Compromise Settlement for Wilful Defaulter: RBI

For Prelims: Debt Recovery Tribunals (DRTs), NPA, National Asset Reconstruction Ltd (NARC), The Reserve Bank of India (RBI), India Debt Resolution Company Ltd, SARFAESI Act , Insolvency and Bankruptcy Code (IBC), Banking Regulation Act, 1949

For Mains: Challenges of NPA, Provisions to NPA resolution

Why in News?

Recently, The **Reserve Bank of India (RBI)** has introduced a circular allowing wilful defaulters and companies involved in fraud to opt for compromise settlements or technical write-offs.

- The circular provides guidelines for banks and finance companies in handling such cases.

What are the Key Points Related to Circular?

- **About the Circular:**
  - **Compromise Settlements and Technical Write-Offs:**
    - Banks and finance companies can undertake **compromise settlements or technical write-offs** for accounts **categorized as wilful defaulters or fraud**, irrespective of ongoing criminal proceedings against the debtors.
    - The RBI's circular **enables these settlements** while **ensuring that criminal proceedings remain unaffected.**
  - **Cooling Period for Fresh Loans:**
    - Banks are required to impose a **minimum cooling period of 12 months** before granting fresh loans to borrowers who have undergone compromise settlements.
    - The **cooling period** also **applies to exposures other than farm credit,** with regulated entities having the authority to set longer cooling periods based on their board-approved policies.
- **Concerns:**
  - **Potential Loss of Public Money:**
    - Banks have **previously approved compromise settlements** resulting in **significant losses** due to substantial **haircuts** on outstanding payments.
    - There are concerns that allowing compromise settlements may **encourage big fraudsters and defaulters.**
    - Allowing compromise settlements will bring low NPA artificially, even though financial policies are unstable.
    - The Public sector banks account for a major share of the total Gross NPAs. The **NPAs of Public sector banks constitute around 72%** of the total, with the Private Sector Banks, Foreign Banks & Small Financial Institutions accounting for the rest.
      - PSBs are recapitalised by Govt. Which leads to loss of public money.
  - **Issues with Debt Recovery Tribunals (DRTs):**
    - Instances have been reported where banks entered into compromise settlements without informing **Debt Recovery Tribunals (DRTs).**

        - The **DRT, Ernakulam** observed a case where a settlement was reached, but the bank failed to obtain the consent decree and concealed the settlement from the DRT for an extended period.
    - It is also **diluting importance of both Asset Reconstruction Company and IBC.**
- **Benefits of Compromise Settlements:**
    - **Reduces Cost:**
        - Compromise **settlements facilitate early recovery of dues and save costs** for banks by reducing legal expenses and other associated costs.
        - The underlying objective is to recover dues to the maximum extent possible within a shorter time frame.
    - **Technical Write-Offs and NPA Reduction:**
        - Banks have utilized write-offs to reduce **non-performing assets (NPAs)** over the past decade, resulting in lower reported NPA levels.
            - **Write-offs were used for accounting and tax purposes**, but concerns exist that this practice **allowed banks and corporates to "evergreen" their loan books.**
    - Compromise Settlements **aims to provide vital humanitarian assistance** to financially burdened companies facing Non-Performing Assets (NPA) resulting from unforeseen market risks.

What is a Non-Performing Asset?

- **About:**
    - NPA **refers to a classification for loans or advances** that are in **default or are in arrears on scheduled payments of principal or interest.**
        - In most cases, **debt is classified as non-performing, when the loan payments have not been made for a minimum period of 90 days.**
        - For agriculture, if principle and interest is not paid for two cropping seasons, the loan is classified as NPA.
    - **Gross NPA:**
        - Gross NPAs are **the sum of all the loans that have been defaulted by the individuals**
    - **Net NPA:**
        - Net NPAs are the **amount that is realised after provision amount has been deducted from the gross non-performing assets.**
- **Laws and provisions related to NPAs:**
    - **Bad Bank:**
        - The bad bank in India is called **National Asset Reconstruction Ltd (NARC).**
            - This NARC will **work as an asset reconstruction company.**
            - It will buy bad loans from the banks, relieving them of the NPA. NARC will then attempt to sell the stressed loans to distressed debt buyers.
        - The government has already set up **India Debt Resolution Company Ltd** (IDRCL) to sell these stressed assets in the market. Accordingly, IDRCL will attempt to sell them in the market.
    - **The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002:**
        - The SARFAESI Act **allows banks and financial institutions** to take possession of collateral assets and sell them to recover outstanding dues without the intervention of the court.
        - It **provides provisions** for the **enforcement of security interests** and **allows banks to issue demand notices** to defaulting borrowers.
    - **The** Insolvency and Bankruptcy Code (IBC)**, 2016:**
        - The IBC **provides a comprehensive framework** for the insolvency and bankruptcy resolution process in India.
        - It **aims to facilitate the time-bound resolution** of stressed assets and promote a creditor-friendly environment.
        - Under the IBC, **a debtor or creditor can initiate insolvency proceedings** against a defaulting borrower.
        - It establishes the National Company Law Tribunal (NCLT) and the **Insolvency and**

Bankruptcy Board of India (IBBI) to oversee the process.

- **The Recovery of Debts Due to Banks and Financial Institutions (RDDBFI) Act, 1993:**
  - The RDDBFI Act **establishes Debt Recovery Tribunals (DRTs)** for the expeditious adjudication and recovery of debts due to banks and financial institutions.
  - DRTs have the power to hear and decide cases related to the recovery of defaulted loans exceeding a specified threshold.
- **The Indian Contract Act, 1872:**
  - The Indian Contract Act **governs the contractual relationship between lenders and borrowers.**
  - It establishes the **legal framework for loan agreements, terms and conditions, default, and remedies** available to lenders in case of non-payment.

Way Forward

- **Recovery Proceedings and Consent Decree:**
  - Banks must consider **ongoing recovery proceedings under judicial forums** while negotiating compromise settlements.
  - Settlements **should be subject to obtaining a consent decree** from the relevant judicial authorities.
- **Importance of NPA Recovery:**
  - The recovery of NPAs is **crucial to protect the interests of depositors** and stakeholders.
  - Compromise settlements **should prioritize the maximum recovery of dues** with minimal expense and within a shorter timeframe.
- **Consideration of Public Interest:**
  - During compromise settlements, banks, being public sector entities, **should consider the interests of the tax-paying public over the borrowers'** interests.

Who is Wilful Defaulter?

- When the borrower (individual or company) defaults on their payment obligation, even when it has the capacity to honour the said obligations. There is a deliberate intention of not repaying the loan.
- When the funds are not utilized for the specific purpose for which finance was availed but the borrower is found to have diverted the availed funds for a purpose other than what was defined in the loan agreement.
- When the funds are suspected to be siphoned off by the borrower and have not been used for the purpose for which it was borrowed. Further, no assets are available that justify the usage of such funds.
- When the funds acquired by the buyer/ lender have been sold off without the knowledge of the bank/lender.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. With reference to the governance of public sector banking in India, consider the following statements:(2018)

1. Capital infusion into public sector banks by the Government of India has steadily increased in the last decade.
2. To put the public sector banks in order, the merger of associate banks with the parent State Bank of India has been affected.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (b)

Exp:

- The government has done capital infusion in state owned banks to support credit expansion and to help them tide over losses resulting from the provisions that are to be made for non-performing assets (NPAs). But the capital infusion trend in state-owned banks
- has not been specific in a direction, like increasing or decreasing trend. While it has increased in some years, it has also decreased in a few years. Hence, statement 1 is not correct.
- Union Government in February 2017 had approved the merger of five associate banks along with the Bharatiya Mahila Bank with SBI. The purposes of the merger were rationalisation of public bank resources, reduction of costs, better profitability, and lower cost of funds leading to a better rate of interest to the public at large and improve productivity and customer service of the public sector banks. Parliament passed the State Banks (Repeal and Amendment) Bill, 2017 to merge six subsidiary banks with State Bank of India to affect rationalisation of public bank.
- Hence, statement 2 is correct.

Source: IE

Global DPI Summit

For Prelims: Digital Public Infrastructure**,** United Nations**,** India Stack**,** G20 **Digital Economy Working Group,** Digital Identity**,** UPI**.**

For Mains: Global DPI Summit.

Why in News?

The third meeting of the G20 **Digital Economy Working Group (DEWG)** commenced in Pune, Maharashtra with the inauguration of the **Global** DPI (Digital Public Infrastructure) **Summit** and Exhibition.

- The session explored **common principles and design aspects of DPI**, including open standards, partnerships, interoperability, and affordability.
- India has also introduced the idea to form an alliance of countries, called **One Future Alliance**, which would allow like-minded nations to **use technology to improve people's lives.**

NOTE: The DEWG, originally called DETF, was formed in 2017 as part of the German G20 presidency with the aim of promoting the implementation of a **secure, interconnected, and inclusive digital economy.**

- With the global digital economy estimated to be worth USD 11 trillion and expected to reach USD 23 trillion by 2025, **the DEWG plays a critical role in shaping global policy** discourse in the digital space.

What are the Highlights of the Summit?

- **Setting the Stage for DPI Advancements:**
  - India's role as a test case for successful DPI implementation and digital transformation was underscored.
  - India **signed MoUs with Armenia, Sierra Leone, and Suriname** to share its successful digital solutions implemented at scale through the **India Stack.**
- **Digital Identities for Empowering People:**
  - The session focused **on the role of digital identity** as the foundation for national priorities and social cohesion.
  - Different models of implementation, such as centralized, federated, and **decentralized, were discussed.**
  - India's Aadhaar and the Philippine's PhilSys were highlighted as notable examples.
- **Digital Payments and Financial Inclusion:**
  - The session explored the **role of DPI in facilitating fast and inclusive digital payments.**
  - Discussions included **settlement types, risk management, user onboarding costs,** and bridging the financial divide through DPI.
- **DPI for Judicial Systems and Regulations:**
  - The session discussed the implementation of **DPI in judicial systems.**
  - Topics covered included **e-court systems**, **e-filing, paperless courts,** live streaming, and the need for appropriate institutions and regulations to instill trust in DPI-powered judiciary systems.
- **Draft PKI Mutual Recognition Framework:**
  - Draft **Public Key Infrastructure (PKI)** Mutual Recognition Framework has been released by Ministry of Electronics & IT, Government of India with an **aim to take the lead on the subject of implementation** and adoption of India's DPI beyond the country's borders.

What is One Future Alliance?

- It is an alliance of countries to be formed to leverage technology for the **betterment of people's lives.** It aims to enable **like-minded nations to collaborate and use technology** to drive **Social, Economic, and Sustainable Development.**
- The alliance seeks to build upon the **open-source customizable stacks** that are already available and encourage countries to innovate and customize these solutions for their specific needs.
- The alliance acknowledges the evolving nature of technology, including the power of artificial intelligence and multilingual capabilities, and aims to implement and advance **Digital Public Infrastructure (DPI)** while fostering cooperation in areas such as cybersecurity and digital skilling.

What is Digital Public Infrastructure?

- DPI refers to **blocks or platforms such as digital identification**, payment infrastructure and data exchange solutions that help countries deliver essential services to their people, empowering citizens and improving lives by enabling digital inclusion.
- DPIs mediate the **flow of people, money and information.** First, the flow of people through **a digital ID System.** Second, the flow of money through **a real-time fast payment system.** And third, the flow of personal information through a **consent-based data sharing system** to actualize the benefits of DPIs and to empower the citizen with a real ability to control data.
  - These three sets become the foundation for developing an effective DPI ecosystem.
- Each DPI layer fills a clear need and generates considerable value across sectors.

- India, through India Stack, became the first country to develop all three foundational DPIs, **Digital identity (Aadhar)**, **Real-time fast payment (UPI)** **and** Account Aggregator **built on the** Data Empowerment Protection Architecture (DEPA)**.**
    - DEPA creates a digital framework that allows users to share their data on their own terms through a third-party entity, who are known as Consent Mangers.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q1. Consider the following statements: (2018)

1. Aadhaar card can be used as a proof of citizenship or domicile.
2. Once issued, Aadhaar number cannot be deactivated or omitted by the Issuing Authority.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (d)

Q2. In India, the term "Public Key Infrastructure" is used in the context of (2020)

(a) Digital security infrastructure
(b) Food security infrastructure
(c) Health care and education infrastructure
(d) Telecommunication and transportation infrastructure

Ans: (a)

- Public Key Infrastructure (PKI) is a technology for authenticating users and devices in the digital world. Under this system, one or more trusted parties digitally sign documents certifying that a particular cryptographic key belongs to a particular user or device. The key can then be used as an identity for the user in digital networks.
- **Therefore, option (a) is the correct answer.**

Source: PIB

Indo-US Cooperation in Agriculture

For Prelims: Green Revolution, Indian Council of Agricultural Research (ICAR), 'Norin-10', Norman Borlaug, International Maize and Wheat Improvement Center or CIMMYT, International Rice Research Institute, **Cold War, non-alignment,** UP Agricultural University Act.

For Mains: International cooperation in agricultural development and ensuring global food security.

Why in News?

Examining the historical involvement of the United States in the agricultural progress of independent India holds significance within the framework of Prime Minister of India's imminent visit to the US.

- Like, **Soviet Union's** role in independent India's early industrialization through supply of capital equipment and technology, the United States (the institutions like of **Rockefeller and Ford Foundation**) played in India's agricultural development through the establishment of agricultural universities and the **Green Revolution.**

What is Role of US in the Agricultural Development of India?

- **Development of Universities:**
  - Govind Ballabh Pant established the **first agricultural university in Pantnagar, Uttarakhand, based on the US land-grant model.**
  - This university integrated teaching, research, and extension services, aiming **to provide an ideal environment for learning, problem-solving research, and knowledge dissemination to farmers.**
    - The university, later named G.B. Pant University of Agriculture & Technology, was inaugurated by Prime Minister Jawaharlal Nehru on November 17, 1960.
  - Hannah's blueprint published by **Indian Council of Agricultural Research (ICAR)** led to the **establishment of eight agricultural universities in India.**
  - The US Agency for International Development supported these universities with faculty training, equipment, and books. Each university had research farms, regional stations, sub-stations, and seed production facilities.

STATE AGRICULTURAL UNIVERSITIES AND THEIR MENTORING US INSTITUTIONS

Name of University	Date of Establishment	US Partner
Uttar Pradesh Agricultural University, Pantnagar	Nov 17, 1960	University of Illinois
Rajasthan Agricultural University, Udaipur	Jul 12, 1962	Ohio State University
Orissa University of Agriculture and Technology, Bhubaneswar	Aug 24, 1962	University of Missouri
Punjab Agricultural University, Ludhiana	Jul 8, 1963	Ohio State University
Andhra Pradesh Agricultural University, Hyderabad	Jun 12, 1964	Kansas State University
Mysore University of Agricultural Sciences, Bangalore	Aug 21, 1964	University of Tennessee
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (MP)	Oct 2, 1964	University of Illinois
Maharashtra Agricultural University, Rahuri	Mar 29, 1968	Pennsylvania State University

- **Green Revolution's Seeds:**
  - The **Green Revolution (started by Norman Borlogue of US)** entailed breeding semi-dwarf varieties with strong stems that didn't lodge. These could "tolerate" high fertilizer application. The more the inputs (nutrients and water), the more the output (grain) produced.
  - **'Norin-10',** a short (grew to only 2-2.5 feet, as against the 4.5-5 feet height of traditional

tall varieties) wheat variety, give 25% higher grain yields. Norman Borlaug crossed these with the spring wheats grown in Mexico.
        - Traditional **wheat and rice varieties were tall and slender.** They grew vertically on application of fertilizers and water, while "lodging" (bending over or even falling) when their ear-heads were heavy with well-filled grains.
    - M.S. Swaminathan, (scientist at the **Indian Agricultural Research Institute (IARI)** in New Delhi, got in touch with Borlaug who came to India only in March 1963.
    - Borlaug **sent the seeds of four Mexican wheat varieties** bred by him, which **were first sown in the trial fields of IARI** and the new agricultural universities at Pantnagar and Ludhiana.
    - By 1966-67, **farmers were planting these in large scale and India,** from being an importer, turned self-sufficient in wheat.
        - Much of its wheat imports earlier, ironically, came from the US under its **Public Law 480 food aid programme.**

Why did the US Help India?

- **Borlaug's International Maize and Wheat Improvement Center or CIMMYT** at Mexico was primarily **funded by the Rockefeller Foundation.** The latter, along with the Ford Foundation, also supported the **International Rice Research Institute at Philippines.**
- Both institutions contributed significantly to trebling and quadrupling grain yields, even as **India, by the seventies and early-eighties,** had built a robust indigenous crop breeding program **– due to investments in the ICAR and state agricultural universities system.**
- The idea of an **MSP (minimum support price)** and "a **market within bullock-cart distance** (for cultivator to sell goods)" was first pushed by a Ford Foundation team's report of 1959.
- The **Cold War** geopolitics and great-power rivalry of those times resulted in competition to **do-good**, extending to **"fighting world hunger"** and **sharing of knowledge** and plant genetic material that were viewed as **"global public goods".**
    - **India,** contrary to popular perception, wasn't aligned to either bloc at least till the sixties. The **strategy of** "non-alignment" paid off then, just as "multi-alignment" is today.

UPSC Civil Servies Exam Previous Year Question

Prelims:

Q. Norman Ernest Borlaug who is regarded as the father of the Green Revolution in India is from which country? (2008)

(a) United States of America
(b) Mexico
(c) Australia
(d) New Zealand

Ans: (a)

Mains:

Q. Why did the Green Revolution in India virtually by-pass the eastern region despite fertile soil and good availability of water? **(2012)**

Source: IE

Climate Resilient Agriculture

For Prelims: Drought, Agricultural productivity, Watershed development, **Groundwater, Heatwaves, Pink bollworm,** Cyclone Diaperjoy.

For Mains: Major Impacts of Climate Change on Indian Agriculture.

Why in News?

Research conducted in the **drought-prone Jalna district of Maharashtra** sheds light on the effectiveness of **different interventions in enhancing the climate resilience of farming systems.**

What are the Major Findings of the Research?

- **About:**
  - The research, published in the **International Journal of Water Resources Development, explores the impact of various agricultural development interventions over a 15-year period in two semi-arid villages, Babai and Deulgaon Tad of Maharashtra.**
  - The villages were selected as two farming systems:
    - One where interventions were aimed at improving **agricultural productivity and irrigation infrastructure (Babai)**
    - Another where interventions targeted the building of **adaptive capacities besides improving agricultural productivity (Deulgaon Tad).**
- **Findings:**
  - **Watershed development interventions resulted in intensified agriculture** and altered cropping patterns.
    - However, over time, **these approaches led to declining** groundwater tables and deteriorating soil health.
  - **Conventional agricultural development pathways** showed limited success in semi-arid regions.
  - **Climate resilience indicators improved when productivity-enhancing interventions were combined with water management,** soil health, livelihood diversification, and food and nutrition security.
    - Monitoring, evaluation, learning, and adaptive decision-making were key components for enhancing resilience.
  - **Babai had better water resources,** resulting in higher resilience compared to Deulgaon Tad in 2007. Babai's resilience was attributed to **access to adequate water throughout the year and better soil quality.**
    - However, there has been **no substantial change in the overall resilience of Babai over the years,** according to the research.
  - Deulgaon Tad, with lower resilience in 2007, **witnessed improvements across all resilience attributes due to interventions focusing on adaptive capacities** and natural resource management.

What are the Major Impacts of Climate Change on Indian Agriculture?

- **Changes in Rainfall Patterns:** Climate change has led to altered rainfall patterns, including changes in **timing, intensity, and distribution of rainfall.**
  - This can result in **droughts, floods, and erratic rainfall, affecting agricultural productivity.**
  - For instance, in **2019, India experienced delayed and deficient monsoon rains,** leading to reduced crop yields in many regions.

- **Increased Temperature:** Rising temperatures can have adverse effects on crop growth and development.
    - **High temperatures during the growing season can decrease crop yields and reduce the nutritional value of crops.** Heat stress can also impact livestock health and productivity.
    - In recent years, **heatwaves in India have affected crop yields,** particularly for heat-sensitive crops like wheat and rice.
- **Shifting Pest and Disease Patterns:** Climate change influences the distribution and abundance of pests and diseases, posing challenges to agricultural pest management.
    - Changes in temperature and rainfall patterns can favour the spread of certain pests and diseases, impacting crop health.
    - For instance, the increased incidence of pests like the **pink bollworm has affected cotton production in India and Locust swarms from Somalia region dur to erratic rain.**
- **Water scarcity:** Climate change affects water availability, particularly in regions dependent on rainfall or snowmelt for irrigation.
    - **Changes in precipitation patterns and melting glaciers** can lead to water scarcity, especially during critical crop growth stages. This can result in reduced agricultural productivity and increased competition for water resources.
- **Changes in Cropping Patterns:** Climate change can influence the suitability of different crops in certain regions. **As temperature and rainfall patterns shift, farmers may need to adapt their cropping patterns to ensure productivity.**
    - Some crops may become less viable, while others may become more suitable.: **On all-India basis, climate change is projected to increase coconut production.**
- **Increased Extreme Weather Events:** Climate change has been linked to an increase in extreme weather events, such as **cyclones, storms, and hailstorms.** These events can cause significant damage to crops, livestock, and infrastructure, leading to yield losses and economic hardships for farmers.
    - For example, the recent Cyclone Biporjoy.

Way Forward

- **Input Intensive to Knowledge Intensive Agriculture:** India is known for its diversity of farming practices. It is important to get **diverse points of view engaged in a national-level dialogue to find suitable solutions for the future.**
    - Also, the **Advanced world is moving towards precision farming using sensors and other scientific tools for exact practices** and application of inputs.
    - A **smart and precise move towards high-tech farming in India** will reduce average cost, raise farmers' income, and address many other challenges of scale.
- **Intercropping and Agroforestry:** Growing different crops together in the same field or **integrating trees with crops can enhance biodiversity, reduce soil erosion, and increase climate resilience.** For **instance, intercropping legumes with cereals not only provides additional income but also improves soil fertility through nitrogen fixation.**
    - Also, encouraging the **cultivation of non-traditional crops** that are more resilient to climate extremes can reduce dependence on a single crop and mitigate risks.
    - For example, **promoting drought-tolerant millets** can help farmers cope with changing climatic conditions.
- **Climate-Smart Water Management:** Efficient water management is crucial for climate resilience in agriculture, especially in water-stressed regions. Implementing climate-smart water management practices can enhance agricultural productivity while conserving water resources.
    - **Constructing ponds, check dams, and farm ponds** to capture and store rainwater can help recharge groundwater and provide irrigation during dry spells.
    - **Farmers can utilise this stored water during droughts or for supplementary irrigation,** thereby reducing dependence on erratic rainfall patterns.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q.1 How is permaculture farming different from conventional chemical farming? (2021)

1. Permaculture farming discourages monocultural practices but in conventional chemical farming, monoculture practices are predominant.
2. Conventional chemical farming can cause an increase in soil salinity but the occurrence of such phenomenon is not observed in permaculture farming.
3. Conventional chemical farming is easily possible in semi-arid regions but permaculture farming is not so easily possible in such regions.
4. Practice of mulching is very important in permaculture farming but not necessarily so in conventional chemical farming.

Select the correct answer using the code given below.

(a) 1 and 3
(b) 1, 2 and 4
(c) 4 only
(d) 2 and 3

Ans: (b)

Q.2 Which of the following is the chief characteristic of 'mixed farming'? (2012)

(a) Cultivation of both cash crops and food crops
(b) Cultivation of two or more crops in the same field
(c) Rearing of animals and cultivation of crops together
(d) None of the above

Ans: (c)

Q.3 With reference to micro-irrigation, which of the following statements is/are correct? (2011)

1. Fertilizer/nutrient loss can be reduced.
2. It is the only means of irrigation in dry land farming.
3. In some areas of farming, receding of ground water table can be checked.

Select the correct answer using the codes given below:

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (c)

Mains

Q.1 What are the present challenges before crop diversification? How do emerging technologies provide an opportunity for crop diversification? **(2021)**

Q.2 How has India benefited from the contributions of Sir M. Visvesvaraya and Dr. M. S. Swaminathan in the fields of water engineering and agricultural science respectively? **(2019)**

Source: DTE

Great Indian Bustards and Asiatic Lions

For Prelims: Great Indian Bustards, Asiatic Lions, Cyclone Tauktae, **Babesiosis, Gir National Park**, Kuno National Park, IUCN, **WWI**

For Mains: Impacts of Natural Disaster in Wildlife Species.

Why in News?

As Cyclone Biporjoy approaches the port of Jakhau in Kutch, Gujarat, there are concerns about the impact on the **Great Indian Bustards (GIB)** in Naliya region and the **Asiatic Lions in the Gir forest.**

What are the Concerns?

- **Asiatic Lions:**
  - The Gir forest is home to nearly **700 Asiatic lions,** which are found only in this region and are a vital species for conservation.
  - Conservationists have raised concerns about the **vulnerability of having the entire lion population concentrated** in one area. Epidemics and natural disasters like the 2018 outbreak of **Babesiosis and Cyclone Tauktae in 2019 pose significant risks to the survival of the lions.**
    - In 2013, the **Supreme Court** issued a directive for the transfer of Asiatic lions from Gujarat's Gir forest to Madhya Pradesh's **KNP (Kuno National Park).**
      - The Gujarat government's plea **to prevent the translocation of lions was rejected by the court,** despite their assertion that these animals were a source of pride for the state.
- **Great Indian Bustard:**
  - There are only **four remaining females in the grasslands of Naliya,** Gujarat. As birds, they have better mobility and may be able to sense danger and fly away from the cyclone's path.
  - However, the impact on their habitat due to **flooding caused by heavy rainfall remains** a concern.
    - Efforts are being made to ensure the safety of wildlife during the cyclone. The authorities have cancelled leaves, deployed rescue teams, and equipped hospitals to provide medical assistance to injured animals.

What are the Key Points Related to Asiatic Lions?

- **About:**
  - The **Asiatic Lion** (also known as the **Persian Lion or Indian Lion**) is a member of the **Panthera Leo Leo** subspecies that is restricted to India.
  - Its previous habitats consisted of **West Asia and the Middle East** before it became extinct in these regions.
    - Asiatic lions are slightly smaller than African lions.
- **Distribution:**
  - Asiatic lions were once distributed to the state of West Bengal in the east and **Rewa in Madhya Pradesh,** in central India.
  - At present **Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion.**
- **Protection Status:**
  - **IUCN Red List**: **Endangered**

    - **CITES: Appendix I**
    - **Wildlife (Protection) Act 1972:** Schedule I

Gir National Park

- Gir National Park and **Wildlife Sanctuary is located in the Junagadh district** of Gujarat.
    - It was declared as a sanctuary in 1965 and a national park in 1975.
- The Gir Forests is the largest compact track of dry deciduous forests in the semi-arid western part of India.
- Gir is often linked with **"Maldharis" (a traditional pastoral people)** who have survived through the ages by having a symbiotic relationship with the lion.

What is the Great Indian Bustard?

- **About:**
    - The **Great Indian Bustard (Ardeotis nigriceps),** the State bird of Rajasthan, is considered **India's most critically endangered bird.**
    - It is considered the flagship **grassland species,** representing the health of the grassland ecology.
    - Its population is confined mostly to Rajasthan and Gujarat. Small populations occur in Maharashtra, Karnataka and Andhra Pradesh.

- **Vulnerability:**
    - The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.
- **Protection Status:**
    - **IUCN red List: Critically Endangered**
    - **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix1**
    - **Convention on Migratory Species (CMS): Appendix I**
    - Wildlife (Protection) Act, 1972: **Schedule I**

What are the Measures to Protect GIB?

- **Species Recovery Programme:**
    - It is kept under the species recovery programme under the **Integrated evelopment of Wildlife Habitats** of the Ministry of Environment, Forests and Climate Change (MoEFCC).

- **National Bustard Recovery Plans:**
  - It is currently being implemented by conservation agencies.
- **Conservation Breeding Facility:**
  - MoEF&CC, Rajasthan government and **Wildlife Institute of India (WII)** have also established a conservation breeding facility in Desert National Park at Jaisalmer in June 2019.
- **Project Great Indian Bustard:**
  - It has been launched by the Rajasthan government with an aim of constructing breeding enclosures for the species and **developing infrastructure to reduce human pressure** on its habitats.
- **Eco-Friendly Measures:**
  - Task Force for suggesting eco-friendly measures **to mitigate impacts of power transmission lines** and other power transmission infrastructures on wildlife including the Great Indian Bustard.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. Consider the following statements: (2019)

1. Asiatic lion is naturally found in India only.
2. Double-humped camel is naturally found in India only.
3. One-horned rhinoceros is naturally found in India only.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (a)

Q. Which one of the following groups of animals belongs to the category of endangered species? (2012)

(a) Great Indian Bustard, Musk Deer, Red Panda and Asiatic Wild Ass
(b) Kashmir Stag, Cheetal, Blue Bull and Great Indian Bustard
(c) Snow Leopard, Swamp Deer, Rhesus Monkey and Saras (Crane)
(d) Lion-tailed Macaque, Blue Bull, Hanuman Langur and Cheetal

Ans: (a)

Source: DTE

Heatwave Conditions

For Prelims: Criteria for Heat Waves, **El Nino**, **Indian Meteorological Department,National Action**

Plan for Climate Change (NAPCC)

For Mains: Causes,Impact,Mitigation strategies of Heat Waves, **Urban Heat Island**,**Sendai Framework for Disaster Risk Reduction**

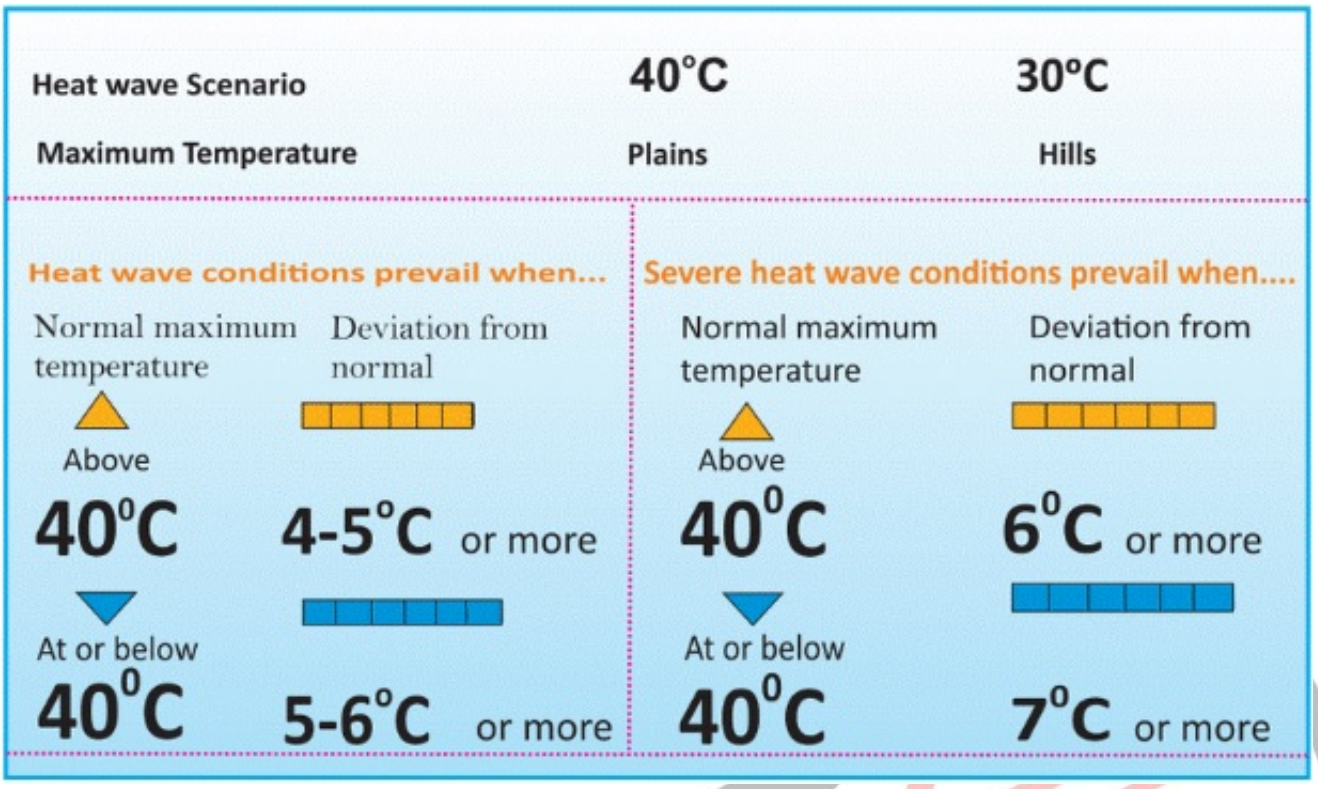
Why in News?

Odisha is currently facing an intense heatwave since April 2023, with temperatures exceeding 40°C in most monitoring centers across the state.

- Delayed monsoon could be a contributing factor for this heat wave. In 2023, the **monsoon arrived over the Kerala coast on June 8**, which is a delay compared to its normal onset date of June 1.

What are Heat Waves?

- **About:**
  - Heatwaves are **prolonged periods of excessively hot weather that can cause adverse impacts on human health, the environment, and the economy.**
  - India, being a tropical country, is **particularly vulnerable to heatwaves,** which have become more frequent and intense in recent years.
- **IMD Criteria for Declaring Heat Wave in India**:
  - Heat Wave **need not be considered till maximum temperature** of a station **reaches at least 40°C for Plains and at least 30°C for Hilly regions.**
  - If the **normal maximum temperature of a station** is less than or equal to **40°C,** then **an increase of 5°C to 6°C from the normal temperature** is considered to be heat wave condition.
    - Further, **an increase of 7°C or more from the normal temperature** is considered a severe heat wave condition.
  - If the **normal maximum temperature** of a station is **more than 40°C,** then an **increase of 4°C to 5°C from the normal temperature** is considered to be heat wave condition. Further, **an increase of 6°C or more** is considered a **severe heat wave condition.**
    - Additionally, if the **actual maximum temperature remains 45°C or more** irrespective of **normal maximum temperature,** a heat wave is declared.



What are the Causes of Heat Waves?

- **Global Warming:**
  - One of the **primary causes of heatwaves in India is global warming,** which refers to the long-term increase in **Earth's average temperature due to human activities** such as burning **fossil fuels, deforestation, and industrial activities.**
  - Global warming can result in higher temperatures and changes in weather patterns, leading to heatwaves.
- **Urbanisation:**
  - Rapid urbanisation and the growth of **concrete jungles in cities** can lead to the phenomenon known as the **"urban heat island effect."**
  - Urban areas with **high population density, buildings, and concrete surfaces absorb and retain more heat,** leading to higher temperatures, particularly during heatwaves.
- **Sparse Pre-Monsoon Season Showers:**
  - Less moisture in many areas, leaving large parts of India arid and dry.
  - The **sudden end of pre-monsoon rain showers,** an uncommon trend in India, has contributed to the heat waves.
- **El Nino Effect:**
  - El Nino often **increases temperatures in Asia,** combined with the weather pattern to create record high temperatures.
  - Trade winds coming from South America normally blow westward towards Asia during the Southwest Monsoon and **warming of the Pacific Ocean results in weakening of these winds.**
    - Therefore, moisture and heat content get limited and results in reduction and uneven distribution of rainfall across the Indian sub-continent.

What are Its Impacts?

- **Impact on Health:**
  - Rapid rises in heat gain **can compromise the body's ability to regulate** temperature and can **result in a cascade of illnesses, including heat cramps, heat exhaustion, heatstroke, and hyperthermia.**
  - **Deaths and hospitalizations from heat** can occur extremely rapidly or have a lagged effect.

- **Impact on Water Resources:**
    - Heatwaves can exacerbate **water scarcity issues in India;** drying up of water bodies, **reduced water availability for agriculture and domestic use,** and increased competition for water resources.
        - This **can lead to conflicts over water, affect irrigation practices,** and impact water-dependent industries.
- **Impact on Energy:**
    - Heatwaves **can increase electricity demand for cooling purposes,** leading to strain on power grids and potential blackouts.
    - This **can disrupt economic activities, affect productivity,** and impact vulnerable populations who may not have access to reliable electricity for cooling during heatwaves.

Way Forward

- **A Heat Waves Action Plan:**
    - As **deaths due to heatwaves are preventable, the government must prioritise preparing a long-term action plan** to safeguard human lives, livestock, and wildlife.
    - Effective **implementation of the Sendai Framework for Disaster Risk Reduction** 2015-30 with the State playing a leading role and sharing responsibility with other stakeholders is now the need of the hour.
- **Implementing Climate Action Plans:**
    - **National Action Plan for Climate Change (NAPCC)** should be implemented in true spirit for inclusive growth and ecological sustainability.
    - Nature-based solutions should be taken into account, not just for tackling climate change induced heat waves but also doing it in a way that is ethical and promoting intergenerational justice.
- **Sustainable Cooling:**
    - **Passive cooling technology,** a widely-used strategy to **create naturally ventilated buildings,** can be a vital alternative to address the urban heat island for residential and commercial buildings.
    - The **Intergovernmental Panel on Climate Change (IPCC)** in the **third part of its AR6** stated that **ancient Indian building designs that have used this technology,** can be adapted to modern facilities in the context of global warming.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. What are the possible limitations of India in mitigating global warming at present and in the immediate future? (2010)

1. Appropriate alternate technologies are not sufficiently available.
2. India cannot invest huge funds in research and development.
3. Many developed countries have already set up their polluting industries in India.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (a)

Mains

Q. Bring out the causes for the formation of heat islands in the urban habitat of the world. **(2013)**

Source: DTE

Coronal Mass Ejections

Why in News?

Researchers have been closely monitoring **the ongoing changes in the energy state of the solar eruption's core** that occurred on July 20, 2017, and have made an intriguing discovery.

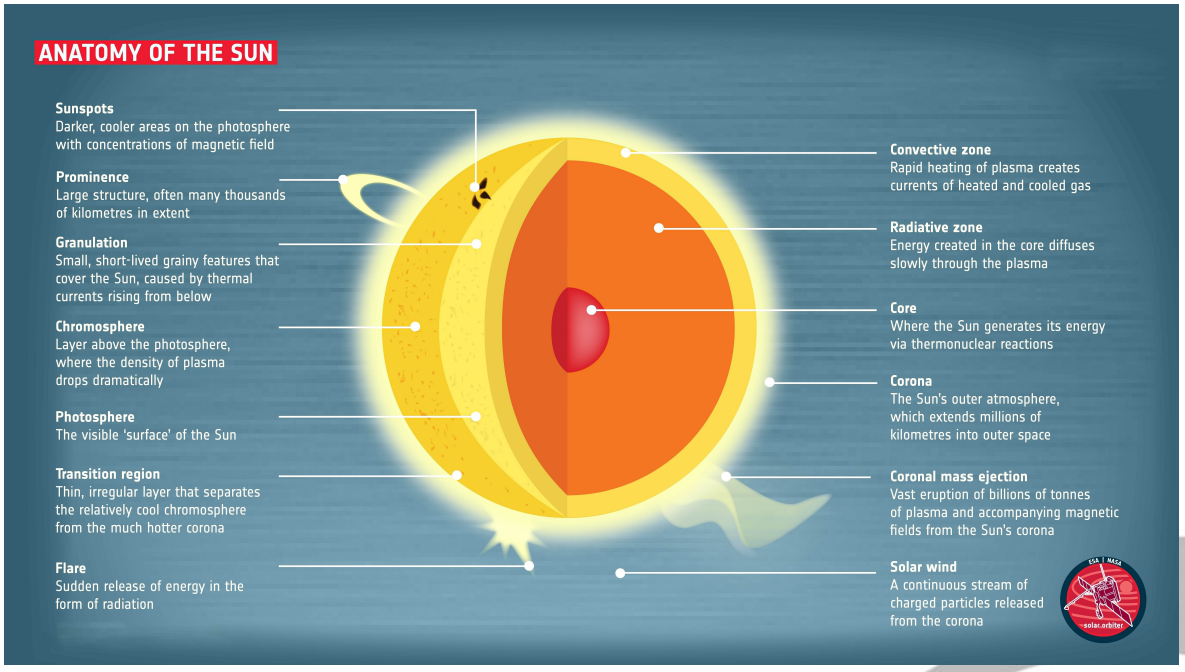
- Despite the **eruption expelling highly magnetized plasma from the solar corona** into space, the **core has maintained a consistently stable temperature**. This finding holds promise for enhancing our comprehension of the potential **impact of such eruptions on Earth's communication systems.**

What are the Findings of the Study?

- The Coronal Mass Ejections (CMEs) core **maintained a constant temperature as it propagated from 1.05 to 1.35 R sun**, despite the expected adiabatic cooling due to the expansion of the core.
    - The expression "1.05 to 1.35 Rsun" **refers to a range of values that represent the size or radius of the Sun.** The object being described has a radius ranging from 1.05 times the radius of the Sun (Rsun) to 1.35 times the radius of the Sun.
- The expansion of CME core **behaves more like an isothermal than an adiabatic process.**
    - An **isothermal process** is a type of thermodynamic process **in which the temperature of a system remains constant.**
    - An **adiabatic process** happens when there is **no heat transfer between the system and its surroundings.**

What are Coronal Mass Ejections?

- **Coronal Mass Ejections (CMEs)** are large-scale **eruptions** of charged particles **(plasma) and magnetic fields from the solar atmosphere into space.** They can disrupt a range of ground- and space-based technologies and satellites on Earth.
    - The evolution of thermodynamic properties of CMEs, such as temperature and density, is crucial to understanding their impact on communication systems on Earth.
- There is a **wide range of plasma temperatures within CMEs,** from cold chromospheric material (around 104 K) to hot plasma (around 107 K).
- When CMEs propagate, **several processes can exchange energy (electrical, kinetic, potential, thermal, and so on.)**, thereby heating or cooling the plasma. Understanding CMEs will help our ability to monitor space weather.



What is India's Solar Mission?

- The **Visible Emission Line Coronagraph (VELC) onboard** Aditya-L1, India's first solar mission, will perform both spectroscopy and imaging of CMEs in the inner corona and provide new insights into the evolution of CME thermodynamic properties in the inner corona.

UPSC Previous Year Question (PYQ)

Prelims

Q. In order of their distance from the Sun, which of the following planets lie between Mars and Uranus? (2008)

(a) Earth and Jupiter
(b) Jupiter and Saturn
(c) Saturn and Earth
(d) Saturn and Neptune

Ans: (b)

Q. The increasing amount of carbon dioxide in the air is slowly raising the temperature of the atmosphere, because it absorbs (2012)

(a) the water vapour of the air and retains its heat
(b) the ultraviolet part of the solar radiation
(c) all the solar radiations
(d) the infrared part of the solar radiation

Ans: (d)

Q. The terms 'Event Horizon', 'Singularity', 'String Theory' and 'Standard Model' are sometimes seen in the news in the context of (2017)

(a) Observation and understanding of the Universe
(b) Study of the solar and the lunar eclipses
(c) Placing satellites in the orbit of the Earth
(d) Origin and evolution of living organisms on the Earth

Ans: (a)

Source: PIB

Chite Lui River

Why in News?

The **Chite Lui River in Mizoram** holds significant cultural and sentimental value for the people of the hilly northeastern state.

- However, the **river is facing** pollution **and degradation due to** unplanned urbanisation**, encroachments, and businesses located near its banks.**

What are the Key Aspects Concerning the Chite Lui River?

- **About:**
  - The Chite Lui River is **situated in an alluvial valley at an altitude of around 1,000 metres**, the river originates from the **Bawngkawn range in north Aizawl and flows for approximately 20 km before joining the River Tuirial.**
- **Main Threats and Challenges facing Chite Lui River:**
  - **Urbanisation:** The r**apid growth of Aizawl city** has led to unplanned construction activities on the banks and even on the river bed of Chite Lui River.
    - Many houses, shops, garages, eateries and other establishments have encroached upon the river's space and reduced its width and depth.
    - The river also suffers from loss of natural vegetation and soil erosion due to deforestation and land use change.
  - **Pollution:** The river has become a **dumping ground for various kinds of waste generated by the urban population.**
    - The **pollution affects the aquatic life,** biodiversity **and health of the river and its users.**
- **Initiatives to Save Chite Lui:**
  - **Zoram Research Foundation:** This is a non-profit organisation that works for traditional water management in Mizoram.
    - It started an initiative to save the **Chite Lui River in 2007** by conducting surveys, awareness campaigns, clean-up drives and advocacy programs.
    - It also formed a **Save Chite Lui Coordination Committee** composed of local leaders, activists, experts and volunteers to coordinate the efforts.
  - **Chite Lui (Prevention and Control of Water Pollution) Act, 2018:** This is a legislation passed by the **Mizoram government in 2018** to prohibit the dumping of animal carcasses, bio-medical waste or any garbage into the river.
    - The act also **empowers the state pollution control board to monitor and regulate the activities** affecting the river's quality and quantity.
  - **River Restoration Project:** This is a project initiated by the Mizoram government to **revive Chite Lui River by removing encroachments, restoring natural vegetation, constructing check dams,** improving drainage and sewerage systems, and creating recreational facilities along the river.

Note:

- The largest river in **Mizoram is Chhimtuipui,** (138.46 km in length). It originates in **Myanmar Burma.** The river is in patches and has four tributaries.
- Some important and constructive rivers of Mizoram are the **Tlawng, Tuirial and Tuivawl** which course through the northern territory and ultimately join the **Barak River in Assam.**

Source: DTE

Squash World Cup 2023

Why in News?

Recently, the **WSF (World Squash Federation)** board has decided the Venue for the 2023 **Squash World Cup** to be held in Chennai, Tamil Nadu.

- There are eight teams from four different continents playing in the Chennai Squash World Cup: Australia; Colombia; Egypt; Hong Kong, China; India; Japan; Malaysia; South Africa.

What is Squash?

- **About:**
  - Squash is a game of **agility, strategy, talent, and physical and mental strength**.
    - Squash offers numerous health benefits and has been recognized as the healthiest sport by Forbes Magazine.
  - It can be played year-round, in **any weather condition**, and by players of all skill levels, making it a sport that anyone can enjoy.

- **Overview:**
  - Squash is typically played by **two players for singles matches or four players for doubles matches.**
  - The game is played on a four-walled court with a small, hollow rubber ball. The ball should be hit **against the front wall, above the tin** (a boundary line near the floor) and below the outline.
  - A match consists of the best of either three or five games. Each game is played with 11 points. The first player to reach 11 points wins the game, unless the score becomes 10-all. In that case, the game continues until one player leads by two points.

What is the Squash World Cup?

- **About:**
  - The Squash World Cup is an **International Tournament** in which national team squads **represented by two men and two women play** ties of four matches against each other.
- **History:**
  - The first Squash World Cup took place in **1996 in Petaling Jaya, Malaysia,** with 16 teams participating.
    - Australia, the top seeds, defeated England, the second seeds, in the final with a score of 3-0.
  - **In 1999, England became champions in 's-Hertogenbosch,** Netherlands.
  - In 2011, Egypt lifted the trophy in Chennai. In the following year, an Under 21 World Cup was held in Chennai.
- **Changes:**
  - 2023's event has introduced some changes. Teams now have **gender parity, meaning equal representation** of male and female players.
  - Additionally, the games are played to seven points, which is a **first in the history of the World Squash Federation.**
- **Rules:**
  - **Competition Format:** The World Cup will consist of **two round-robin pools**, followed by a knockout stage.
  - **Team Composition:** Ties shall be contested by **teams of two men and two women.**

- **Match Scoring:** All matches will be played to a **best of 5 games to 7 points.** At 6-6, the game will still be played to 7 points.

What is the World Squash Federation (WSF)?

- Formed in 1967, the WSF is the International Federation for squash, also a member of the **General Association of International Sports Federations (GAISF)** and of the Association of IOC Recognised International Sports Federations (ARISF).
- WSF has a membership of **123 National Squash Federations** and a close working alliance with its five Continental Federations.

Source: TH

SAI20 Summit

Why in News?

The **SAI20 Summit** under India's G20 Presidency began **in Goa,** led by the **Comptroller and Auditor General (CAG)** of India.

- The summit focused on setting priorities on Blue Economy and Responsible AI, encouraging collaboration and knowledge sharing among **Supreme Audit Institutions (SAIs)** (India's SAI is CAG).

What are the Key Points?

- **Priority Areas:**
  - The SAI20 priority areas include **"Blue Economy" and "Responsible Artificial Intelligence" which** represent new-age opportunities and concerns.
    - These areas underline the **need for genuine cooperation among SAIs.**
  - Close cooperation among SAIs for knowledge sharing and capacity building is necessary.
- **Center of Excellence in the Blue Economy:**
  - **A Center of Excellence** in the Blue Economy has been **established at SAI India's International Centre for Environment Audit and Sustainable Development (iCED).**
  - The **vision is to create a Centre of excellence that fosters research** and acts as a catalyst for knowledge sharing and capacity building amongst SAIs.
- **Compendiums on Blue Economy and Responsible Artificial Intelligence:**
  - Two Compendiums on Blue Economy and Responsible Artificial Intelligence were brought out as a result of support and contributions from various Supreme Audit Institutions.
- **Role of Supreme Audit Institutions:**
  - The audit of Blue Economy and Responsible AI is challenging due to their all-pervasive, cross-cutting nature compounded with evolving technology and usage.
  - SAIs has a crucial role to play in the audit of Blue Economy and Responsible AI to ensure good governance, transparency, and accountability.

What is CAG?

- **About:**
  - **Constitutional Body: Article 148** provides for an **independent office of the CAG.** It is the **supreme audit institution of India.**

    - **Guardian of the public purse** and controls the entire financial system of the country **at both the levels–the Centre and the state.**
    - The **accountability of the executive** (i.e., Council of Ministers) to the Parliament in the sphere of financial administration is **ensured through audit reports** of the CAG.
- **Appointment:**
    - Appointed **by the President** of India by a warrant under his hand and seal.
- **Tenure:**
    - A period of **six years or upto the age of 65 years,** whichever is earlier.
- **Removal:**
    - CAG can be **removed by the President** on the same grounds and in the same manner as a judge of the Supreme Court. He does not hold his office till the pleasure of the President.
- **Other Related Points:**
    - **Not eligible for further office,** either under the Government of India or of any state, after he ceases to hold his office.
    - Salary and other service conditions are determined by the Parliament.
    - No minister can represent the CAG in Parliament.
- **Recent Development:**
    - Girish Chandra Murmu, the Comptroller and Auditor General of India (CAG), has been **re-elected as External Auditor of the World Health Organization** (WHO), Geneva for a four-year term from 2024 to 2027. CAG is already holding this position in WHO since 2019 for a four-year term from 2019 to 2023.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. In which one of the following groups are all the four countries members of G20? (2020)

(a) Argentina, Mexico, South Africa and Turkey
(b) Australia, Canada, Malaysia and New Zealand
(c) Brazil, Iran, Saudi Arabia and Vietnam
(d) Indonesia, Japan, Singapore and South Korea

Ans: (a)

Exp:

- The G20 is an informal group of 19 countries and the European Union, with representatives of the International Monetary Fund and the World Bank.
- In order to achieve a robust global economic growth, the member countries which represent and contribute more than 80% of the global GDP came at the premier forum for international economic cooperation, which was agreed by leaders at the Pittsburgh Summit in
- Pennsylvania (USA) in September 2009.
- The G20 members include Argentina, Australia, Brazil, Canada, China, France, Germany, India,
- Indonesia, Italy, Japan, Mexico, Republic of Korea , Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union (EU).
- **Therefore, option (a) is the correct answer**

Source: PIB

Rapid Fire Current Affairs

'Anjadip' Marks Milestone in Indigenous Shipbuilding for Indian Navy

The launch of the third 3rd **Anti-Submarine Shallow Water Craft (ASMSWC) ship,** '**Anjadip',** signifies a significant milestone in the **indigenous shipbuilding efforts of the Indian Navy.** Manufactured by **Garden Reach Shipbuilders & Engineers (GRSE)** in collaboration with **Larsen & Toubro (L&T) Shipbuilding,** the launch ceremony was held at the **Kattupalli, Tamil Nadu** on June 13, 2023.

Named after the **strategically important island of Anjadip,** situated off the **coast of Karwar, Karnataka and connected to the mainland by a breakwater,** the ship represents the vital maritime role played by the island.

Furthermore, it is **part of the larger INS Kadamba naval base.** The ASW SWC project involves the construction of a **total of eight ships, designed to replace the existing Abhay class ASW Corvettes.** These Arnala class ships are specifically designed for **anti-submarine operations in coastal waters, Low Intensity Maritime Operations** (LIMO), and Mine Laying operations, including subsurface surveillance in littoral waters.

These ships boast over **80% indigenous content,** promoting large-scale defence production by Indian manufacturing units and bolstering employment opportunities while strengthening the country's capabilities in naval defence.

Read more: India's Indigenous Move, INS Kadamba,

Sanshodhak

The **'Sanshodhak', the fourth ship** of the Survey Vessels (Large) (SVL) Project being **constructed by L&T/GRSE** for the Indian Navy, was **launched in Kattupalli, Chennai.** The ship's name, 'Sanshodhak', meaning 'Researcher,' signifies its primary role as a Survey Vessel. The SVL project involves four ships, with the first ship built at GRSE in Kolkata and the remaining three ships constructed up to the outfitting stage by M/s L&T Shipbuilding in Kattupalli. The first three ships of the project, **Sandhayak, Nirdeshak and Ikshak** were launched in Dec 2021, May 2022, and Nov 2022 respectively.

These new-generation hydrographic survey ships, **measuring 110m in length and 16m in width,** will **replace the existing Sandhayak Class** ships and are equipped with state-of-the-art hydrographic equipment for collecting oceanographic data. They will **conduct coastal and deep-water surveys, collect oceanographic and geophysical data,** and have secondary roles in defense, HADR, and acting as a hospital ship during emergencies.

TRAI Directs Access Providers to Deploy AI-based System to Combat Unsolicited Commercial Communication

The **Telecom Regulatory Authority of India (TRAI)** has issued a directive to all **Access Providers,** mandating the **deployment of an Artificial Intelligence (AI) and Machine Learning (ML)** based system called **UCC_Detect.**

The purpose of this system is to **detect, identify, and take action against senders of Commercial Communication** who are **not registered under the** Telecom Commercial Communication Customer Preference Regulations, 2018 **(TCCCPR-2018).** These unregistered entities, known as **Unregistered Telemarketers (UTMs),** use 10-digit mobile numbers to send commercial communications via messages or calls.

UCC_Detect system is capable of adapting to new signatures, patterns, and techniques employed by UTMs. Access Providers have also been instructed to share intelligence with other Access Providers using the **DLT (Distributed Ledger Technology)** platform. All Access Providers are required to comply with these directives and provide an updated status on the actions taken within thirty days.

Read more: Telecom Regulatory Authority of India , Artificial Intelligence (AI) , **Machine Learning (ML)**

3D Scanning and JATAN Virtual Museum Builder Software

A Memorandum of Understanding has been signed between the **MeitY and Union Culture Ministry** to complete **3D digitisation of all museums** under its administrative control for better conservation of artefacts.

The digitisation process involves 3D scanning which **means analysing a real-world object or environment to collect three-dimensional data** of its shape and possibly its appearance. The collected data is then used to construct digital 3D models. The 3D digitisation would be done using the **JATAN virtual museum builder software** which has been designed and developed by Human Centres Design and Computing Group, **Centre for Development of Smart Computing, Pune, Maharastra.**

JATAN is a **digital collection management system for Indian museums.** It is a client server application with features such as image cropping, watermarking, unique numbering, management of digital objects with multimedia representations. It can **create 3D virtual galleries and provide public access through web, mobile or touch screen kiosks.**

Read more: 3D Printing
