius and Dr Patapoutian identified **another new receptor** called **TRPM8**, which is activated by cold.
 - This new receptor is specifically expressed in a subset of pain-and-temperature-sensing neurons.
- Dr. Patapoutian further studied if **mechanical stimuli** can **activate** these receptors.
 - They identified a **single gene** that, when silenced, made the cells insensitive to the poking. They named this new mechanosensitive ion channel **Piezo1**.

Significance:

- This knowledge of the **TRPV1, TRPM8 and Piezo channels** is being used to develop treatments for a wide range of disease conditions, including chronic pain.
- Chronic pain is present in **several illnesses** and disorders. With the understanding of these receptors, it is possible to gain the ability to regulate them to minimise the pain.

ICMR'S DRONE-BASED VACCINE DELIVERY MODEL LAUNCHED

Health Minister recently launched ICMR's Drone Response and Outreach in North East (i-Drone). The delivery model is aimed at ensuring that life-saving vaccines reach everyone.

- Currently, the drone-based delivery project has been granted permission for implementation in Manipur and

Nagaland, as well as Andaman and Nicobar Islands.

i-Drone:

- This i-Drone has been designed to overcome the challenges of geographical diversities by deploying Unmanned Aerial vehicles (UAV)/drones **to remote areas and hard to reach terrains**.

- This is for the first time that a ‘Make in India’ drone has been used in South Asia to transport COVID vaccine over an aerial distance of 15 km in 12-15 mins.
 - The actual road distance between these locations is 26 km.

Key Facts:

- Telangana launched **Beyond Visual Line of Sight (BVLoS) flights** to deliver a payload comprising vaccines.

- The Medicine from the Sky project – a collaboration of the Telangana government, World Economic Forum, HealthNet Global and NITI Aayog – seeks to deliver medicines, vaccination, and units of blood to remote, rural areas by means of drones.

RAKSHA MANTRI GIVES AWAY DRDO DARE TO DREAM 2.0 & YOUNG SCIENTISTS AWARDS

Raksha Mantri felicitated the winners of ‘Dare to Dream 2.0’ Contest of Defence Research & Development Organisation (DRDO) in New Delhi on October 04, 2021.

- The Raksha Mantri gave away awards to **40 winners** - 22 in Individual category and 18 in Startup category and launched ‘Dare to Dream 3.0’.

Dare to Dream:

- Dare to Dream is **DRDO's pan-India contest** to promote Indian academicians, individuals and startups to **develop emerging defence and aerospace technologies/systems**.
- It has been launched on the **5th Death Anniversary of Dr APJ Abdul Kalam**, who had a vision of self-reliance.

- **Objective:** To unearth disruptive ideas and concepts in emerging technologies identified by DRDO for enhancing defence capabilities.
- The scheme is being launched for **emerging technologies** to promote the individuals & start-ups for innovation in defence and aerospace technologies.
- It is an open challenge to promote the country’s innovators and start-ups
- DRDO provides **technical and financial support to the winners** for realisation of their ideas under the Technology Development Fund (TDF) scheme.
- A cash award of:
 - **Up to 10 lakhs** for Start-ups
 - **5 lakhs** for individuals

A TINY PLANT THAT CAN ‘DIGEST’ LOW DENSITY PLASTIC SHEETS

Researchers have isolated an alga species that shows promise as an agent of biodegradation of plastic sheets.

Highlights:

- This species of microalgae found in Africa, Asia, and Europe.
- It is an **epiphyte**, attaching itself to other algae and plants.

- The microalgae produce different kinds of **cellular polysaccharides**, toxins such as cyanotoxins, hormones.
- The polysaccharides react with the polymer sheets and break them into simpler monomers which do not have harmful effect in the atmosphere.

NOBEL PHYSICS PRIZE GOES TO 3 FOR CLIMATE DISCOVERIES

The winners of Nobel Prize for physics have been awarded to scientists from **Japan, Germany and Italy** on October 5 by Goran Hansson, secretary-general of the Royal Swedish Academy of Sciences.

- The Nobel Committee also awarded the prize in physiology or medicine to Americans David Julius and Ardem

Patapoutian for their discoveries into **how the human body perceives temperature and touch**.

Highlights:

- Syukuro Manabe (90) and Klaus Hasselmann (89) were cited for their work in “the **physical modelling of Earth’s climate**, quantifying

variability and reliably predicting global warming”.

- The second half of the prize was awarded to Giorgio Parisi (73) for “the **discovery of the interplay of disorder and fluctuations** in physical systems from atomic to planetary scales.”

About the prize:

- The prestigious award comes with a **gold medal** and **10 million Swedish kronor** (over \$1.14 million).

- The prize money comes from a **bequest left by the prize’s creator**, Swedish inventor Alfred Nobel, who died in 1895.
- In 2020, the prize went to American Andrea Ghez, Roger Penrose of Britain and Reinhard Genzel of Germany for their research into black holes.
- Over the coming days prizes will also be awarded for outstanding work in the fields of **chemistry, literature, peace and economics**.

“WHO” RECOMMENDS GROUNDBREAKING MALARIA VACCINE FOR CHILDREN AT RISK

WHO has approved **RTS.S/ASO1** (RTS.S) also known as **Mosquirix vaccine** to reduce life-threatening severe malaria, recently

Highlights:

- This is the **first malaria vaccine** to have completed the clinical development process, and is approved by the European Medicines Agency (EMA).
- The pilot programme of this vaccine has been introduced by **Ghana, Kenya, and Malawi** national ministries of health through their childhood immunization programme.

Mosquirix Vaccine:

- **Developer:** GlaxoSmithKline (GSK) company
- **Working:** The vaccine trains the immune system to attack the malaria parasite Plasmodium (P.) falciparum (the deadliest species of the malaria parasite) which is spread by mosquito bites.
- **Efficacy:**
 1. Able to prevent severe cases of malaria in only 30 per cent of the cases.
 2. Vaccine only prevents four in ten malarial cases and must be given as four injections over 18 months.

Malaria:

- Malaria is a **life-threatening disease** caused by parasites (Plasmodium) transmitted to people through the bites of **infected female Anopheles mosquitoes**.

- Most deaths are caused by **P. falciparum**, whereas P. vivax, P. ovale, and P. malariae generally cause a milder form of malaria.

- It is **preventable** and **curable**.
- **Symptoms:** Fever, tiredness, vomiting, and headaches.
 - In severe cases, it can cause yellow skin, seizures, coma, or death.

Facts related to Malaria:

- The disease is widespread in the **tropical and subtropical regions** around the equator.
 - This includes much of **sub-Saharan Africa, Asia, and Latin America**.
- **Annually, over 200 million cases** of malaria are reported across the world and more than 400,000 people die of the disease.
- **Half the global malaria-related deaths** in 2019 were in **six African countries**:
 - Nigeria (23 per cent)
 - Democratic Republic of the Congo
 - Tanzania
 - Burkina Faso
 - Mozambique
 - Niger

Steps taken by India to eliminate Malaria:

- In accordance with Global Technical Strategy, Government of India has launched **National Framework for**

Malaria Elimination 2016-2030 in February 2016 and the National Strategic Plan for Malaria Elimination 2017-2022 in July 2017 with WHO support.

- India has a vision of a **malaria free country by 2027 and elimination by 2030**.
- High Burden to High Impact (HBHI) strategy has been initiated in four high endemic states i.e., **West Bengal, Jharkhand, Chhattisgarh and Madhya Pradesh** in July 2019.
- India has made **significant gains** towards malaria control and eradication.
 - In 2019, there were 6.8 million fewer cases than in 2016, and the number of cases per 1000 of the

at-risk population fell from 10 to 4.3.

- According to **World Malaria Report 2020**, In India, the **malaria infections fell by 14.4 million** between 2000 and 2019 – the largest reduction in South-East Asia.
 - In 2019, India accounted for about 86 per cent of all malaria deaths in the South-East Asia.

Key Facts:

- **E-2020 initiative-** WHO identified 21 countries with the potential to achieve zero indigenous cases of malaria by 2020, spread across 5 regions.
- **World Health Organisation** has set 2030 as the global deadline to eradicate Malaria.

BENJAMIN LIST, DAVID MACMILLAN WIN 2021 NOBEL PRIZE IN CHEMISTRY

Nobel Prize for Chemistry 2021 has been jointly awarded to German scientist Benjamin List of the Max Planck Institute and Scotland-born scientist David WC MacMillan of Princeton University.

- They were awarded for developing a new way for building molecules known as “**asymmetric organocatalysis**.”

What is Catalysis?

- Catalysis is the process of increasing the rate of a chemical reaction by adding a catalyst.
 - A **catalyst** is a substance that increases the rate of a chemical reaction without taking part in the reaction, or without undergoing any changes during the chemical reaction.
 - The **major types of catalysts** are metals and enzymes.
- The Nobel Prize winners have developed a third type of catalysis named **asymmetric organocatalysis**.

Asymmetric Organocatalysis:

- Asymmetric Organocatalysis uses **small organic molecules** as

catalysts instead of traditional catalysts such as enzymes or metals.

- These molecules are **able to catalyse** reactions to selectively form one **enantiomer** of a particular compound—meaning one version of two mirror-image molecules.
- It is a **widely used technique** to the drug discovery process. Organocatalysts provide a way to make candidate drug compounds **quickly and efficiently**.
- Organocatalysts are:
 - Non-toxic substances.
 - Cheap
 - Easy to produce
 - Have the potential to make synthetic routes greener.
- **Applications of Organocatalysis:** Streamlining the production of existing pharmaceuticals, including paroxetine, used to treat anxiety and depression, and oseltamivir, a respiratory infection medication.

Nobel Prize:

- Nobel Prize is given in the name of **Alfred Nobel** who was a Swedish

inventor, most famously known for the invention of dynamite. The award was first **conferred in 1901**.

- It is awarded **yearly to the individuals or organizations** who do an extraordinary job in the field of Physics, Chemistry, Literature, Peace, Physiology or Medicine and Economics.
- All the Nobel Prizes are given at **Stockholm, Sweden** except for the **Nobel Peace Prize which is awarded at Oslo, Norway**.

- **Nobel Prize in Physiology or Medicine** field is awarded by the **Karolinska Institute**.
- Nobel in Physics, Chemistry and Economics is awarded by **Royal Swedish Academy of Science**.
- Nobel Peace Prize is awarded by **Norwegian Nobel Committee**.
- Nobel Prize in Literature is awarded by **Swedish Academy** grants the Nobel Prize.
- **Three people** at maximum can share a Nobel Prize. Each laureate receives a gold medal, a diploma, and a monetary award.

ENHANCED PROTECTION THROUGH LASER COATING TECHNOLOGY INCREASES LIFE OF THERMAL POWER PLANT BOILERS BY 2-3 TIMES

Indian Scientists have developed a unique **laser-based clad coating technology (LCCT)** that provides improved protection to the **boiler parts** in thermal power plants.

Highlights:

- Developed by **Indian scientists** at **ARCI- autonomous institute under Dept. of Science and Technology**.
- Successfully tested at **NTPC's thermal powerplants at Farakka (West Bengal) and Korba (Chhattisgarh)**. It has been granted **Indian patent**.
- **LCCT can improve life** of boiler parts in thermal power plants by 2-3 years, compared to other surfacing technologies.

What is coating technique and LCCT?

- Coating process involves application of a thin film of functional material to a substrate to change the surface properties of substrate.
- **LCCT involves fusing of Nickel based soft matrix with hard metallic carbide compounds (tungsten, vanadium or chromium)** by a high-power laser integrated in a multi axis robot.

Other Surfacing Technologies in use:

- Thermal Spray

- Cold Spray
- Electric Arc
- Plasma Transfer Arc
- Tungsten Carbide Coating

Main Advantages of LCCT over other techniques:

- Accurate
- Selective
- Minimum heat input

Why LCCT was developed?

- Boilers and its accessories undergo **severe wear and tear** at high temperature and pressure forcing the power plant in **frequent shutdowns and maintenance schedules** resulting in **massive loss in power production**.
- Increased life period of the boiler, granted by LCCT reduces such losses.

Areas of Application:

- Advanced supercritical and ultra-super critical thermal power plants
- High temperature applications
- Engineering application with high erosive and corrosive environment

Significance:

- The transfer of this technology to job floors and entrepreneurs will supplement the technological growth of the country.
- India can help other developing and neighbouring countries with the transfer of this technology.

WHY INDIA'S AMBITIOUS ETHANOL PLAN MAY SPARK FOOD SECURITY FEARS

India's plan to promote ethanol derived from **rice, corn** and **sugarcane** is drawing criticism from some experts who warn it could **undermine food security** in the country.

Highlights:

- The government of India has advanced the target **for 20 per cent ethanol blending in petrol (also called E20) to 2025 from 2030**. E20 will be rolled out from April 2023.
- Major sources of ethanol to achieve the target are **rice, corn** and **sugarcane**.

Government's Justification:

- The new target will:
 - Save \$4 billion annually by cutting crude imports
 - Reduce carbon emission
 - Boost farmers income
- Government has termed it as **strategic requirement** in light of **grain surplus** (state grain reserves stood at 21.8 million tons of rice against requirement of 13.54 million tons) and availability of technology.

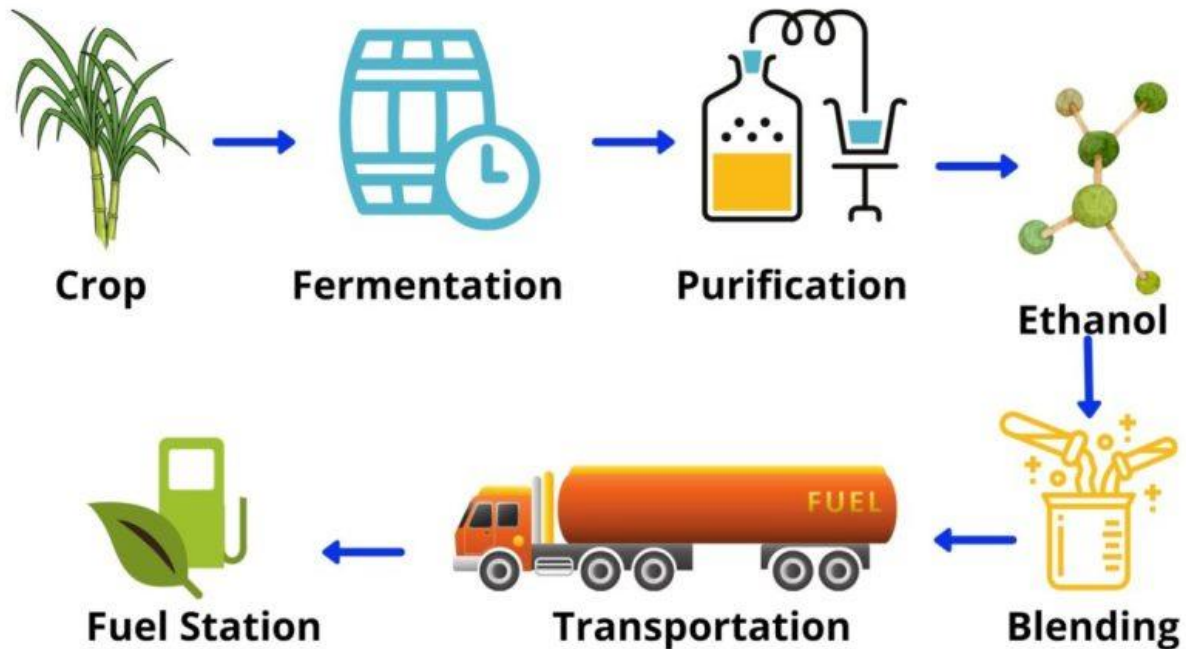
Concerns:

- The report that maps out the new ethanol blending target primarily focuses **on food-based feedstocks**. This can result in **diversion of food grains** meant for the poor to ethanol production companies at subsidized rates due to:

- Financial assistance to biofuel producers.
- Faster environmental clearances by the government on such projects.
- E-20 policy can drive farmers toward water-intensive crops and create a **water crisis**.
- E-20 can result in **competition between the distilleries** and the public distribution system for subsidized food grains and threaten **rural food security**.
- The **unregulated carbonyl emissions**, such as acetaldehyde emission are higher with E10 and E20 as compared to normal petrol.

Use of Ethanol in Vehicles:

- **Calorific value** of ethanol is around 2/3rd of gasoline, thus, the increase in ethanol content will decrease the heating value of the ethanol-gasoline blend. Hence, more fuel is required to achieve the same engine power output.
- Ethanol has a higher-octane number and thus the engine can be operated with a high compression ratio without knocking.
- This **increases the efficiency of the engine** considerably.
- This combined with optimal spark timing negates the fuel economy debit due to low calorific value of ethanol.



E-20 roadmap:

- Raise pan-India ethanol production capacity from the current 700 to 1500 crore litres.
- Phased rollout of E10 fuel by April 2022. Phased rollout of E20 from April 2023, its availability by April 2025.
- Rollout of E20 material-compliant and E10 engine-tuned vehicles from April 2023.
- Production of E20-tuned engine vehicles from April 2025.
- Encourage use of water-sparing crops, such as maize, to produce ethanol.
- Promote technology for the production of ethanol from non-food feedstock.

Significance of E-20:

- Reducing the oil imports.

NOVEL COMPOSITE MATERIALS DEVELOPED FOR HIGH-TEMPERATURE BATTERY AND SUPERCAPACITORS

Indian researchers have developed a **thermally stable solid electrolyte for lithium-ion batteries** for energy storage that promise **application for a wide range of temperatures from 30-500°C**.

- The present technology is dependent on liquid electrolytes and narrow range of operating temperatures.

- Use of ethanol-blended petrol decreases emissions such as carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx).
- Improving Energy Security.
- Better air quality.
- Increase in farmers' income.
- Investment opportunities.
- Fulfilling India's Nationally Determined contributions (NDCs).

Key Facts:

- Even after the Green revolution, India is placed at **94th** rank on the **Global Hunger Index 2020**.
- **Food and Agricultural Organisation** has estimated that **15%** of Indians were **undernourished** between 2018 and 2020.

- A solid-state energy storage device in the form of **thermally stable solid electrolytes for Li⁺ ion batteries and supercapacitors** has been developed and tested their stability and efficiency using state of the art facilities.
- The DST FIST-supported High-temperature X-ray diffraction

- (HTXRD) facility **Rigaku SmartLab** was used for the thermal stability assessment of novel solid electrolytes.
- The XRD patterns were obtained **in situ up to 500 °C**.
 - The **FIST program of the Department of Science & Technology (DST)** supported XRD facility has provided infrastructural support to investigate composite materials.
 - The results from **HTXRD patterns** for the range 30-500 °C for the ionic liquid (IL) dispersed sol-gel derived NASICON (superionic sodium conductors) structured $\text{LiTi}_2(\text{PO}_4)_3$ (LTP) composites indicated that **IL does not react with LTP at higher temperatures to form unwanted compound**.
 - HTXRD pattern is a technique used to study the structural

- changes in the material as a function of temperature.
- The composite was used in Lithium button cells. Excellent stability has been achieved under battery conditions.
 - The composite promises battery application for a wide range of temperature.
 - Further, the samples are **being used as electrolytes for electric double-layer (EDLC) supercapacitors**.

Features:

- A high **capacity of around 200 F/g** and thermal stability at least up to 100 °C has been achieved for 10000 cycles.
- Ionic liquid composites with NASICONs, Garnets, and some other fast ionic solids have been found to be promising for high-temperature energy storage devices.
 - These devices are strategically important for military and space applications.

MULTILAYER TECHNOLOGY FOR INTEGRATING ELECTRONIC COMPONENTS CAN HELP INDIA'S STRATEGIC SECTORS

Indian Scientists have **indigenously developed toxic-free and superior multilayer technology** that packages together electronic components like resistors, capacitors to produce multilayer circuits.

- These technologies, known as **Low-Temperature Cofired Ceramic (LTCC) and High-Temperature Cofired Ceramic HTCC** substrates with applications as satellite communication components, are currently being imported in India.

LTCC technology:

- Hybrid microsystems **based on LTCC technology** is the integration of passive components, such as a capacitor, resistor, inductor, resonator and filter, etc., into a multi-layered ceramic module.
- The indigenous development technology has **dielectric properties or the ability of storing electric energy in an electric field** that are comparable to the commercial tapes,

whereas thermal conductivity is better than them.

- A patent has already been filed on tape casting of HTCC substrate based on zircon.

Advantages:

- It can plug the money drain through import substitution and support the country's strategic sectors.
 - Currently, the LTCC products are being imported from vendors like DuPont, Ferro etc.
- It is suitable for low orbit satellite systems supporting reduced satellite volume and mass, besides reduced production time and affordable cost.

Aqueous tape casting technique:

- An **aqueous tape casting technique** has been developed, is relatively health hazard free since it does **not employ volatile organic components** like xylene and methyl ethyl ketone.

- The technology developed is a **glass-free LTCC tape casting composition**, which can address the brutality issues of tapes.

- After successful testing, NIIST tapes can be employed in ISRO's several microwave components like S- and C-band receivers for their satellite transponders.

DEVELOPMENT OF INDIGENOUS QKD SOLUTION IS ESSENTIAL TO ADDRESS SECURITY THREATS OF DATA POSED BY RAPID ADVANCEMENT IN QUANTUM COMPUTING

Quantum Communication Lab at C-DOT, Delhi was inaugurated recently and unveiled the indigenously developed **Quantum Key Distribution (QKD) solution** by C-DOT.

- With the development of QKD solution and the existing suite of wide range of products in Optical Access, Core, Switching & Routing, Wireless, Post Quantum Cryptography Encryptors (PQCE) etc, C-DOT has become the **first organization in India to offer complete portfolio of indigenous Quantum Secure telecom products & solutions** to comprehensively address the requirements of Telecom Service Providers as well as Strategic and Defense sector in India.

Quantum Technologies:

- Quantum technology is a class of technology that works by **using the principles of quantum mechanics** (the physics of sub-atomic particles), including quantum entanglement and quantum superposition.
- The area has immense potential, impact of which can be compared with that of semiconductor technology in the last few decades or the impact that the laser had since its invention in 1960s.
- Quantum Technologies can broadly be **divided into four verticals** viz. Quantum Computing, Quantum Communications, Quantum Sensors and Quantum Materials.
- Quantum Technologies are based upon **phenomena exhibited by microscopic particles** (like photons, electrons, atoms etc.) which are quite distinct from the way normal macroscopic objects behave.
- Behaviour of these microscopic particles can't be described by

Classical (or Conventional) Physics based on **Newtonian Mechanics**, and consequently Quantum Mechanics came into picture, around 100 years back, to formulate theory to describe such behaviour.

- Quantum Mechanics is **probabilistic** in contrast to Classical Mechanics which is deterministic.
- Quantum Mechanics is **counterintuitive as the phenomena of Superposition, Entanglement, Teleportation & Tunnelling** etc. exhibited by microscopic particles appears weird and have no equivalence in everyday life.
- One of the most quoted such phenomena is the "**Photoelectric effect**" for which Einstein was awarded the Noble Prize in Physics in the Year 1921.
- **Applications:** exponential increase in computing power, inherently secure communication (teleportation of information), interaction free measurements, extremely precise & sensitive sensors etc.

Quantum Technologies in India:

- India has launched **National Mission on Quantum Technologies & Applications (NM-QTA)** in February 2020.
- Centre for Development of Telematics (C-DOT), a premier telecom research & development organization is leading the effort in the Quantum Communications vertical of NM-QTA.

Quantum Key Distribution (QKD):

- Quantum key distribution (QKD) is a **secure communication method** for exchanging encryption

keys only known between shared parties.

- The communication method uses properties found in **quantum physics to exchange cryptographic keys** in such a way that is provable and guarantees security.
- QKD enables two parties to produce and share a key that is then used to encrypt and decrypt messages. Specifically, QKD is the method of distributing the key - not the key itself or the messages it can enable users to send.
- QKD works on a scale much different from conventional key distribution in that QKD uses a quantum system that **relies on basic and fundamental laws of nature** to protect the data, rather than relying on mathematics.

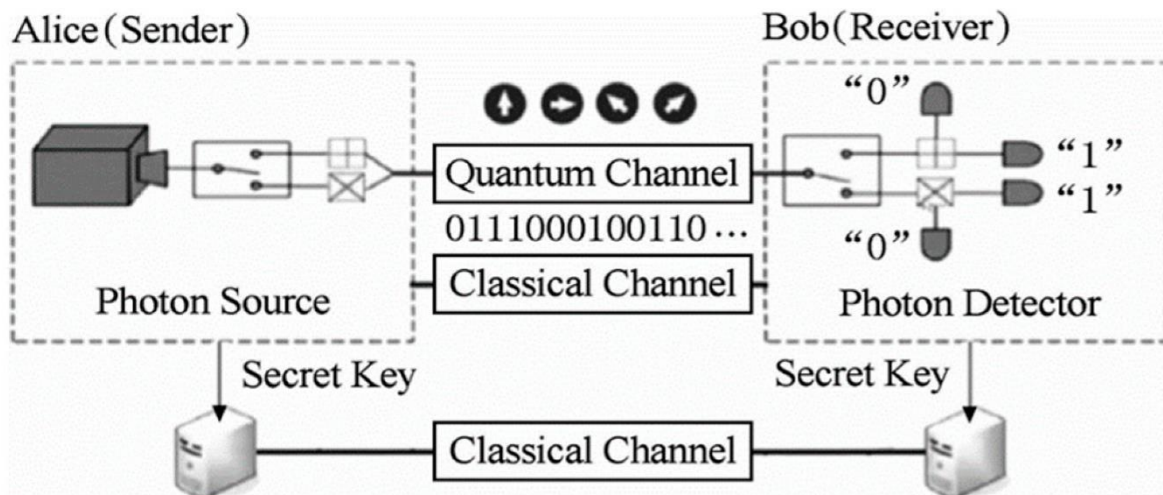
Features:

- It can support a distance of more than **100 kilometers on standard optical fiber**.
- It addresses the threat that rapid advancement in Quantum Computing poses to the security of the data being transported by various critical sectors

through the current communication networks.

Working of QKD:

- QKD works by **transmitting millions of polarized light particles** (photons) over a fiber optic cable from one entity to another. Each photon has a random quantum state, and collectively all the photons create a bit stream of ones and zeros.
- When the photons arrive at the endpoint, the receiver uses beam splitters (horizontal/vertical and diagonal) to “read” the polarization of each photon.
- The receiver does not know which beam splitter to use for each photon and has to guess which one to use.
- After the receiver tells the sender which beam splitter was used for each of the photons in the sequence they were sent, the sender then compares that information with the sequence of polarizers used to send the photons.
- The photons that were read using the wrong beam splitter are discarded, and the resulting sequence of bits becomes a unique optical key that can be used to encrypt data.



ASTRONAUTICAL SOCIETY OF INDIA CONFERS ARYABHATA AWARD TO SECRETARY DDR&D AND CHAIRMAN DRDO, DR G SATHEESH REDDY

The chairman of DRDO, has been conferred the prestigious **Aryabhata Award** by Astronautical Society of India (ASI) on 9th October 2021.

Highlights:

- **Dr G Satheesh Reddy** was awarded for his life-time contribution to the promotion of astronautics in India.

- He is a pioneer in the area of R&D of advanced avionics, navigation, and missile technologies.
- Has contributed immensely to strategic and **tactical missile systems** and helped the country

become self-reliant in critical defence technologies.

- He set up mechanisms to establish **robust defence development** and production ecosystem.

HOW AN INDIAN METEORITE HELPED STUDY EARTH'S FORMATION

By studying the composition of meteorite fragments from **Katol**, researchers have unravelled the composition expected to be present in the Earth's lower mantle which is at about 660 km deep.

Genesis:

- On May 22, 2012, a large meteor shower occurred near the town of **Katol in Nagpur**.
- The shower **caused sonic booms or thunder-like noises**, initially spreading rumours that an aircraft had crashed.
- The next day, researchers from the Geological Survey of India collected about **30 meteorite fragments** with the **largest weighing around a kilogram**.

Findings of the study:

- International team of scientists examined a section of the **highly-shocked meteorite from Katol**.
- The first natural occurrence of a mineral called **bridgmanite**. The mineral was named in 2014 after **Prof. Percy W. Bridgman**, recipient of the **1946 Nobel Prize in Physics**.
- **About 80% of the Earth's lower mantle** is made up of bridgmanite.
- By studying this meteorite sample, scientists can decode how bridgmanite crystallized during the final stages of our Earth's formation.
- The **host rock was mainly composed of olivine**, an olive-green mineral.

- Olivine is the most abundant phase in our Earth's upper mantle.

- Our Earth is composed of different layers including the outer crust, followed by the mantle and then the inner core.
- The composition expected to be present in the **Earth's lower mantle** which is at **about 660 km deep**.
- Studying the meteorite could also tell us more about **how our Earth evolved from being a magma ocean** to a rocky planet.

How to study a meteorite?

- A small sample of the meteorite is examined using special microscopy techniques. The mineralogy was determined using a **laser micro-Raman spectrometer**.
- These techniques helped identify, characterise the crystal structure of the meteorite and determine its chemical composition and texture.

Bridgmanite on Earth VS on meteorite

- The bridgmanite in the meteorite was found to **be formed at pressures of about 23 to 25 gigapascals** generated by the shock event.
- High temperature and pressure in Earth's interior have changed over billions of years causing **crystallisation, melting, remelting** of the different minerals before they reached their current state.

INDIA'S C-DOT TO WORK ON 6G, ROLLS OUT QUANTUM COMMUNICATION LAB

Secretary in the **Department of Telecommunications (DoT)** has asked state-owned telecom research and development

organisation **C-DoT** to start working on **6G** and other futuristic technologies.

- He inaugurated the Quantum Communication Lab in C-DoT and unveiled the indigenously developed **Quantum Key Distribution (QKD)** solution.

Highlights:

- C-DoT has become India's **first organisation** to offer a complete portfolio of indigenous quantum secure telecom products and solutions.
- Samsung, Huawei, LG and some other companies have started working on 6G technologies which is said to be **50 times faster than 5G** and is expected to be commercially launched between **2028-2030**.

6G Technology:

What is 6G?

- 6G, or the sixth-generation wireless communications system will be built upon the shortcomings of 5G.
- It is said to be **50 times faster than 5G**.
- It is expected to roll out for consumers by 2030.

Features of 6G:

- Higher millimeter-wave
- Microsecond latency
- Autonomous wireless systems

Working principle:

- 6G will selectively use **different frequencies** to measure absorption and adjust frequencies accordingly.
- This is based on the **phenomenon** that atoms and molecules emit and absorb electromagnetic radiation at characteristic frequencies, and the emission and absorption frequencies are the same for any given substance.

Goals of 6G networks:

- Able to use higher frequencies than 5G networks
- To provide substantially higher capacity
- To support one microsecond-latency communication
- Extremely high data rates per device
- A very large number of connected devices
- Global connectivity

- Lowering the energy consumption with battery-free IoT devices

Need of 6G:

- It can **integrate** a set of previously **disparate technologies**, including deep **learning and big data analytics**.
- To handle **IoT and mobile device data**, strong **relation** has to be maintained between **High Performance Computers (HPC) and 6G**.
- It will provide the communication and data gathering necessary to accumulate information.

Advantages:

- Capacity of supporting data rate of 1 Terrabyte per second and latency will expand the scope of capabilities to support innovative applications in **wireless connectivity, cognition, sensing and imaging**.
- 6G will have big implications for many **government and industry approaches to public safety and critical asset protection** such as:
 - Threat detection
 - Health monitoring
 - Feature and facial recognition
 - Decision-making in areas like law enforcement and social credit systems
 - Air quality measurements
 - Gas and toxicity sensing

Challenges of Implementing 6G Technology:

- **Terahertz (THz) Signal:**
 - Generation of continuous THz signal is difficult and expensive because it has more strict requirements regarding size and has more complexity in designing the antenna/transmitter.
 - The energy loss of signal is too much.
- **Underwater Communication:**
 - 6G is also aiming to provide underwater communication.
 - Radio signals are highly attenuated in salt water.

- Therefore, acoustic communication is the only option for communication which is expensive.
- **Global Coverage:**
 - 6G will rely on the low-earth orbit (LEO) satellite having a height of 500 to 2000 km from the orbit for providing global coverage.
 - LEO satellites travel very fast compared to the rotation of Earth. This leads to doppler variation and doppler shift in the network communication and cause random access, synchronization, signal detection, and signal measurement issues.
- **Heavy Computation:**
 - 6G will combine communication with computation.

- To solve that 6G will rely on new technologies such as edge computing, federated AI, etc.
- However, implementing these technologies also has many sets of issues.
- **Lack of Technology:**
 - The 6G has many promises to deliver, but hindered by underdeveloped real technology which could drastically advance 6G technology from 5G.
- **Artificial Technology:**
 - 6G will be truly AI-driven mobile wireless communication.
 - Implementing AI in physical layer is difficult due to the complexity of the physical layer and bounded learning capacity of AI algorithms.

BIS CELEBRATES WORLD STANDARDS DAY

The Bureau of Indian Standards (BIS) organized an event on World Standards Day, in New Delhi on 14th October 2021.

Highlights:

- The implementation of standards facilitate **access to national** and international markets for Ministry of Micro, Small and Medium Enterprises (MSMEs).
- Standards form the foundation of international trade and play a key role in **strengthening global partnerships** for sustainable development.
- BIS formulate **need-based standards** considering the need of consumers, ensuring efficient, reliable goods and promote supply chains under the Sustainable Development Goals.

World Standards Day:

- World Standards Day is observed on **14 October every year**.
- **Aim:** To spread awareness about the importance of standardization to the global economy among regulators, consumers, and industry.
- **Theme:** 'Standards for sustainable development goals - shared vision for a better world'.

History:

- Delegates from 25 countries on 14 October 1946 in London, decided to design a global organisation for facilitating Standardisation.
- In 1970 the first World Standards Day was inaugurated by, the then President of the **International Organisation for Standardisation (ISO)**.

Significance:

- The process of Standardisation is an important tool for facilitating trade and **overcoming technical challenges**.
- It honors the contributions of organisations like:
 - International Electrotechnical Commission (IEC)
 - International Ethics Standards Board for Accountants (IESBA)
 - International Telecommunication Union (ITU)
 - Internet Engineering Task Force (IETF)
- It creates awareness about the importance of Standardisation in today's globalized world.

What is International Organization for Standardization?

- The ISO is an international nongovernmental organization made up of national standards bodies.
- It develops and publishes a wide range of **proprietary, industrial,** and commercial standards.
- It comprised of representatives from various national standards organizations.

Key Takeaways:

- The International Organization for Standardization (ISO) was founded in 1947.
- **Headquarters:** Geneva, Switzerland.
- It publishes technical reports, technical specifications, publicly available specifications, and guides.
- It plays an important role in facilitating world trade by providing common standards among different countries.

Bureau of Indian Standards:

- Bureau of Indian Standards (BIS) is the National Standard Body of India.
- It was established on **23rd December 1986**.
- **Headquarters:** Manak Bhawan, Delhi.
- BIS through its activities of standardization, benefiting the national economy by providing:

- Safe, reliable, and quality goods
- Minimizing health hazards to consumers
- Protecting the environment
- Promoting exports and imports substitute
- Controlling over proliferation of varieties etc.

Objectives:

- **Harmonious development** of the activities of standardization.
- Marking and quality certification of goods.
- To provide thrust to **standardization** and quality control for growth and development of industry, to meet the needs of consumers.

Activities:

The activities of BIS can be grouped under:

- Standards formulation
- International activities
- Product Certification
- Hallmarking
- Laboratory services
- Training services - National Institute of Training for Standardisation
- Consumer Affairs and Publicity

GOVT LAUNCHES 'ONE HEALTH' CONSORTIUM FOR SURVEILLANCE OF BACTERIAL, VIRAL INFECTIONS

Department of Biotechnology, launched the 'One Health' project, post COVID-19 on 14th October 2021.

Highlights:

- It carries out **surveillance** of important bacterial, viral, and parasitic infections of **zoonotic** and transboundary pathogens in India,

including the North-eastern part of the country.

- Use of **existing diagnostic** tests and additional methodologies, mandated for the surveillance and for understanding the spread of emerging diseases.

ZEOLITE OXYGEN CONCENTRATORS: CHEMISTRY IN THREE DIMENSIONS

The extended 2- or 3-dimensional structures from linking together molecular units were created just as was done for polymers.

2- or 3-dimensional structures of molecule:

- This complex arrangement of atoms, such molecular networks are called **frameworks**.

- The basic units go on fitting together to form large networks, like a **wire mesh fence**.
- The network is **constructed by repeated additions of a molecule with symmetry**. A few such networked sheets, when stacked one

over another, form a **functional 2-D entity**.

- Uses for these Covalent Organic Frameworks (COFs) take advantage of their stability, large surface area, controlled pore sizes, and tunable chemical environments.

Features:

- The frameworks can be designed to act as sieves in separating out molecules of a specified size.
- The smallest whiff of a toxic gas could be sensed - in an industrial environment, or in airline baggage.
- They are also **suitable for both storing energy (as capacitors) and for conducting it** (along membranes in fuel cells).
- Metal Organic frameworks (MOFs) are **structured like COFs** but have metals in complexes with organic entities.
- The choice of metals is wide, from **Beryllium to Zinc**, though relatively abundant metals are preferred for economic and environmental reasons.

Advantages:

- **For gas storage**, as in the case of hydrogen storage in fuel cells;
- **In catalysis**, where they replace very expensive metals;
- In sensors; and **in drug-delivery** – anti-cancer and other drugs with severe side effects can be trapped in the porous confines of MOFs.

Zeolite:

- Zeolites are **highly porous, 3-D meshes of silica and alumina**.
- Zeolites are hydrated, crystalline microporous aluminosilicates, whose structures enclose channels and/or cavities of molecular dimensions.
- It is made of **silicon, aluminum and oxygen** that form a framework with cavities and channels inside where **cations, water and/or small molecules may reside**.
- They are often also referred to as molecular sieves.
- Zeolites were **introduced in 1954 as adsorbents for industrial**

separations and purifications. Because of their unique porous properties.

- In nature, they occur where **volcanic outflows have met water**. Synthetic zeolites have proven to be a **big and low-cost boon**.

Principle of the technology in oxygen concentrators:

- They are **synthetic frameworks of silica and alumina with nanometer-size pores** that are rigid and inflexible.
- Beads of one such material, **zeolite 13X**, about a millimeter in diameter, are **packed into two cylindrical columns in an oxygen concentrator**.
- The chemistry here is tailored to the task of **separating oxygen from nitrogen in air**.
- Being highly porous, zeolite beads have a **surface area of about 500 square meters per gram**.
- At high pressures in the column, **nitrogen** is in a tight embrace with the zeolite. Interaction between the negatively charged zeolite and the asymmetric nucleus (quadrupole moment) of nitrogen causes it to be **preferentially adsorbed on the surface of the zeolite**.
- **Oxygen remains free**, and is thus enriched.
- Air has 78% nitrogen, 20.9% oxygen and smaller quantities of argon, carbon dioxide, etc. Once nitrogen is under arrest, what flows out from the column is **90%-plus oxygen**.
- After this, **lowering the pressure in the column releases the nitrogen**, which is flushed out, and the cycle is repeated with fresh air.

Key Facts:

- The polyethylene of plastic bags is made from **repeating units of the ethylene molecule**.
- In **biological systems**, proteins are 1-dimensional polymers of amino acids.

DENGUE OUTBREAK IN CHANDIGARH: HOSPITALS FACE CHALLENGE OF HIGH PLATELETS' DEMAND

Demand for blood platelets has shot up at government hospitals in UT Chandigarh amid the rapid spread of dengue.

Dengue:

- Dengue fever is a **mosquito-borne tropical disease** caused by the **dengue virus**.
- It is spread by bite of **female mosquitoes** of the **Aedes genus**.
- Dengue fever virus (DENV) is an **RNA virus** of the family **Flaviviridae**; **genus Flavivirus**.
- There are **four** types of dengue strains, and type II and IV are considered to be more severe and normally require hospitalization.
- The **incubation period** (time between exposure and onset of symptoms) ranges from **3 to 14 days**.

Symptoms:

- High fever, headache, vomiting, muscle and joint pains, and a characteristic skin rash.
- In a small proportion of cases, the disease develops into a more severe dengue hemorrhagic fever, resulting in bleeding, low levels of blood platelets and blood plasma leakage, or into dengue shock syndrome, where dangerously low blood pressure occurs.
- **Children** often experience symptoms similar to those of the **common cold and gastroenteritis**.

Dengue causes drop in platelets count because of the following reasons:

- Platelet count in dengue decreases as it suppresses bone marrow, which is the platelet-producing area.

- Platelet count in dengue also decreases because of blood cells affected by the disease.
- Antibodies that are produced during this period lead to massive destruction of platelets in dengue.

Platelets:

- Platelets, or **thrombocytes**, are **small, colorless cell fragments** in our blood that form clots and stop or prevent bleeding.
- Platelets are made in our **bone marrow**, the sponge-like tissue inside our bones. Bone marrow contains stem cells that develop into red blood cells, white blood cells, and platelets.
- They can be essential to surviving surgeries such as organ transplant, as well as fighting cancer, chronic diseases, and traumatic injuries.

Measures against Dengue:

- A vaccine for dengue fever has been approved and is commercially available in a number of countries. As of 2021, one version is commercially available, known as **CYD-TDV**, and sold under the brand name **Dengvaxia**.
- The vaccine is only recommended in individuals who have been previously infected, or in populations with a high rate of prior infection by age nine.
- Other methods of prevention include **reducing mosquito habitat** and **limiting exposure to bites**.

IIT-MADRAS RESEARCHERS DESIGN WHITE LIGHT EMITTERS FOR LED APPLICATIONS

'**SERB-Technology Translation Award**' is granted to IIT-Madras researchers for designing white light emitters for LED applications.

Highlights:

- The conventional LED materials **cannot emit** white light.

- The specialized techniques such as **coating blue LED** with yellow phosphor and combining blue, green, and red LEDs, have been used to produce white light.
- There has been a worldwide search for materials that

can directly emit white light rather than through these indirect techniques that can cause loss of efficiency.

- Researchers at **The Indian Institute of Technology (IIT) Madras** have successfully developed a white light emitter for use in LEDs.
- The development of **energy-efficient Light Emitting Diodes** or LEDs replaced the energy-inefficient incandescent lamps in lighting and display applications.
- The innovation has been patented by the researchers and was recently granted the Government of India's '**SERB-Technology Translation Award.**'

Significance:

- The indigenously-developed bright white light emitters can potentially replace the conventional **high-cost materials** and phenomenally **save the energy cost per lumens.**
- White LEDs can potentially be used in **liquid crystal display backlights**, display mobile lighting, and medical and communication equipment.

Facts about LED:

- LED is termed as the **light-emitting diode**, which is a semiconductor light source that emits light when current flows through it.
- It consumes less electricity, can save up to 80% of light electricity bill and are energy-efficient.
- They are **durable** and last up to 15 years with a constant amount of light.
- They maintain a cold temperature. Unlike those old fluorescent lamps, LEDs do not heat up.
 - The excessive heat and ultraviolet radiation present can be a hazard to people and materials. Whereas, LED lights emit **no ultraviolet radiation.**

- They **do not produce blue waves** and let our brain feel relaxed and increases productivity.
- The lights contain **no mercury**, and have a very **low environmental impact** than incandescent bulbs.

Facts about SERB:

- The **Science and Engineering Research Board (SERB)** is a statutory body established by the Government of India through Science and Engineering Research Board Act, 2008.
- **Objective:** To promote basic research in emerging areas of Science & Engineering.

Functions:

- It works for promoting excellence in research, together with equity and inclusiveness.
- It supports research in frontier areas of Science and Engineering. A regular faculty/researcher in an academic / research institution can seek research support to carry out his/her research.
- It gives special attention to young scientists below the age of 35 years (relaxable by 5 years in the case of SC/ST/OBC).
- It offers JC Bose National Fellowship to scientists and engineers for their outstanding performance and contributions and RAMANUJAN Fellowship for brilliant scientists and engineers from all over the world to take up scientific research positions in India.

SERB-Technology Translation Award:

- SERB-TETRA aims to provide award to competitively funded Core Research Grants (CRG) and similar projects, holding potential and promise for **technology translation.**
- **The Science and Engineering Research Board (SERB)** provides financial assistance to researchers, academic institutions, research and

development laboratories, industrial concerns, and other agencies.

What is Allium negianum?

A plant discovered in Uttarakhand in 2019 has been recently confirmed as a new species of **Allium** the genus that includes staple foods among 1,100 species worldwide.

Highlights:

- In 2019, the ICAR-National Bureau of Plant Genetic Resources came across plants of this onion species, which they have named **Allium negianum**, in the border area of Chamoli district of Uttarakhand.

HOW VALNEVA VACCINE WORKS AGAINST COVID-19, AND HOW EFFECTIVELY

Valneva SE has announced the results from its Phase 3 trial of its inactivated Covid-19 vaccine candidates. The vaccine was found as effective as the Oxford/AstraZeneca vaccine.

Highlights

- **Valneva vaccine** is developed by Valneva SE, which is a French vaccine company.
- VLA2001(Valneva) is an **inactivated**, adjuvanted vaccine.
 - This means that it delivers the whole Sars-CoV-2 virus in an inactivated form.
 - The virus is killed using chemicals, heat, or radiation. The dead virus cannot infect us but can still trigger an immune response.
- India's **Covaxin** is also an example of **inactivated vaccine**.
- The Valneva jab is stable when stored in a standard refrigerator.
- Valneva is easier to distribute than the Covid vaccines, which require shipping and storage at ultra-low temperatures.
- The efficiency of the Valneva vaccine can be elaborated by the following points:
 - The phase 3 trial of the vaccine was conducted in more than 1000 participants.
 - The results showed that two weeks after vaccination, in adults aged 30 and older, the vaccine was able to trigger high levels of neutralizing

- It grows at 3,000 to 4,800 m above sea level and can be found;
 - In **open grassy meadows**, sandy soils along rivers.
 - Streams forming in snow pasture lands, where the melting snow helps carry its seeds to more favourable areas.
- With a narrow distribution, the species is restricted to the region of **western Himalayas**.

antibodies compared to the Oxford/AstraZeneca vaccine.

- It was noticed that the vaccine was able to induce broad T-cell responses.

Types of COVID-19 vaccines:

The main types of COVID-19 vaccines currently available are:

Messenger RNA (mRNA) vaccine:

- This type of vaccine uses genetically engineered mRNA to give the cells instructions for how to make the **S protein** found on the surface of the COVID-19 virus.
- After vaccination, the immune cells begin making the S protein pieces (harmless protein) and displaying them on cell surfaces.
- This causes the body to **create antibodies**. If a person later becomes infected with the COVID-19 virus, these antibodies will **fight** the virus.
- The mRNA is immediately broken down. It never enters the nucleus of the cells, where the DNA is kept.
- **Example of mRNA vaccine:** Pfizer-BioNTech and Moderna

Vector vaccine:

- In this type of vaccine, genetic material from the COVID-19 virus is placed in a modified version of a **different virus** other than the COVID-19 virus (viral vector).
- When the **viral vector** gets into the cells, it delivers genetic material from the COVID-19 virus that gives body

cells instructions to make copies of the **S protein**.

- Once the cells display the S proteins on their surfaces, the body's immune system responds by creating antibodies and defensive white blood cells.
- If the body becomes infected later with the COVID-19 virus, the antibodies will fight the virus.
- Viral vector vaccines can't cause body to become infected with the COVID-19 virus or the viral vector virus. The genetic material that's delivered doesn't become part of the DNA.
- **Example:** The **Janssen/Johnson & Johnson** COVID-19 vaccine, **AstraZeneca**

Protein subunit vaccine:

- These vaccines include only the parts of a virus that best stimulate the immune system.
- The subunit vaccine contains harmless S proteins. Once the immune system recognizes the S proteins, it **creates**

antibodies and defensive white blood cells.

- If the body becomes infected later with the COVID-19 virus, the antibodies will fight the virus.
- **Novavax** is working on a protein subunit COVID-19 vaccine.

DNA-based Vaccines:

- It is known as the **third-generation** vaccine. DNA-based vaccines use engineered DNA to induce a response against the virus.
- It has a new radical new approach that offers several advantages over traditional vaccines, which include:
 - Improved vaccine stability
 - Absence of any infectious agent
 - Relative ease of large-scale manufacture
- It is a '**plasmid DNA**' vaccine that uses a non-replicating version of a DNA molecule called a plasmid.
- It helps to prepare a harmless version of the **spike protein** present on the SARS-COV-2 membrane.
- **Example:** ZyCoV-D vaccine of India

NEBRA SKY DISC: THE OLDEST MAP OF STARS THAT WILL BE DISPLAYED AT BRITISH MUSEUM

The British Museum in London will display the world's oldest surviving concrete depiction of stars in a major upcoming exhibition on the Stonehenge stone circle, which will open in February 2022.

- It belongs to Germany's **State Museum of Prehistory in Halle** but is being loaned to the British Museum (abroad) for the first time in 15 years.

Nebra Sky Disc:

- The Nebra Sky Disc is widely believed to be **3600 years old**, dating from the **Bronze Age**.
- It is one of the oldest surviving representations of the cosmos in the world.
- The bronze disc was **unearthed in Germany in 1999** and is considered one of the most important archaeological finds of the 20th Century.
 - The **disc** was **ritually buried** along with two swords,

axes, two spiral arm-rings and one bronze chisel **near Nebra in Germany**.

- The Nebra disc **measures about 30cm in diameter** and has a **blue-green patina emblazoned with gold symbols** representing the **Sun, Moon, stars, solstices** and other cosmic phenomena.
- The original purpose of Stonehenge remains a mystery, but the stone circle built in about 2,500 BC is aligned with the movements of the Sun.
- The Sun and its solstices are also represented with **markings on the Nebra disc** - and experts believe the **Sun was central to northern European Bronze Age religion**.

Unetice culture:

- It is thought to be associated with the **Unetice culture** that inhabited parts of **Europe around 1600 BC**.

- The Unetice culture comprised **early Bronze Age communities** in central Europe including in **Bohemia, Bavaria, southeastern Germany and western Poland**.
- Some of the metal artefacts made during this time by communities in the

Unetice culture include ogival and triangular daggers with metal hilts, flanged axes, halberds, spiral arm-rings, solid bronze bracelets and varieties of pins.

‘DOUBLE-DIP’: LA NINA HAS FORMED FOR SECOND YEAR IN A ROW, SAYS NOAA

According to the Climate Prediction Center of the National Oceanic and Atmospheric Administration (NOAA), a **La Nina system** has formed in the tropical Pacific Ocean for the second year in a row in **2021**.

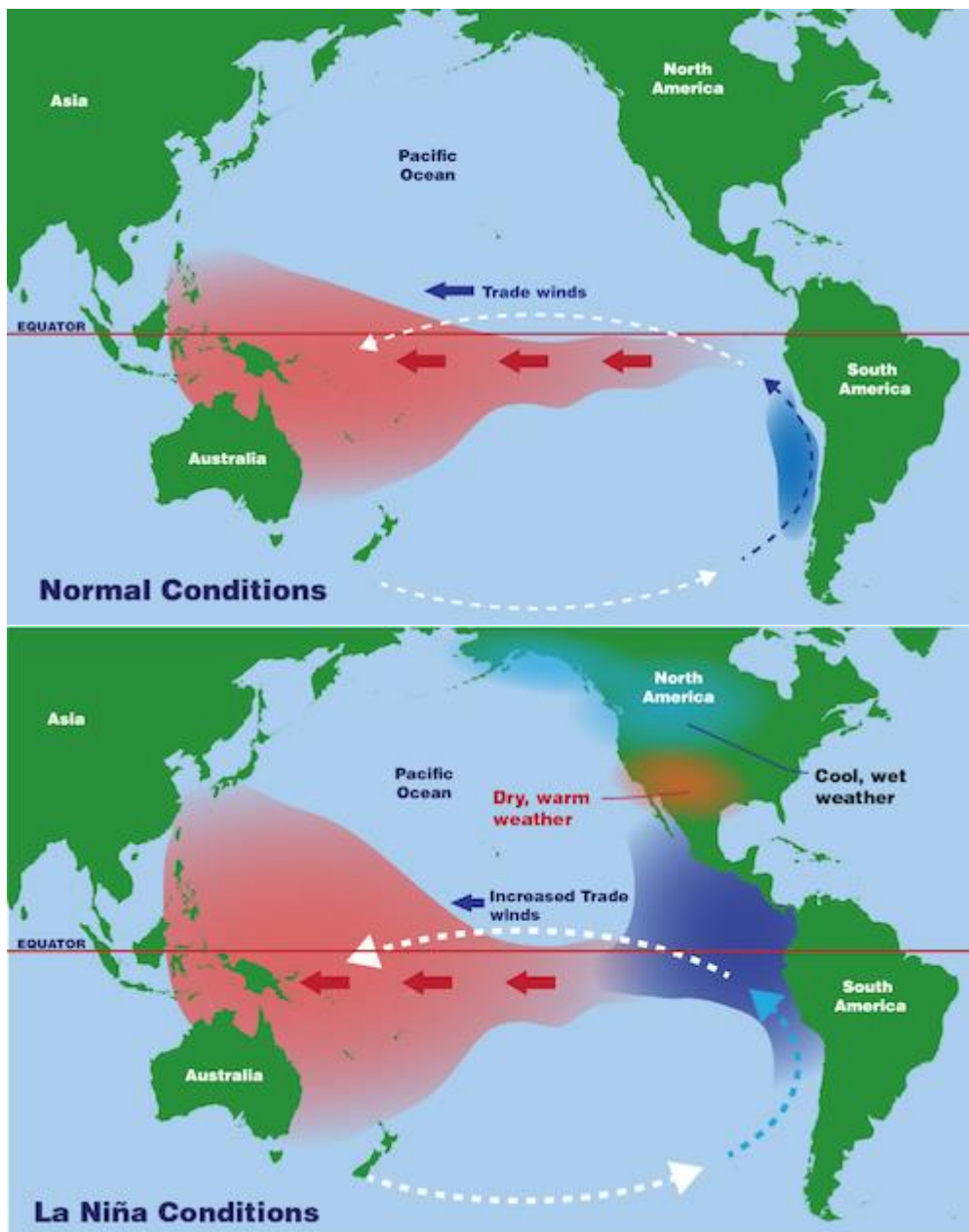
Highlights:

- The latest La Nina is expected to last through the early spring of February 2022.
 - Previous **La Ninas** occurred during the winter of 2020-2021 and 2017-2018.
- Two La Ninas happening one after the other is referred to as a **‘double-dip’**.
 - One in 2020 and the second in 2021.
- Both, La Nina, and El Nino are part of the **El Nino Southern Oscillation (ENSO)** cycle.
 - **ENSO** is characterized by opposing warm and cool phases of oceanic and atmospheric conditions in the tropical Pacific Ocean.

La Nina?

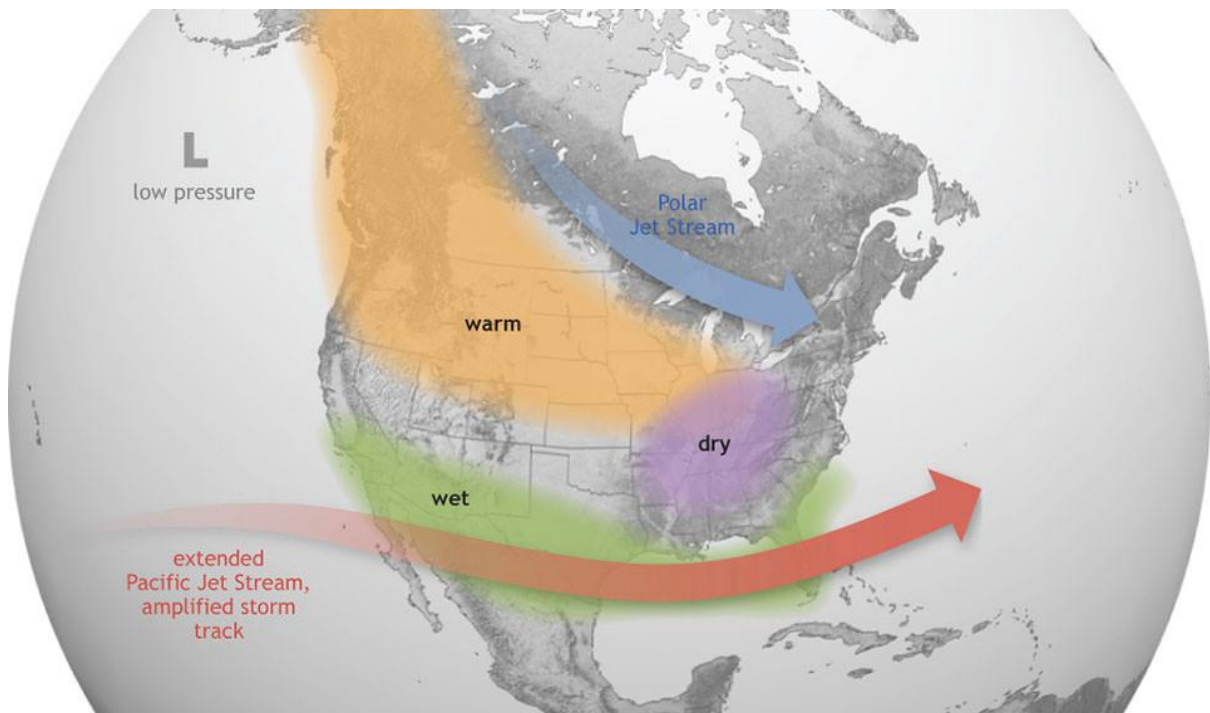
- La Niña is a **“cold event”** or a weather pattern that **occurs in the Pacific Ocean**.
- It is caused by an **interaction between the Pacific Ocean and the atmosphere**.

- In this pattern, strong trade winds **blow warm water** at the ocean’s surface from South America to Indonesia. As the warm water moves west, **cold water** from the deep rises to the surface near the coast of South America.
- In the winter of a La Niña year, these winds are much stronger than usual. This makes the water in the **Pacific Ocean** near the equator a few degrees colder than it usually is.
- Rain clouds normally **form over** warm ocean water. La Niña blows all of this warm water to the western Pacific.
- This means that places like **Indonesia and Australia can get much more rain than usual**.
- However, the **cold water in the eastern Pacific causes less formation of rain clouds**.
 - So, places like the southwestern United States can be much drier than usual.
- These changes in the atmosphere can lead to **more lightning activity within the Gulf of Mexico and along the Gulf Coast**.



El Niño System:

- El Niño means **Little Boy**, or Christ Child in Spanish.
 - During El Niño, **trade winds weaken**. Warm water is pushed back east, toward the west coast of the Americas.
 - It can affect the **weather significantly**. The warmer waters cause the Pacific jet stream to move south of its neutral position.
- It has a strong effect on **marine life** off the Pacific coast. During normal conditions, upwelling brings water from the depths to the surface, this water is cold and nutrient rich.
 - During El Niño, **upwelling weakens** or stops altogether, without the nutrients from the deep, there are fewer phytoplankton off the coast.
 - This affects the species of fish that eat phytoplankton.



INDIAN ASTRONOMER REVEALS THE HIDDEN CLUE THAT COULD HELP PREDICT VIOLENT ERUPTIONS FROM SUN

A study has shown that solar flares can be predicted by studying the changing structure of sun's changing magnetic field.

Highlights:

- A peculiar astronomical event was spotted in the **Sun's Active Region** called **AR 12257**.
- The scientists studied this astronomical event based on the magnetic and coronal images of the Sun.
- The study has shown that active regions on the sun's surface have twisted magnetic field configuration (measured by the parameter magnetic helicity).
- Active regions where the **sign of the helicity** (or twist) reverses with time cannot produce coronal mass ejection.
- Active regions which have **excess magnetic helicity** beyond the threshold result in Coronal Mass Ejection.

Significance:

- The study can help in **predicting** a solar flare or a Coronal Mass Ejection (CME) which can help better prepare

to deal with a solar flare or to predict space weather.

- Solar flare or CME affect the electrical, and communication systems on Earth and satellite systems and astronauts in space.

- The results of the study are expected to **shed light** on magnetic field production in stars and planets as well.

Sun's Magnetic Field:

- The Sun has a **complex magnetic field** near its surface that is connected to its hot plasma.
- Sun's magnetic field changes its configuration continuously as the plasma itself moves around in the magnetic field.
- **Active region:** Regions on the sun's surface where magnetic field can erupt out in loops, become twisted, realign its geometry, and release tremendous amounts of energy in the process.
- The light emitted in this process of magnetic field eruption from active region is called **solar flares**.

- When huge amount of hot gas is released from the active region, with its embedded magnetic field at a high velocity, it is called a **Coronal Mass Ejection (CME)**.
- Some active regions produce solar flares and some produce CMEs.

Coronal Mass Ejection (CME):

- CME is the biggest eruptions from the Sun's surface that can contain a billion

COST-EFFECTIVE MEDICINE DEVELOPED TO TREAT INFECTIOUS DISEASE OF DAIRY CATTLE GOVT

Utilising indigenous knowledge system shared by a farmer from Gujarat, a **poly-herbal and cost-effective medicine has been developed to treat Mastitis**, an infectious disease of dairy cattle.

- The medicine called **Mastirak Gel**, developed by **National Innovation Foundation (NIF)** has been commercialized through the industry partner Rakesh Pharmaceuticals.

Benefits of new medication:

- The medication could **minimize Somatic Cell Count (SCC) and improve the udder health**.
- The Somatic Cell Count is a parameter, quantified as the number of cells per ml of milk.
- A threshold SCC of 200,000 would determine whether a cow is infected with mastitis.
 - Cows with a result of greater than 200,000 are highly likely to be infected on at least one quarter.
 - Cows infected with significant pathogens have an SCC of 300,000 or greater.
- Treatment of infected animals with **antibiotics poses a public health hazard**.

Mastitis?

- Mastitis is a **common infectious disease**. It results in **inflammation of in the mammary tissue** that sometimes involves an infection.
- It affects farm productivity due to **fall in milk quality**, thus impacting income-generating activities.

tons of matter accelerated to several million miles per hour into space.

- CME streams out through the interplanetary medium, **impacting any planet or spacecraft** in its path.
- When a strong CME blows past the Earth, it can damage the electronics in our satellites and **disrupt radio communication networks** on Earth.

- It is the most common disease in dairy cattle characterized by various degrees of severity - ranging from a **mild disease with no gross changes in the secretion (milk)** but an increase in inflammatory cells (somatic cells) in the milk, to a moderate disease with an increase in inflammatory cells and **gross changes in the milk**.

Causes:

- Microorganism causes the infection includes virus, mycoplasma, fungus and bacteria.
- Physical injury to the mammary region, poor hygiene and/or trauma, also cause this condition.

Symptoms:

- Inflammation of the udder that turns into a red and hard mass.
- Breast pain, swelling, warmth and redness.
- The swollen mammary gland is hot and the mere touching causes pain and discomfort to the animal.
- If milked the milk is usually tainted with blood clots, foul smelling brown discharge and milk clots.
- Infected cattle are severely dehydrated and suffer from weight loss.

Detection:

- Mastitis can be **detected at an early stage** before the symptoms appear, through **California Mastitis Test (CMT)**.

HOW SOME PUNJAB FARMERS ARE CREATING BIO-ENZYMES FROM KINNOW

Farmers in Punjab, especially in the kinnow belt, have started making Bio-enzymes from kinnow waste fruit peel.

Highlights:

- Fallen fruit of the kinnow crop is nothing but the peel along with extremely tiny and small kinnow fruit that accompanies the regular-sized kinnow fruit.
- The fallen fruit which is also known as the '**D**' grade kinnow fruit is considered as a **waste product by the kinnow farmers** and disposed of from the kinnow fields.
- However, recently, about 100 farmers from the Kinnow belt of the state have decided to utilise the fallen fruit in making Bio-enzymes.
 - **Abohar belt** in the **Fazilka district** is the hub for kinnow production.

Kinnow

- Kinnow is a **year-round crop**.
- It's primary harvesting season is from **late November to early March**.
- It is majorly grown in **Punjab, Himachal Pradesh, Jammu & Kashmir, Rajasthan and even Haryana**.
- **Difference between orange and kinnow:** While an orange is a hybrid of citrus reticulata and citrus maxima, kinnow on the other hand is a hybrid of citrus deliciosa and citrus nobilis.
 - This hybrid variety of orange was developed and introduced by HB Frost in the year 1935.

- Nearly 15-20 % (1.5 lakh to 2 lakh tonnes) of the total kinnow production falls from the tree before and during the harvesting period which the farmers consider a total waste.
- **Fallen fruit is a major challenge for kinnow farmers** as one needs to dig up small pits to bury them, otherwise the fallen fruit rot and invite a fly attack on the healthy fruit still on the plants.

Bio-enzyme?

- Bio-enzymes are **organic solutions** produced through **fermentation of organic waste** including various fruits, vegetable peels and flowers, by mixing in sugar, jaggery/molasses and water.
- It takes **60-100 days** to ferment organic waste.
- To **fasten the fermentation**, yeast can be used as culture to prepare it in 45-50 days.

Advantages of bio enzyme from kinnow:

- Improve the pH level and soil fertility of the land.
- Improves water, air, depleting ground water, water contamination and overall ecology.
- Plant health can be improved
- It also helps prevent indiscriminate usage of chemical sprays of fungicides and bacterial diseases on crops, especially vegetables, tuber crops like potato and cereals.

REGULATORY APPROACHES FOR GENOME EDITED AGRICULTURAL PLANTS IN SELECT COUNTRIES AND JURISDICTIONS AROUND THE WORLD

Genetic Engineering Appraisal Committee has not yet approved a proposal of a research method that aims to change the DNA of plants itself, instead of adding new foreign DNA.

Highlights:

- Earlier, scientists from the Indian Agricultural Research Institute (IARI) have proposed a method which would allow plants to be **genetically modified without the need for conventional transgenic technology**.

- Unlike the older genetic modification (GM) technology which involves **the introduction of foreign DNA**, this new proposal involves the use of **gene editing tools** to directly change the plant's own genes instead.
- In this direction, scientists at IARI are in the process of developing resilient and high-yield rice varieties using such gene editing techniques.

- One such editing technique is **Site-Directed Nuclease (SDN) technology**.
- However, Genetic Engineering Appraisal Committee has not yet approved this proposal and is pending since last 2 years.

Site-Directed Nuclease (SDN)

- Site-Directed Nuclease (SDN) genome editing involves the use of different DNA-cutting enzymes (called nucleases) that are directed to cut the DNA at a predetermined location by a range of different DNA binding systems.
- After the cut is made, the cell's own DNA repair mechanism recognizes the break and repairs the damage, using one of two pathways that are naturally present in cells.

Goal: To take advantage of the targeted DNA break and the host's natural repair mechanisms to introduce specific small changes at the site of the DNA break.

Significance:

- In SDN, scientists are just tweaking a gene that is already there in the plant, without bringing in any gene from outside.
- When a protein comes from an outside organism, researchers need to test for safety. But in this case, this protein is right there in the plant, and is being changed a little bit, just as nature does through mutation.
- This method is much faster and far more precise than natural mutation or conventional breeding methods which involve trial and error and multiple breeding cycles.

NEW LIGHT ON HOW INSULIN SIGNALLING AFFECTS TISSUE HEALTH

Researchers have uncovered how insulin amounts shape the flow of information through the signaling network.

Highlights:

- The study examined the effect of insulin on liver cells.
- It identifies potential components, whose modulation could lead to better **therapeutic interventions** in the future. This could reduce tissue damage, beyond the usual impact on blood glucose.

Insulin?

- Insulin is a **chemical** that allows cells to absorb glucose, and sugar, from the blood.
- **Clusters of cells** in the pancreas called islets, produce the hormone, and determine the amount based on blood glucose levels in the body.
- The higher the level of **glucose**, the more insulin goes into production to balance sugar levels in the blood.

- Insulin assists in **breaking down fats** or proteins for energy.

What causes someone to be prescribed insulin?

- If a body doesn't make insulin, then it is sign of **type 1 diabetes**, and if a body doesn't use insulin properly, then it is **type 2 diabetes**.
 - People with type 1 diabetes need to take **insulin** to survive.
 - People with type 2 can stave off insulin use and avoid it by exercising, adapting healthier eating habits, etc.

Insulin Problems:

The more common side effects that occur with insulin include:

- **Swelling of arms** and legs, weight gain, low blood sugar (**hypoglycemia**).
- Sweating, **dizziness**, **fast heart rate**, confusion, blurred vision, anxiety, etc.

INDIA'S FIRST BANNI BUFFALO IVF CALF BORN IN GUJARAT

India's first IVF calf of a Buffalo breed, '**Banni**' has born recently at Dhanej in Somnath, Gujarat.

Banni Buffaloes:

- Banni buffaloes are also known as "**Kutchi**" or "Kundi".

- The breeding tract includes the Banni area of **Kutch district** of Gujarat.
- The breed is maintained by **Maldharis**, under locally adapted

extensive production system in its breeding tract.

- They are trained to graze on Banni grassland during night and brought to the villages in the morning for milking.

Characteristics:

- The buffalo is mostly black in color.
- **Forehead** is elongated and straight with no slope towards horn base.
- The body size ranges from medium to large, and generally covered with hairs.

In vitro Fertilization?

- IVF is a series of procedures used to **help with fertility** or prevent genetic problems and assist with the conception of a child.
- It is the most effective form of **Assisted Reproductive Technology (ART)**. IVF may involve eggs, sperm, or embryos from a known or anonymous donor.
- During IVF, **mature eggs** are collected from ovaries and fertilized by sperm in a lab.
- The fertilized egg (embryo) is transferred to a uterus, one full cycle of IVF takes about three weeks.

Why it's Done?

- IVF is a treatment for **infertility or genetic problems**.
- Sometimes, it is offered as a primary treatment for **infertility** in women over age 40.

Risks associated with IVF:

1. Multiple births

- IVF increases the risk of multiple births if more than one embryo is transferred to uterus.

2. Premature delivery

- Use of IVF increases the risk, that the baby will be born early or with a low birth weight.

3. Miscarriage

- The rate of miscarriage for women who conceive using IVF is about 15% to 25%. But the rate increases with maternal age.

4. Egg-retrieval procedure

- Use of a needle to collect eggs could possibly cause bleeding, infection or damage to the bladder and blood vessel.

5. Birth defects

- **Age** is the primary risk factor in the development of birth defects.
- More research is needed to determine whether babies conceived using IVF might be at increased risk of certain birth defects.

INDIA-MADE SPRAY LINKED TO RARE ILLNESS IN U.S.

A made-in-India aromatherapy spray is being pulled off in the United States after a medical investigation linked it to melioidosis.

Melioidosis:

- Melioidosis (**Whitmore's disease**) is an infectious disease that can infect humans or animals.
- **Caused by:** Bacterium *Burkholderia pseudomallei*
 - This bacterium is commonly found in soil and fresh surface water in South Asia, Southeast Asia, and northern Australia.
- It was originally identified in Burma, in 1911 among morphine addicts.

- It is **spread** to humans and animals through direct **contact with the contaminated water or soil**.
- **Symptoms:** Fever, skin changes, pneumonia, and abscesses, to severe with inflammation of the brain, inflammation of the joints, and low blood pressure that causes death.
- Person-to-person or animal-to-human **transmission is extremely rare**.
- **No vaccination** has been found yet.

Emerging Infection in Central India:

- It is found especially in **males from rural areas**.
- Diabetes and alcoholism being the commonest risk factors.

INDIA INTERNET GOVERNANCE FORUM LOOKS AT UNIVERSAL INTERNET ACCESS

A curtain-raiser event- precursor to India Internet Governance Forum (IIGF) was recently held.

- IIGF will be conducted jointly by Ministry of Electronics and IT, NIXI and Multistakeholder Group from 8th to 11th of November, 2021.

IIGF:

- The India Internet Government Forum is an initiative **associated with the UN Internet Governance Forum (UN-IGF)**.
- The Internet Governance Forum (IGF) is a **multi-stakeholder platform bringing representatives together** from various groups to discuss public policy issues related to the Internet.
 - The multi-stakeholder concept is well adopted by IGF (Internet Governance Forum) under UN and

by the Internet Corporation for Assigned Names and Numbers (ICANN).

- **Theme of IIGF 2021: ‘Empower India through Power of Internet’**
- The event will witness enlightening discussions on the road to **Digitization in India**.
- IIGF has been constituted in conformance to IGF-Paragraph 72 of the Tunis Agenda of the UN-based Internet Governance forum (IGF).

Salient feature of the event:

Three plenary sessions on themes-

- India & Internet- India’s Digital Journey and her Global Role,
- Equity, Access & Quality – High-speed Internet for All and
- Cyber Norms and Ethics in Internet Governance.

CENTRE TO SUPPORT INCUBATION OF NEW METHOD DEVELOPED BY KERALA-BASED FARMER TO CONTROL PESTS IN CASHEW GARDENS

A woman farmer from Kerala has come up with an innovative practice called **Cashew Multiple Rooting Propagation Method**.

- The methods were developed to support roots in cashew trees to protect senile cashew garden from devastating borer attacks and frequent cyclonic storms.

About the Innovation:

The two different methods used by the innovator include-

1. Cylindrical Shape Method

- A sac filled with potting mixture (soil and cow dung) is tied on the lower branches of cashew growing parallel to the ground.
- The new roots that are former are guided through a hollow area nut stem filled with soil and cow dung to the ground.
- Over a year, these roots develop and add to the root network of cashew, which **acts as an additional channel for nutrient and water uptake** to the plant and improves the yield.

3. Low Lying Parallel Branch Method

- Stones were heaped around the nodes of low lying branches and

covered them with soil and cow dung.

- **Rooting occurs** at these points, and then that branch grows as a new tree while remaining part of the main tree.

Benefits of the method:

- Both the methods generate multiple roots in a grownup cashew tree, thus **improving production per unit area**.
- It helps **eco-friendly management** of stem and root borers, restores productivity, provides strong anchorage against wind damage/cyclonic storms, and **extension of the plantation life** without the necessity of replanting.

Cashew cultivation in India:

- The area under cashew (*Anacardium occidentale* L.) cultivation in India is **around 10.11 lakh ha**, the **highest** amongst all the cashew growing countries.
- The total annual production is approximately **7.53 lakh tonnes**.

Key Facts:

- **Stem and root borer** is one of the most debilitating pests as it is capable of killing even the grown-up trees within a short period.

- Cashew nut plantation in coastal India is affected by **frequent intense cyclones**, and each such devastation requires more than ten years to be restored.

WHITE DWARF RAPID BRIGHTNESS CHANGE

Astronomers in the U.K. said that, for the first time, they saw a white dwarf star abruptly switch on and off.

Highlights:

- The star is a part of a binary system called **TW Pictoris** where a star and a white dwarf orbit each other.
- TW Pictoris is located in the **Pictoris constellation**, and the binary system is about 1400 light years from us.
- Astronomers saw the star suddenly dim and brighten again **over the course of just 30 minutes, instead of a general time period of 1-2 months.**
- The team observed the phenomena using NASA's **Transiting Exoplanet Survey Satellite (TESS)**.

white dwarf?

- White dwarfs are thought to be the **final evolutionary state of stars whose mass is not high enough to become a neutron star or black hole.**
 - **Chandrasekhar** determined what is known as the **Chandrasekhar limit**—that a star having a **mass more than 1.44 times that of the Sun does not form a white dwarf** but instead continues to collapse, blows off its gaseous envelope in a supernova explosion, and becomes a **neutron star**.
- It is very dense: Its mass is comparable to that of the Sun, while its volume is comparable to that of Earth.

How does white dwarf form?

- In the core of the star, the hydrogen is being converted into **helium**. This is called nuclear fusion reaction.
- Fusion in a star's **core produces heat and outward pressure**, but this pressure is **kept in balance by the inward push of gravity** generated by a star's mass.

- When the hydrogen used as fuel vanishes, the **fusion reactions start to slow down**. Thus, the inward force of gravity become so strong that it **causes the star to collapse in on itself**, creating a white dwarf.

Black dwarf

- Over a very long time, a white dwarf will cool and its material will begin to crystallize, starting with the core.
- The star's low temperature means it will no longer emit significant heat or light, and it will become a cold black dwarf.
- The length of time it takes for a white dwarf to reach this state is calculated to be longer than the current age of the known universe. Hence, it is thought that **no black dwarfs yet exist.**
- **Sirius B** is the **nearest white dwarf star from earth.**

How does it switch on and off?

- In a binary system of a white dwarf and a star, the star transfers material to the white dwarf. As this material approaches the white dwarf it forms an accretion disk.
 - **Accretion disk** is a disklike flow of gas, plasma or particles around any astronomical object such white dwarf.
 - A **binary system** has two **stars** orbit around a **common centre of mass**, that is they are gravitationally bound to each other.
- The donor star in orbit around the white dwarf keeps feeding the accretion disk. As the accretion disk material slowly sinks closer towards the white dwarf it generally becomes brighter.
- It is known that in some systems the donor stars stop feeding the disk for yet unclear reasons.

- When this happens the disk is still bright as it drains material that was previously still there. It then takes the disk about 1-2 months to drain most of the material.
- According to the scientists, this abrupt change is due to some sort of reconfiguration of the white dwarf magnetic field called **Magnetic Gating**.

- This happens when the magnetic field is spinning so rapidly it creates a barrier disrupting the amount of food the white dwarf can receive

Significance of the finding:

- It might help understand the physics behind accretion – how black holes and neutron stars feed material from their nearby stars.
- It might bring to light the importance of magnetic fields in this process.

SECURITY INK BASED ON NANO-MATERIALS THAT SPONTANEOUSLY EMITS LIGHT CAN COMBAT COUNTERFEITING

Recently, Institute of Nano Science and Technology has created a security ink from nano-materials.

New Ink

- **It is a phosphate-based** security ink made from nano-materials that spontaneously emit light (luminescent) to combat the counterfeiting of branded goods, bank-notes, medicine, certificates, currency.
- The developed ink has huge potential to **combat counterfeiting**.
- The composite ink was used to print patterns and letters on **black paper**.
- The **security inks currently available** are based on **luminescent materials**.

- The luminescent nanomaterials were synthesized via simple **co-precipitation method**.
 - **Luminescent:** emission of light without being heated.
- They absorb high energy and emit low-energy photons, or "downshifting", where it is invisible under daylight, but becomes visible under UV light.
- **Some distinct types of Security Inks are:** Invisible, Biometric, Thermochromic, Fluorescent, Magnetic, Optically variable, Infrared, Reactive and erasable.

NITI AAYOG OKAYS STUDY ON FACIAL RECOGNITION TECH IN INDIA

Recently, NITI Aayog has approved a proposal to conduct a study on the use of facial recognition technology in India.

Facial recognition technology:

- It is a way of **recognizing a human face through technology**.
- It uses **biometrics** to map facial features from a photograph or video.

How it works?

- The camera detects and locates the image of a face.
- An image of the face is captured and analysed.
- Converting the image to data.
- Finding a match.

Uses:

- Mobile phone makers in products.
- Colleges in the classroom.
- Social media companies on websites.
- Retailers in stores.
- Airlines at departure gates.
- Law enforcement agencies.

Pros and Cons:

Pros:

- To track down missing people.
- To identify criminals.
- Making flying safer from criminals and threats.
- Faster processing.

Cons:

- It is a threat to privacy.

- Criminals can trick facial recognition by wearing masks or facial disguises.
- Government can mistakenly identify a person as criminal.

- Aging lowers its effectiveness.
- High infrastructural costs.
- Massive data storage.

METAL-FREE CATALYST DESIGNED TO CONVERT CARBON DIOXIDE TO METHANE

Indian Scientists have designed a **cost-effective metal-free catalyst** to convert carbon dioxide to methane by absorption of visible light.

- A metal-free porous **organic polymer** is designed in such a way that it will be able to **absorb visible light and catalyze the CO₂ reduction reaction** as well.

Characteristics of a photo-catalyst:

- There are some key requirements of a photo-catalyst to convert CO₂ into value-added products. They include light-harvesting property, charge carrier (electron-hole pair) separation proficiency, and presence of proper electronically aligned conduction band.
 - Thus, **it is a challenge to reduce CO₂ to CH₄ selectively and efficiently.**
- Only a handful of catalysts are **able to reduce CH₄ selectively and efficiently**, and most of them contains **metal counterparts which are toxic and expensive.**

Working Principle:

- A donor (**tris-4-ethynylphenylamine**)-acceptor (**phenanthraquinone**) **assembly** via **C-C coupling** to form a robust and thermally stable conjugated micro porous organic polymer was prepared which was **utilized as a heterogeneous catalyst.**
- The **keto group** present in phenanthraquinone moiety acted as a catalytic site in contrast with other **conventional metal-based catalysts** where the metal counterpart carries out the **CO₂ reduction reaction (CO₂RR).**
- During the catalysis process, first, the chemical called the **conjugated**

microporous polymer (CMP) could uptake CO₂ onto its surface due to its **high CO₂ intake capability** at room temperature, converting it into methane as a value-added product.

- The synergistic push-pull effect between the **electron-rich donor and electron-deficient acceptor facilitated efficient electron-hole separation**, enhancing electron transfer kinetics and assisting in efficient catalysis.

Methane:

- Methane (CH₄) is a hydrocarbon that is a **primary component of natural gas.**
- Methane is also a **greenhouse gas (GHG)**, so its presence in the atmosphere affects the earth's temperature and climate system.
- Methane is **emitted from a variety of anthropogenic (human-influenced) and natural sources.**
 - Anthropogenic emission sources include landfills, oil and natural gas systems, agricultural activities, coal mining, stationary and mobile combustion, wastewater treatment, and certain industrial processes.
- Methane is the second most abundant anthropogenic GHG after carbon dioxide (CO₂), accounting for about **20 percent of global emissions.**
- Methane is **more than 25 times as potent as carbon dioxide** at trapping heat in the atmosphere.

Uses:

- Unlike other GHGs, methane **can be converted to usable energy.** Capturing and using methane offers opportunities to generate new sources of clean energy and mitigate global climate change.

- Methane (CH₄) could have significant uses as the **cleanest burning fossil fuel and can directly be used in fuel cells** as a hydrogen carrier.

- It has the **potential to replace coal for electricity generation** and furnishing flexible supply to reinforce intermittent renewable generators.

MeitY to organise “AI Pe Charcha” on “AI for Data Driven Governance” theme

The National e Governance Division (NeGD) of the Ministry of Electronics and IT has organised AI Pe Charcha (AI Dialogue) on October 28, 2021.

- **Theme of the dialogue:** “AI for Data Driven Governance”
- **Aim:** Covering the importance of **data driven** and **AI-enabled governance** along with the global best practices.

AI Pe Charcha:

- It is an initiative of the **Ministry of Electronics & IT**.
- It is a **series of panel discussions involving various global and**

domestic leaders from the Government and industry, researchers and academicians sharing their views & experiences around **Artificial Intelligence**.

- The ‘AI for Data Driven Governance’ session involved experts speaking about leveraging AI for Public Sector, Defence and Security, Postal Services and Future Cities.
- There will also be a presentation on **important AI-driven solutions** that have played a significant role during the difficult times of the COVID-19 pandemic.



LABOUR MINISTER LAUNCHES DIGISAKSHAM TO ENHANCE EMPLOYABILITY OF YOUTH

Ministry for Labour and Employment launched Digi Saksham - a digital skills Programme on 30th September 2021 to enhance the employability of youth.

Highlights:

- Digi Saksham will be implemented in the field by **Aga Khan Rural Support Programme India (AKRSP-I)**.
- **Aim:** To enhance the employability of youth by imparting digital skills in the technology driven era.
- It is a joint initiative with **Microsoft India**.
- It will provide free training in digital skills, will be provided to more than 3 lakh youths.
- The Jobseekers can access the training through **National Career Service (NCS)** Portal.
- It gives priority to the job-seekers of **semi urban areas** belonging to disadvantaged communities including those who have lost their jobs due to Covid-19 pandemic.
- Jobseekers can access resources such as programming languages, data analytics, software development and advanced digital productivity.

National Career Service (NCS):

- NCS was launched on 20th July, 2015.
- It provides a wide array of employment and career related services to the citizens of India.
- It works towards **bridging the gap** between jobseekers and employers
- Candidates can seek training, career guidance, counselling.

Services Offered NCS:

1. Local services

- The portal brings together the households with specialized services for homes like drivers, electricians, plumbers, carpenters etc.
- It helps the **small needs** in the household to be addressed.
- It generates employment for people at the grassroots.

2. Information for Entrepreneurs

- The **self-employed workforce** has a huge potential to grow and become entrepreneurs with better access to finance, technology, and open markets.
- They can provide employment opportunities to others.

NCS brings a collation of material and helpful links to facilitate entrepreneurs for better growth.

NITI AAYOG LAUNCHES REPORT ON BEST PRACTICES IN THE PERFORMANCE OF DISTRICT HOSPITALS

NITI Aayog Unveiled the study- 'Best Practices in the Performance of District Hospitals' on 30th September 2021.

Highlights:

- The assessment evaluated 707 district hospitals on 10 key performance indicators. It was based on data from 2017-18.
- **District hospitals** were categorised into small (up to 200 beds), medium (201-300 beds) and large (more than 300 beds).

Key Findings:

- A district hospital had 24 beds for 100,000 people **on an average**.
- The **World Health Organization** recommends five hospital beds for every 1,000 people.
- **Puducherry** had the highest average beds in the country while Bihar had the lowest average of six beds per 100,000 citizens.
- Only 27% of the total 707 districts met the doctor-to-bed ratio of 29 doctors per 100 beds in a hospital.
 - 88 hospitals out of 707 had the required ratio of staff nurses.

- Only 399 hospitals were found to have a ratio of paramedical staff.
 - **Madhya Pradesh** had the highest proportion (14.8%) such hospitals, followed by Delhi (12.5%) and UP (11.4%).
- Every district hospital in India had 11 support services, compared to the required 14.
 - **Tamil Nadu** had the highest proportion (20.2%) followed by Rajasthan (11.2%), UP (10.1%).
- Only 21 hospitals fulfilled the criteria of having all diagnostic testing services available.
 - **Karnataka** had the highest proportion (28.6%) followed by Telangana (19%) and Gujarat (9.5%).
- **Uttar Pradesh** at (14.8%) had the highest proportion of hospitals with bed occupancy rate followed by Madhya Pradesh (10.9%), Maharashtra (8.2%).

SACRED: A GOVT. PORTAL FOR RE-EMPLOYMENT OF 'SENIOR ABLE CITIZENS

Ministry of Social Justice and Empowerment launched Senior Able Citizens for Re-Employment in Dignity (**SACRED**) portal on 30th September 2021.

Highlights:

- It will provide **employment opportunities** for the elderly by bringing together various stakeholders.

- Citizens **above 60 years of age** can register on the portal and find jobs and work opportunities.
- For the recruiters, jobs will be posted with specifics and the eligibility criteria for applicants.
- The portal will serve as **an enabler** for people looking for work, not as a platform guaranteeing employment.
- **Voluntary Organizations** will help the senior citizens in applying for these jobs with no user charges.

MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT TO ORGANIZE VAYO NAMAN PROGRAMME

The Ministry of Social Justice and Empowerment will organise **VAYO NAMAN** Programme in the honour of Senior Citizens on the occasion of the **International Day of Older Persons** on 1st October, 2021.

- The International Day of Older Persons is celebrated every year on 1st October for the cause of elderly persons.

- On this occasion, the Government of India confers '**National Award-Vayoshreshtha Samman**' on eminent senior citizens and institutions in recognition of their service towards elderly persons.
- The Vice President also dedicated the Elderly Line 14567 to the Nation and launched the Senior Able Citizens Reemployment in Dignity (SACRED) & Senior Care Ageing Growth Engine (SAGE) Portals.
- SAGE- To encourage entrepreneurs in the area of elderly care.

- SACRED- will connect the senior citizens with job providers in the private sector.

Key Facts:

- Theme for United Nations International Day of Older Persons 2021 which is '**Digital Equity for All Ages**'.
- United Nations General Assembly had adopted a resolution to observe **1st October 1999** as the International Day of Older Persons.

CHALLENGES APLENTY FOR DIGITAL HEALTH MISSION

Recently, the Centre announced the nationwide rollout of **Pradhan Mantri Digital Health Mission (PM-DHM)**, which is in its pilot stage in **six UTs**.

ABDM (Ayush Bharat Digital Mission):

- **Aim:** to give every citizen a **unique digital health ID**, which involves their health records being digitally protected and making health a "**holistic and inclusive model**".
- Under the mission, users can **access and link personal records** with their unique ID to create a longitudinal health history.
- The model will stress preventive healthcare and, in case of disease, easy, affordable and accessible treatment.

Functioning of ABDM:

- In order to be a part of the ABDM, citizens will have to **create a unique health ID** – a randomly generated **14-digit identification number**.
- The ID will give the user unique identification, authentication and will be a **repository of all health records of a person**.
- The ID can also be made by self-registration on the portal, downloading the **ABMD Health Records app** on one's mobile or at a participating health facility.
- The beneficiary will also set up a **Personal Health Records (PHR) address** for the issue of consent, and for future sharing of health records.

- The Digital Ecosystem will **enable a host of other facilities** like digital consultation, consent of patients in letting medical practitioners access their records, and so forth.
- Records are stored under retention policies and can be accessed only with the consent of users. Besides, users can delete and exit the service any time they want.
- The account could be reactivated after which the user can share the ID at any health facility or share health records over the ABDM network. However, there are concerns according to experts.

Challenges:

- **Privacy issues:** The citizen's **consent is vital for all access**. A beneficiary's consent is vital to ensure that information is released. The privacy of an individual is a challenge in the implementation of the project.
- India has been **unable to standardise the coverage and quality of the existing digital cards** like One Nation One Ration card, PM-JAY card, Aadhaar card, etc., for accessibility of services and entitlements.
- The data migration and inter-State transfer are still faced with **multiple errors and shortcomings** in addition to concerns of data security.
- The defence of data security by expressed informed consent doesn't work in a country that is plagued by

the **acute shortage of healthcare professionals** to inform the client fully.

- In the Indian context, where **public funds for healthcare are perennially short**, every extra rupee spent on administrative expenses raises ethical concerns, since these costs don't directly contribute to improving the health of the population.
 - With the minuscule spending of 1.3% of the GDP on the healthcare sector, India will be unable to ensure the quality and uniform access to healthcare that it hoped to bring about.

- The precursor of the Pradhan Mantri Jan Arogya Yojana (PMJAY, the insurance component of ABM), namely the **Rashtriya Swasthya Bima Yojana (RSBY)**, was **replete with alleged reports of insurance fraud**, such as fake beneficiaries. The PMJAY has not been free of them either.
- Personalised data collected at multiple levels are a **“sitting gold mine” for insurance companies**, international researchers, and pharma companies.
- **Lack of access to technology, poverty, and lack of understanding of the language** in a vast and diverse country like India are problems that need to be looked into.

NITI AAYOG TO FELICITATE 75 WOMEN ACHIEVERS AS PART OF AZADI KA AMRIT MAHOTSAV CELEBRATIONS

To celebrate the 75th year of independence, Women Entrepreneurship Platform (WEP), will felicitate **75 women achievers as part of the Amrit Mahotsav celebration**.

- Women Transforming India Awards (WTI) 2021 will celebrate the **contribution of women entrepreneurs** towards **‘Sashakt aur Samarath Bharat’** – by building self-sufficient businesses and/or overcoming challenges via unique business solutions.

Awards:

- The WTI Awards is **NITI Aayog's endeavour** to recognise and celebrate stories of exceptional women change-makers from across India.
- Since 2018, the WTI Awards have been hosted **under the aegis of the Women Entrepreneurship Platform** with a focus on ‘Women and Entrepreneurship’.
- The awards continue to bring to the fore, inspiring female role models charting impact across the country.

- The nomination for the award can be done under one or **more than one of the seven categories**
 1. Public and Community Service,
 2. Manufacturing Sector,
 3. Non-manufacturing Sector,
 4. Financial Products enabling Economic Growth,
 5. Climate Action,
 6. Promote Art, Culture and Handicrafts
 7. Digital Innovation.
- Applications will go through a **three-stage evaluation process** consisting of independent assessment, jury and super jury rounds.
- 75 inspiring women entrepreneurs breaking the glass ceiling will be identified.
- These winners will be **felicitated on the occasion of International Women's Day**, 8th March, 2022.

Women Entrepreneurship Platform (WEP):

- The WEP seeks to transform the entrepreneurial ecosystem for women by bringing together

stakeholders offering information and services to address the existing information asymmetry.

- It is based on the **three pillars** of **Iccha Shakti, Gyan Shakti and Karma Shakti**.

- The platform provides incubation support, mentorship, funding avenues, compliance/taxation support and peer learning.

PM MODI LAUNCHES JAL JEEVAN MISSION APP ON GANDHI JAYANTI

Prime Minister has launched a newly designed Jal Jeevan Mission (JJM) mobile application on October 2, 2021, Gandhi Jayanti.

- The app would enable anyone to fund provision of tap water in rural parts of India.
- The Prime Minister also released a framework for **water quality monitoring and surveillance** as well as a 'margdarshika' (guide) for Gram Panchayats and paani samitis (village water and sanitation committees under the JJM).

Jal Jeevan Mission (JJM):

- The JJM was **launched in 2019** by the Union Ministry of Jal Shakti to ensure **100 per cent functional tap water supply** in rural areas by 2024.
- The programme also implements source sustainability measures as mandatory elements, such as **recharge and reuse through grey water management**, water conservation, rain water harvesting.
- The Mission is based on a community approach to water and includes extensive Information, Education and communication as a key component of the mission.

Aim:

- Every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities.

Objectives:

- To provide FHTC to every rural household.

- To prioritize provision of FHTCs in quality affected areas, villages in drought prone and desert areas, **Sansad Adarsh Gram Yojana (SAGY)** villages, etc.
- To provide functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres and community buildings
- To monitor functionality of tap connections.
- To promote and ensure voluntary ownership among local community by way of contribution in cash, kind and/ or labour and voluntary labour (shramdaan)
- To assist in ensuring sustainability of water supply system, i.e. water source, water supply infrastructure, and funds for regular O&M
- To empower and develop human resource in the sector such that the demands of construction, plumbing, electrical, water quality management, water treatment, catchment protection, O&M, etc. are taken care of in short and long term
- To bring awareness on various aspects and significance of safe drinking water and involvement of stakeholders in manner that make water everyone's business

Management:

- The JJM is **managed by paani samitis** (village water and sanitation committees (VWSCs)) to plan, implement, manage, operate and maintain village water supply systems.
 - These consist of **10-15 members**, with at least **50 per cent women**

members and other members from self-help groups, accredited social and health workers, anganwadi teacher, etc.

- The committees prepare a **one-time village action plan**, merging all available village resources. The plan is approved in a Gram Sabha before implementation.

Mandates:

SCOLDING DOES NOT AMOUNT TO PROVOKING A STUDENT TO TAKE OWN LIFE: SC

The Supreme Court held in a judgment that disciplinary measures adopted by a teacher or other authorities of a school, reprimanding a student for his indiscipline, will not tantamount to provoking a student to commit suicide.

Highlights of the judgement:

- It is a solemn duty of a teacher to instil discipline in the students. It is not uncommon that teachers reprimand a student for not being attentive or not being up to the mark in studies or for bunking classes or not attending the school.
- A mere reprimand or disciplinary action will **not translate to the crime of abetment of suicide unless “there are repeated specific allegations of harassment and insult deliberately without any justifiable cause or reason”**.
- A simple act of reprimand of a student for his behaviour or indiscipline by a teacher, who is under moral obligation to inculcate the good qualities of a human being in a student, would definitely **not amount to instigation or intentionally aid to the commission of a suicide by a student**.
- It was not only the moral obligation of a teacher but also his **“legally assigned duty” under Section 24 (e) of the Right of Children to Free and Compulsory Education Act, 2009** to hold regular meetings with the parents and guardians and apprise them of the regularity in attendance,

- Ensures functionality of existing water supply systems and water connections; water quality monitoring and testing as well as sustainable agriculture.
- Ensures conjunctive use of conserved water; drinking water source augmentation, drinking water supply system, grey water treatment and its reuse.

ability to learn, progress made in learning and any other act or relevant information about the child.

Genesis:

- The case concerned the death of a 14-year-old by suicide in Rajasthan in 2018. The appellant, a teacher, was accused of ‘insulting’ the boy, a student in the same school.

Abetment of suicide:

- Abetment to Suicide is an offence under Section 306 of Indian Penal Code (IPC), 1860.
- A person is accountable for abetment to suicide when any of the following conditions are fulfilled:
 - He/ She instigates someone to commit suicide.
 - He/ She takes part in a conspiracy to make a person commit suicide.
 - He/ She helps the victim deliberately so he can commit suicide by doing an act or not doing something that he was bound to do.

Section 306:

- If any person commits suicide, whoever abets the commission of such suicide shall be punished with imprisonment of either imprisonment for a term which may extend to **ten years**, and shall also be liable to fine.
- Abetment of suicide is an offence tried in a Sessions court and is cognizable, **non-bailable and non-compoundable in nature**.

Key Facts:

- **Cognizable offence:** A police officer can make an arrest without a warrant from a court.
- **Non-bailable offence:** Bail is granted to the accused at the discretion of the court, and not as a matter of right.

- **Non-compoundable offence:** The case cannot be withdrawn by the complainant even when the complainant and the accused have reached a compromise. The court will not allow withdrawal of a case involving a non-compoundable offence.

TEXTILES: WHAT DOES GOVT'S EXTENSION OF HANDICRAFTS CLUSTER DEVELOPMENT SCHEME MEANS FOR ARTISANS, SMES

Ministry of Textiles has approved continuation of Comprehensive Handicrafts Cluster Development Scheme (CHCDS) with a total outlay of Rs 160 crore.

Highlights:

- **Aim:** To create world-class **infrastructure** for the business needs of the local artisans & SMEs to boost production and export.
- This scheme will provide **infrastructural support**, market access, design, and technology up-gradation to handicrafts artisans.
- The focus will be on integration of **scattered artisans**, linking them to SMEs in the handicrafts sector to ensure economies of scale.
- Integrated projects will be taken for the development through Central/State Handicrafts Corporations.
- The scheme will continue up to **March 2026**.

Objectives:

- To provide **requisite support** in terms of infrastructure, product diversification, design development, marketing and promotion, social security.
- To **create livelihood opportunities** through specific intervention in the industry and to increase the income of the artisans engaged in this sector.

Scope:

- The small handicrafts units and poor artisans are inadequate to undertake the initiatives due to non-availability of **proper infrastructure and common facilities**.
- To overcome these challenges, it is necessary to form a **Public-Private Partnership (PPP)** model to create clusters with necessary facilities to meet the industry needs.

Other Highlights of the Scheme:

- The artisans will be provided with margin money of **Rs. 4000** to complete one cycle of production-cum-marketing within three months.
- **Provision of Trade Center**, Exhibition Hall, Customs office, etc. will be provided.
- There is a proposal for the establishment of a **raw material bank** for continuous availability of graded raw material
- It will improve the share of the cluster products in domestic as well as export markets through exhibitions, buyer-seller meets, retail space, warehouses, etc.
- It seeks to **improve productivity** and quality; training will be provided on technical skills.
- The artisans will be covered under social security schemes, which includes small savings, group insurance, financial institutions, etc.

Industrial Park Ratings System Report (IPRS) was released by the Department for Promotion of Industry and Internal Trade recently.

Highlights:

- The IPRS pilot exercise was launched in **2018**, with an objective of enhancing industrial **infrastructure competitiveness** and **supporting policy development** for enabling industrialization across India.
- The **2nd edition** of the IPRS Report was launched by the **Ministry of Commerce & Industry**.
- The **IPRS 2.0** was started in 2020 & saw the **participation** of all the States of India and 51 SEZs, including 29 Private & 24 Private Sector Industrial Parks.
 - Ratings were undertaken for 449 out of 478 nominations received. The feedback survey **involved responses** from 5,700 tenants.
- IPRS 2.0 framework is **four pillared model** for assessment of industrial infrastructure in India:
 - Internal infrastructure (Sub pillars- Utilities, Common Infrastructure, Value added infrastructure)
 - External infrastructure and connectivity
 - Business support services
 - Environment and safety management
- **41** Industrial Parks have been assessed as "**Leaders**" in the report.
 - About **98%** of these parks are from western (Maharashtra, Rajasthan and Gujarat) and northern (Uttarakhand) regions.
- **90** Industrial Parks have been rated as **under Challenger category**.
- **185** Industrial Parks have been rated as under "**Aspirers**".

Significance:

- IPRS 2.0 Report will enhance India's industrial competitiveness and attract investment.

Industrial Parks?

- An industrial park is a **section of the city** that has been designated, planned, and zoned for industrial

development rather than residential or commercial needs.

- The parks might **include** companies that provide manufacturing, transportation, and storage facilities, such as chemical plants, airports, and beverage manufacturers.
- Some industrial parks **offer tax incentives** for businesses to locate there, such as tax increment financing.
- However, the industrial parks often create **environmental** issues, due to increased pollution and the potential for surrounding area to be damaged by contaminants.

Criteria for Industrial Parks:

- Industrial Park should have **at least ten industrial units** in the area of 20 hectares.
- It should possess **minimum infrastructure** facilities like road, electricity, water and sewage and effluent treatment facilities.
- It should use **only 50%** of the total area allocated for the industrial units.
- It should **follow the guidelines** of the nearest urban area development authority for common facilities, like road, common plot etc.
- The minimum percentage of the area allocated for industrial use should **not exceed 65% of the total area**.
- It should provide **5% of the total area** for Industrial workers, and the **other 5%** of the total area should be reserved for an office building.

Industrial Park Scheme 2002:

- Industrial Park Scheme-2002 was notified by the Department for Promotion of Industry and Internal Trade (**DPIIT**) on 1st April, 2002.
- It is applicable for **any undertaking** which develops, develops and operates, or, maintains and operates, an Industrial Park for the period beginning 1st April, 1997 and ending 31st March, 2006.

Objectives of the Industrial Park Scheme:

Any industrial park shall aim at setting up of –

1. An **Industrial Model Town** for development of industrial infrastructure for carrying out

integrated manufacturing activities, including research and development, by providing plots or sheds and common facilities within its precincts (zone/area).

2. An **Industrial Park** for development of infrastructural facilities or built-up space with common facilities in any area allotted or earmarked for the purposes of specified industrial use.
3. A **Growth Centre** subject to the scheme implemented by an undertaking and the Growth Centre is distinctly developed as a separate profit centre.

India Industrial Land Bank (IILB):

- IPRS Report is an extension of the **India Industrial Land Bank** which features more than 4,400 industrial parks in a **GIS-enabled database**.
 - It is done to **help investors** identify their preferred location for investment.
- The portal is currently integrated with **industry-based GIS system** of 21 States and UTs and plot-wise

information is updated on a real-time basis.

- IILB provides **details** of more than **5.6 lakh hectares** on the click of a button and prospective entrepreneurs can apply sitting from anywhere across the world.
 - **GIS-enabled IILB** acts as a one-stop source of information on Industrial Infrastructure.
 - Investors can **even remotely refer** to this report to identify the suitable investable land area, as per the various parameters of infrastructure, connectivity, business support services and environment and safety standards.

Project Development Cells:

- Project Development Cells (**PDC**) have been constituted in **Ministries/Departments** to create a shelf of readily investible projects.
- PDCs will **handhold investors** and aim to **improve Ease of Doing Business** to spur sectoral and economic growth.

EXPLAINED WHY HAS THE SUPREME COURT CLAMPED DOWN ON FIRECRACKER MANUFACTURERS?

The Supreme Court on September 29, 2021 warned **six major fireworks manufacturers** who violated orders to not use prohibited chemicals such as **Barium salts**.

Supreme Court ruling 2018:

- In 2018, the **Supreme Court** ruled out imposing a **complete ban** on the sale of firecrackers during Diwali but put certain conditions.
- The orders stipulated that only **reduced emission** and **green crackers** be allowed, with **tight restrictions on timings** to burst.

Issues with Firecrackers:

- Firecrackers use **fuel and oxidisers** to produce a combustion reaction, and the **resulting explosion** spreads the material in a superheated state.

- The metal salts in the explosive mix get 'excited' and emit light.
- The **interaction** between the firecracker fuel and the oxidiser releases energy.
- Metals in the mix with varying **arrangement of electrons** in shells outside their nucleus, **produce different wavelengths** of light in this reaction, generating spectacular colours.
 - Barium compounds **produce green light** and Strontium and Lithium salts, red.
- However, burning of firecrackers is a **peak source of pollution**, made up of particles and gases.
- The **Central Pollution Control Board** conducted a study in Delhi in 2016, and found that the levels of Aluminium, Barium, Potassium, Sulphur, Iron and Strontium rose

sharply on Diwali night, from low to extremely high.

- For instance, **Barium** rose from 0.268 micrograms per cubic metre to 95.954 mcg/m³.
- The pollution from firecrackers **affects the health of people** and animals, and aggravates the already poor ambient air quality in Indian cities.

Green Crackers:

- Green crackers are made using **less polluting raw materials**. Their chemical formulation ensures **reduced particle emission** into the atmosphere by suppressing the dust produced.
- While regular crackers emit about **160 decibels** of sound, green crackers' emission rate is limited to **110-125 decibels**.
- National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur has come out with **firecrackers** that have "reduced

emission light and sound" and **30% less** particulate matter using Potassium Nitrate as oxidant.

- There are three types of green crackers available in India, named:
 - Safe Water Releaser (**SWAS**), which minimises the use of **Potassium Nitrate** and **Sulphur** use, but matches the sound intensity of conventional crackers.
 - Safe Minimal Aluminium (**SAFAL**), where Aluminium use is low.
 - Safe Thermite Crackers (**STAR**) with low Sulphur and Potassium Nitrate.
- These crackers are to be identified using **unique QR codes** to guide consumers.

Concerns:

- Of about 2,000 manufacturers, **only 120** had the capacity and inclination to work with green crackers.

GOVERNMENT SETTING UP SEVEN TEXTILE PARKS WITH ₹4,445 CRORE OUTLAY

The Union Cabinet has approved setting up of seven Mega Integrated Textile Region and Apparel (**PM MITRA**) Parks with an outlay of ₹4,445 crores.

Highlights

- The Mega parks scheme will include **brownfield and greenfield projects**, spread over five years.
- The parks would **comprise four categories** — units investing ₹300 crore or more, units investing ₹100-300 crore, investors of less than ₹100 crore and tenant units.
- As many as **10 States** including Tamil Nadu, Telangana and Gujarat have shown interest for the parks.
 - The **states offering the cheapest land** (contiguous and encumbrance-free land of minimum 1,000 acres) and **facilities** such as adequate electricity and water would be selected through a **transparent challenge route**.

- The SPV would select a **Master Developer** to set up and maintain the park for a specified period.
- Of the park's area, **50%** would be earmarked for manufacturing activity, 20% for utilities, and 10% set aside for commercial development.
- It will work in tandem with the **production-linked incentive scheme (PLI)** in the textiles sector.

Objectives:

- To create world-class infrastructure with plug-and-play facilities that enable major investments in exports.
- To give domestic manufacturers a level-playing field in the international textiles market & pave the way for India to become a global champion of textiles exports.
- To enable the textile industry to become globally competitive and boost employment generation, investment and exports.

Financial and Infrastructural Support:

- Parks to be developed by a **Special Purpose Vehicle (SPV)** owned by the Central and State governments.
- **Development Capital Support** aimed at helping develop infrastructure will fund 30% of the project cost with a cap of ₹500 crore for greenfield projects and ₹200 crore for brownfield projects.
- A separate Competitiveness Incentive Support limited to ₹300 crore per park.

Significance:

- **Core Infrastructure:** Incubation Centre & Plug & Play facility,

Key Facts:

Brownfield Project	Greenfield Project
<ul style="list-style-type: none"> • Brownfield land is any previously developed land that is not currently in use that may be potentially contaminated. • The term is also used to describe land previously used for industrial or commercial purposes with known or suspected pollution including soil contamination due to hazardous waste. • A brownfield project is one that carries constraints related to the current state of the site. 	<ul style="list-style-type: none"> • A greenfield project is one that lacks constraints imposed by prior work on the site. • Typically, what a greenfield project entails are development on a completely vacant site. Architects start completely from scratch.

Developed Factory Sites, Roads, Power, Water and Waste Water system, Common Processing House & CETP and other related facilities e.g., Design Centre, Testing Centres etc.

- **Support Infrastructure:** Workers' hostels & housing, logistics park, warehousing, medical, training & skill development facilities.
- The parks are expected to **generate 7 lakh direct jobs** and provide indirect jobs to almost 14 lakh people.

HELI-BORNE SURVEY FOR WATER MANAGEMENT LAUNCHED IN RAJASTHAN

Ministry of Science & Technology has launched Heli-borne survey technology for ground water management starting from Rajasthan on 5th October 2021.

- The technology is developed by **Council of Scientific and Industrial Research-National Geophysical Research Institute (CSIR-NGRI)**, Hyderabad.

Highlights:

- **Aim:** Mapping potential groundwater sources and its management for providing safe drinking water to millions of people living in the water scarce arid regions of our country.
- The mega project of Rs. 150 crores will be implemented in **two phases** in collaboration with the **Ministry of Jal Shakti** as a part of **National Aquifer Mapping Project**.
- The Heli-borne **geophysical mapping** technique provides a high-resolution 3D image of the sub-surface

up to a depth of 500 meters below the ground.

- **Aquifer Mapping & Management** in Arid Regions will supplement the goals of "Har Ghar Nal Se Jal" scheme, as well as doubling farmers income.
- The technology will provide **ground water solutions** in the arid and **semi-arid regions** of North-western India.

The states included in the survey are:

- Rajasthan
- Gujarat
- Punjab
- Haryana

Importance:

- **Arid areas** in north western India cover nearly 12% of the total geographical area of the country with home to more than 8 crore people.
- With an annual rainfall of **less than 100 to 400 mm**, the area in the four

states mentioned, faces an acute shortage of water throughout the year.

- The scheme is proposed to take up **high-resolution aquifer**

mapping and management to augment the groundwater resources.

'DESH KE MENTOR' PROGRAMME TO GIVE CAREER GUIDANCE TO STUDENTS

Delhi Government on 11th October launched the 'Desh ke Mentor' programme to guide and counsel the students of Class IX to XII in Delhi government schools.

Highlights:

- **Aim:** To create a movement of youth volunteers who will act as guides for the students.
- **Duration:** Two to six months
- Duration with the first two months will be compulsory and the remaining four months as optional.
- **The Mentors** will guide and support 2-5 students studying in Delhi government schools.

- They can be from various **professional backgrounds** and between the age of 18-35.
- They will help the students in their overall development and **personality development** by sharing their knowledge, skills, and expertise in various fields.
- They will help children **recognise their stress** and lead a peaceful and calmer life in their toughest times
- They will learn about each other to have a better understanding of career options.

CHILD MARRIAGE KILLS OVER 60 GIRLS A DAY GLOBALLY: SAVE THE CHILDREN REPORT

Recently, an **Non-Governmental Organization (NGO)**, Save the Children released the **Global Girlhood Report 2021: Girls Right in Crisis**.

International Day of the Girl Child

- It is observed annually on **11th October**. It was declared by the **United Nations (UN)**, which was first observed in 2012.
- A resolution to declare **11th October** as the International Day of the Girl Child was adopted by the UN General Assembly on 19th December 2011.
- The day is **dedicated to raising awareness on gender equality** while assuring rights and improving opportunities for girls.

Theme for 2021:

Digital generation. Our generation.

Key Points

Rate of Child Marriage:

West and Central Africa **has the highest rate of child marriage** in the world.

Death Due to Child Marriage:

- **Child marriage kills more than 60 girls a day** globally, 26 girls a day in West and Central Africa and **six girls a day** in South Asia.
- South Asia is followed by **East Asia** and the **Pacific and Latin American** and the **Caribbean**.
- The deaths are majorly caused from **pregnancy and childbirth** resulting from child marriage.

Effect of Covid on Child Marriage:

- **With school closures, health services under strain or closed**, and more families being pushed into poverty, women and girls face an increased risk of violence during lengthy **lockdowns**.
- **A further 10 million girls** are now **expected to marry by 2030**, leaving more girls at risk of dying.
- Earlier, according to a report published by ChildLine India **the pandemic and the subsequent lockdown have proved to be new**

drivers of child marriages in rural Madhya Pradesh.

- Also some activists and organisations of Karnataka have raised the issue of **increased child marriages in Lockdown** with the Ministry of Women and Child Development.

Suggestions: The report called on the governments to:

Help Girls Raising Voices

Raise girls' voices by **supporting their right to safe and meaningful participation** in all public decision-making.

Focus on Gender Equality:

Address immediate and ongoing risks of **gender-based violence**, including child marriage, by putting **girls' rights and gender equality at the center** of Covid-19 and humanitarian responses, development policy, and broader efforts to build forward better.

Guarantee Girls Their Rights:

Guarantee the rights of all girls, **including those impacted by different forms of inequality and discrimination** by developing inclusive policies and programs. Safe and ethical data collection must also be improved to better understand and respond in real-time to Covid-19's impact on existing economic, climate, and conflict-related crises.

Ensure Participation of Female Staffs:

- Ensure the **safe and unrestricted participation of female humanitarian staff in all humanitarian response efforts**, including needs assessments and the design, implementation, and monitoring, and evaluation of all humanitarian services at every level.

Join the Generation Equality Movement:

- The movement is working to deliver on the **Global Acceleration Plan for Gender Equality** (launched by Generation Equality Forum), which set

a target to prevent nine million child marriages in five years.

Related Indian Initiatives:

- The **Child Marriage Restraint Act of 1929** restricts the practice of child marriage.
- The **Special Marriage Act, 1954** and the **Prohibition of Child Marriage Act, 2006** prescribe 18 and 21 years as the minimum age of consent for marriage for women and men respectively.
- The **Prohibition of Child Marriage Act, 2006** was enacted to address and fix the shortcomings of the Child Marriage Restraint Act.
- The **Union Ministry for Women and Child Development** has set up a committee to examine matters pertaining to age of motherhood, imperatives of lowering **Maternal Mortality Ratio** and the improvement of nutritional levels among women. The Committee is headed by Jaya Jaitely.
- The Committee was proposed in the **Union Budget 2020-21**.
- Prevention of Child Marriage is a part of **SDG 5** which deals with gender equality and empowerment of all women and girls.

Child Marriages India Specific Data

- **United Nations Children's Fund (UNICEF)** estimates suggest that each year, at least **1.5 million girls under 18 get married in India**, which makes it home to the **largest number of child brides in the world** - accounting for a third of the global total.
- Nearly 16% of adolescent girls aged 15-19 are currently married.
- While the prevalence of girls getting married before age 18 has **declined from 47% to 27% between 2005-2006 and 2015-2016**.

FCI INTRODUCES MIXED INDICATOR METHOD TO WEED OUT OLD RICE STOCKS

Food Corporation of India (FCI), has launched a '**mixed indicator method**' to determine the

age of milled rice stock during the acceptance of custom milled raw rice (CMR) for procurement under the central pool.

Highlights:

- As a standard operating procedure, **testing** will be done to check the **age** of old rice.

- After the test, the samples indicating green/avocado will only be accepted.
- Any other color development like yellow or orange will be **rejected**.
- This testing method will nullify the **possibility** of accepting old rice stock.

UGC RECOGNIZES BACHELOR OF SOWA RIGPA MEDICINE AND SURGERY (BSRMS)

The **University Grants Commission** has issued a notification recognizing Bachelor of Sowa Rigpa Medicine and Surgery (BSRMS) under the specified Degrees.

Highlights:

- The UGC has recognized BSRMS as a new degree under **Medicine & Surgery**, Ayurveda, Unani, **Homeopathy and Health & Allied Sciences**, Pharmacy, Paramedical and Nursing.
- **Duration:** 5 years and (10+2) is fixed as entry qualification.

- **Sowa Rigpa** is a **traditional and popular medicinal practice** in the **Himalayan region**.
- Only Central Institute of Buddhist Studies (CIBS) in Leh and **Central Institute of Higher Tibetan Studies (CIHTS)** located in **Saranath** are offering the degree in Sowa Rigpa medicine.
- With UGC recognition, any university could offer BSRMS degree in their colleges.

ENFORCEMENT OF MODEL CODE OF CONDUCT (MCC) DURING BYE-ELECTION IN THE ENTIRE DISTRICT

The Election Commission has notified some instructions regarding enforcement of Model Code of Conduct (MCC) during bye-election in the entire district.

Highlights:

- **In case the constituency is comprised** in State Capital/Metropolitan Cities/Municipal Corporations, then **MCC instructions would be applicable in the area of concerned Constituency only**.
- In all other cases, **aforsaid instructions would be enforced** in the entire district(s) covering the Constituency going for bye-election(s).
- The spirit of these instructions has been that **developmental and administrative works should continue** without the implications of MCC and the **campaigning for the bye election should be restricted** in the PC/AC concerned only.
- However, there exists a situation that **political activities akin to ongoing bye election may be**

conducted outside the PC/AC but within the district.

- Such activities will be in contravention to the spirit of the aforesaid instructions.
- If any **electioneering activities** connected to ongoing bye election are **organized anywhere within the district**, then all instructions related to enforcement of MCC, COVID and expenditure monitoring shall **apply as done in case of political activities**.
- **District Election Officer** concerned shall exercise all necessary action in such cases and ensure strict compliance.

Model Code of Conduct (MCC):

- The Model Code of Conduct (MCC) is a document from the Election Commission of India that lays down the **minimum standards of behaviour for political parties** and their candidates contesting elections.
- The guidelines are issued mainly with respect to **speeches, polling day, polling booths, election**

manifestos, processions and general conduct.

- The Model Code of Conduct **comes into force immediately on announcement of the election schedule** by the commission.
- The Code **remains in force till the end of the electoral process.**
- MCC does **not have any statutory backing** but it gained strength in the past decade because of its strict enforcement by the EC.

E-CIGARETTES DON'T HELP SMOKERS QUIT CIGARETTES

According to a new research, **use of e-cigarette** on a daily basis did not help smokers to quit cigarettes.

- Researchers identified 13,604 smokers between 2013 and 2015 over two annual surveys to explore changes in use of 12 tobacco products.

Highlights:

First Survey:

- 9.4% of the **established smokers** had quit. Among them, 62.9% remained tobacco-free, while 37.1% had switched to another form of tobacco use
 - Including 22.8% who used **e-cigarettes**, with 17.6% of switchers using e-cigarettes daily.

Second Survey:

- **Individuals** who switched to other form of tobacco use, including e-cigarettes, were more relapse compared to former smokers who had quit all tobacco, by a total of 8.5 percentage.
- Among recent **former smokers** who abstained from all tobacco product, 50% have successfully **quit smoking** compared to 41.5% of recent former smokers who switched to other form of tobacco use, including e-cigarettes.

Ban of E-Cigarettes in India:

- In September 2019, Government of India announced a **complete ban** on e-cigarettes, preventing health risks among India's youth.
- Production, manufacture, trade, transport, of e-cigarettes and

GENESIS:

- The MCC was first mooted by **Kerala in its 1960** assembly elections.
- It was later adopted by the Election Commission (EC) during mid-term elections in 1968 and 1969.
- **EC issued MCC for the first time in 1971** (5th general elections) and revised it from time to time.

other **Electronic Nicotine Delivery Systems (ENDS)** like vapes, e-hookahs and e-cigars will be a punishable offence.

- **First-time offenders** will face imprisonment of up to one year, a fine up to Rs 1 lakh, or both.
- Subsequent offenders will face **three years'** imprisonment and Rs 5 lakh in fine,
- Those found **storing e-cigarettes** and other ENDS products will face up to six months in prison and up to Rs 55,000 in fines, or both.

E-Cigarettes?

- E-cigarettes are **battery-powered devices** that heat a solution of nicotine to create aerosol, which is then inhaled.
- These devices belong to a category of vapour-based nicotine products called **Electronic Nicotine Delivery Systems (ENDS)**.
- E-cigarettes and other ENDS products look like regular cigarettes or cigars, they also come in other shapes and sizes like pens and USB drives.

Size of e-cigarettes market in India:

- **India's vapour products market** was valued at over \$57 million in 2018, and projected to grow nearly 60 per cent a year up to 2022.
- **Imports of e-cigarettes**, their accessories and other ENDS products grew around 119 per cent from 2016-17 to 2018-19.

Why Government took such step?

- These products have neither been assessed for safety, nor been approved under provisions of the **Drugs and Cosmetics Act, 1940**. Yet, they are widely available in market.
- Though some smokers have claimed to have cut down smoking while using ENDS, the total nicotine consumption seemed to remain unchanged.
- As per the **Indian Council of Medical Research (ICMR)**, uses of ENDS, or e-cigarettes, have adverse effects.
 - Including DNA damage, cellular, and immunological toxicity, respiratory, cardiovascular, and neurological disorders.

Legislative Stance on E-Cigarettes:

When people engage in risky behavior, the government can take one of two approaches - abstinence or harm reduction; prohibition or regulation.

1. Abstinence:

- It points out **risky behavior** and drastically changing incentives to make them stop.
- This can include bans with **severe penalties** for violations or imposing high sin taxes.
- The approach is a right move in many cases, where harm is clearly identified, like smoking or excessive drinking.

2. Prohibition:

- **Aim:** To reduce the harm by providing less risky alternatives.
- **For example:** Regulating alcohol content in drinks, providing sex education to teenagers, mandating the

use of helmets on motorbikes, instead of banning motorbikes altogether.

Merits and Demerits of banning E-Cigarettes:

- India has taken a more stringent option than the US by completely banning the product.
- There are no extra restrictions on traditional cigarettes, which are proven to be more harmful
 - The **long-term harm** of e-cigarettes is less than 5% compared to other tobacco products.
- There are thriving **black markets** for all these substances and it is no different with e-cigarettes.
 - People can buy e-cigarettes **online** quite easily on various portals and markets.
- By selling these products in black, the government loses all forms of control over the product.

Suggestions:

- The government should opt for a harm reduction approach, by developing a **regulatory plan** for e-cigarettes that maximizes smoking cessation among adults while limiting youth uptake.
- The regulatory plan can include:
 - **Levying appropriate taxes**, issuing public use guidelines, providing information about the product.
 - **Enforcing** a minimum age for sales, and individual product restrictions on nicotine concentration in e-cigarette products.

DISTRICT COUNCIL TO INTRODUCE BILL CHANGING AGE-OLD KHASI MATRILINEAL INHERITANCE CUSTOM

A district autonomous council in Meghalaya will modify a customary practice of inheritance of the Khasi tribe in which the youngest daughter of the family is bequeathed full share of parental property.

Highlights:

- The **Khasi Hills Autonomous District Council (KHADC)**, will introduce the Khasi Hills Autonomous

District Khasi Inheritance of Property Bill, in November 2021.

- KHADC will focus on “**equitable distribution**” of parental property among siblings including both male and female.

Autonomous District Councils?

- The **Autonomous District Councils (ADCs)** are Institutions of local governance created under the

Sixth Schedule of the Constitution of India.

- The **Sixth Schedule** was designed to **protect tribal identity, preserve tribal custom and tradition.**
- It protects **indigenous systems** of management over their land, forest, and natural resources.

For Example:

- The Khasi Hills Autonomous District Council (KHADC) was constituted under the Sixth Schedule to the Constitution of India.
- It comes under **Article 244, and 275** of the Constitution with Executive, Legislative and Judicial powers.

Power and Functions of the Council:

1. Executive

- The **executive committee** (EC) of district council carry executive functions like:
 - To construct or manage primary schools, dispensaries, markets, roads.
 - Water ways, land revenue, and administration of villages and towns.
- The **chief executive members** (CEM) are elected by district council amongst themselves and by the Governor.

2. Legislative

- **District councils** can make laws for allotment and use of land, other than reserved forests for purpose of
 - **Agriculture**, management of unreserved forests, regulation of shifting cultivation,
 - Public health and sanitation, inheritance of property, marriage, and social customs etc.
- The **Governor** has the power to alter laws or rules passed by district councils.

- The sixth schedule thus makes the Governor the head of the autonomous district council.

3. Judiciary

- The council has the power to **constitute village** and district council courts in autonomous areas to adjudicate customary laws.
- No other court except the **High Court and Supreme Court** of India have jurisdiction over suits and cases decided by the council courts.

Khasi Tribes:

- The Khasis inhabit the **eastern part of Meghalaya**, in the Khasi and Jaintia Hills.
- They occupy the northern lowlands and foothills are generally called **Bhois**.
- They are an indigenous ethnic group of Meghalaya with a significant population in Assam.
- The Khasi people form most of the population of Meghalaya with around 48%.
- Under the Constitution of India, the Khasis have been granted the status of **Scheduled Tribe**.

Culture:

- Khasis follow a **matrilineal system** of inheritance.
- It is only the youngest daughter who is eligible to inherit the **ancestral property**.
- **Marriage** within a clan is a taboo.
- In the Christian families, marriage is purely a civil contract.

Key Facts:

- The major festival celebrated by Khasis is **Nongkrem**.
 - It is a five-day religious festival celebrated in the month of November every year.
- Another major festival is **Shad Suk Mynsiem**.
 - It lasts for three days and celebrated in the month of April.

WHAT ARE THE DRAFT RULES NOTIFIED BY CENTRE FOR CARRYING A CHILD ON MOTORCYCLE?

The government has brought out a draft notification to amend the Central Motor Vehicles Rules (CMVR), 1989.

Highlights:

- Children **between nine months and four years** riding pillion should be **wearing a crash helmet or a bicycle helmet** complying with relevant safety standards.
- Riders may also have to ensure sticking to speeds **below 40 kmph** while **carrying children below four years** of age.
- While carrying children **between 0-4 years** of age the rider has to ensure the child is in a **harness**—a contraption that attaches the pillion

CENTRE WANTS TO KEEP BIRTH, DEATH DATABASE

The Centre has proposed amendments that will enable it to maintain the database of registered birth and deaths at the national level.

Highlights:

- Presently, the registration of births and deaths is done by the **local registrar appointed by States**.
- The proposals in the amendment include that:
 - **Chief Registrar (appointed by the States)** would maintain a **unified database** at the State level and **integrate it** with the data at the **national level**, maintained by the **Registrar General of India (RGI)**.
- In other words, the Centre will be a **parallel repository of data**.
 - Appointment of **Special Sub-Registrars**, in the event of disaster, with any or all of his powers and duties for **on-the-spot registration and issuance of deaths certificates**.

Benefits:

- The database may be used to update the **National Population Register and the electoral register**, and Aadhaar, ration card, passport and driving license databases.

with the rider, so that there is no chance of the child falling off the vehicle.

Why such rules were needed?

- As many as 11,168 children lost their lives in road crashes in 2019 in India.
- In a World Health Organisation report on road safety in 2014, processed by the government, road traffic injuries have been;
 - cited as one of the 15 main causes of death of children between age 1-4 years
 - the second most common cause in the death of children aged between five-nine years.

- NPR is a register of the **usual residents of the country**.

- A usual resident is defined as a person who has resided in a local area for the past six months or more or a person who intends to reside in that area for the next six months.
- NPR was first collected in 2010 and then updated in 2015.
- It is prepared at the local (village and sub-town), subdistrict, district, state and national levels under provisions of the Citizenship Act, 1955 and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003.

Registrations of Births and Deaths Act, 1969:

- It is an Act to provide for the **regulation of registration of births and deaths** and for matters connected therewith.
- The **State Government** may, with the **approval of the Central Government**, by notification in the Official Gazette, **make rules** to carry out the purposes of this Act.
- The registration of births, deaths and still births are mandatory, in all parts of the Country.

CENTRE LAUNCHES NATIONAL ACTION PLAN FOR RABIES ELIMINATION BY 2030

Union Minister unveiled the National Action Plan for dog Mediated Rabies Elimination by 2030 (NAPRE) on the occasion of World Rabies Day (28 September).

All about Rabies (hydrophobia/lyssa):

- It is a viral infection spreads through a bite from an infected animal.
- **Caused by:** rhabdovirus
- It is **zoonotic disease**.
 - A zoonosis (**zoonotic**) disease is caused by a pathogen that has jumped from an animal to a human.
- **Transmission:** Spread through the saliva of infected animals.
 - **Most common reservoirs of rabies:** raccoons, skunks, bats, foxes and Domestic animals such as dogs, cats etc.
- Infects **Central Nervous System (CNS)**.
- Produces acute **inflammation of the brain**.

- **Other Symptoms:** Fever, Headache, Nausea, Vomiting, Anxiety, Confusion, Hyperactivity, Difficulty in swallowing, Excessive salivation, Hallucinations, Insomnia, Partial paralysis.

Types:

- **Furious/encephalitic rabies:**
 - Symptom- hyperactivity and hydrophobia.
- **Paralytic/dumb rabies:**
 - Symptom-Paralysis

Vaccination:

Rabies vaccine is an inactivated virus vaccine prepared either in

- Human diploid cell vaccine (HDCV) OR
- Purified chick embryo cell culture (PCEC) OR
- Rabies vaccine adsorbed (RVA)

DRAFT ACCESSIBILITY STANDARDS AND PROVISION OF FACILITIES FOR PERSONS WITH DISABILITIES (DIVYANGJAN) IN CIVIL AVIATION SECTOR

Recently, Ministry of Civil Aviation issued draft accessibility standards and provisions of facilities for persons with disabilities in the civil aviation sector.

Highlights:

- The final guidelines would be issued after considering suggestions from public, as envisaged in the **Rights of Persons with Disabilities Rules, 2017**.
- **Aim:** To facilitate ease of air travel for persons with disabilities.
- The accessibility features to be provided by all airport operators, shall include
- **Accessible parking** and drop-off/pick up points with reserved parking for persons with disability.
- **Accessible route** like walkways, road crossings, help desk, check-in counter, security check area.
- **Immigration** and custom counter accessible by wheelchair.
- Aerobridge and ambulift, low floor buses and ramps.

Guidelines for Security Check:

- When screening passengers with **prosthetics**, the security personnel may use X-ray, ETD or visual screening depending on circumstances.
- The passenger will receive **additional pat-down** after being taken to a screening area, if necessary, screening through ETD (explosive trace detection) is adopted.
- A prosthetic appliance, which does not have any foam padding cover under which any weapon/explosive can be **concealed** and screened by visual inspection and ETD checks only.
- The justification for subjecting a prosthetic limb to X-ray screening shall be recorded by the screener in a register.

Challenges faced by Disabled People:

1. Accessibility

- The public places are rarely made keeping in mind the comfort of people with disabilities.

- There are no ramps, or the hallways are too narrow for disabled people to move.

2. Education

- Many children with disabilities remain out of school and thus they are deprived of basic education.

3. Access to Healthcare

- With a population **1.3 billion**, people do not have access to proper healthcare and the people with disabilities are worse off.
- People with intellectual disabilities are often mistreated by the health workers.

4. Lack of Employment

- When disabled people are deprived of basic education, they are bound to fall behind other candidates for various job opportunities.

5. Discrimination

- Disabled people face **discrimination** in everyday life.
- People suffering from mental illness or mental retardation face the worst stigma and are subject to severe social exclusion.

CXO MEETS ORGANISED ACROSS 5 STATES UNDER DEEN DAYAL UPADHYAYA GRAMEEN KAUSHALYA YOJANA

Recently, CxO Meet has been organised under the Deen Dayal Upadhyaya Grameen Kaushalya Yojana by State Rural Livelihood Missions (SRLM).

Deen Dayal Upadhyaya Grameen Kaushalya Yojana:

- DDU-GKY is a **part of the National Rural Livelihood Mission (NRLM)**.
- It was announced on 25 September 2014 celebrated on the occasion of Antyodaya Diwas.
- **Aim:** Transform rural poor youth into an economically independent and globally relevant workforce and to enable Poor and Marginalized to Access Benefits.

Features

- Mandatory coverage of socially disadvantaged groups (SC/ST 50%; Minority 15%; Women 33%).

- Shifting Emphasis from Training to Career Progression.
- Post-placement support, migration support and alumni network.
- Guaranteed Placement for at least 75% trained candidates.
- Nurturing new training service providers and developing their skills.
- Greater emphasis on projects for poor rural youth in Jammu and Kashmir (HIMAYAT),
- The North-East region and 27 Left-Wing Extremist (LWE) districts (ROSHINI)

Eligibility:

- Rural Youth: 15 - 35 Yrs.
- SC/ST/Women/PVTG/PWD: up to 45 Yrs.

FOUR-YEAR INTEGRATED B.Ed DEGREE TO BE OFFERED FROM NEXT YEAR: EDUCATION MINISTRY

The Education Ministry has notified a **four-year Integrated Teacher Education Programme (ITEP)**, offering dual-major Bachelor's degrees.

- According to the National Education Policy (NEP), it will become a mandatory requirement for recruitment of school teachers by 2030.

- As a pilot project in 2022-23, the programme will **initially be offered in 50 selected multi-disciplinary institutions**.

Integrated Teacher Education Programme:

- Admissions to the programme will be carried out by the **National Testing Agency** through the **National Common Entrance Test (NET)**.

- The curriculum, designed by the National Council for Teacher Education, will enable student-teachers to **get a degree in education in a specialised discipline** such as history, mathematics, science, arts, economics, or commerce.
- Students will walk out of the four-year programme **with a B.Ed along with a B.A., B.Sc or B.Com degree.**

Key Facts:

- By 2030, the **minimum degree qualification for teaching will be a 4-year integrated B.Ed. degree** that teaches a range of knowledge content and pedagogy and includes strong practicum training in the form of student-teaching at local schools.

AMENDMENTS TO JUVENILE JUSTICE (CARE AND PROTECTION OF CHILDREN) MODEL RULES, 2016

Recently, The Ministry of Women and Child Development has issued the notification for draft amendments to Juvenile Justice (Care and Protection of Children) Model Rules, 2016, and invited feedback.

Genesis

- Juvenile justice amendment Bill, 2021, which seeks to amend the 2015 law, was passed in both Houses of Parliament earlier this year.

Key provisos of the new rules

- District Magistrate (DMs) and Additional District Magistrate (ADM) will:
 - Oversee actions taken concerning **child marriage cases** in their respective districts.
 - **Oversee childcare institutions and welfare of children** in need of care.
 - Facilitate action for **education and awareness** regarding the impact of child marriage on children.
- **Child Welfare Committee (CWC)** will now furnish data relating to children **declared legally free for adoption** and cases pending decision to DMs and online.
- **Childcare institutions** or specialised adoption agencies housing children who have been declared legally free for adoption have to submit reports to the DM.
- DMs will be responsible for **issuing no-objection certificates** in all cases of inter-country adoptions in the form of Indian missions abroad and

immigration authorities of India and the receiving country of the child about inter-country adoption cases.

Juvenile Justice rule in India

- **Legal Act:** Care and Protection of Children Act 2000 and 2015.
- **Rule:** Any child below the age of 7 years can not be convicted of any crime because of the doctrine of Doli incapax which means incapable of forming the intent to commit a crime.
- **Objective:** To rehabilitate young offenders and give them a second chance.
- The Juvenile Justice System in India is made based on three main assumptions:-
 - Young offenders should not be tried in courts, rather they should be corrected in all the best possible ways.
 - They should not be punished by the courts, but they should get a chance to reform.
 - Trial for the child in conflict with law should be based on non-penal treatment through the communities based upon the social control agencies e.g. Observation Homes and Special Homes.

Juvenile justice amendment Act, 2021

- In every district, the **district magistrate and the additional district magistrate** will get the power to **monitor functions of agencies** responsible for the implementation of the Act.

- This includes the **Child Welfare Committees (CWC)**, the **Juvenile Justice Boards**, the **District Child Protection Units** and the **Special juvenile Protection Units**.
- The district child protection unit will also function under the **district magistrate**.
- Before becoming a member of the CWC, **background** and **educational qualification** checks will be included.
 - The **DM will conduct its capacity and background check** and then submit the recommendations to the **state government**.
- The DM can independently evaluate a **specialised CWC, juvenile police unit and registered institutions**.
 - DM's are also responsible for ensuring that Child Care Institutions (CCIs) falling in their district are following all norms and procedures.
- Child victims of **trafficking and drug abuse** and those abandoned by their guardians will be included in the definition of "**child in need of care**" and protection.
- One more category will be included that offences where the **sentence is more than seven years** shall be treated as **serious offences under the Act**.
- DM will also now be in charge of **sanctioning adoptions**, removing the **lengthy court process**.

- The Juvenile Justice act of 2015 replaced the Juvenile Justice act of 2000.

Juvenile Justice Act, 2015

- Permits child in conflict with law between the ages of **16-18 years** to be tried as adults for **heinous offences**.
 - Any 16-18 years old, who commits a lesser serious offence, may be tried as an adult only if he is apprehended **after the 21 years**.
- Creation of Institution of **Juvenile Justice Boards (JJB) and Child Welfare Committees (CWC)** in each district.
 - JJB - conduct a preliminary inquiry to determine whether a juvenile offender is to be sent for rehabilitation or be tried as an adult.
 - CWC - determine institutional care for children in need of care and protection.
- Laws on adoption **procedures for an orphan, abandoned and surrendered children**.
- **Central Adoption Resource Authority (CARA)** was granted the status of a **statutory body**.
- **Inclusion of Penalties** for cruelty against a child, offering a narcotic substance to a child, and abduction or selling a child.
- All Child Care Institutions (run by State Government/voluntary/NGO) to be **mandatorily registered under the Act within 6 months** from the date of commencement of the Act.

NATIONAL RURAL EMPLOYMENT SCHEME RUNS OUT OF MONEY, WORKERS PAYMENTS TO BE DELAYED UNLESS STATES USE OWN FUNDS

The Centre's flagship rural employment scheme has **run out of funds** halfway through the financial year and supplementary budgetary allocations will not come to the rescue.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):

- It is the **Indian labour law**.
- **Aim:** To guarantee the '**right to work**'.
- **Act passed:** 23 August 2005

- **Objectives:**
 - To guarantee a member of rural household **hundred days of wage employment** in a financial year to do unskilled manual work.
 - Legal Right to Work
 - Wages are paid under the Minimum Wages Act 1948.
 - Demand-Driven Scheme
 - Right to get **unemployment allowance** if employment is not

- provided within 15 days of submitting the application.
- To reduce **urban migration** from rural areas.
- To create **rural infrastructure** by using rural labour.
- **Eligibility:**
 - The applicant should be **the Citizen of India**.
 - Applicant has completed **18 years of age** at the time of application.
 - The applicant must be part of a **local household**.
 - Applicant must volunteer for **unskilled labour**.
- **Implementation:**
 - Gram Panchayats implement the programmes.

- Gram Sabha and the Gram Panchayat approves the shelf of works.
- **Funding:**
 - Funding is **shared** between the **centre and the states**.
 - There are three major items of expenditure – wages (for unskilled, semi-skilled and skilled labour), material and administrative costs.
 - The central government bears 100% of the cost of unskilled labour, 75% of the cost of semi-skilled and skilled labour, 75% of the cost of materials and 6% of the administrative costs.
- **Challenges of MGNREGA:**
 - Inadequate Funding
 - Delay in Payment of wages.
 - Existence of fake job cards
 - Delay in the completion of work

NITI AAYOG SUGGESTS EXTENDING PMJAY COVERAGE TO 'MISSING MIDDLE'

According to the report titled 'Health Insurance for India's Missing Middle', the NITI Aayog suggested that the Pradhan Mantri Jan Arogya Yojana (PMJAY) scheme be extended to cover a section of people without health insurance.

Highlights:

- The report has recommended **three models** for increasing the health insurance coverage.
- **First model-**
 - Focuses on **increasing consumer awareness** of health insurance
- **Second model-**
 - Focuses on **developing a modified, standardized health insurance** product.
 - For Example- 'Arogya Sanjeevani' [a standardised health insurance product launched by the Insurance Regulatory Development Authority of India (IRDAI)]
- **Third Model-**
 - Focuses on **coverage of the poorer segments** on the missing middle population through PMJAY Scheme.

Pradhan Mantri Jan Arogya Yojana (PMJAY):

- It is **health insurance scheme** launched under **Ayushman Bharat**.
- Launched- **23rd September, 2018**
- It is the **largest health assurance scheme in the world**.
- **Eligibility:** All households based on the deprivation and occupational criteria of **Socio-Economic Caste Census 2011 (SECC 2011)** for rural and urban areas respectively.
- **Funding:**
 - 60:40 for all states and UTs with their own legislature,
 - 90:10 in Northeast states and Jammu and Kashmir, Himachal and Uttarakhand
 - 100% Central funding for UTs without legislature.
- **Implementation at national level by:** National Health Authority
- **Features:**
 - It provides a cover of **Rs. 5 lakhs** per family per year
 - **Hospitalization across India**.
 - **Cashless** access to health care.
 - It covers up to **3 days of pre-hospitalization**.

- 15 days post-hospitalization expenses.
- No restriction on the family size, age or gender.
- Benefits are portable across the country.
- Public hospitals are reimbursed with the private hospitals.

Benefit Cover Under PM-JAY:

- Medical examination, treatment and consultation
- Pre-hospitalization
- Medicine and medical consumables
- Non-intensive and intensive care services

- Diagnostic and laboratory investigations
- Medical implantation services (where necessary)
- Accommodation benefits
- Food services
- Complications arising during treatment
- Post-hospitalization follow-up care up to 15 days.

Challenges:

- Major inequalities.
- Uncertainty of right prices.
- Monitoring and ensuring accountability.
- Infrastructure constraints.



SWACHH BHARAT MISSION-URBAN 2.0 AND AMRUT 2.0 (ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION) - MISSIONS DESIGNED TO MAKE TO MAKE ALL OUR CITIES 'GARBAGE FREE' AND 'WATER SECURE'

The Prime Minister has launched **Swachh Bharat Mission-Urban 2.0** and **Atal Mission for Rejuvenation and Urban Transformation 2.0** on 1st October 2021 in New Delhi.

Highlights:

- **SBM-U 2.0** and **AMRUT 2.0** have been designed to make all cities 'Garbage Free' and 'Water Secure'.
- It will address the challenges of **urbanization** and contribute towards achievement of the Sustainable Development Goals 2030.

Swachh Bharat Mission-Urban 2.0:

- It envisions to make all cities 'Garbage Free' and ensure grey and black water management in all cities.
- To make urban local bodies as **ODF+** and those with a population of less than 1 lakh as **ODF++**, thereby achieving the vision of safe sanitation in urban areas.
- It will focus on **source segregation** of solid waste, utilizing the principles of reduce, reuse, recycle,

- It focuses on **scientific processing** of municipal solid waste and remediation of legacy dumpsites for effective solid waste management.
- The outlay of SBM-U 2.0 is around ₹1.41 lakh crore.

Swachh Bharat Mission- Urban:

- The (SBM-U), was launched on 2nd October 2014
- **Aim:** To make urban India free from open defecation and achieving 100% scientific management of municipal solid waste in 4,041 statutory towns in the country.
- The Scheme comes under **Ministry of Housing and Urban Affairs**.

Objectives:

- Elimination of **open defecation**
- Eradication of Manual Scavenging
- Modern and Scientific Municipal Solid Waste Management
- To effect behavioral change regarding **healthy sanitation practices**
- Generate awareness about sanitation and its linkage with public health
- Participation of private sector in Capex capital expenditure, operation, and maintenance.

Targets of the Mission:

- Construction of 66.42 Lakh individual household toilets (IHHL).
- Construction of 2.52 lakh community toilet (CT) seats.
- Construction of 2.56 lakh public toilet (PT) seats.
- Achieving 100% door-to-door collection and scientific management of municipal solid waste.

AMRUT 2.0:

- It aims to provide 100% coverage of **water supply** to all households in 4,700 urban local bodies by providing 2.68 crore tap connections.

- Focus on 100% coverage of **sewerage and septage** in 500 AMRUT cities by providing 2.64 crore sewer septage connections will benefit more than 10.5 crore people in urban areas.
- It will adopt the principles of circular economy and promote conservation of surface and groundwater bodies.
- **Promote** data led governance in water management and Technology Sub-Mission to leverage latest global technologies and skills.
- **'Pey Jal Survekshan'** will be conducted to promote progressive competition among cities.
- The outlay of AMRUT 2.0 is around ₹2.87 lakh crore.

Atal Mission for Rejuvenation and Urban Transformation:

- The Government of India launched Mission AMRUT in 2015.
- **Aim:** To provide basic amenities like water supply, sewerage, urban transport, parks to improve the quality of life for the poor and the disadvantaged.
- The focus is on infrastructure creation to provide better services to the citizens.
- The Mission covers 500 cities including cities and towns with a population of one lakh with notified Municipalities.
- It is regulated by **Ministry of Housing and Urban Affairs**.

Objectives of the Scheme:

- **To ensure** every household has access to a tap with assured supply of water and a sewerage connection.
- To increase the **amenity value** of cities by developing greenery and well-maintained open spaces.
- **To reduce pollution** by switching to public transport or constructing facilities for non-motorized transport.

INDIA EXTENDS SUPPORT FOR PROTECTING THE ANTARCTIC ENVIRONMENT AND FOR DESIGNATING EAST ANTARCTICA AND THE WEDDELL SEA AS MARINE PROTECTED AREAS (MPAS)

India has extended support for protecting the **Antarctic environment** and co-sponsoring the proposal of the European Union for designating East Antarctica and the Weddell Sea as **Marine Protected Areas (MPAs)**.

Highlights:

- India stood in support of **sustainability** in protecting the Antarctic environment.
- The two proposed MPAs are essential to regulate **illegal** unreported and unregulated fishing.
- India will join Australia, Norway, Uruguay, and the United Kingdom in co-sponsoring the MPA proposals by the end of October 2021.
- The support is driven by conservation and sustainable utilization principles and adhering to the global cooperation frameworks like **Sustainable Development Goals**, UN Decade of Oceans, Convention on Biodiversity etc.

Marine Protected Areas?

- (MPAs) involve the **protective management** of natural areas according to pre-defined management objectives.
- They can be conserved for **economic resources**, biodiversity conservation, and species protection.
- They are created by **delineating zones** with permitted and non-permitted uses.
- It is vital to have in depth knowledge of the area to define ecological boundaries and set objectives for the MPA.
- It is important to have the support of the public and established techniques for surveillance and monitoring of compliance.
- IUCN engages in advocating for the expansion of the MPA network through reliable science and local stakeholders.

Marine Protected Area Agency Partnership:

- (MPAAP) is a high-level venue for senior government officials from national marine protected area (MPA)

agencies to discuss common issues and explore opportunities for cooperation.

Member Countries:

- Argentina, Australia, Canada, Colombia, Finland, France, Germany, Indonesia, Italy, Malaysia, Mexico.
- New Zealand, the Philippines, the Republic of Korea, South Africa, the United Kingdom, the United States.

CCAMLR:

- The **Convention on the Conservation of Antarctic Marine Living Resources** came into force in 1982, as part of the Antarctic Treaty System.
- It was established in response to concerns **regarding killing of fishes** in the Southern Ocean and other marine life.
- To conserve and protect marine life.
- It defines a Commission and a Scientific Committee to manage marine living resources in the Southern Ocean.
- The (CCAMLR) has developed an '**ecosystem approach**' to the regulation of fisheries.
- It has developed management approaches that assess the status of the ecosystem and its health.

Location of Weddell Sea:

It lies between the **South Shetland Islands** and the continent of Antarctica.



- The sea is home to the largest number of penguin rookeries.
- It is famed for its huge **ice shelves** and flat-topped icebergs.
- Wildlife includes elephant seals, seabirds, and penguins.
- It was named the Weddell Sea in 1900 on a British explorer and sealer, James Weddell.

SPRAYING SEEDS FROM THE SKY TO RAISE FORESTS

Hara Bhara initiative, the country's **first aerial seeding campaign** was launched at KBR National Park in Hyderabad, **Telangana** on 1 October, 2021.

Highlights:

- It is a seeding campaign to **accelerate afforestation** by drones for greening large swathes of denuded forest lands.
- The first '**seedcopter**'—drone with seed balls—was flagged off. The first payload of **1.5 lakh seed balls** was delivered in the KBR National Park.
 - **Marut Drones**, a city-based technology start-up has initiated the idea of aerial seeding.
- **Aim:** To accelerate the **target of 33% green cover** throughout India by dispersal of seed balls in inaccessible forest areas, using drones & plant **one billion trees** by 2030 through drones.
- The initial target is 12,000 hectares of forest land in 12 districts of Telangana, with an aim to fire a total of **50 lakh seed balls**.
 - Their growth for the coming **10 years** will be monitored, and the change in greenery will be recorded annually through **satellite monitoring**.
 - Depending on the success rate in Telangana, the initiative will be **replicated** throughout the country.
- The **services of local people**, self-help groups and NGOs are taken in preparation of seed balls, and locations for dispersal has been identified with aid from Forest department.

- The entire operation is being done on **pro bono basis**, with no funding from government

Aerial Seeding:

- Aerial seeding is a technique of plantation in which **seed balls** containing seeds along with the coating containing a mixture of clay, together with organic manure and fertilizer are **sprayed** on the ground using **aerial devices** like drones, helicopters or planes.
- The balls, after being dispersed in a barren area, are **expected to dissolve** when it rains, and result in germination of the seeds.

Advantages:

- Areas that are **inaccessible**, fragmented, have steep slopes or disconnected with no forest routes can be **targeted**.
- Process of seed's germination and growth requires no attention after it is dispersed – the seed pellets are known as "**fire and forget**" way of plantation.
- **Eliminate** the need for ploughing and digging holes or be planted, since seeds are already surrounded by soil, nutrients, and microorganisms.
- **Clay shell** of these pellets along with the other items in the mixture also protects them from birds, ants and rats.

TN WILDLIFE OFFICER ORDERS HUNTING OF TIGER THAT KILLED A MAN

Tamil Nadu Chief Wildlife Warden has issued an order to hunt tiger T23, after the increasing cases of man-animal conflict in **Mudumalai Tiger Reserve**.

Human-wildlife conflict:

- Human-wildlife conflict refers to the **interaction between wild animals and people** and resultant negative impact on people or their

resources, or wild animals or their habitat.

- The conflict can **cost many lives**, both human and wildlife, threaten livelihoods, loss to crops of farmers and jeopardize **long-term conservation** goals such as securing protected areas and conservation efforts for biodiversity conservation.

The key reasons for human-animal conflict are:

1. Encroachment of human being in wildlife habitat for development purpose
2. Allowing livestock for grazing purpose in the forest area
3. Road kills or forest fire
4. Increase in Human population and land use transformation
5. Fragmentation of large habitats and shrinking sizes of forest patches.

Suggestions:

- **Appropriate legal measures** should be enforced in order to protect natural habitats against illegal exploitation and to avoid human interferences in such areas.
- **Avoiding deforestation** and planting new trees in forest areas can help a lot in reducing conflict rate in the long run.
- **Education and training activities** for locals will help in creating tolerance towards wild animals.
- **Training and education programs for wildlife personnel**, giving proper skills for dealing with wild carnivores would promote commitment towards conservation and raise welfare level of animals.
- Department of Wildlife Protection should be **equipped with necessary infrastructure** for tackling conflicts

and handling wild carnivores outside their habitats.

Mudumalai Tiger Reserve:

- Mudumalai Tiger Reserve is in **Tamil Nadu**, located at the tri-junction of **Kerala, Karnataka and Tamil Nadu**.
- The reserve is part of the **Nilgiri Biosphere Reserve** and an Important Bird Area.
- It shares borders **Wayanad Wildlife Sanctuary** (Kerala) on the West, **Bandipur Tiger Reserve** (Karnataka) on the North and **Mukurthi National Park and Silent Valley** in the South.
- **River Moyar** flows through the reserve.
- **Fauna:** Indian Elephants, Bengal Tiger, Gaur, Leopards etc.
- **Avifauna:** Hornbills, **Oriental White-backed Vultures** (critically endangered species), **Indian vulture** (long-billed vulture, Critically Endangered) Black and Orange Flycatchers etc.
- **Threats:** Deforestation, spread of invasive species (like Lantana Camara), excessive cattle grazing and among others.
- **Indian Neutrino Observatory** falls in the buffer zone of Mudumalai Tiger Reserve

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE LAUNCHED A WEB PORTAL – ‘WETLANDS OF INDIA PORTAL’.

- The portal is a single point access to **all information relating** to wetlands of India.
- It will process information and make it available to the stakeholders in an **efficient and accessible manner**. It also hosts capacity building material, data repository, videos and information for students.
- It has been developed under a **Technical Cooperation project** “Wetlands Management for

Biodiversity and Climate Protection” of MoEFCC in partnership with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

- The project is commissioned by **German Federal Ministry** for the Environment, Nature Conservation and Nuclear Safety under the **International Climate Initiative**.

RESIDUAL FLOOD DAMAGE - INDO-GANGETIC PLAIN

As per a recent report, "Residual flood damage under intensive adaptation" published in the Nature journal, the **Indo-Gangetic Plain** (excluding West Bengal and Assam) and **Meghalaya** are most susceptible to future floods in India.

Highlights:

- The **Indo-Gangetic Plain** (including the Indus and Ganga basins) includes the states and Union territories of Jammu, Kashmir and Ladakh, Punjab, Uttar Pradesh and Bihar.
- The study calculated the **extent of flood protection** that countries would need to employ in **terms of years**.
 - The Indo-Gangetic Plain needs to **employ flood protection** for the next **875-1,000 years**.
- They estimated the **global cost of employing adaptive flood measures** – depending on local economic scenarios and cost adaptation measures – by quantifying the cost of **residual flood damage (RFD)**.
 - **RFD** refers to **unavoidable increases** in flood damage even under an adaptation strategy based on feasible adaptation costs.
 - Adaptation strategy implies infrastructural measures employed to mitigate the risks posed by floods.
- According to the study's estimate, RFD in South Asia is estimated to be around **four million** while adaptive costs **around three million**.
 - But the benefits from the measures employed are over 50 million under the RCP8.5/SSP5 scenario.

STATE OF CLIMATE SERVICES 2021

The **State of Climate Services 2021** was released by **World Meteorological Organisation** recently.

Highlights:

- **Water-related hazards** like floods and droughts are **increasing** because of climate change.
- As per the report, **3.6 billion people** had inadequate access to

Residual Flood Damage (RFD):

- RFD is part of the total **expected annual damage (EAD)** outlay.
- It is calculated by **subtracting** past EAD (1970 - 2000) and **future EAD** estimates (set to 1,000 years).
 - RFD (as part of the gross domestic product) remains high in **eastern China**, the **northern parts of India**, and the central regions of **Africa**.

Key Facts:

- According to data from **Central Water Commission**, the **total flood-related losses** in India were estimated to be **over Rs 37 lakh crore** from 1953 to 2017.

Indo-Gangetic Plains:

- Indo-Gangetic Plain or North Indian Plain is an extensive **north-central section** of the **Indian subcontinent**.
- They run **parallel to the Himalayas**, from Jammu and Kashmir in the west to Assam in the east, and drain most northern and eastern India.
- The **0.70-million km²** fertile plain encompasses most of northern and eastern India, the eastern parts of Pakistan, virtually all of Bangladesh, and Nepal's southern plains.
- The region is named after the **Indus and Ganges rivers**. Major rivers in this region are the Ganges, Indus, and Brahmaputra. Their **main tributaries** are Yamuna, Chambal, Gomti, Ghaghara, Kosi, Sutlej Ravi, Beas, Chenab, Teesta, and Meghna.
- Vindhya, Satpura Range, and the Chhota Nagpur Plateau mark the **southern edge** of the plains.

water at **least one month per year** in 2018. By 2050, this is expected to rise to **more than five billion**.

- In the past 20 years, **terrestrial water storage (TWS)** has dropped at a rate of 1cm per year. The **biggest losses** are occurring in Antarctica and Greenland, but many highly populated **lower latitude** locations

are experiencing significant water losses.

- TWS is the **summation of all water on the land surface** and in the subsurface, including soil moisture, snow and ice.
- **Only 0.5%** of water on Earth is useable and available freshwater.
- Water-related hazards have **increased in frequency** over the past 20 years. Since 2000, flood-related disasters have **risen by 134%** compared with the two previous decades.
 - Most of the **flood-related deaths** and economic losses were recorded in **Asia**, where end-to-end warning systems for riverine floods require strengthening.
- Number and duration of **droughts** also increased by **29%** over this same period. Most drought-related deaths occurred in **Africa**.

Concerns:

CLIMATE CHANGE: 14% CORAL REEFS LOST SINCE 2010, SAYS STUDY

A report by **Global Coral Reef Monitoring Network (GCRMN)** was drawn from a global dataset gathered by over 300 members of the network covering four decades from 1978 to 2019 was released recently.

Highlights:

- In the last decade, the world **lost about 14 per cent of its coral reefs**.
- **Ocean-acidification, warmer sea temperatures and local stressors** such as overfishing, pollution, unsustainable tourism and poor coastal management pose a combined threat to the coral ecosystems.
- Coral reefs across the world are **under relentless stress from warming caused by climate change**.
- Coral bleaching events caused by **rise in elevated sea surface temperatures (SST)** were responsible for coral loss.
- **Large scale coral bleaching** events were responsible for killing eight

The WMO assessment of **101 countries** for which data are available found that:

- There is inadequate interaction **among climate services providers** and information users in 43% of WMO Members.
- **Data is not collected** for basic hydrological variables in approximately 40% of them.
- Hydrological data is **not made available** in 67% of them.
- End-to-end riverine flood forecasting and warning systems are **absent or inadequate** in 34% of those who provided data.
- End-to-end drought forecasting and warning systems are **lacking or inadequate** in 54% of them.
- The world is **seriously behind schedule** on the UN Sustainable Development Goal No. 6.
 - (SDG 6) aims to ensure availability and sustainable management of water and sanitation for all.

percent of the **world's corals in 1998**.

- This is equivalent to more than the coral that is currently living on reefs in the Caribbean or Red Sea and Gulf of Aden regions.
- There has been a **steady decrease in hard coral cover in the last four decades** since 1978 when the world lost nine per cent of its corals.
- The worst-hit are the corals in South Asia, Australia, the Pacific, East Asia, the Western Indian Ocean and the Gulf of Oman.
- The **decrease is disconcerting because live hard coral cover** is an indicator of coral reef health.
- Since 2010, the **amount of algae on the world's coral reefs** has increased by about 20 per cent. Algal bloom on coral ridges are a **sign of stress on the structures**.
 - Prior to this, there was twice as much coral on the world's reefs as algae.

- This transition from live hard coral to algae-dominated reef communities **impacts marine habitats**, rendering them **less bio-diverse and also affects the ecosystem services** provided by them.
- Corals occupy **less than one per cent of the ocean floor** but over one billion people benefit directly from the reefs.
- The value of **goods and services provided by coral reefs is estimated to be \$2.7 trillion per year**. This includes \$36 billion in coral reef tourism.
- Persistent rise of land and sea temperatures is a threat to corals. The findings concur with past research that made similar predictions.
- The survival of corals is **likely to drop below 50 per cent if sea surface temperatures increases by one degree**.
- Coral reefs in East Asia's Coral Triangle **accounts for more than 30**

per cent of the world's reefs but has been less impacted by rising sea surface temperatures.

- Despite a **decline in hard coral cover during the last decade**, on average, these **reefs have more coral today than in 1983**.
- In 2019, the world regained two per cent of its coral cover in spite of a short interval between mass coral bleaching events in the last decade.
- These critical ecosystems have the capacity to recover if pressure on them eases. They can even resuscitate to their pre-1998 health in the next ten years.

Coral reefs cover:

- Coral reefs cover only **0.2 percent of the ocean floor**, but they are home to at least a quarter of all marine animals and plants.
- Besides anchoring marine ecosystems, they also provide food, protection from storms and shoreline erosion and jobs for hundreds of millions of people worldwide.

GOVT PROPOSES CHANGES TO FOREST CONSERVATION ACT

The **Central Government** has proposed an amendment to the **Forest (Conservation) Act, 1980** in order to liberalise the forest laws.

Amendments in the FCA, 1980:

- The amendment is proposed by the **Ministry of Environment, Forests and Climate Change (MoEFCC)**.
- According to the proposal, the **deemed forests** listed by state governments **up to 1996** will continue to be considered forest land.
- The **plantations** carried out along roads have been removed from the category of deemed forests.
- It proposes to **exempt certain categories of infrastructure project** developers from approaching the Centre for permission to use **forest land** for non-forestry purposes.
 - The **projects include-** national security projects, border infrastructure projects, land

owned by the Railways or the Road Transport Ministry, acquired before 1980.

- It will also place **strict norms for forest conservation** by increasing penal provisions for offenses and **maintaining "pristine forests"** where no non-forestry activity will be allowed under any circumstances.

Genesis:

Forest (Conservation) Act, 1980:

- The Forest (Conservation) Act, 1980, **came into force** to address deforestation.
 - The Indian Forest Act 1927 allowed the colonial British administration to control the extraction of timber, and **did not aim** at preserving forests or addressing deforestation.
- The FCA **made it mandatory** to get the Centre Government's permission for using forest land for **"non forestry purposes"**.

- An advisory committee was created to recommend **such re-classification**.

- There were **two major amendments** to the FCA – in 1988 and 1996.

1988 amendment:

- The scope of the **existing definition of 'non-forest purposes'** expanded so as to include cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops, and medicinal plants.

Godavarman Thirumulpad versus Union of India case, 1996:

- Till 1996, the **forest land** was only 'the land defined by the **Indian Forest Act 1927**'.
- In this case, the Supreme Court judgement **included all areas** which are recorded as 'forest' in any government record, irrespective of ownership, recognition and classification.

Significance of the judgement: (1996 amendment)

- The constituents of "forest" were widely **expanded** following the judgment. Now, the "forest" **also included**:
 - **All areas** recorded as "forest" in any government record, irrespective of ownership, recognition and classification
 - **All areas** that conformed to the "dictionary" meaning of "forest".
 - **All areas** which are identified as "forest" by an expert committee constituted by the Supreme Court following the 1996 order.
- This judgment paved the way for:
 - Calculating the net present value, or economic value of the portion of forest being cut for development work, which was to be paid by project proponents.
 - Creation of a compensatory afforestation fund.
 - Providing non-forestry land in lieu of the diverted forest.

Need for the move:

Remove restrictions in the use of land:

- Identification of forest land is subjective and arbitrary to some extent. Considering **any private area as forest** would restrict the right of an individual to use his/her own land for any non-forestry activity.
 - **Ex:** The Ministries of Railways & Road transport **cannot use the land they own without the permission** from the MoEFCC. These permissions can take anywhere between 2-4 years, causing delays.

Reduce litigations & re-define 'forest land':

- Central Government is committed to a **principle of increasing forest cover**, and this makes it harder to access land for infrastructure projects by States and private entities.
 - India's aim is to have **at least 33%** of India's geographical area under forest and tree cover. The forest cover is around 22%, at present.
- **With more land coming** under the definition of "forest", it becomes harder for State Governments or private industry to **use land** that falls under the definition of "forest" for non-forestry purposes. This has given rise to **multiple instances of litigation**, and questions on the **legal definition of "forest"**.

Significance:

- The amendment would **reduce** the flow of **foreign exchange for import of wood** and wood derivatives of around **Rs 45,000 crores**, by encouraging plantations and afforestation.
- The amendment would remove the earlier impediments & encouraging private landowners to grow more trees.
 - India aims to create a **carbon sink** to lock in **2.5 to 3 billion tonnes** of CO₂ by 2030. This can be achieved **only through planting trees on private land**.

WHY INDIA'S NEWEST TIGER RESERVE IN CHHATTISGARH IS SO IMPORTANT

National Tiger Conservation Authority (NTCA) approved the **Chhattisgarh** government's proposal to declare the combined areas of the **Guru Ghasidas National Park** and **Tamor Pingla Wildlife Sanctuary** as a Tiger Reserve.

Highlights:

- The new Tiger Reserve is located in the **northern part** of Chhattisgarh, bordering Madhya Pradesh and Jharkhand.
- This will be the **fourth Tiger Reserve** in Chhattisgarh, after the **Udanti-Sitanadi, Achanakmar, and Indravati** Reserves.
- The proposal of the **state government** was considered by the **11th Technical Committee of the NTCA** and approval was granted under **Section 38 V(1)** of The Wildlife (Protection) Act, 1972.
 - As per the **Tiger Conservation Plan**, the State Government on the recommendation of the Tiger Conservation Authority, **notifies** an area as a tiger reserve.

Significance:

- The Tiger Reserve will connect Jharkhand and Madhya Pradesh and provide a corridor for tigers to move between the **Bandhavgarh** and **Palamau** Tiger Reserves.

Tamor Pingla Wildlife Sanctuary:

- **Location:** Surajpur district, Chhattisgarh
- **Area:** Over 60,850 hectares (608.5 sq. km).
- It was identified as part of Sarguja Jashpur Elephant Reserve in 2011.
- Its northern boundary is marked by the Moran River, eastern boundary is Bonga Nalla, and western boundary is Rihand River.

- **Fauna:** Asian elephants, Bengal tigers, Indian leopards, bears, Sambar deer, nilgai, chital, bison, four-horned antelope, chinkara, barking deer, etc.

Guru Ghasidas National Park:

- **Location:** Koriya district, Chhattisgarh
- **Area:** over 1,44,000 hectares (1,440 sq. km).
- It used to be part of the Sanjay National Park in undivided Madhya Pradesh. (60% of it falls under Chhattisgarh now, renamed as Guru Ghasidas National Park)
- It is in the mid of two prominent tiger reserves: Bandhavgarh Tiger Reserve in Madhya Pradesh and Palaman Tiger Reserve in Jharkhand.
- It was the **last known habitat** of the Asiatic cheetah in the country.
- **Flora:** Teak, Sal and Bamboo Trees, Gurjan, Palas, Tendu, Mahua etc.
- **Fauna:** Tigers, leopards, jackals, barking deer, spotted deer, wild boar, sloth bear, snakes such as cobra, python.

Guru Ghasidas:

- Guru Ghasidas (1756–1850) was Guru (teacher) of the **Satnampanth** in the early 19th century in Chhattisgarh.
- He was born in Girodpuri, Balodabazar district, Chattisgarh.
- He established **Satnami community** in Chhattisgarh based on "Satnam" (meaning "Truth") and equality. His teachings and philosophy is similar to sikhism.
- He created a symbol of truth called "**jaitkhambh**" – a white painted log of wood, with a white flag on the top, which indicates the pillar of truth.
- He **rejected the inequality** and unfairness of the caste system prevalent in the 19th century India.

U.P. TOPS LIST OF STATES EMITTING FINE PARTICULATE MATTER: STUDY

According to the latest analysis by the Council on Energy, Environment and Water

(CEEW) **Uttar Pradesh** is the largest emitter of **PM 2.5**.

Highlights:

- The **high emissions from U.P.** were largely due to a **significant share of PM2.5 emissions** from solid-fuel use in households.
 - U.P.'s PM2.5 emissions ranged from **588 to 976 kilotons (Kt)** per year.
- **Top emitting states:** Uttar Pradesh, Maharashtra, Gujarat, Odisha, West Bengal, Madhya Pradesh, Bihar, Tamil Nadu, and Rajasthan.
 - However, the states on the list of top polluters are ranked differently by the five sources. Only Uttar Pradesh is at the top of all lists.
- **Lowest emitters:** Jammu and Kashmir, Himachal Pradesh, Uttarakhand, North-eastern States of Arunachal Pradesh, Nagaland, Manipur, and Mizoram.

Common pollutants tracked:

- **PM 2.5, PM 10, NO_x** (nitrous oxides), SO₂ (Sulphur dioxide), CO (Carbon Monoxide), NH₃ (Ammonia), and NMVOC (Non-methane volatile organic compounds).
- **Sources of pollutants:** Agriculture waste burning, power utilities, industry, dust, transport and waste which account for nearly 95% of the sources of air pollution.

Five data sources used for the analysis:

1. **Emissions Database for Global Atmospheric Research (EDGAR)**, maintained by the European Commission's Joint Research Centre.
2. Evaluating the Climate and Air Quality Impacts of Shortlived Pollutants (**ECLIPSE**), maintained by the International Institute for Applied Systems Analysis (IIASA).
3. Regional Emission Inventory in Asia (**REAS**), maintained by the National Institute for Environmental Studies, Japan (NIES).
4. Speciated Multipolluter Generator (**S_MoG**), maintained by the Indian Institute of Technology (IIT Bombay).

5. Spatially resolved pollution emission inventory for India, maintained by The Energy and Resources Institute (TERI).

Concerns:

- CEEW analysis found "**significant variation**" in the estimates of pollutants by various sources due to the way each agency calculated emissions and the data sources used.
- Estimating **pollutant reductions** will only be possible after having an official emission inventory for India.
 - India needs a **national emissions database** to calculate annual increase or decrease in emissions and evaluate the policy and technological interventions **undertaken** to reduce air pollution.

Particulate matter (PM) and its impact:

- **Definition:** a **complex mixture of solid and liquid particles of organic and inorganic substances suspended in the air.**
- **Composition:** Sulfate, nitrates, ammonia, sodium chloride, black carbon, mineral dust and water.
- **Types:** PM 10 and PM 2.5

Impact:

- Health effects: risk of developing cardiovascular and respiratory diseases and lung cancer.

PM 10:

- Coarse particulate matter.
- Diameter of 10 microns or less, (\leq PM₁₀) can penetrate and lodge deep inside the lungs.

PM 2.5:

- Fine particulate matter.
- Diameter of 2.5 microns or less, can penetrate the lung barrier and enter the blood system.

National Clean Air Campaign (NCAP):

- **Aim:** National level strategy to tackle the air pollution problem across **India** in a comprehensive manner.
- It targets to achieve 20% to 30% reduction in Particulate Matter concentrations by 2024 keeping 2017

as the base year for the comparison of concentration.

- **Launched by:** Ministry of Environment, Forest and Climate Change (MoEFCC).
- It includes **122 non-attainment cities**, across 23 states and Union territories, identified by Central

Pollution Control Board (CPCB) on the basis of their air quality data between 2011 and 2015.

- Non-attainment cities are those which have fallen short of the National Ambient Air Quality Standards (NAAQS) for over five years.

INDIA JOINS HIGH AMBITION COALITION (HAC) FOR NATURE AND PEOPLE

India has officially joined the **High Ambition Coalition (HAC) for Nature and People**, recently.

High Ambition Coalition:

- High Ambition Coalition (HAC) for Nature and People is a group of **70 nations** promoting the adoption of the global goal to protect **30x30 (30 percent of the world's land and ocean by 2030)**.
- It was founded by the **Republic of the Marshall Islands** in 2014 with the aim of ensuring the Paris Agreement. It serves as the convener and secretariat of the HAC.
- It is an informal mix of countries in the global north and south;

European, Latin American, Africa and Asia **within the UN Framework Convention on Climate Change (UNFCCC)**.

- **India** is the **first** among the **BRICS** bloc to join the HAC.

Significance:

- **Resource mobilisation among the member countries** will prove to the keystone to implement policies and conserve biodiversity.
- Inclusion of India, being the biodiversity player, will boost the multilateral efforts to protect world's land and ocean.

DUST FROM NW INDIA, PAKISTAN, ARABIAN SEA MAIN AEROSOL SOURCES IN CENTRAL HIMALAYAN REGION

The researchers at the **Aryabhata Research Institute of Observational Sciences (ARIES)**, Nainital, have studied the chemical composition and source apportionment of **total suspended particulate (TSP)** in the **central Himalayan region**.

Highlights:

- **Main sources of aerosols in the central Himalayan region:**
 - Mineral dust, biomass burning, secondary sulphate, secondary nitrate from northwest India and Pakistan, polluted cities like Delhi, the Thar Desert, and the Arabian Sea area.
 - Long-range transported marine mixed aerosols

- This **dust transport** and **forest fires** are the main sources of **total suspended particles (TSP)**, particularly in **pre-monsoon period**.

- In the period (March-May) TSP concentration peaks in the region.

- **Carbonaceous aerosols** (Organic Carbon (OC) and **Elemental Carbon (EC)**) are the maximum in winter due to the **intensification of biomass burning** over the Indo Gangetic Plains and the Himalayas because of domestic heating and shallower mixing layer.

Significance:

- The present preliminary results can **supplement emission inventories** and contribute to

an **effective assessment** of climate impacts over the region.

Suspended Particulate:

- Total suspended particulate (TSP) refers to the **totality of small solid matter released**, documented or observed in the atmosphere.
- It is the dry-weight of **suspended particles**, that are not dissolved.
- It is considered to be a **primary contributor** to air pollution, smog formation and environmental contamination.

GLOBALLY, INDIA RECORDED THE HIGHEST LOSS IN TERRESTRIAL WATER STORAGE

According to **2021 State of Climate Services report** released by the World Meteorological Organization (WMO), **India** has recorded the **highest loss** in terrestrial water storage after **Greenland and Antarctica**.

Highlights of the Report:

- **Regions of highest TWS losses:** Antarctica and Greenland.
- Terrestrial water storage (TWS) dropped at a rate of 1 cm per year in 20 years (2002-2021) globally.
- **TWS loss in India:**
 - TWS has been lost at a rate of **3-4 cm per year**.
 - Maximum loss in northern part of the country.

Data on Water Resource Stress in India:

- Per capita water availability is reducing due to an increase in population.
- According to the **Union Ministry of Housing and Urban Affairs:**
 - Average annual per capita water availability has reduced to 1,545 cubic metres in 2011, from 1,816 cubic metres in 2001.
- According to **Falkenmark Water Stress Indicator:**
 - Five of the twenty-one river basins in India are ‘absolute water scarce’ (per capita water availability below 500 cubic metres).
 - Five are ‘water scarce’ (per capita water availability below 1,000 cubic metres).

Primary organic carbon and secondary organic carbon:

- Carbonaceous material is one important component of atmospheric particulate matter.
- **Organic carbon (OC)** includes **primary organic carbon (POC)** and **secondary organic carbon (SOC)**.
- These are mainly created from **fossil fuel combustion**, with relatively little contribution from natural sources.

- Three are ‘water stressed’ (per capita water availability below 1,700 cubic metres).

- According to the **State of India’s Environment, 2020:**

By 2050:

- Six river basins in India will become absolute water scarce.
- Six will become water scarce.
- Four will become water stressed.

Terrestrial Water Storage (TWS):

- This **includes all phases of water over land** (e.g., surface and groundwater, soil moisture, snow etc.).
- It acts as an important fresh water resource and a critical component of terrestrial water cycle.

World Meteorological Organization:

- WMO is a **specialized agency** of the United Nations responsible for promoting international cooperation on atmospheric science, climatology, hydrology and geophysics.
- **History:** WMO originated from the International Meteorological Organization, a nongovernmental organization founded as a forum for exchanging weather data and research at the **1873 Vienna International Meteorological Congress**.
- **Headquarters:** Geneva
- Its supreme body is the World Meteorological Congress.
- **Membership:** 193 Member States.

WMO facilitates and promotes:

- An **integrated Earth System observation network** to provide weather, climate and water-related data.
- **Data management centres** and telecommunication systems for the provision and rapid exchange of weather, climate and water-related data.
- Creation of **standards for observation** and monitoring in order to ensure uniformity in the practices and procedures & ascertain the

INDONESIA'S RACE TO PRESERVE HABITAT OF JAVAN GIBBON

Indonesian officials and researchers are working to preserve the habitat of the **Javan gibbon** which is endangered by **climate change** and **human encroachment**.

Highlights:

- Local conservation group SwaraOwa is tracking a population of **about 400 gibbons** living in a 73-kilometre reserve in **Petungkriyono Forest** in central Java, Indonesia.

Java Gibbon:

- Also known as the **silvery gibbon**.
- **Habitat:** The primate is unique to central and western Java.
- **Role in the ecosystem:** regenerating forest vegetation by dispersing seeds.
- **IUCN Status:** Endangered
- Features:
 - Its coat is **bluish-grey** in colour, with a dark grey or black cap.
 - Lacks an external tail.
 - Diurnal and arboreal.
 - Gestation Period: 7 months.
 - Silvery gibbon lives in pairs.
- Two **sub-species**:
 - Western silvery gibbon or western Javan gibbon.
 - Eastern silvery gibbon or central Javan gibbon.

IUCN (International Union for Conservation of Nature) Red List of Threatened Species:

- Also known as the **IUCN Red List** or **Red Data Book**.
- Founded in **1964**.
- It is the world's **most comprehensive** and authoritative

homogeneity of data and statistics worldwide.

- **Provision of weather, climate and water-related services** to reduce disaster risks and contribute to climate change adaptation & for sectors such as transport (aviation, maritime and land-based), water resource management, agriculture, health, energy and other areas.
- **Activities** in operational hydrology & cooperation between National Meteorological and Hydrological Services.

inventory of the global conservation status of biological species.

- It uses a set of criteria to **evaluate the extinction risk** of thousands of species and subspecies.
- **Goals of the Red List:**
 - To provide scientifically based information on the status of species and subspecies at a global level.
 - To draw attention to the magnitude and importance of threatened biodiversity.
 - To influence national and international policy and decision-making.
 - To provide information to guide actions to conserve biological diversity.
- Species are classified by the IUCN Red List into **nine groups**, specified through the following **criteria**:
 - Rate of decline.
 - Population size.
 - Area of geographic distribution.
 - Degree of population.
 - Distribution fragmentation.
- **Categories:**
 1. **Extinct (EX):** beyond reasonable doubt that the species is no longer existing.
 2. **Extinct in the wild (EW):** survives only in captivity, cultivation and/or outside native range, as presumed after exhaustive surveys.

3. **Critically endangered (CR):** survives in a particularly and extremely critical state.
4. **Endangered (EN):** very high risk of extinction in the wild, meets any of criteria A to E for Endangered.
5. **Vulnerable (VU):** meets one of the 5 red list criteria and thus considered to be at high risk of unnatural (human-caused) extinction without further human intervention.
6. **Near Threatened (NT):** close to being at high risk of extinction in the near future.
7. **Least Concern (LC):** unlikely to become extinct in the near future.
8. **Data Deficient (DD):** insufficient information for classification.
9. **Not Evaluated (NE):** not yet assessed.

Location of Java Island:

- Java is one of the **Greater Sunda Islands** in Indonesia.
- It is **bordered** by the Indian Ocean to the south and the Java Sea to the north.
- It is formed by **volcanic eruptions** due to geologic subduction of the Australian Plate under the Sunda Plate.
- The natural environment of Java is **tropical rainforest**.
- **Jakarta**, the capital of Java, is among the world's fastest sinking city.
- Java **was the centre** of powerful Hindu-Buddhist empires, the Islamic sultanates, and the core of the colonial Dutch East Indies.
- **Main exports:** Tea, coffee, tobacco, rubber, and cinchona (the source of quinine which is used to treat Malaria, and grown in the highlands of western Java).

HEATWAVE OCCURRENCES INCREASING IN INDIA, OCCURRING IN NEW REGIONS: STUDY

A recent analysis by the Mahamana Centre of Excellence in Climate Change Research (MCECCR) has found a **spatial shift of heatwaves in India**, with this weather event now occurring in new regions in the country.

- The study has looked **at temperature data of pre-monsoon (March-May) and early summer monsoon (June-July) seasons** from the India Meteorological Department, spanning 65 years from 1951-2016.
- It studied the monthly, seasonal, decadal and long-term trends in heatwaves in the country.

Highlights:

- It has found a warming pattern over north-western and southern India, while a progressive **cooling phase over northeastern and southwest regions** of the country.
- A “spatio-temporal shift” in the occurrence of heatwave events, with a significantly increasing trend in three prominent heat wave prone regions was observed.
 - North-western, central, and south-central India, with the

highest being in west Madhya Pradesh (0.80 events/year).

- Heatwaves have been traditionally associated with **UP, Bihar, Delhi and northern parts of Madhya Pradesh**.
- Both heatwaves and severe heatwaves are increasing and also new locations were found where these events are taking place, especially in the last two decades.
- Heatwaves have found in southern Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu, where they would traditionally not take place.
- An increase in heatwaves in Karnataka and Tamil Nadu are particularly significant, and point to increased events in the future.
- A significant decrease was found in heatwaves over the eastern region, that is Gangetic West Bengal (-0.13events/year).
- Over the past few decades, heatwaves have emerged in southern states

which had previously not experienced such events.

- Especially severe heatwave events have shown a “southward expansion and a spatial surge during the decades of 2001–2010 and 2010–2016”.
- During the period 1961–2010, from March-July, the **highest number of heatwave days were experienced** over the northwestern, northern, central, and eastern coastal regions, with an average of eight heatwave days and 1-3 severe heatwave days during the season.
- Two elements that have **exacerbated the heatwave conditions** in the country:
 - Increase in night time temperatures, which disallows heat discharge at night, and
 - Increasing humidity levels.
- An increasing trend of heatwave days and severe heatwave days was observed in the decade of 2001–2010 as compared to previous decades.
- The eastern and western coasts, which are currently unaffected by heatwaves, will be severely impacted in the future.

- A **jump in heat-related deaths**, from 5330 deaths reported during 1978–1999 to extreme cases of 3054 and 2248 deaths in 2003 and 2015, respectively.

Heatwaves?

- Heatwaves are defined as **prolonged episodes of extreme temperature** over any region.
- Apart from temperature, humidity is an important parameter considered for declaring heat-related stress.
- To be considered a heat wave, the temperatures have to be outside the historical averages for a given area.
- Qualitatively, heat wave is a condition of air temperature which **becomes fatal to human body** when exposed.
- For India, heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.
- Based on Departure from Normal:
 - **Heat Wave:** Departure from normal is 4.5 °C to 6.4 °C
 - **Severe Heat Wave:** Departure from normal is >6.4 °C

DETOXING PILOT PROJECT HAS BROUGHT A RIVER BACK FROM DEAD: MEGHALAYA

A detoxing pilot project initiated by the Government of **Meghalaya** has reduced the impact of acid mine drainage from coal and limestone mining which affected the water quality of River **Lukha**.

Highlights:

- The **Lukha** river is in the East Jaintia Hills district where most of Meghalaya’s coal mines are located.
- The project was initiated under **District Mineral Fund** over

the contamination of the Lukha, marked by dead fish and the colour of the water turning either blue or yellow.

- The detoxification process is called **phycoremediation**.
 - It has rejuvenated Lukha by using algae to remove toxic contents from the water.
 - It has improved the **pH level** of a critical stretch of the river.

NATIONAL MINERAL DEVELOPMENT CORPORATION (NMDC) WINS TWO PRESTIGIOUS ENVIRONMENT AWARDS

(NMDC) under the Ministry of Steel has bagged Gold Award in Environmental Sustainability category and **Kumaraswamy Iron Ore Mine** won the Platinum Award in Environment Management Category on 8th October 2021.

Highlights:

- The function was organised by Sustainable Development Foundation (a unit of **EK KAAM DESH KE NAAM**) and the awards were presented in the 10th conference held at Dehradun.
- NMDC was rewarded on its contribution towards implementation



of **Sustainable Development Goals** and Environment Management initiatives at its production projects.
Sustainable Development Foundation Award:

- EKDKN's "**Sustainable Development Foundation**" is Prestigious "Exceed Award on Environment, CSR and HR Award 2021" scheduled on 8th October 2021 at Dehradun.
- An award is given to an organization to recognize their excellence in a certain field.
- It gives a **positive impact** on overall Organization and brings new business opportunities.

Benefits:

- It helps the employees to remain committed in giving their best, it drives them to work hard.

- The **talent and abilities** are acknowledged and awarded; it gives the employees a reason to remain in the company for longer.
- Awards and Recognitions serve as a vehicle for **promotion of business** through public relation activities and marketing.
- It will benefit for **getting support** from statutory compliances.
- It gives brand image.
- Getting awards helps the company to get sanction for the govt projects.

Eligibility:

- All Large, Medium, Small & Micro Scale Industries, Companies/ Organization / Units / Sub-Units / Factories and Projects are eligible for participation in this Award.

CLEAN, HEALTHY AND SUSTAINABLE ENVIRONMENT A UNIVERSAL RIGHT: UN HUMAN RIGHTS COUNCIL

The United Nations Human Rights Council October 8, 2021, unanimously voted for recognising a **clean, healthy and sustainable environment** as a **universal right** in Geneva, Switzerland.

- The resolution emphasises "the rights to life, liberty and security of human rights defenders working in environmental matters, referred to as environmental human rights defenders."
- If recognised by all, the **right would the first of its kind in more than 70 years since the Universal Declaration of Human Rights** was adopted by the UN General Assembly in 1948.

Genesis:

- The **right to a clean environment** was rooted in the **1972 Stockholm Declaration**.
- Environmental defenders across the globe are **subject to constant physical attacks, detentions, arrests, legal action and smear campaigns**.
- Some 200 environmental defenders have been murdered in 2020 alone.

- The Agenda was presented by **UN Secretary-General Antonio Guterres**. The parties were called to pursue the **2020 Call to Action on Human Rights**.

United Nations Human Rights Council:

- The Human Rights Council is an inter-governmental body **within the United Nations system** responsible for the **promotion and protection of all human rights** around the globe.
- **Established in:** 2006 by UN General Assembly (UNGA)
- **Aim:** Strengthening the promotion and protection of human rights around the globe and for taking action on human rights violations around the globe.
- **It replaced:** United Nations Commission on Human Rights
- **Total Members states:** 47 (elected by the UNGA by a simple majority vote, through a secret ballot).
- **Members terms:** three-year terms with one-third of the members being renewed each year.

- **Membership is based on:** Equitable geographical distribution of seats according to the following regional breakdown:
 - 13 African States
 - 13 Asia-Pacific States
 - 8 Latin American and Caribbean States
 - 7 Western European and other States
 - 6 Eastern European States

Other details:

- Its decisions, resolutions, and recommendations are **not legally binding**.
- It **reports directly to the Assembly's** 193 members.
- It receives substantive and technical support from the U.N. Office of the High Commissioner for Human Rights (OHCHR).

Functions of HRC:

- It assessing the human rights records of all UN Member States every four and a half years through the Universal Periodic Review.
- It appoints independent experts known as "Special Procedures" to review human rights violations in specific countries.
- Examining complaints from victims of human rights violations or activist

ECOLOGICAL THREAT REPORT 2021

The report, **Ecological Threat Report (ETR) 2021: Understanding ecological threats, resilience and peace**, was released recently by the **Institute of Economics and Peace (IEP)**, an international think tank.

Highlights:

- Around **1.26 billion people** across 30 countries are suffering from both **extreme ecological risk and low levels of resilience**.
- These countries are **least likely to be able to mitigate and adapt** to new ecological threats, leading to mass displacement.
- Data were assessed for threats relating to food risk, water risk, rapid population growth, temperature anomalies and natural disasters.
- Of the 178 countries in the ETR:

organizations on behalf of victims of human rights violations

- Promote human rights education and learning.
- Serve as a forum for dialogue on thematic issues on all human rights.

Global Alliance of National Human Rights Institutions (GANHRI):

- At the International Conference held in Tunis in 1993, NHRIs established the International Coordinating Committee of NHRIs (ICC) with the aim to **coordinate the activities of the NHRI network**.
- In 2016, the ICC **changed its name into Global Alliance of National Human Rights Institutions (GANHRI)**.
- GANHRI is incorporated as a **legal entity under the Swiss law**, and has a Bureau consisting of 16 "A status" NHRIs representing the **four regions of GANHRI**.
- General annual meetings of GANHRI, meetings of the GANHRI Bureau and of the Sub-Committee on Accreditation, as well as international conferences of GANHRI are **held in cooperation with UN Human Rights in its capacity as the GANHRI secretariat**.

- **30 were identified as hotspots for having low levels of resilience** and a medium to extremely high catastrophic threat score.
- **13 faced extremely high** and 34 others faced high ecological threats.
- The **most vulnerable countries** are clustered in the **Middle East and North Africa, sub-Saharan Africa and South Asia**.
- **Climate change will have an amplifying effect**, causing further ecological degradation and pushing some countries through violent tipping points.
- Of the 15 countries most threatened, 9 are in sub-Saharan Africa, followed by 3 in south Asia.

Region wise analysis:

- **South Asia** is the worst-placed, with water and food risks driving the average ETR score in the region.
- In **sub-Saharan Africa**, the score is influenced by high levels of population growth, which will place increased pressure on existing food and water scarcity.
 - The region has the highest proportion (66 per cent) of its population suffering from food insecurity, highlighting its severity of water and food risks.
 - Population growth and resource scarcity are intrinsically linked with conflict in sub-Saharan Africa.
- The report recommended a policy to combine health, food, water, refugee relief, finance, agricultural and business development into one integrated agency in high-risk areas and empowering local communities.

Other key findings of the report are:

- 11 of 15 countries with the **worst environmental threat scores** are currently classified as being in conflict.

- Another four are classified as at high risk of substantial falls in peace, highlighting the relationship between resource degradation and conflict.
- Global food insecurity has **increased by 44 per cent since 2014**, affecting 30.4 per cent of the world's population in 2020, and is likely to rise further.
- From 1990 to 2020, a total of **10,320 natural disasters occurred globally**. Flooding has been the most common natural disasters, accounting for 42 per cent of the total disaster count.
- In 2020, **177 countries** and territories recorded a **warmer average temperature** compared to their historical average temperatures.
- 11 countries are projected to **double their population between 2021 and 2050**. They are all in sub-Saharan Africa.
 - The three countries with the largest projected increases in population are **Niger, Angola and Somalia**, where the populations will increase by 161, 128 and 113 per cent, respectively.

PRODUCERS GIVEN TARGETS TO MANAGE THEIR PLASTIC PACKAGING WASTE IN DRAFT EPR NOTIFICATION

The Ministry of Environment has unveiled a draft notification for regulation of extended producer responsibility under **PLASTIC WASTE MANAGEMENT RULES 2016**.

- The notification is expected to release on 6th December 2021.

Highlights:

- It has specified a system whereby **makers and users of plastic packaging** can collect Extended Producer Responsibility (EPR) certificates and trade in them.
- Plastic such as **multi-layered and multi-material** will be eligible to be sent for end-of-life disposal such as road construction, waste to energy, waste to oil and cement kilns.

Plastic packaging, as per the rules, fall into three categories:

1. Rigid Plastic.

2. Flexible plastic packaging of single-layer plastic sheets and covers made of plastic, carry bags, pouches etc.

3. Multi-layered plastic packaging.

What will producers of plastic do?

- They will inform the government about how much plastic they produce annually.
- Companies will have to collect at least 35% of the target in 2021-22, 70% by 2022-23 and 100% by 2024.
 - In 2024, they will have to recycle **50%** of their rigid plastic (category 1) and **30%** of category 2 and 3 plastics.
- After 2026-27, **80% of category 1** and 60% of the other two categories will need to be recycled.

Targets for the companies using Packaging Material:

- If entities cannot fulfil their obligations, they will be permitted to **buy certificates** for their shortfall from the organisations that have used recycled content.
- In case of **Non-compliance**, there will be no fine. Instead, an “environmental compensation” will be levied.

- Entities that do not meet their targets must pay a fine & if they meet their targets within three years, they will get a 40% refund.
 - **Funds collected** in this way will be put in an account and can be used to collect and recycle plastic packaging waste on which the environmental compensation is levied.

NEW CICADA SPECIES IN NAGALAND UNDERSCORES NEED FOR CONSERVATION

A new variety of cicada species ‘**Platyomia kohimaensis**’ was discovered almost after a century in the Naga Hills, Nagaland.

cicadas:

- Cicadas are members of the superfamily **Cicadoidea**.
- They are **physically distinguished** by their stout bodies, broad heads, clear-membraned wings, and large compound eyes.
- There are more than **3,000 species** of cicadas. They occur in deserts, grasslands, and forests.

- **Male cicadas** produce loud noises by vibrating membranes near the base of the abdomen.
- They **occur in deserts**, grasslands, and forests.
- **Cicadas** have been used in folk medicines, religious and monetary symbols, and an important source of food.
- They act as **indicators of a healthy forest ecosystem**, but there are no conservation measures for them at present.
- **Major threat:** Rapidly diminishing natural habitat

WATER PURIFIERS MUST MENTION WASTAGE, EFFICIENCY RATING: OFFICIALS

The environment ministry has notified- '**Regulation on Use of Water Purification System (WPS)**' for water purification systems which will come into effect 18 months from now.

- The regulations follow the **National Green Tribunal's advice to the environment ministry** on May 20, 2019 that it should come out with regulation on appropriate use of RO-based water purification systems.

Highlights:

- Manufacturers of Reverse Osmosis-based water purifiers will now

have to **rate their appliances on efficiency and water wastage**.

- Water supply agencies will **have to declare the total dissolved solids (TDS) in the water** being supplied.
- The move is aimed at **allowing consumers to make informed decisions** on the kind of water purifier needed.
- The water purifier will now come with a '**conformance label**'-a star rating like label- declaring its efficiency level as well as water rejection/wastage levels.

WHAT IS GRAP, DELHI-NCR'S ACTION PLAN AS AIR POLLUTION INCREASES?

Stricter measures to fight air pollution will come into force in Delhi and its neighbouring National Capital Region (NCR) towns, as part of the **Graded Response Action Plan (GRAP)** from 15th October 2021.

Highlights:

- **Diesel generator** sets will no longer be used in Delhi and the NCR towns of Noida, Ghaziabad, Faridabad, and Gurgaon.
- They will be used in case of emergency and essential services.

- **Pollution control** authorities will begin night patrolling to check for dust, industrial emissions, and burning of waste.
- Focus will be on **mechanised sweeping** and sprinkling of water on roads.

GRAP?

- **Graded response action Plan** was approved by the Supreme Court in 2016 and notified in 2017 by the Central Government.
- It was formulated after several meetings of the **Environment Pollution (Prevention and Control) Authority (EPCA)** held with state government representatives and experts.
- GRAP is controlled and managed by EPCA.
- The plan requires action and coordination among 13 different agencies in Delhi, Uttar Pradesh, Haryana, and Rajasthan (NCR areas).
- It works only as an **emergency measure**. When the air quality shifts from poor to very poor, the measures listed have to be followed since the plan is **incremental** in nature.

Working of GRAP:

Under the Graded Response Action Plan (GRAP), there would be **four types** of alert levels, depending on the seriousness of the situation:

Level-1 (Yellow):

- Delhi will be at this level when the positivity rate is more than **0.5 per cent** for two consecutive days.

SUPREME COURT PERMITS GREEN TRIBUNAL TO ACT SUO MOTU

The Supreme Court has declared the National Green Tribunal's (NGT) position as a "unique" forum endowed with **Suo motu powers** to take up environmental issues across the country.

Highlights:

- The NGT will not wait for the "**metaphorical Godot**" to save the environment.

- With 1500 new COVID-19 cases registered in one week and 500 patients require oxygen beds.

Level-2 (Amber):

- This will be applicable when the positivity rate remains more than 1 per cent for two consecutive days, with 3500 cases come within a week and 700 oxygen beds get filled.

Level-3 (Orange):

- At this level, the positivity rate will have to be more than 2 per cent for two consecutive days.
- With the number of new cases in a week must be 9000 with 1000 patients requiring oxygen beds.

Level-4 (Red):

- This will be applicable when the positivity rate is more than 5 per cent for two consecutive days.
- More than 16000 cases in a week and 3000 patients are admitted on oxygen beds.

Actions under GRAP:

Restrictions at each level:

- **Night curfew** will be imposed in a Level-1 alert.
- In addition to night curfew, weekend curfew will be applied on Level-2 and Level-3 alerts.
- There will be a **complete curfew** during a Level-4 alert.
- Decisions on domestic travel and inter-state travel will be taken according to the need and situation.
- At any level of alert, schools, colleges, and educational institutions will remain closed.
- Religious institutions will open. No public gatherings will be allowed.

- The exercise of power by the NGT does not depend only on receipt of applications.
- NGT even in the absence of an application can self-ignite action either towards improvement or prevention of harm when substantial questions relating to the environment arise.

- The Tribunal must perform **equally vital roles** that are preventative, ameliorative, or remedial in nature.
- The **functional capacity** of the NGT is intended to leverage wide powers to do full justice in its environmental mandate.

National Green Tribunal:

- The National Green Tribunal was established on 18.10.2010 under the **National Green Tribunal Act 2010**.
- It is a specialized body, which handle environmental disputes involving multi-disciplinary issues.
- Its dedicated jurisdiction in environmental matters provide speedy environmental justice and help reduce the burden of litigation in the higher courts.

Objectives:

- It focuses on **effective and expeditious disposal** of cases relating to environmental protection.
- **Conservation of forests** and other natural resources including enforcement of any legal right relating to environment.

- Giving relief and **compensation for damages** to persons and property and matters connected there with or incidental thereto.

Challenges with the working of NGT:

1. The tribunal never functioned in its full capacity

- According to the **NGT Act**, the tribunal should have 10 members in the Judicial and 10 members in the Expert capacity.
- At present, the NGT is functioning with three judicial and three expert members only.

2. It has failed to achieve the **Right to a healthy environment** as a part of the Right to Life under Article 21.

3. NGT has invoked the deadline associated with the technical clause and dismissed 11 petitions last year alone. This shows the inability of NGT to solve the cases in a time-bound manner.

4. Limited Regional Benches

- The NGT is situated in few big cities. But environmental exploitation majorly takes place in the tribal areas of dense forest.

GREEN GRIDS INITIATIVE-ONE SUN ONE WORLD ONE GRID NORTHWEST EUROPE COOPERATIVE EVENT

The union minister for Power and New and Renewable Energy (MNRE) addressed the Ministerial session of the **Green Grids Initiative-One Sun One World One Grid Northwest Europe Cooperative Event** recently.

Highlights:

- UK's Foreign, Commonwealth & Development Office (FCDO) hosted a two-day programme for a strategic discussion on the Green Grids Initiative-One Sun One World One Grid (GGI-OSOWOG).
- The event saw a **multi-layered dialogue** between the OSOWOG and the project in Northwest Europe for developing cross-border trading of renewable electricity.
- India highlighted its target of achieving 450 GW of installed **renewable energy capacity** by 2030.

- The initiative is a possible solution for driving down the need for storage and in effect reduce the costs of the energy transition.

One Sun One World One Grid:

- The idea of OSOWOG initiative was put forth by the Prime Minister of India at the First Assembly of the International Solar Alliance (ISA) in October 2018.
- **Aim:** To achieve the scale of reforms in infrastructure, to underpin the global energy transition.
- The idea behind the concept is a **trans-national electricity grid** supplying solar power across the globe.
- It will **connect 140 countries** through a common grid that will be used to transfer solar power.

Phases of OSOWOG:

- The first phase will include interconnectivity within the Asian continent.
- The second phase will add **Africa**.
- The third phase will globalize the whole project.

Need For OSOG:

- A new energy sector paradigm is needed as India is facing a huge inflexion point in electricity generation and consumption.
- The initiative will provide widespread scale up in **energy access**, abatement in carbon emissions, lower cost, and improved livelihoods.
- It will allow **national renewable energy** management centres in India to grow as regional and global management centres.

NON-TOXIC ACTIVATED CARBON FROM BANANA AND TEA

A team of scientists have used **tea and banana waste to prepare non-toxic activated carbon**, which is useful for several purposes like **industrial pollution control, water purification, food and beverage processing, and odour removal**.

- The newly developed process **avoids usage of any toxic agent** for synthesizing activated carbon, thus making the product cost-effective as well as non-toxic.

From tea:

- The processing of **tea generates a lot of waste**, generally in the form of tea dust. This could be converted to useful substances.
- The **structure of tea was favourable** for conversion to **high-quality activated carbon**.
 - However, conversion to activated carbon involves use of strong acid and bases, making the product toxic and hence unsuitable for most uses.
- So, a non-toxic method of conversion was needed to overcome this challenge.

From banana:

- The banana plant extract used in the process was prepared by traditional way and is **known as Khar**, which is

Drawbacks:

- The mechanism of **cost-sharing** will be challenging, as priorities of participating countries depends on their socio-economic orders.
- It will turn out to be an **expensive**, complex, and very slow progress project.
- The strategic benefits, of having a single grid will be obliterated due to geopolitical problem.
- Maintaining grid stability with just **renewable generation** would be technically difficult.
- Any disruption caused due to any bilateral/multilateral issues can affect critical services in multiple countries.

an **alkaline extract from the ashes of burnt dried banana peels**.

- The ash is made into a fine powder. Then using a clean cotton cloth, **water is filtered through the ash powder**, and the final solution that we get is called khar.
- The natural khar which is extracted from banana is called '**Kol Khar**' or '**Kola Khar**'. This extract was used as the activating agent.
- The **most preferred banana** for this is called '**Bheem Kol**' in Assamese.
 - Bheem Kol is an indigenous variety of bananas found only in Assam and parts of North East India.

Advantages:

- Starting materials, as well as activating agents, are both waste materials.
- Use of any toxic activating agent (e.g., toxic acids and bases) for synthesizing active carbon are avoided.
- Green process, plant materials have been used as an activating agent for the first time.
- This novel process makes the product cost-effective as well as non-toxic.

Activated Carbon:

- Activated carbon, also known as **activated charcoal**, is a crude form of graphite.
- It differs from graphite by having a random, imperfect structure which is **highly porous over a broad range of pore sizes** from visible cracks and crevices to molecular dimensions.
- The graphite structure gives the carbon its **very large surface area** which allows the carbon to adsorb a wide range of compounds.
- Activated carbon can be made from **many substances containing a high carbon content** such as coal, coconut shells and wood.
- The raw material has a very large influence on the characteristics and performance of the activated carbon (activated charcoal).

Characteristics:

- Activated carbon has the **strongest physical adsorption forces**, or the **highest volume of adsorbing porosity**, of any material known to mankind.
- It can have a **surface of greater than 1000m²/g**.
- Granular Activated Carbons have capability for selectively **adsorbing thousands of organic, and certain in-organic, materials**.
- From medicinal uses of powdered carbons in ancient Egypt, through charred interiors of whiskey barrels, carbon has been activated and used as an adsorbent for centuries.
- Granular vapor phase activated carbon media was first widely used in **WWI military gas masks** and, in the years between World Wars, commercially in solvent recovery systems.

THE IMPLEMENTATION OF CRISP-M WILL OPEN UP NEW POSSIBILITIES FOR RURAL COMMUNITIES TO DEAL WITH CLIMATE CHANGE

Ministry of Rural Development launched Climate Resilience Information System and Planning (CRISP-M) tool for integration of climate information in Geographic Information System (GIS) based watershed planning under Mahatma Gandhi National Rural Employment Guarantee Act.

Highlights:

- The **CRISP-M** will open new possibilities for our rural communities

to deal with the issues of climate change.

- It will help **poor and vulnerable people** to cope with climate change and protect them from weather-related disasters.
- The tool will be used in **seven states** towards climate resilience including Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha, and Rajasthan

LARSEN C ICE SHELF

According to researchers when an iceberg split off from Antarctica's Larsen C ice shelf July 10-12, 2017, the phenomenal event occurred due to **ice-shelf dynamics**, not by climate change.

Larsen Ice Shelf:

- The Larsen Ice Shelf is a long ice shelf in the northwest part of the Weddell Sea, along the east coast of the **Antarctic Peninsula**.
- It is a series of shelves that occupy distinct embayments along the coast.

- From north to south, the segments are called **Larsen A** (the smallest).
- **Larsen B**, and Larsen C (the largest).
- Further south, **Larsen D** and the much smaller Larsen E, F and G.
- The breakup of the ice shelf began in 1990s with the collapse of Larsen B in 2002.
- A large section of the Larsen C shelf broke away in July 2017 to form an iceberg known as **A-68**.

2mn HECTARES OF TREE COVER LOST IN 20 YEARS IN INDIA, 3/4TH OF IT IN NE

Recently a study of satellite images was conducted by researchers at University of Maryland, United States.

Highlights:

- India **lost almost 2 million hectares (Mha) of tree cover** between 2001 and 2020, a decrease of nearly 5% since 2000.
- Seven states in the northeast accounted for three-fourths of that loss. The seven north-eastern states were among top 10 states with maximum tree cover loss in past 20 years.
- Odisha (7th), Kerala (9th) and Chattisgarh (10th) made up the rest.
- In past two decades, India's **north-eastern states accounted for 76.7% of the 1.93 Mha** of lost tree cover.
- **Assam accounted for the highest** share of national tree cover loss in past 20 years at 14.1%. From 2001 to 2020, the state lost 269 kilohectare (kha) of tree cover, equivalent to a **9.8% decrease in the state's overall tree cover** since 2000.
 - In Assam, two hill districts of **Karbi Anglong (97.4 kha) and Dima Hasao (63.2 kha) accounted for the majority share (60%)** of tree cover loss.
 - On the other hand, from 2001 to 2012, Assam added 29.9 kha of tree cover, equal to 12% of tree cover gain across India during that period.
- **Mizoram** lost 247 kha of tree cover, contributed **13% of India's total tree-cover loss**.
 - The three districts of Champhai (67.6 kha), Lunglei (46 kha) and Aizawl (42.1 kha) accounted for 63% of the loss.
 - Mizoram's tree cover gain between 2001 and 2012 was 26.3 kha.
- **Nagaland** lost 225 kha of tree cover, which was **11.9% of India's total loss during that period**. It lost 17% of its total tree cover in those 20 years– the sharpest decline in the country.
 - Mon, Tuensang, Mokokchang and Peren districts accounted for 57% of the state's total loss.
 - Nagaland witnessed 44 kha of tree cover gain from 2001 to 2012.
- **Arunachal Pradesh**, the largest state in northeast, lost 222 kha of tree cover from 2001 to 2020 which was **11.6% of India's total loss**. The state saw 3.5% decline in its tree cover in that period.
 - The districts of West Siang, Lohit, Changlang, Longding and Lower Dibang Valley accounted for 51% of Arunachal's total loss.
 - The state gained 47.8 kha of tree cover from 2001 to 2012.
- **Manipur** was the 5th highest contributor of tree-cover loss among all states, accounting for 10.3% of the total with a loss of 196 kha.
 - There was a 12% decrease in the state's tree cover in past 20 years.
- Charachandpur and Tameglong districts contributed 52% of the total loss.
 - The state gained 33.8 kha of tree cover from 2001 to 2012, which was 13% of the country's total gain in that period.
- **Meghalaya** lost 195 kha of tree cover in past 20 years, which was **10.3% of the country's overall loss**.
 - The state lost 12% of its tree cover in that period and the three districts of **South Garo Hills, East Khasi Hills and South West Khasi Hills** were responsible for 56% of that.
 - Meghalaya gained 19.1 kha of tree cover from 2001 to 2012.
- **Tripura** was the lowest contributor among the north-eastern states to the national figure with 102 kha of tree cover loss (or 5.5% of India's total loss).
 - But from 2001 to 2020, the state lost 15% of its tree cover, the second highest after Nagaland (17%).
 - The state gained just 1.18 kha of tree cover from 2001 to 2012.

Key Facts:

- Tree cover can refer to trees in plantations as well as natural forests, and tree cover loss is the removal of

tree canopy due to human or natural causes, including fire.

WHAT CAUSED HEAVY RAIN AND LANDSLIDES OVER SOUTHERN KERALA?

Flash floods, mudslides and landslides have been reported in most districts located between central and southern Kerala.

Highlights:

- The rainfall is mainly a **localised phenomenon** triggered due to the **low-pressure system** formed in the **Arabian Sea**, which has triggered the severe weather.
- Kerala experienced **heavy to very heavy rain**.
 - **Very Heavy rain:** It occurs when the precipitation rate is >7.6 mm per hour, or between 10 mm and 50 mm per hour.

Landslide?

- A landslide is defined as the **movement** of a mass of rock, debris, or earth **down a slope**.
- Landslides are a type of "**mass wasting**," which denotes any down-slope movement of soil and rock under the direct influence of gravity.
- Landslide encompasses five modes of slope movement: **falls, topples, slides, spreads, and flows**.
- These are further subdivided by the type of geologic material (**bedrock, debris, or earth**).
- **Debris flows** (commonly referred to as mudflows or mudslides) and rock falls are examples of common landslide types.

Causes of Landslide:

- Slope movement occurs when forces acting down-slope (mainly due to gravity) exceed the strength of the earth materials that compose the slope.

- Causes include factors that increase the effects of down-slope forces and factors that contribute to low or reduced strength.
- Landslides can be initiated in slopes already on the verge of movement by:
 - Rainfall
 - Snowmelt
 - Changes In Water Level
 - Stream Erosion
 - Changes In Ground Water
 - Earthquakes
 - Volcanic Activity
 - Disturbance By Human Activities
 - Any combination of these factors.
- Earthquake shaking can cause landslides known as submarine landslide that can cause tsunamis that damage coastal areas.

Mitigation measures:

- Restriction or even removal of populations from areas with a history of landslides
- Installation of early warning systems based on the monitoring of ground conditions such as strain in rocks and soils, slope displacement, and groundwater levels.
- Modification of slope geometry
- Using chemical agents to reinforce slope material
- Installing structures such as piles and retaining walls
- Grouting rock joints and fissures
- Diverting debris pathways
- Rerouting surface and underwater drainage.

Difference between Southwest and Northeast Monsoon:

Southwest Monsoon	Northeast Monsoon
The monsoon in summers enters our country, India from the south-west direction.	Northeast monsoon enters India from northeast direction and can also be called the winter monsoon.
In this type of monsoon, the wind blows from sea to land. These monsoon winds carry moisture from the Indian Ocean.	In this type of monsoon, the wind blows from land to sea.

The trade winds enter the peninsular part of India as the south-west monsoon.	These monsoon winds carry moisture from the north-east.
The south-west monsoon which is called the summer monsoon has potential for destruction. But it is welcomed in India by farmers because they depend on these rains for irrigation.	Jammu and Kashmir, Himachal Pradesh and Uttarakhand experience precipitation in the form of rainfall of snowfall during the northeast monsoon.
This brings heavy rainfall between June month to September month.	Rainfall is experienced in the southern part of India, mainly in Kerala, Andhra Pradesh, Karnataka and Tamil Nadu during this period.

ARCTIC MELT: WILL POLAR BEARS VANISH BY 2100?

A new study published in the journal Earth's Future, has put a timeline to an impending disaster of shrinkage of summer sea ice in the Arctic.

About the study:

The research **looked at two scenarios:**

- Optimistic scenario: (if carbon emissions are brought in check)
 - Some **summer ice could persist indefinitely.**
- Pessimistic: (if emissions continue as they are)
 - Summer ice would disappear by the end of the century.
 - Under the low-emissions scenario, Ice from even the central Arctic will wane by mid-century, and will **no longer endure through the year.**

Findings of the study:

- Shrinkage of summer sea ice in the Arctic has long been a concern, especially for species that depend on it for survival.
- If carbon emissions continue at current levels, summer ice will **disappear by 2100** and, along with it, creatures such as seals and polar bears.
- In winter, most of the Arctic Ocean surface freezes, and scientists expect this to continue for the foreseeable future, even as climate warms.
- In summer, when some of the **ice melts, winds and currents carry it for great distances**– some of it into the North Atlantic, but **much of it**

into the Arctic's farthest-north coasts, along Greenland and the Canadian islands.

- This **results in a rich marine ecosystem.** On the Arctic ice, algae bloom.
- These feed tiny animals, which in turn feed fish, which in turn feed seals, which feed polar bears at the top of the chain.
- The irregular topography also helps create lairs for seals, and ice caves for polar bears during the winter.
- But with a warming climate, summer sea ice has been shrinking fast, and now **consistently spans less than half the area it did in the early 1980s.**

Implications:

- Under the low-emissions scenario, at least some seals, bears and other creatures may survive.
 - These species currently exist under similar summer conditions along western Alaska and parts of Hudson Bay.
- Under the higher-emissions scenario, by 2100, even the locally formed ice will disappear in summer and with that there will be **no ice-dependent ecosystems.**
- If the year-round ice goes away, entire ice-dependent ecosystems will collapse, and something new will begin.

GREAT INDIAN BUSTARD NEARING EXTINCTION DUE TO HIGH VOLTAGE POWER LINES: ENVIRONMENT MINISTRY

The **Bustard Specialist Group (BSG)** of the International Union for Conservation of Nature has urged the Assam government on the urgent need to prevent land-use changes at **Kokilabari Seed Farm** in Assam to protect **Bengal floricans** and other species.

Highlights:

- **Kokilabari Seed Farm** is famous for its floricans.
- **Land-use changes** at the site, which houses 25 Bengal floricans, is posing a threat to the critically endangered bird.
- The species is found in **very small numbers** only in India and Cambodia. About a hundred of them are present in Nepal and the species is extinct in Bangladesh.

Bengal Florican:

- The **Bengal florican** is a bustard species native to the Indian subcontinent, Cambodia, and Vietnam.
- It is the only member of the genus **Houbaropsis**.
- Only 1,000 of them were estimated to be alive as of 2017.

Features:

- **Adult Bengal floricans** range from 66–68 cm in length and 55 cm tall.
- They have **black plumage** from the head and neck to underparts.
- Its head carries a long lanky crest, and the neck has elongated display plumes.
- The upper side is buff with **black vermiculation's** and black arrowhead markings.
- There is a large white patch from the wing coverts to the remiges. The feet and legs are yellow.

Distribution and Habitat:

- It has two disjunct populations, one in the **Indian subcontinent**, another in **Southeast Asia**.
- The former occurs from **Uttar Pradesh** through the Terai of Nepal to Assam and Arunachal Pradesh.
- The **Southeast Asian population** occurs in Cambodia adjacent to southern Vietnam.
- The birds **use grasslands** near the lake to breed, and move away in the wet season.
- The Terai population move to warmer lowland locations in winter.
- **IUCN Status:** Critically Endangered [Red List]

OVERFLOWING KOSI RIVER THREATENS WILDLIFE IN UTTARAKHAND

Recently, the **Kosi river** overflowed in **Uttarakhand**.

Highlights:

- The **Kosi river, which runs on the eastern periphery of the Jim Corbett National Park**, overflowed its banks due to extreme rainfall in its catchment areas, endangering iconic wildlife and stranding tourists in forest resorts.
- The overflow was due to a cloudburst triggered flash flood at Ramgarh in Uttarakhand's Nainital district, upstream of the National Park.

Kosi River:

- Kosi is a **Himalayan River** which originates from **Dharpani Dhar** (2,500 m) in Baramandal region of Almora district, **Uttarakhand**.
- The **168 kms long river** flows through the Uttarakhand, then it

enters the **Tarai regions** of Uttar Pradesh, where it joins **Ramganga river**.

- The water of this river for cultivating of wheat, rice and other crops.
- **Koshi Barrage**, also called Bhimnagar Barrage, was built between 1959 and 1963 and straddles the Indo-Nepal border.
 - It is an irrigation, flood control and hydropower generation project on the Kosi River built under a bilateral agreement between Nepal and India.
- **Sapta Koshi High Dam Multipurpose Project** and **Sun Kosi Storage-cum-Diversion Scheme** to meet the objectives of India and Nepal for development of hydropower, irrigation, flood control and management and navigation.

Jim Corbett National Park:

- Located in the **Nainital district** of Uttarakhand state.
- It was established in 1936 during the British Raj as the first national park in India, and named **Hailey National Park** after William Malcolm Hailey, a governor of the United Province.
- It was renamed **Corbett National Park** after the hunter and naturalist Jim Corbett, who had played a leading role in its establishment.
- The Park was the first to come under the **Project Tiger initiative**.
- Forest covers almost 73% of the park, while 10% of the area consists of grasslands.

- It protects parts of the **Upper Gangetic Plains moist deciduous forests and Himalayan subtropical pine forests ecoregions**.
- It has a humid subtropical and highland climate.
- **Fauna:** Tiger, leopards, elephants, spotted deer, barking deer, hog deer, wild boar, porcupines, sloth bear, nilgai, chital and sambhar, crocodile, gharial etc.
- **Flora:** Sal wood, Khair, sissoo, shisham, bakli, pula, kharpat, chir pine, oak, Bel, kusum, mahua, bamboos, grasses, climbers and herbs.

WHY HAS OCTOBER BEEN SO RAINY ACROSS INDIA?

A delayed **withdrawal of southwest monsoon** and other factors have caused heavy rainfall in several states.

Highlights:

- October, 2021 has emerged as the wettest month for Delhi since 1960.
- States like Kerala, Uttarakhand and Madhya Pradesh have received **very heavy rainfall** in October, even though it is a month of transition during which the **southwest monsoon withdraws** and gives way to the northeast monsoon.
- A combination of delayed monsoon and the development of low-pressure areas at multiple places is causing rainfalls at several places.

Retreating Southwest Monsoon:

- The Southwest monsoons starts to retreat in the first week of **September** from Pakistan border in Northwest India.
 - October and November are the months of post (or retreating) monsoon season.
- The retreat of these winds takes place due to **weakening of low-pressure area** over the northwestern parts.
- This happens due to **low temperatures** caused by apparent shift of the sun towards the equator and also owing to the widespread rains

bringing down temperatures perceptibly.

- Consequently, the **air pressure starts decreasing**. Such changes in the patterns of atmospheric pressure causes Southwest monsoons to withdraw.
- Hence, this period is known as the season of **retreating Southwest monsoons**.
- By the end of October, these winds retreat from **most of northern India**. As a result, fair weather conditions prevail over this region.
- The low-pressure area lying over Northwest India is transferred to the middle of the Bay of Bengal by the end of October.
- As a result of these **unstable conditions**, severe cyclonic storms originate in the Bay of Bengal. These cyclonic storms strike along the eastern coast of India causing wide spread rain in the coastal regions.
- **Tamil Nadu coast** receives maximum of its rainfall during October and November-the period of retreating monsoons.
- Withdrawal of southwest monsoon takes longer time than the advancing one.

Effects of retreating Monsoon:

- Clearer skies making climate of many places hotter.

BY 2030, EARLY WARNINGS ON FLOODS AND DROUGHTS TO BE AVAILABLE FOR ALL: WMO

According to the 'Water Declaration' endorsed at the World Meteorological Congress, **early warnings about floods and droughts** will be available for people everywhere on the planet by 2030.

Highlights:

- Policies for **water and climate action** developed within the **sustainable development agenda** will be integrated to yield maximum benefit for people.
- The agenda will be achieved **through partnerships** for capacity development, knowledge exchange, and information sharing, formulating policies, institutional and regulatory frameworks.
- The **Water and Climate Coalition** will promote sharing and access to the integrated hydrological, cryosphere, meteorological, and climate information.
 - The formation of the Coalition is significant at a time when **just 40 percent** of countries globally have operational early flood and drought warning systems.
- The Coalition is thus aimed at accelerating the progress of water-related United Nations Sustainable Development Goals, especially **SDG 6**.
- The **new Sustainability Strategy** for strengthening the Flash Flood Guidance System with Global Coverage (FFGS/WGC) was approved at the World Meteorological Congress.

Need for the Coalition:

PRODUCTION GAP REPORT 2021

The **Production Gap Report 2021** was released by the United Nations Environment Programme (UNEP) recently.

Highlights:

- As per the report, the governments across the world are planning to produce **more than double the fossil fuels** than it requires to **limit**

- Tropical Cyclones formations in the Bay of Bengal.
- Pressure gradient becomes low.

- **60 percent** of WMO member countries lack hydrological monitoring capabilities.
- 107 countries are **not on track** to have sustainably managed water resources.
- Half of the world's population is **at risk** due to a lack of information on the state of their water resources including rivers, lakes, groundwater.

World Meteorological Organisation (WMO):

- WMO is an **intergovernmental organization** with a membership of **193** Member States and Territories.
- **Aim:** To provide world leadership and expertise in international cooperation in the **delivery and use of high-quality, authoritative weather, climate, hydrological, and related environmental** services by its members.
- It originated from the **International Meteorological Organization (IMO)**. WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology, and related geophysical sciences.
- It facilitates the "**free and unrestricted**" exchange of data, information, and research between the respective meteorological and hydrological institutions of its members.
- **Headquarters:** Geneva

the global temperature rise to 1.5 degrees Celsius.

- The climate crisis has not been able to **compel major emitters** to improve action on the ground so far.
- **Almost all major coal, oil and gas producers** are planning to increase

their production till at least 2030 or beyond, creating an **ever-widening production gap**.

- The production gap to achieve the climate goal is the widest for **coal**.
- Production plans and projections by governments would lead to around:
 - 240 per cent more coal
 - 57 per cent more oil
 - 71 per cent more gas in 2030, than global levels consistent with limiting warming to 1.5°C.
- The **international public finance** for production of fossil fuels from G20 countries and major multilateral development banks (MDBs) has significantly decreased in recent years.
 - One-third of MDBs and G20 development finance institutions (DFIs) by asset size have **adopted policies** that exclude fossil fuel production activities from future finance.

Concerns:

- There has been **incremental capital flow** towards fossil fuels in comparison to clean energy in the **post novel coronavirus disease** (COVID-19) recovery phase.

- The Group of 20 countries has channelised **\$300 billion to fossil fuels** since the beginning of the pandemic, and the sector is still enjoying significant fiscal incentives.

Suggestions:

- **Carbon dioxides removal** (CDR) technologies should be **deployed widely** and methane emissions and leakages should be arrested.
- **Massive gap** between the pledges and actions of countries needs to be rectified with a real policy plan and finance.
- **All public as well as private financiers**, including commercial banks and asset managers, should switch their funding from coal to renewables to **promote full decarbonization** of the power sector and access to renewable energy for all.

Production Gap Report 2021:

- The report was first launched in 2019.
- **Issued by:** United Nations Environment Programme
- It **measures the gap** between governments' planned production of coal, oil, and gas and the global production levels consistent to limit global warming to 1.5°C and 2°C.

LANCET COUNTDOWN ON HEALTH AND CLIMATE CHANGE

Recently, 'The Lancet Countdown on Health and Climate Change' report was published by the medical journal The Lancet.

Report:

- India has become **15% more vulnerable** to extremes of heat than in 1990.
- Between 2018 and 2019, **India and Brazil** had the **biggest absolute increase** in heat-related **mortality**.
- 295 billion hours of potential work were lost across the globe in 2020 due to heat exposure. **India** was among the **most affected countries**.
- The **economic losses** of climate-related extreme events were **three times higher** in **medium-Human Development Index countries** than they are in very high HDI countries.

- South-East Asia was the only region with increasing air pollution mortality costs between 2015 and 2019, relative to GDP.
- Populations of 134 countries have experienced an increase in exposure to wildfires.

Effects of extreme heat exposure:

- It has direct impacts on health, like heat exhaustion, stroke and dehydration.
- Indirect impacts in terms of **crop turnaround**, which means crops will mature faster and lose their nutrient content and crop failures which will result in nutrition security.
- **Mental health problems, pregnancy complications** and heat- and humidity-related **morbidity**.

- **More frequent droughts:** India has been experiencing widespread drought every year since 2015, with the exception of 2017
- **Food Insecurity:** In 2020, global heating hit staple crops across the world, leading to a decline in the output of maize (6%), winter wheat (3%), soybean (5.4%) and rice (1.8%) relative to 1981-2010, the report said.

Steps taken by India to combat heat exposure:

- In 2020, about 100 Indian cities and 23 state governments partnered with the National Disaster Management Authority (NDMA) to develop Heat Action Plans.
- The National Health Mission developed the National Action Plan for Climate Change and Human Health in 2018, with the aim to strengthen health preparedness and response at the central, state and district levels.

Measures:

- Heatwaves **should be recognized as a disaster** under the disaster management law.
 - Currently, **heatwaves are not even recognized as a disaster** under the disaster management law. Thus, **government's disaster response fund** for relief and creating early warning infrastructure for heatwaves related incidents cannot be used.
- India should **increase spending per head** to cope with the additional pressures of climate change.
- India is also **short on healthcare practitioners:** 778 physicians per million population as opposed to an ideal of 1,000. This shortage needs to be addressed.
- A rapid and swift change from coal and other fossil fuels to renewable energy should be on the horizon.

SC PANEL ASKS ASSAM GOVT TO TAKE ACTION AGAINST ILLEGAL CONSTRUCTION IN KAZIRANGA NATIONAL PARK

A Committee, constituted by the Supreme Court, has written to the Assam government to take action against illegal constructions along the animal corridors in the Kaziranga National Park and Tiger Reserve.

Kaziranga National Park:

- **Location-** Golaghat and Nagaon, in the Karbi Anglong district of Assam in northeast India.
- **Legal Status-**
 - It was declared as a National Park in 1974.
 - It has been declared a tiger reserve since 2007.
- **International Status-**
 - It was declared a UNESCO World Heritage Site in 1985.
 - It is recognized as an Important Bird Area by Birdlife International.
- **Flora-**
 - Water lilies, water hyacinth and lotus.
- **Fauna-**

- Tigers, elephants, swamp deer, wild water buffalo and one-horned rhinoceroses are found.
- **Major river:** The **Brahmaputra River** along with **Diphlu, Mora Diphlu and Mora Dhansiri** rivers passes through the park.

One Horned Rhinoceros:

- Also called as the **Indian Rhinoceros.**
- They are the **largest of the three Asian Rhinoceroses.**
- **Habitat:** From northern Pakistan, across much of northern India, Nepal, northern Bangladesh, and Myanmar.
 - It occurred mainly in alluvial grasslands, where the grass grew up to 8m tall. It was also found in adjacent swamps and forests.
 - The main home of the one-horned rhino in India is in Assam where it can be found in Kaziranga National Park, Pobitora Wildlife Sanctuary and Orang National Park.

- **Features-**
 - It has a single black horn about 8-25 inches long.
 - A grey-brown hide with skin folds which gives it an armour-plated appearance.
- **What do they eat?**
 - They primarily graze on grasses as well as leaves, branches of shrubs and trees, fruit, and aquatic plants.

Conservation Status:

- **IUCN Red List-** Vulnerable
- **CITES:** Appendix I

• **Wildlife Protection Act, 1972:** Schedule I
Conservation efforts taken by Government:

- **Special Rhino Protection Force (SRPF)**
 - A team of **82 members** was appointed by the Assam Government to control Rhino Poaching.
 - The SRPF is also a **tiger protecting force**.
 - The salaries of the SRPF members are reimbursed by the **National Tiger Conservation Authority (NTCA)**

ARUNACHAL COLLEGE SPOTS 3 NEW FISH SPECIES

The Department of Zoology in Itanagar, Arunachal Pradesh has discovered three new species of fish of genus **Aborichthys** of family Nemachelidae.

Highlights:

- The species have been named **Aborichthys Uniobarensis, Barapensis and Palinensis**.
- The three fish species are distributed in streams like Senki, Barap and Palin, which are the tributaries of Brahmaputra River system.

Physical Features:

- They have narrow **oblique bars** on the body
- Rounded or truncated caudal fin
- A black ocellus at the upper extremity of the caudal-fin base.

Aborichthys:

- Aborichthys is an elongate and slender-bodied bottom dwelling freshwater **stone loach**.
- It inhabits the moderate-to-fast flowing water of mountain rivers, streams, and drainages of the **Brahmaputra River basin**.
- It is **endemic** to the eastern Himalaya.

WHAT IS THE CLIMATE VULNERABILITY INDEX RELEASED BY CEEW?

Recently, Climate Vulnerability Index was released by the Council on Energy, Environment and Water (CEEW).

Highlights:

- **27 Indian states** and Union Territories are vulnerable to extreme climate events.
 - 463 out of 640 districts in India are vulnerable to **extreme floods**, droughts, and cyclones.
 - More than 45 per cent of these districts have undergone unsustainable landscape and infrastructure changes.
- **India's most climate vulnerable districts:** Dhemaji and Nagaon in Assam, Chennai in Tamil Nadu, Khammam in Telangana, Gajapati in Odisha, Vizianagaram in Andhra Pradesh, and Sangli in Maharashtra.

- **More than 60 per cent** of Indian districts have medium to low adaptive capacity.
- States in **North East** are more vulnerable to floods, while the ones in the south and central are most vulnerable to extreme droughts.
- 59 and 41 per cent of the total districts in the eastern and western states, respectively, are highly vulnerable to **extreme cyclones**.
- Only 63 per cent of Indian districts have a **District Disaster Management Plan (DDMP)**.
 - Only 32 per cent of them had updated plans until 2019.

Road Ahead:

- Policymakers, industry leaders and **citizens** must use the district-

level analysis to make effective risk-informed decisions.

- India must create a new **Climate Risk Commission** to coordinate the environmental de-risking mission.
- **Restoration of climate-sensitive landscapes** will act as natural shock absorbers against extreme climate events.

- **Integration of climate risk** profiling with infrastructure planning is imperative for protecting the existing and planned infrastructure projects.
- India must collaborate with other countries to create a **Global Resilience Reserve Fund**, which could act as insurance against climate shocks.

TROOP OF 'BLUE LANGURS' SPOTTED IN GUJARAT'S CHEMICAL PARADISE ANKLESHWAR

Recently, a troop of blue coloured langurs were spotted in industrial area of Ankleshwar in Gujarat.

Highlights:

- The stretch between Ahmedabad and the industrial city of Vapi in Gujarat is known as the 'Golden Quadrilateral'.
- It is the **largest industrial clusters in Asia**.
- The town of Ankleshwar is well-known for manufacturing dyes and intermediates.

Common Langur (Semnopithecus entellus):

- Also known as **Gray or Hanuman Langur**.
- **Habitat: Tropical, subtropical, dry thorn scrub, pine, alpine forests** in the region of **Tibet, Nepal, India, Pakistan, Bangladesh, Burma and Sri Lanka**.
- **Physical Features:**
 - Brownish grey fur.
 - Black feet, hands, face, and ears
 - Face is framed with white fur
 - Tail is usually longer than the body with a white tip.
- **Lifespan-** 18 to 30 years

- There are **seven species** of langur spread across Asia.
- Hanuman langurs from the north walk with their tails facing backwards, while Hanuman langurs from the south walk with their tails facing forwards.
- They are **named after the Hindu monkey God, Hanuman** and thus are considered sacred and worshipped in India.
- **Threats:** Mining, firewood collection, habitat loss and urbanisation.
- **Food Habits:**
 - Primary Diet- Herbivore
 - Animal Food- insects
 - Plant Foods- leaves, wood, bark, stems seeds, grains, and nuts fruit flowers.

Conservation Status:

- IUCN Red List- **Least Concern**
- Convention on International Trade in Endangered Species (CITES) - **Appendix I**
- **Indian Wildlife (Protection) Act 1972-** Schedule II
- Langurs cannot be owned, traded, bought, sold or hired out.

EXTREME WEATHER HAS WREAKED HAVOC ON CHINA AND INDIA, ACCORDING TO THE WMO'S ASIA CLIMATE 2020 STUDY.

Recently, World Meteorological Organisation released a report titled "State of Climate in Asia 2020".

Highlights of State of Climate in Asia 2020

- There is a **5.6% drop in fossil fuel CO₂ emissions** in 2020 due to restrictions related to the **pandemic**.
- However, the pandemic disruption in 2020 didn't significantly resulted in

decrease in overall greenhouse gas emissions.

- **For methane**, the increase from 2019 to 2020 was higher than that observed from 2018 to 2019 higher than the average annual growth rate over the last decade.

- For **nitrous oxides**, the increase was higher than the average annual growth rate over the past 10 years.
- The **National Oceanic and Atmospheric Administration** (NOAA) Annual Greenhouse Gas Index (AGGI) shows that from 1990 to 2020, radiative forcing by long-lived greenhouse gases (LLGHGs) increased by 47%, with CO₂ accounting for about 80% of this increase.

World Meteorological Organisation (WMO):

- It is an intergovernmental organization with a membership of 193 Member States and Territories.

- It originated from the **International Meteorological Organization** (IMO). It was established by the ratification of the WMO Convention on 23 March 1950.
- **Headquarters:** Geneva
- **Aim:** To provide world leadership and expertise in international cooperation in the **delivery and use of high-quality, authoritative weather, climate, hydrological, and related environmental services** by its members.
- WMO is the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology, and related geophysical sciences.

THAWING PERMAFROST CAN POSE DIRECT THREAT TO HUMAN HEALTH: REPORT

A recent study has shown that thawing of the permanent frozen land (permafrost) in the Arctic can have consequences exacerbating global warming and be directly harmful to human health.

Highlights:

- The meltdown can release **bacteria, viruses and radioactive material** that were safely locked away in the permafrost's frigid layers for thousands of years.
- As these constituents re-enter the environment, they have the **potential to disrupt ecosystem function, reduce the populations** of unique Arctic wildlife and endanger human health.
- It is all the more concerning that a large part of these microbes may be resistant to antibiotics. More than 100 diverse microorganisms in Siberia's deep permafrost have been found to be antibiotic resistant.
- The marshes formed from the thawing permafrost will also **act as a good channel for the microbes and chemicals to spread easily**.
- **Toxic byproducts of natural metal mining and drilling activities** as well as fossil fuel waste buried in the permafrost can also resurface, adding to the health hazards.

- Over the last half decade have estimated that the Arctic is **heating up two-four times the rest of the world due to climate change**. This accelerated the rate at which the permafrost is melting.
- Close to **40 per cent of the world's permafrost could disappear** by the end of this century.
- The frozen stretches of land **entrap about 1600 billion tonnes of carbon**, which is twice the volume dispersed in the atmosphere.
- The disintegrating permafrost will not only release carbon in overwhelming volumes, it will also **inject microbial methane as well as methane trapped in the prehistoric limestones** underneath the permafrost.
- Methane is roughly **80 times more powerful and 30 times more warming than carbon dioxide** and the release of a 'methane bomb' from under permafrost can **hasten climate emergency** at an unfathomable speed.

Permafrost:

- Permafrost is any ground that **remains completely frozen**—32°F (0°C) or colder—for at least **two years straight**.

- These permanently frozen grounds are **most common in regions with high mountains** and in Earth's higher latitudes—near the North and South Poles.
- Permafrost covers **large regions of the Earth**. Almost a quarter of the land area in the Northern Hemisphere has permafrost underneath.
- Although the ground is frozen, permafrost regions are **not always covered in snow**.
- Permafrost is made of a **combination of soil, rocks and sand** that are held together by ice. The soil and ice in permafrost stay frozen all year long.
- Near the surface, permafrost soils also contain **large quantities of organic**

carbon— a material leftover from dead plants that couldn't decompose, or rot away, due to the cold.

- Lower permafrost layers contain soils made mostly of minerals.
- A layer of soil on **top of permafrost does not stay frozen all year**. This layer, called the active layer, thaws during the warm summer months and freezes again in the fall.
- In colder regions, the ground rarely thaws— even in the summer. There, the active layer is very thin— only 4 to 6 inches (10 to 15 centimeters).
- In warmer permafrost regions, the active layer can be several meters thick.

WHAT IS 'PODU' LAND ISSUE IN TELANGANA?

The Telangana government has decided to move landless, non-tribal farmers engaged in shifting cultivation (podu) from forests to peripheral areas in order to combat deforestation.

Shifting Agriculture:

- **Shifting agriculture** is a system of cultivation that preserves soil fertility by (field) rotation.
- In shifting agriculture, a **plot of land is cleared** and cultivated for a short period of time;
 - It is abandoned and allowed to revert to its natural vegetation while the cultivator moves on to another plot.
- The period of cultivation is usually terminated when the field is overrun by weeds.

Benefits:

- This form of agriculture is one of the most sustainable methods. it helps used land to get back **lost nutrients**.
- The land can be easily **recycled or regenerated**, it receives seeds and nutrients from the nearing vegetation or environment.

- It saves a wide range of resources because a small area is usually cleared and the burned vegetation offers many nutrients.
- It helps to ensure **more productivity** and sustainability of agriculture.
- It is an environmentally friendly mode of farming as it is organic.
- Shift cultivation is a mode or form of **weed control**.
- It also plays a crucial role in pest control.

Disadvantages:

- It can lead to **deforestation** when soil fertility is exhausted
 - Farmers move on and clear another small area of the forest.
- Shift farming can cause **soil erosion** and desertification.
- It destroys water sheds
- Shift farming is **uneconomical**
- It easily leads to loss of biodiversity
- **Water pollution** in coastal areas occur because of raw sewage and oil residue.

INDIA'S SUNDARBANS AMONG 5 SITES WITH HIGHEST 'BLUE CARBON' GLOBALLY

Sundarbans National Park is among **five UNESCO World Heritage sites** that

have **the highest blue carbon** stocks globally due to human activity and climate change.

Blue Carbon:

- Blue carbon is the **carbon stored in coastal and marine ecosystems.**
- Coastal ecosystems **store more carbon per unit area** than terrestrial forests.
- If the stored carbon is released due to damaged ecosystem, it will result in emission of carbon dioxide.
 - It would contribute to climate change.
- Four UNESCO sites that have the highest blue carbon except Sundarbans-
 - the Bangladeshi portion of the Sundarbans
 - Great Barrier Reef in Australia
 - Everglades National Park in the United States
 - the Banc d'Arguin National Park in Mauritania

Importance of Blue Carbon:

- It reduces the **negative impact of climate change.**
 - Coastal ecosystem can trap carbon for long periods of time.
- It **assimilates pollutants** which helps to improve water quality.
- It **prevents eutrophication.**
 - Eutrophication is an excessive nutrient in a lake or other body of water caused by runoff of nutrients.
- It provides **jobs to local people** by improving the health of fisheries ecosystem.
- It will **improve tourism industry.**

Sundarbans National Park:

- It is a **vast mangrove forest ecosystem** in the coastal region of Bay of Bengal.

- It is a **tiger reserve as well as a biosphere reserve.**
- Location- It is spread over **India and Bangladesh** on the delta of the **Ganges, Brahmaputra and Meghna rivers.**
- **Legal Status-**
 - It was established as National Park in 1984.
 - It was recognised as the 'Wetland of International Importance' under the Ramsar Convention in January 2019.
- **International Status-**
 - It was declared as UNESCO World Heritage site in 1987.
 - It was designated as a Biosphere Reserve by UNESCO in 2001.
- **Flora-**
 - Genwa, Kankra, Khalsi, Dhundal, Passur, Garjan, Sundari, Goran, Kankara.
- **Fauna-**
 - It is a home to 428 species of birds, Estuarine Crocodile, Royal Bengal Tiger, Water Monitor Lizard, Gangetic Dolphin and Olive Ridley Turtles.

Efforts taken by Government:

- **Discovery India and World-Wide Fund (WWF)** India have partnered with the Government of West Bengal
 - **Aim:** to save the world's only mangrove tiger habitat.
- **Project CAT (Conserving Acres for Tigers)**
 - **Aim:** To **double the number of tigers in the wild by 2022.**