INDIA

Current Affairs 2024 June

SROTHAS

CONTENT

IAS HUB
MGOCSM CIVIL SERVICE ACADEMY SINCE 1992

AI in Molecular Biology:

Transforming Medical Research

The convergence of artificial intelligence (AI) with molecular biology in medical research has garnered significant attention for its transformative potential.

Artificial intelligence (AI) has become a part of our daily lives, from virtual assistants to personalized recommendations. Its potential to revolutionize fields such as medicine, transportation, and manufacturing seems limitless. However, this immense power brings forth numerous complexities and challenges. The increasing influence of AI raises critical questions about the future. By fostering a nuanced understanding and promoting open dialogue; we can navigate AI's development for a future beneficial to all.

Applications of Artificial Intelligence in Various Sectors

Artificial intelligence (AI) is transforming numerous sectors, driving innovation and efficiency. From healthcare to finance, AI's potential is reshaping traditional processes, enhancing accuracy, and enabling personalized experiences. This section explores the diverse applications of AI across various industries, highlighting its significant impact.

Healthcare

Medical Diagnosis: AI improves diagnostic accuracy by analyzing medical images and data. For instance, AI can detect cancerous lesions in mammograms with greater precision than human radiologists, facilitating an early and accurate diagnosis.

Drug Discovery: AI expedites drug discovery by predicting the efficacy of potential drug candidates. DeepMind's AlphaFold, which predicts protein structures, exemplifies AI's role in accelerating the development of new treatments.

Personalized Medicine: AI tailors treatment plans based on genetic profiles. By analyzing genetic data, AI optimizes chemotherapy dosages for cancer patients, ensuring personalized and effective treatment strategies.

Education

Intelligent Tutoring Systems (ITS): AI-powered systems personalize learning experiences by adapting to individual student needs. These systems adjust to each student's pace and learning style, providing tailored educational support.

Learning Analytics: AI analyzes student data, such as attendance and performance patterns, to predict potential challenges. This enables educators to intervene early, improving student outcomes and reducing dropout rates.

Finance and Banking

Fraud Detection: AI detects fraudulent activities by analyzing transaction data. It identifies unusual spending patterns in real time, enhancing security and preventing financial losses.

Risk Management: AI evaluates investment risks by analyzing market data. This helps in identifying investment opportunities and managing portfolios more effectively, ensuring better decision-making.

Algorithmic Trading: AI executes trades based on data analysis and predefined algorithms. High-frequency trading, driven by AI, optimizes trading strategies and enhances market efficiency.

Retail and E-commerce

Personalized Product Recommendations: AI enhances shopping experiences by analyzing customer data and preferences. This leads to tailored product recommendations, improving customer satisfaction and sales.

Inventory Management: AI optimizes inventory levels by analyzing sales data and demand patterns. This reduces overstocking and stockouts, ensuring efficient inventory management.

Chatbots and Virtual Assistants: AI-powered chatbots provide customer support, handle queries, and assist with online shopping. This improves customer service and enhances the overall shopping experience.

Manufacturing and Logistics

Predictive Maintenance: AI predicts potential machinery failures by analyzing sensor data. This enables proactive maintenance, reducing downtime and increasing operational efficiency.

Supply Chain Optimization: AI optimizes supply chains by analyzing transportation routes and weather conditions. This minimizes costs and improves delivery times, enhancing supply chain efficiency.

Automated Quality Control: AI-powered vision systems inspect products for defects. This ensures quality control and reduces human error, maintaining high product standards.

Manufacturing and Logistics

Predictive Maintenance: AI predicts potential machinery failures by analyzing sensor data. This enables proactive maintenance, reducing downtime and increasing operational efficiency.

Supply Chain Optimization: AI optimizes supply chains by analyzing transportation routes and weather conditions. This minimizes costs and improves delivery times, enhancing supply chain efficiency.

Automated Quality Control: AI-powered vision systems inspect products for defects. This ensures quality control and reduces human error, maintaining high product standards.

Cybersecurity

Threat Detection and Response: AI enhances security by analyzing network data and responding to cyber threats in real-time. This provides robust protection against cyber attacks.

Malware Analysis: AI classifies malware samples, helping security researchers understand new threats. This aids in developing effective countermeasures and ensuring cybersecurity.

User and Entity Behavior Analytics (UEBA): AI detects anomalies by analyzing behavior patterns. This helps in identifying potential security breaches and mitigating insider threats.

Agriculture and Food Production

Crop Monitoring and Yield Prediction: AI-powered drones and satellite imagery monitor crop health and predict yields. This enables informed decision-making and resource optimization in agriculture.

Precision Agriculture: AI analyzes soil conditions and environmental factors to recommend efficient resource usage. This improves agricultural productivity and reduces waste.

Food Safety: AI-powered vision systems inspect food products for contaminants. This ensures food safety and quality control, protecting consumer health.

Sports

Player Performance Analysis: AI analyzes data from wearable devices and video footage to evaluate player performance. This helps in identifying areas for improvement and preventing injuries.

In-Game Strategy and Tactics: AI recommends optimal game strategies by analyzing real-time data. This enhances team performance and strategic decision-making during games.

Major Challenges with the Rise of Artificial Intelligence

The rapid advancement of AI presents significant challenges, raising concerns about transparency, fairness, and societal impact. This section explores the complexities and potential risks associated with AI's growing influence.

Black Box Conundrum

Opaque Decision-Making: Many AI algorithms, especially deep learning models, function as opaque "black boxes." Their decision-making processes are often not transparent, hindering explainability and accountability in critical domains like healthcare and criminal justice.

The Data Dilemma

Data Quality and Fairness: AI's performance and fairness are heavily influenced by the quality and quantity of data available. Biased training datasets can lead to discriminatory outcomes, such as biased recruitment tools that unfairly disadvantage qualified candidates.

Job Displacement Tightrope

Workforce Disruption: AI automation is set to disrupt the workforce, potentially leading to widespread job displacement. The transition pace and availability of retraining programs for displaced workers are major concerns, with studies predicting significant job automation by 2030.

AI Arms Race and Existential Risk

Autonomous Weapons: The rapid development of AI raises the possibility of an "AI arms race" between nations, leading to autonomous weapons systems that operate outside human control. This poses significant existential threats and highlights the need for ethical AI development.

Value Alignment Problem

Divergent Objectives: AI systems' values and objectives may diverge from those of their human creators, leading to unintended and potentially harmful outcomes. This challenge emphasizes the importance of aligning AI development with human values.

Deepfakes and Misinformation

Synthetic Media Threat: AI-powered deepfake technology creates highly realistic synthetic media, posing significant threats to the integrity of information. Deepfake videos can spread misinformation during conflicts or crises, undermining trust in digital content.

The Biggest Ethical Challenges for Artificial intelligence

Measures to Overcome the Challenges Posed by AI

Addressing AI challenges requires comprehensive measures focusing on regulation, transparency, and collaboration. This section outlines essential steps to ensure responsible AI development and deployment.
Standardization and Certification for AI Systems

Safety and Fairness: Developing standardized testing procedures and certification processes for AI systems ensures baseline safety, security, and fairness across applications. This fosters trust and accountability in AI technologies.

Algorithmic Impact Assessments

Societal Impact Analysis: Mandating Algorithmic Impact Assessments (AIAs) for high-risk AI applications identifies potential societal impacts and biases. This promotes ethical AI development and minimizes harmful outcomes.

Focus on Explainable AI (XAI) Tools

Transparency in AI: Investing in user-friendly Explainable AI (XAI) tools enhances transparency and trust. These tools help developers and nonexperts understand AI model reasoning, fostering greater accountability.

AI for AI Safety

AI Monitoring: Leveraging AI to monitor other AI systems ensures safety and security. Specialized AI "watchdogs" can detect biases, security vulnerabilities, and unintended consequences, enhancing AI reliability.

Upskilling and Reskilling the Workforce

Proactive Workforce Development: Governments, educational institutions, and industries should collaborate on reskilling and upskilling programs. This equips workers with the skills needed for the AI era, ensuring a smooth transition and reducing job displacement.

Establishing Robust AI Governance Frameworks

Ethical AI Development: Robust AI governance frameworks, developed through international collaboration, ensure responsible AI development and deployment. The European Parliament's Artificial Intelligence Act serves as a model for establishing guidelines and regulations.

Fostering Human-AI Collaboration

Complementary Strengths: Emphasizing human-AI collaboration enhances effectiveness by leveraging complementary strengths. Developing AI systems that work alongside humans fosters a future where AI augments human capabilities, driving progress and innovation.

As we stand at the crossroads of AI and molecular biology, the possibilities for medical advancements are boundless. However, this progress brings with it ethical and regulatory challenges that must be thoughtfully navigated. For UPSC aspirants, understanding the multifaceted impact of AI is crucial. By fostering a balanced perspective, future policymakers can ensure AI serves as a tool for inclusive and sustainable development.

Criminal Justice System (CJS) in India

Recently, a fabricated rape accusation and sunsequent imprisonment revealed a range of systemic shortcomings in our law enforcement machinery and social complexities that demand urgent attention.

• The criminal justice system of any state is the set of **agencies** and **processes** established by governments for **administration** of criminal justice aimed at controlling **crime** and imposing **punishment** on persons who violate the law.

• India's criminal justice system is based on the **Indian Penal Code (IPC)** enacted in 1860.

• **Article 246** of the Constitution of India places the **police, public order, courts, prisons**, **reformatories** and other allied institutions in the **State List**.

  • However, the **Union laws** are followed by the Police, Judiciary, and Correctional Institutes, which form the basic organs of the criminal justice system.

Structure of the CJS: It consists of the four main pillars.

  • **Investigation by Police**: Section 161 of the **Criminal Procedure Code, 1973** allows the investigation officer to question anyone who may know about the case and write down their statement.

  • **Prosecution of Case by the Prosecutors**: Prosecutors charge an accused with a crime and try to show that he/she is guilty in a court of law.

  • **Determination of Guilt by the Courts**: The court pronounces the **sentence** using its **discretion**, considering aggravating and mitigating factors, the offender's background, and the likelihood of their **reform**.

  • **Correction through the Prison System**: The imprisonment in India is used for the **reformation and rehabilitation** of the prisoner through e**ducation, labour, vocational training** and **yoga** and **meditation**.

What are the Challenges Involved in the Criminal Justice System in India?

• **Pendency of Cases**: As of July 2023, **over 5 crore** cases were pending across all courts in India.

Of them, **87.4%** are pending in subordinate courts, 12.4% in High Courts, while nearly 1,82,000 cases have been pending for over 30 years. The Supreme Court had 78,400 pending cases.

• **Judicial Vacancies**: Despite a longstanding target of **50 judges per million** people, India has only 21 judges per million people, laying the foundation for delays.

• **Slow Progress in Fastrack Courts**: The functioning of **fast-track** courts has been far from ideal.

• **New courts** with the necessary infrastructure and dedicated judges are not set up for **fast-track purposes.**

• Instead, **existing courts** are typically designated as **fast-track** courts, requiring judges to manage their regular caseloads in addition to these expedited cases.

• **Abuse of Power by Police**: Police are often accused of **unwarranted arrest, unlawful imprisonment**, wrongful search, **harassment, custodial violence, death** etc.

• In addition, police are continuously acquiring **more and more power** on the grounds of **prevention laws.**

• **Complex Mechanism**: Present day justice mechanisms are too complex and it is completely far from the **marginalised people**.

• In a system focused on institutional arrangements rather than building capacity, **vulnerablesections** of society will inevitably be marginalised.

• Perceived Biases: In comparison to their percentage in the **total population, Adivasis, Christians, Dalits, Muslims and Sikhs** are all well **over-represented** in Indian prisons.

• **Violations of Human Rights in Prison**: In the name of extracting **confessions** and investigating crimes,

authorities use **physical force** upon the prisoners.

• **Torture** is also inflicted on women in the form of **custodial rape, molestation** and other forms of **sexual abuses**.

How can the Criminal Justice System in India be Reformed?

In its **268th Report, the Law Commission** of India stressed that urgent measures need to be taken to curtail the length of detention, and concluded that the law relating to bail must be revisited to prevent this.

• **Reviving Fastrack Courts**: **Expeditious disposal** of long pending sessions cases should be done to make these courts **"truly fast-track"**.

Legal Aid Reform: **Training, mentoring and building capacities** of young professionals for improving quality of **socio-legal services** to make CJS more effective.

• **Filling Judicial Vacancies**: Filling judicial vacancies effectively is crucial for maintaining a **functional** and fair judicial system. For this, **All India Judicial Service (AIJS)** can be explored for the recruitment of judges at the level of **additional district judges** and district judges.

• **Application of AI in Criminal Case Management**: AI can be used to help judges make decisions about **bail, sentencing, and parole**.

• AI can be used to assess the risk of **recidivism** for offenders.

Related initiatives Taken by Government:

• **National Mission for Justice Delivery and Legal Reforms**
• **AI Portal SUPACE**
• **Modernisation of Police Scheme**
• **Bharatiya Nyaya (Second) Sanhita, 2023**
• **Bharatiya Nagarik Suraksha (Second) Sanhita, 2023**
• **Bharatiya Sakshya (Second) Bill, 2023**
• **National Mission for Justice Delivery and Legal Reforms**

What Commissions have been set up to Reform CJS?

• **National Police Commission (NPC)**: It recommended that there must be a judicial enquiry in cases of custodial death or rapes.

• **Malimath Committee**: It recommended that there is a need to have a separate police force for maintaining law and order and crime investigation.

• **All India Jail Reforms Committee (Mulla Committee)**: It emphasised the recruitment of **proper** and **trained staff** for the administration of jails and, for this purpose, a correctional service should be established.

• **Krishnan Iyer Committee**: It recommended the appointment of women staff in the police for handling women and child offenders.

What are Judicial Pronouncements Related to Reformation of CJS?

• **Prakash Singh v. Union of India Case, 2006**: The Hon'ble Supreme Court stated that a state security commission must be established in each state to keep a check on the work of the police and observe that there is no influence.

• **S.P. Anand v. State of Madhya Pradesh Case, 2007**: Prisoners have basic rights to a healthy life even though their right to liberty and free movement is restricted.

• **State of Gujarat v. High Court of Gujarat Case, 1988**: It was held that reasonable wages must be paid to prisoners in jail for the work or labour they have done.

• **Hussainara Khatoon v. Home Secretary, State of Bihar Case, 1979**: Keeping the undertrials in jail for a longer period than their punishment is a clear violation of their fundamental rights guaranteed under Article 21.

• **Prem Shankar Shukla v. Delhi Administration Case, 1980**: The practice of **handcuffing** is inhuman, unreasonable and harsh, and thus, an accused person must not be handcuffed in the first instance.

Conclusion

The Indian criminal justice system faces challenges such as a large backlog of cases, inefficiency, lack of resources, poor infrastructure, and insufficient training for personnel. However, efforts are being made to reform and improve the system, particularly to ensure that marginalised communities have better access to justice.

POLITY & GOVERNANCE

Hunar se Rozgar Scheme

The Ministry of Tourism has been implementing the Hunar se Rozgar Scheme (skill to employment) since 2006 and it needs to relaxation in bureaucratic norms to boost participation.

• Hunar se Rozgar Scheme has significant potential to skill and employ youth in the tourism sector.

• The primary goal of the scheme is to offer short-term vocational training to non-literate, semi-literate, and educated unemployed youth aged 18-28 years to improve their skills and employability.

• It enables less-educated youth to pursue formal employment after brief training.

• This scheme gives economic importance to tourism and the potential to promote cultural heritage.

• The scheme primarily attracts participants from northern states.

अतुल्य! भारत
Incredible India
www.incredibleindia.org

HUNAR SE ROZGAR TAK
(A TRAINING INITIATIVE TO CREATE EMPLOYABLE SKILLS)

MINISTRY OF TOURISM
Government of India

PM Modi 3.0

The Bharatiya Janata Party (BJP) emerged as the single largest party in the 18th Lok Sabha, securing 240 seats.

• This marks a significant decrease from their previous tallies of 303 seats in 2019 and 282 seats in 2014. However, the party's performance has been sufficient to form the government at the center.

• The Indian National Congress, the principal opposition party, managed to secure 99 seats
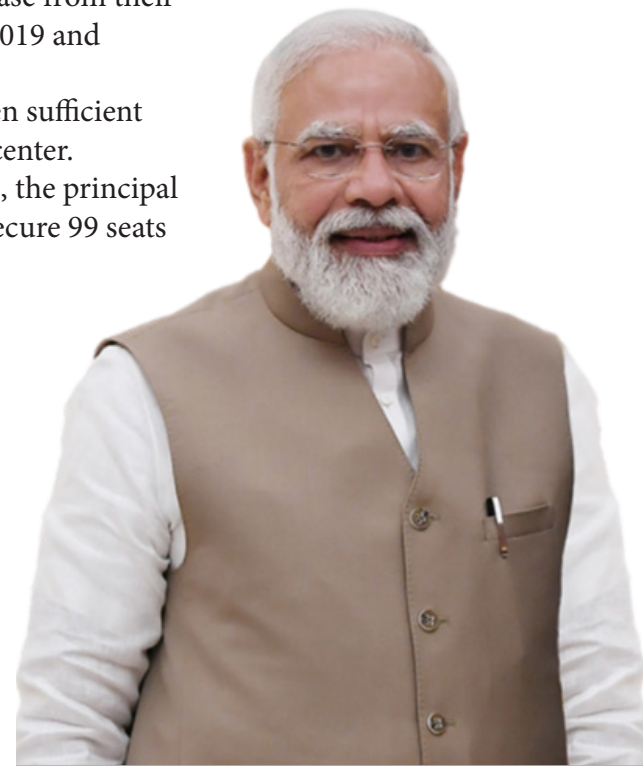
Mission Karmayogi

Indian Institute of Public Administration assessed the impact of mission karmayogi by seeking inputs on recently trained staff from their supervisors and reported increased proficiency in data analytics and e-governance tools

• Launched by the Union Cabinet, Mission Karmayogi aims to transform human resource management in the government, making the bureaucracy more efficient, effective, and accountable.

• The mission focuses on developing the skills and competencies of civil servants to enhance governance and deliver better results for citizens.

कर्मयोगी भारत
— लोकहितं मम करणीयम् —

• **Key Features:**

   • Transition from rule-based to role-based training, emphasizing attitudes, skills, and knowledge through role-specific training.
   • Adopting a competency-driven approach to develop essential competencies for public officials.
   • Through the iGOT Karmayogi online platform, the program aims to provide continuous, lifelong learning opportunities

National Tele-Mental Health Programme
Tele MANAS

A Memorandum of Understanding (MoU) was signed between the Ministry of Health and Family Welfare (MoHFW) and the Ministry of Defence (MoD) to facilitate collaboration between the two ministries in operating a special cell of Tele MANAS.

•   The Ministry of Health and Family Welfare launched the Tele Mental Health Assistance and Networking Across States (Tele-MANAS) initiative in October 2022 to provide free, round-the-clock tele-mental health services across India, especially targeting remote and underserved areas.

e-Shram Portal

The Indian delegation to the 112th International Labour Conference (ILC) led by Secretary, Ministry of Labour & Employment showcased the e-Shram portal and its present integrations and achievements during the sidelines of the ILC at Geneva, Switzerland.

• It was launched by the Ministry of Labour and Employment for registration and creation of a comprehensive National Database of Unorganized Workers.

• It allows an unorganised worker to register himself or herself on the portal on self-declaration basis, under 400 occupations in 30 broad occupation sectors.

• It is a "One-Stop-Solution" for Unorganised Workers of the country.

• The registration in the portal is fully Aadhaar verified and Aadhaar seeded.

• The Ministry aims to facilitate access to various social security schemes being implemented by various Ministries/ Departments for the benefit of the unorganised workers through the e-Shram portal.

• The portal is presently integrated with National Career Service (NCS) Portal, Skill India Digital Hub (SIDH), myScheme portal and Pradhan Mantri Shram Yogi Mandhaan (PMSYM) scheme.

e-Shram
Shramev Jayate
NATIONAL DATABASE OF UNORGANISED WORKERS

Tele-MANAS operates on a two-tier system:

Tier 1: State Tele-MANAS cells with trained counselors and mental health specialists.

Tier 2: Specialists at District Mental Health Programme (DMHP) centers or Medical Colleges for physical or e-Sanjeevani consultations.

There are 51 operational Tele-MANAS cells in all 36 States and UTs, offering services in 20 languages.

A toll-free, 24/7 helpline number (14416) provides access to these services via an Interactive Voice Response System (IVRS) with an automated callback.

Service Delivery:

• Callers are initially attended by trained counselors who provide necessary care or refer them for specialist care.

• Specialists, including clinical psychologists and psychiatrists, handle more complex cases with audio and video options available.

•In-Person and Advanced Care: For urgent or complex cases, callers are referred to the nearest in-person service, ranging from Health and Wellness Centres (HWCs) to tertiary care centers, or provided with audio-visual consultations through eSanjeevani.

SDG 7: Energy Progress Report 2024

SDG 7: Energy Progress Report 2024, released recently, finds that the world remains off course to achieve Sustainable Development Goal (SDG) 7 for energy by 2030.

Highlights of 2024 Report:

• Electricity Access Decline: In 2022, the number of people without access to electricity increased for the first time in over a decade. The growing population, especially in Sub-Saharan Africa, outpaced new electricity connections, leaving 685 million people without electricity, 10 million more than in 2021.

• Clean Cooking Challenges: The world remains off track to achieve universal access to clean cooking by 2030, with 1 billion people still lacking access to clean cooking fuels and technologies, predominantly in Sub-Saharan Africa and Asia.

• Growth in Renewable Electricity: Renewable electricity consumption grew by over 6% year-on-year in 2021, raising the share of renewables in global electricity consumption to 28.2%. Additionally, installed renewable energy-generating capacity per capita hit a new record of 424 watts globally in 2022.

• Disparities in Renewable Capacity: Significant disparities exist in installed renewable energy capacity, with developed countries averaging 1,073 watts per capita, 3.7 times more than developing countries, which average 293 watts per capita.

• Insufficient Progress for SDG 7: Current efforts are insufficient to achieve Sustainable Development Goal 7 (SDG 7) on time, despite notable advancements between 2010 and 2021 in countries like India, China, and Indonesia.

• India's Renewable Energy Transition: India has made significant strides in renewable energy, with the share of renewables in total final energy consumption rising nearly 7 percentage points from 2010 to 2021. This transition has been supported by substantial international financial aid, including USD 627 million for 47 projects in 2022, primarily from Germany and the International Bank for Reconstruction and Development (IBRD). India's renewable energy initiatives also extend to the transportation sector, contributing to 85% of global renewable energy use alongside the United States, Brazil, Europe, and China.

CABINET COMMITTEE ON SECURITY (CCS):

Prime Minister Modi took oath today along with 71 ministers of the new coalition government. Thirty of them are Cabinet Ministers, five independent charge, and 36 Ministers of State.

• The Cabinet Committee on Security (CCS) is headed by the Prime Minister and includes the Ministers of Defence, Home Affairs, Finance, and External Affairs.
• The CCS is the apex body for discussing, debating, and making decisions on the appointments of officials in national security bodies.
• It makes all significant decisions regarding defence policy, expenditure, and overall matters related to India's security.
• The CCS addresses all issues related to the defence, law and order, and national security of India, including initiatives to enhance national security.
• The committee deals with policy matters of foreign affairs that may impact internal or external security, including agreements with other countries on security-related issues, and discusses political issues affecting national security.

AGNIPATH SCHEME : UPDATE

The ruling-party government's ambitious Agnipath scheme, announced in June 2022, has been facing opposition from various political parties and Armed Forces veterans.

• Ongoing concerns highlight the impact of the scheme on military recruitment and the welfare of soldiers.
• The term "Agniveer," translating to "Fire-Warriors," represents a new military rank. This scheme recruits personnel below officer ranks—soldiers, airmen, and sailors—who are not commissioned officers in the Indian Armed Forces.
• Recruits, known as Agniveers, serve for a period of four years. After this, up to 25% of these Agniveers can join the services on a permanent commission (an additional 15 years), based on merit and organizational needs.
• Candidates aged 17.5 to 23 years are eligible to apply (the upper age limit was increased from 21). Girls within this age range are eligible for the Agnipath entry, but there is no reservation for women under this scheme.

Pay and Benefits:
•**Death on Duty**: The family of an Agniveer who dies on duty receives a combined sum of Rs 1 crore, which includes both the Seva Nidhi package and the soldier's unserved salary.

• **Disability**: An Agniveer can receive up to Rs 44 lakh in compensation, depending on the severity of the disability caused or worsened by military service

• **Pensions**: Agniveers do not receive a regular pension after their four-year service, unlike traditional soldiers. Only the 25% selected for a permanent commission will be eligible for a pension.

AIM – ICDK Water Challenge 4.0

Atal Innovation Mission, NITI Aayog (AIM) announced the launch of two groundbreaking initiatives aimed at fostering innovation and sustainability in India: the 'AIM – ICDK Water Challenge 4.0' and the fifth edition of 'Innovations for You' handbook, spotlighting SDG entrepreneurs of India.

• The AIM – ICDK Water Challenge 4.0, initiated by the Atal Innovation Mission (AIM) under NITI Aayog, aims to tackle critical water-related challenges through innovative solutions.
• This challenge is a joint initiative with the Innovation Centre Denmark (ICDK) at the Royal Danish Embassy in India.

Objectives:
• **Address Water Challenges**: To find inventive solutions for critical water-related issues.
• **Global Participation**: Selected teams from India will join the global Next Generation Digital Action program, collaborating with young talents from leading universities and innovation hubs in nine countries (India, Denmark, Ghana, Kenya, Korea, Tanzania, South Africa, Ghana, Colombia, and Mexico).
• **Focus on Sustainability**: Emphasizes sustainability, digital solutions, inclusion, and universal design principles.
• **Showcase Innovations**: Participants will showcase their innovations at the Digital Tech Summit in Copenhagen from October 30th to 31st, 2024, with funding from the Government of Denmark.
•**Two Tracks for Participation**: The challenge invites entries under two tracks:
• **Students**: Specifically for student participants.
• **Young Entrepreneurs**: For young entrepreneurs under the age of 35, including early-stage startups, researchers, and young innovators dedicated to driving positive environmental change.

सत्यमेव जयते
NITI Aayog

ATAL INNOVATION MISSION

PRO-TEM SPEAKER

The President has appointed Bhartruhari Mahtab, a seven-term MP from Cuttack, as the pro tem Speaker of the 18th Lok Sabha.

• Pro-tem Speaker is a Latin phrase which translates to 'for the time being' in English, and so the pro-tem speaker is a temporary speaker appointed for a limited period of time to conduct the work in Lok Sabha or in state legislatures.

• A Pro-tem speaker is chosen for the conduct of the house when the Lok Sabha and legislative assemblies have been elected and the vote for the speaker and deputy speaker has not taken place.

• The Constitution does not expressly use the term 'Pro-tem Speaker'.

• The office of the pro tem speaker ceases to exist after the new Speaker of the House is chosen.

• The Speaker Pro-tem is appointed by the President of India/Governor.

• The President/Governor administers the oath of office to the pro-tem Speaker.

• As per convention, a senior most member will be appointed as the pro tem speaker with the agreement of assembly members, who then carry on the activities until the permanent speaker is chosen.

Child Food Poverty: Nutrition Deprivation in Early Childhood

A recent UNICEF report titled 'Child Food Poverty: Nutrition Deprivation in Early Childhood' examines the status, trends, inequities and drivers of child food poverty in early childhood.

Key Findings of the Report:

• **Global Child Food Poverty**: Approximately 181 million children under the age of 5 are living in severe child food poverty worldwide, accounting for one in four children in this age group.

• **India's Situation**: According to UNICEF's 2023 global databases, 40% of children in India are living in severe child food poverty.

• **Progress and Challenges**: While overall progress in addressing severe child food poverty is slow, some regions and countries show that improvement is possible. Severe child food poverty affects children from both poor and non-poor households, indicating that household income is not the sole factor driving this issue.

• **Nutritional Deficiency**: Children living in severe child food poverty lack access to nutrient-rich foods and are increasingly consuming unhealthy foods.

• **Intensifying Factors**: The global food and nutrition crisis, localized conflicts, and climatic shocks are worsening severe child food poverty, especially in fragile countries. In vulnerable communities in the Democratic Republic of the Congo and Somalia, over 80% of parents reported that their child had gone without eating for an entire day due to a lack of money or resources.

• **Impact on Child Undernutrition**: Severe child food poverty significantly contributes to child undernutrition. The prevalence of severe child food poverty is three times higher in countries with a high prevalence of child stunting.

EXTERNAL COMMERCIAL BORROWINGS

EXTERNAL COMMERCIAL BORROWING

According to RBI data, Indian companies' registrations for External Commercial Borrowings (ECBs) nearly doubled to $49.2 billion in the financial year 2023-24 (FY24) from $26.6 billion in FY23

• External Commercial Borrowings (ECBs) are funds borrowed by Indian companies from foreign sources through loans, bonds, or other financial instruments.

•These borrowings can be used for various purposes, including business expansion, asset acquisition, and debt repayment.

• Indian companies can obtain ECBs from foreign banks, international financial institutions, and their own foreign subsidiaries.

• ECB can be in the form of rupee-denominated loans, which are repaid in Indian rupees, or foreign currency-denominated loans, which are repaid in a foreign currency.

• The RBI regulates ECBs, setting limits on the amount and specifying the permissible uses. All entities except Limited Liability Partnerships are allowed to raise ECBs as per RBI guidelines.

Framework or Recognising Self-Regulatory Organisation for the FinTech Sector (SRO-FT):

The Reserve Bank of India (RBI) has issued a new Framework for Recognising Self-Regulatory Organisation for the FinTech Sector (SRO-FT) to enhance self-governance and compliance among fintech firms.

• The framework defines fintech entities as those providing technological solutions for delivering financial products and services to businesses and consumers or facilitating regulatory and supervisory compliance, either independently or in partnership with traditional financial institutions.

• The industry-led SRO-FT will be responsible for establishing and enforcing regulatory standards, promoting ethical conduct, ensuring market integrity, resolving disputes, and fostering transparency and accountability among its members.

• Applicants must be set up as not-for-profit companies with sufficiently diversified shareholding, where no entity holds 10% or more of the paid-up share capital, either individually or collectively. They must have a minimum net worth of ₹2 crore within one year after recognition or before commencing operations, whichever is earlier.

• At least one-third of the board members, including the chairperson, should be independent and not actively associated with any fintech entity. The majority of non-independent directors should represent fintechs that are not directly regulated.

• Applicants must demonstrate the ability to establish the necessary infrastructure for effective operation as an SRO-FT and put in place systems to manage 'user harm' instances, such as fraud, mis-selling, unfair practices, unauthorized transactions, or other misconduct. The SRO cannot open branches or offices outside India, although fintechs domiciled outside India can become members. The RBI can also nominate or depute observers to the SRO-FT's board, and the number of recognized SRO-FTs will depend on the applications received, with the RBI reserving the right to deny any application.

Greedflation

Several argue that inequality harms democratic processes. Some inequality, others argue, is actually beneficial, since it acts as an incentive to entrepreneurs to start businesses.

• Greedflation occurs when inflation in an economy is driven by corporate greed to increase profits rather than by higher production costs, increased demand, or wage growth. Unlike typical inflation, where price hikes result from rising input costs or growing demand, greedflation happens when corporations exploit existing inflation by raising prices significantly more than their input costs. This practice boosts profit margins but also exacerbates inflation, furthering economic inequality.

• Inflation, the rate at which the general price level of goods and services rises, can be caused by various factors, including:

• Cost-push inflation: Prices rise due to increased input costs. For example, a sudden 10% increase in crude oil prices from a supply disruption can lead to higher energy costs and, consequently, higher overall prices.

• Demand-pull inflation: Prices rise because of excess demand. For instance, if the Reserve Bank of India (RBI) cuts interest rates significantly, making loans more affordable, there could be a surge in demand for housing, leading to higher home prices.

• Several internal and external factors can also contribute to inflation, such as supply-chain disruptions from international conflicts like the Russia-Ukraine war or crude oil price hikes by OPEC+.

• To combat inflation, central banks often raise interest rates to reduce overall demand in the economy.

Hawkish Economic Policy

As the US heads for a presidential election in November, the Federal Reserve, the country's central bank, has signaled that it is unwilling to let interest rates soften in a hurry.

• As the US approaches a presidential election in November; the Federal Reserve has indicated it will not quickly soften interest rates.

• Hawkish Economic Policy: This policy emphasizes controlling inflation over other goals like full employment or economic growth, favouring higher interest rates to maintain price stability.

• Raising interest rates makes borrowing more expensive, reducing spending and investment to cool an overheating economy.

Measures to reduce or slow the growth of the money supply help control inflation, with a priority on maintaining low inflation and meeting explicit targets.

• Cutting back on fiscal or monetary stimulus, such as reducing government spending or unwinding quantitative easing programs, helps prevent inflation from rising.

Capital Account Convertibility

To stay "future-ready" for India's fast-growing economy, the Reserve Bank of India (RBI) has set aspirational goals: capital account liberalization, internationalization of the Indian rupee (INR), universalizing digital payments, and globalizing India's financial sector over a multi-year timeframe.

• Balance of Payments Account: It is a statement of all transactions between a country and the outside world. It consists of two accounts:

• Current Account: Deals with the import and export of goods and services.

• Capital Account: Involves cross-border movement of capital via investments and loans.

• Current Account Convertibility: Freedom to convert rupees to other currencies for payments without restrictions.

Capital Account Convertibility:

• Freedom to conduct investment transactions without constraints.

• No limits on converting rupees to foreign currency for asset acquisition.

• No limits on NRIs bringing in foreign currency to acquire assets in India.

INDIA'S THIRD-LARGEST EXPORT MARKET IN THE FISCAL YEAR 2023-24 : NETHERLAND

The Netherlands became India's third-largest export market in the fiscal year 2023–24, after the US and the UAE.

• This was the case even though India's total exports of goods fell by 3%, according to reports from the Commerce Ministry.

• This rise has been emphasized even though trade between the two countries is going down. In 2022–23, it went from $27.58 billion to $27.34 billion, a small drop.

• There has been a lot of growth in India's exports to the Netherlands.

• The main areas of growth are petroleum products, electrical items, chemicals, and pharmaceuticals. Oil goods were the most important, with $14.29 billion worth of exports in the last fiscal year.

• India's trade with the Netherlands has been steadily growing, going from $880 million in 2000-01 to $22.36 billion in 2023-24—a 3.5% rise from $21.61 billion in 2022-23.

• In the end, India's trade balance with the Netherlands grew from $13 billion the previous year to $17.4 billion the last fiscal year.

Preston Curve : Study

The Preston curve refers to the empirical relationship between life expectancy and per capita income in a country, proposed by American sociologist Samuel H. Preston in 1975.

• The curve shows that people in richer countries generally have longer life spans compared to those in poorer countries, likely due to better access to healthcare, education, nutrition, etc.

• As a poor country's per capita income rises, its life expectancy increases significantly initially.

• For example, India's per capita income rose from Rs 9,000 in 1947 to •Rs 55,000 in 2011, while life expectancy increased from 32 to 66 years.

•However, the positive relationship between per capita income and life starts to flatten out beyond a certain point, as the human lifespan cannot be increased indefinitely.

•The positive relationship shown by the Preston curve applies can also be applied to other development indicators like infant/maternal mortality, education, healthcare, etc.

Sticky Inflation

Sticky inflation has dashed the hopes of early rate cuts with experts now pencilling in repo rate cuts by the RBI from December this year. Economists expect a shallow rate cut cycle with RBI likely to lower the repo rate by 75 – 100 basis points.

•Sticky Inflation refers to a phenomenon where prices do not adjust quickly to changes in supply and demand, leading to persistent inflation.

• Prices for goods or services that don't appear to be coming down anytime soon are considered sticky.

•Rising wages and prices for consumer goods and services are typically the main factors behind inflation stickiness.

• Prices for medical services, education, and housing are some of the most important factors that can contribute to sticky inflation.

• It erodes the purchasing power of consumers and puts pressure on housing affordability.

•It presents challenges for central banks in controlling inflation without causing a recession.

•To address sticky inflation, central banks usually raise interest rates.

•However, raising rates too fast can cause the economy to fall into a recession, while not raising them enough will allow prices to continue increasing.

Pump and Dump Scheme in the Stock Market

The Securities Exchange Board of India's (SEBI) recently slapped a fine of Rs 7.75 crore on 11 individuals for allegedly operating a 'pump and dump' scheme.

• A Pump and Dump Scheme involves artificially inflating the price of a stock through false and misleading information, then selling the stock at the inflated price, leaving investors with significant losses.

•This scheme is particularly prevalent in the micro-cap and small-cap sectors, where companies have limited public information and lower trading volumes, making them more susceptible to manipulation.

•A significant amount of stock in a small or thinly traded company, often referred to as 'penny stocks,' is acquired. The stock is then aggressively promoted through mass emails, newsletters, and social media posts with exaggerated claims to create buzz and attract investors.

• As the promotion gains traction, increased demand from investors drives up the stock price. Sometimes, coordinated buying by fraudsters further boosts the price, creating the illusion of a high-potential investment.

• Once the stock price is sufficiently inflated, the promoters sell off their shares at the high prices. This selling pressure causes the stock price to plummet, leaving unsuspecting investors with significant losses as the stock returns to its actual value or even lower.

FOREIGN EXCHANGE MANAGEMENT ACT (FEMA), 1999

RBI is planning to rationalise the Guidelines for Export and Import of Goods and Services under the Foreign Exchange Management Act (FEMA), 1999.

• The Foreign Exchange Management Act (FEMA), 1999, came into force on June 1, 2000, replacing the Foreign Exchange Regulation Act (FERA) of 1973, to align with India's post-liberalisation economic conditions. Its main objective is to facilitate external trade and payments and promote the orderly development and maintenance of the foreign exchange market in India.

• FEMA outlines procedures, formalities, and dealings related to foreign exchange transactions in India. It regulates various aspects, including the acquisition and holding of foreign exchange, payment and settlement of foreign exchange transactions, export and import of currency, and other related activities.

• The act empowers the Reserve Bank of India (RBI) to create rules and regulations to enforce its provisions. It also envisages that the RBI shall have a controlling role in the management of foreign exchange but authorizes "Authorised Persons" to deal in foreign exchange, as the RBI cannot handle these transactions directly.

• Under FEMA, violations related to foreign exchange are considered civil offences, and individuals or entities found in violation can face penalties and fines.

• The head office of FEMA, known as the Enforcement Directorate, is situated in Delhi. This office is responsible for enforcing the provisions of FEMA and ensuring compliance with its regulations.

Authorised Economic Operators Programme

The gem and jewellery sector has been granted Authorised Economic Operator (AEO) status by the Ministry of Finance, easing export-import processes with shorter cargo release times and reduced bank guarantees.

• The Authorised Economic Operator (AEO) programme, a global initiative launched in 2007 under the World Customs Organization's (WCO) SAFE Framework of Standards, aims to enhance international supply chain security and facilitate trade flow.

• The AEO programme strengthens security measures throughout the international movement of goods, reducing risks associated with smuggling and counterfeiting.

• By recognising businesses that meet stringent security standards, the AEO programme expedites customs clearance processes, reducing delays and costs for legitimate traders.

• Entities engaged in international trade that comply with supply chain security standards can be granted AEO status, identifying them as 'secure' traders and reliable trading partners. Benefits of AEO status include expedited clearance times, fewer examinations, and improved security and communication between supply chain partners.

• India launched its own AEO pilot project in 2011, leveraging the WCO SAFE Framework's security standards. This program offers a three-tiered system for exporters and importers, allowing companies to progressively demonstrate their commitment to secure trade practices. The AEO programme is voluntary.

Duty Drawbacks

Starting from June 5th, 2024, the Central Board of Indirect Taxes and Customs (CBIC) has initiated electronic disbursal of duty drawback amounts directly to exporters' bank accounts through the Public Finance Management System (PFMS).

• Duty drawback, governed by section 75 of the Customs Act, 1962, refunds customs duty on imported or excisable materials used in the production of export goods.

• This mechanism assists exporters in mitigating some of the expenses incurred during the export process, particularly within the supply or value chain.

• Electronic disbursal of duty drawback aims to streamline the process, reduce processing time, eliminate manual intervention, and enhance transparency in customs operations.

• This initiative aligns with CBIC's commitment to paperless customs and trade facilitation, building upon its implementation of the WTO Trade Facilitation Agreement (TFA).

Policy Rate Unchanged : RBI

The Reserve Bank of India (RBI) decided to keep the policy rate unchanged at 6.5% for the eighth consecutive time.

• The Monetary Policy Committee (MPC) will maintain a tight control on inflation and remain watchful of elevated food inflation amid the expectation of a normal monsoon.

• The rate increase cycle was paused in April last year after six consecutive rate hikes, totalling 250 basis points since May 2022.

• The RBI raised the growth projection to 7.2% from an earlier estimate of 7% for the current financial year.

• Inflation targeting in India is a monetary policy framework adopted in 2016, where the Central Government, in consultation with the RBI, sets a target inflation rate once in five years.

Base Erosion And Profit Shifting

The 16th meeting of the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) concluded

•An inclusive framework on BEPS is finalizing negotiations on Pillar One, while the Global Minimum Tax under Pillar Two is being implemented in countries globally

•The OECD/G20 Inclusive Framework on BEPS, with 147 countries and jurisdictions including India, fights tax avoidance and promotes fair tax practices through a Two-pillar approach: Pillar One reallocates profits of large MNEs, while Pillar Two establishes a Global Minimum Corporate Tax of 15%.

• This framework ensures fairness in tax systems, addresses tax avoidance, and adapts to evolving business models and digital economies.

BEPS:

• It refers to corporate tax planning strategies used by multinationals to shift profits from higher-tax jurisdictions to lower or no-tax jurisdictions.

• The OECD defines BEPS strategies as exploiting gaps and mismatches in tax rules.

• It erodes the tax base (costing countries USD 100-240 billion in lost revenue annually) of the higher-tax jurisdictions.

• As developing countries have a higher reliance on corporate income tax, they suffer from BEPS disproportionately.

GLOBAL ECONOMIC PROSPECTS REPORT 2024

According to the recently released Global Economic Prospects Report by the World Bank, India is predicted to remain the fastest-growing major economy globally, with a projected GDP growth rate of 6.6% for FY25.

• According to the report, for the first time in three years, the global economy is showing signs of stabilisation in 2024.

• GDP growth is now anticipated to be 2.6 % for 2024-25. For FY26 and FY27, global growth is expected to be 2.7% amid modest growth in trade and investment.

• The World Bank forecasts a slower moderation of global inflation, averaging 3.5% this year.

• Central banks in advanced and emerging market economies are expected to be cautious about easing monetary policy due to on-going inflationary pressures.

• The global outlook remains subdued due to factors such as geopolitical tensions, trade fragmentation, higher interest rates, and climate-related disasters, despite some near-term improvements.

• It also emphasises the need for global cooperation to safeguard trade, support green and digital transitions, provide debt relief, and enhance food security.
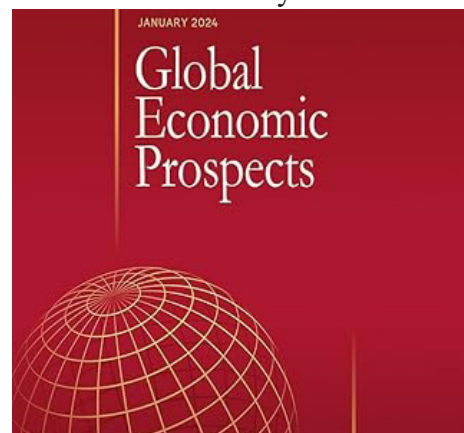
India Exim Bank Opens Nairobi Office To Boost East Africa Trade

The Export-Import Bank of India (India Exim Bank) recently opened its East Africa Representative Office in Nairobi, Kenya.

• India aims to expand its business globally, with a specific focus on strengthening trade and business ties with East Africa, a region rich in resources and young talent.

• Over the past decade, India and East Africa have significantly increased their business interactions. Trade in goods grew from USD 9.7 billion in 2013 to USD 12.9 billion in 2022, indicating robust growth.

• India's exports to East Africa increased from USD 8.6 billion in 2013 to USD 9.4 billion in 2022, demonstrating continuous improvement in trade relations.

• The India Exim Bank plays a crucial role in financing, facilitating, and promoting India's foreign trade and investments. It also contributes to policy formulation and funding export-oriented projects as part of India's economic diplomacy.

• The India Exim Bank has established offices in Abidjan, Côte d'Ivoire, and Johannesburg, South Africa. These strategic locations reflect the Bank's commitment to fostering economic ties with key African cities.

India's Foreign Exchange Reserves Hit Record $651.5 Billion

With $651.5 billion in foreign exchange reserves by May 31, 2024, India had the highest amount of foreign exchange reserves ever. Positive changes in trade, remittances, and foreign investments have helped India's external industry reach a strong point.

• According to the Reserve Bank of India (RBI), service exports, especially in software, business services, and travel, have seen significant growth. Net service exports grew by 4.2% in the fourth quarter of 2023-24 and increased by 9.3% over the same quarter.

The RBI Governor highlighted the importance of Gulf Cooperation Council (GCC) countries in boosting software and business services exports. The number of GCCs is expected to rise from 1,580 in 2022-23 to about 1,900 by 2024-25, increasing the inflow of foreign currency into India.

• India is projected to receive 15.2% of all global remittances in 2024, making it the largest recipient in the world, with more than $100 billion received in the first nine months of FY 2023-24. Strong service growth and remittance transfers have helped lower the trade deficit and are expected to keep the current account deficit within manageable levels for the fiscal year 2024-25.

• India received a net of $41.6 billion in FPI in 2023-24, but the first few months of 2024-25 saw net losses of $5 billion as of June 5, 2024. Despite a slowdown in net FDI, gross FDI entries remained strong throughout 2023-24, maintaining India's position as the top destination in the Asia-Pacific region for new FDI.

• Both ECBs and non-resident savings saw higher inflows compared to the previous year. The number of ECB deals significantly increased between 2023 and 2024, contributing to the overall financial stability of the country.

SPS Agreement

India and the US informed the World Trade Organization (WTO) that they have reached a mutually agreed solution on the outstanding dispute on poultry imports from Washington, thereby resolving all of their seven disputes at the global trade watchdog.

• The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) is a treaty of the World Trade Organization (WTO) that came into force on January 1, 1995. It establishes basic rules for food safety and animal and plant health standards.

• SPS measures must be based on scientific principles and sufficient evidence, except for provisional measures. Countries are encouraged to align their SPS measures with international standards set by organizations such as Codex Alimentarius, the World Organisation for Animal Health (OIE), and the International Plant Protection Convention (IPPC).

• SPS measures of other countries should be accepted as equivalent if they provide the same level of protection. Countries must conduct risk assessments to determine the appropriate level of protection, considering the impacts of pests or diseases.

• Members should recognize pest- or disease-free areas and areas of low prevalence, even if they are within a single country or a group of countries. This ensures that trade can continue from unaffected areas.

• Countries must notify changes in SPS measures and provide regulatory information through the WTO's SPS notification system. Disputes regarding SPS measures can be taken to the WTO's Dispute Settlement Body (DSB) if consultations fail.

Removal of Angel Tax

Amid a sharp decline in funding for start-ups and consequent job losses, Indian Inc has sought the removal of Angel Tax that has been a subject of heated debate between the industry and the government ever since the scope of the controversial tax was expanded in the Finance Bill 2023.

• The Confederation of Indian Industry (CII) recommended the removal of Section 56(2)(viib) of the Income-tax Act, commonly known as the 'Angel Tax,' to aid capital formation in the country.

• Introduced in 2012, Angel Tax aims to deter the use of unaccounted money through the subscription of shares of a closely held company at a value higher than the fair market value of the shares. It imposes a 30.6% tax on unlisted companies issuing shares at a price higher than their fair market value.

• Initially applied only to resident investors, the Finance Act 2023 extended Angel Tax to non-resident investors from April 1, 2024, meaning funding from foreign investors will also be considered taxable income for startups.

• The industry argues that the government's rationale—citing differences between valuations and actual performance as a sign of money laundering—is flawed. They stress that investors fund startups based on their future potential, and the tax on the difference between the issue price and fair market value has negatively impacted funding.

• The changes in Angel Tax provisions come amid a challenging period for Indian startups, with over 15,000 employees laid off and a more than 60% decline in funding in 2023. The inclusion of foreign investors in the tax ambit exacerbates the funding challenges faced by startups.

General Anti-Avoidance Rule

The Telangana High Court has ruled against a taxpayer against whom the revenue department had invoked the General Anti-avoidance Rule (GAAR).

• The General Anti-Avoidance Rule (GAAR) is an anti-tax avoidance law in India aimed at curbing tax evasion and preventing tax leaks. It came into effect on April 1, 2017, and its provisions fall under the Income Tax Act, 1961.

• GAAR is designed to check aggressive tax planning and target transactions or business arrangements primarily aimed at avoiding tax. It specifically addresses revenue losses due to such tax avoidance practices by companies.

Tax Reduction Categories:

• Tax Mitigation: This is a positive term where taxpayers take advantage of fiscal incentives provided by tax legislation, complying with its conditions and considering the economic consequences of their actions. Tax mitigation is permitted under the Act and remains acceptable even after GAAR's implementation.

• Tax Evasion: This occurs when an individual or entity does not pay the taxes due to the government. It is illegal and involves actions like wilful suppression of facts, misrepresentation, and fraud. Tax evasion is not covered by GAAR as existing laws are sufficient to address it.

• Tax Avoidance: This involves legal actions taken by taxpayers to reduce tax liability, which, although not illegal, are considered undesirable and inequitable as they undermine effective revenue collection. GAAR targets transactions where the sole intention is to avoid tax.

• GAAR applies to transactions that are prima facie legal but result in tax reduction. It specifically targets tax avoidance planning where legal steps are used solely for tax reduction, which would not have been undertaken if not for the tax benefits.

• By addressing aggressive tax avoidance measures, GAAR aims to ensure a more equitable and effective collection of revenue, preventing legal but undesirable practices that reduce tax liabilities and undermine the government's revenue objectives.

Global Food Policy Report 2024

Global food policy report 2024: Food systems for healthy diets and nutrition was released by International Food Policy Research Institute (IFPRI) Highlights of Global food policy report 2024

• Dietary Patterns: At least 38% of the Indian population consumes unhealthy foods, while only 28% adhere to the recommended intake of all five food groups: one starchy staple, one vegetable, one fruit, one pulse/nut/seed, and one animal-source food.

• Rising Consumption of Unhealthy Foods: The intake of calorie-dense, nutrient-poor foods is not only high but also increasing, whereas the consumption of vegetables and other micronutrient-rich foods remains low.

• Processed Food Trends: In India and other South Asian countries, the consumption of processed foods is on the rise. After cereals and milk, snacks and prepared foods constitute the largest portion of Indian food budgets.

• Malnutrition and Overweight Trends: The proportion of the Indian population suffering from malnutrition increased from 15.4% in 2011 to 16.6% in 2021. Additionally, the prevalence of overweight adults rose from 12.9% in 2006 to 16.4% in 2016.

• Economic Factors: The share of household food budgets spent on packaged (highly processed and calorie-dense) foods nearly doubled from 6.5% to 12% during this period. In the South Asian region, micronutrient-rich foods are relatively expensive, while cereals, fats, oils, and sugary and salty snacks are more affordable.

Colombo Process: Regional Consultative Process

India has assumed the chair of the Colombo Process for 2024-26, the first time since the forum's inception in 2003.

• The Colombo Process is a Regional Consultative Process focused on managing overseas employment and contractual labour.

• It comprises 12 Asian member states, including Bangladesh and Sri Lanka, with India as a founding member. Priority areas include skills and qualification recognition and fostering ethical recruitment practices.

• The UN's International Organization for Migration provides technical and administrative support.

• IOM: Established in 1951 as part of the UN System, headquartered in Geneva, Switzerland.

• It comprises 175 member states and aims to address displacement issues and facilitate pathways for regular migration. It leads initiatives like the Global Compact for Migration.

Two-State Solution

India said that it was one of the first countries to recognise Palestine and has long supported the two-state solution to end the Israel-Palestine conflict.

• The two-state solution has long been proposed as the best hope for peace in the Israeli-Palestinian conflict.
• This solution envisions an independent Palestinian state established alongside the existing state of Israel, granting both peoples their own territories.
• In 1947, the United Nations proposed partitioning Palestine into separate Arab and Jewish states with international governance over Jerusalem. Jewish leaders accepted the plan, which allocated 56% of the land to them.
• On May 14, 1948, the state of Israel was declared. The next day, five Arab states attacked.
• The ensuing war ended with Israel controlling 77% of the territory.
• Approximately 700,000 Palestinians fled or were expelled from their homes, finding refuge in Jordan, Lebanon, and Syria, as well as in the Gaza Strip, the West Bank, and East Jerusalem.
• In the 1967 war, Israel captured the West Bank, including East Jerusalem, from Jordan and Gaza from Egypt, securing control of all territory from the Mediterranean to the Jordan Valley.
• The Palestinians remain stateless, with most living under Israeli occupation or as refugees in neighbouring states.

Claudia Sheinbaum Elected
Mexico's First Woman President

Claudia Sheinbaum has been named Mexico's first female president. According to the National Electoral Institute, Sheinbaum won between 58 and 60% of the votes, which is more than 30 percentage points more than her closest rival, Xochitl Galvez.

• Claudia Sheinbaum made history by becoming the first female president of Mexico and the first of Jewish descent in a predominantly Catholic nation. Prior to her presidency, she gained recognition as an accomplished climate expert and served as the mayor of Mexico City.
• The recent election marked a significant milestone in Mexican history, being the largest in scale with approximately 130 million citizens. More than 20,000 political positions were up for grabs, spanning all seats in parliament and numerous regional and local offices.
• Despite instances of violence, including tragic incidents like the death of a council candidate and a kidnapping at a polling station, voter turnout was robust. The aftermath saw widespread celebration, underscoring the populace's deep engagement in the democratic process.

Global Gender Gap Report 2024

The World Economic Forum released the 18th edition of its annual Global Gender Gap Report for 2024, comprehensively benchmarking gender parity across 146 economies worldwide.

Key Findings of the Report

• In 2024, the global gender gap score is 68.5%, indicating that 31.5% of the gap remains unaddressed. Progress has been extremely slow, with only a 0.1% improvement from 2023.

• At the current pace, it will take 134 years to achieve full gender parity globally, far beyond the 2030 Sustainable Development Goal target.

• The largest gender gaps are in Political Empowerment (77.5% unaddressed) and Economic Participation & Opportunity (39.5% unaddressed).

• Iceland (93.5%) remains the most gender-equal society in the world for the 15th consecutive year, followed by Finland, Norway, New Zealand, and Sweden in the top five rankings.

• Seven of the top ten countries are from Europe (Iceland, Finland, Norway, Sweden, Germany, Ireland, and Spain).

• Other regions represented in the top ten are Eastern Asia and the Pacific (New Zealand at 4), Latin America and the Caribbean (Nicaragua at 6), and Sub-Saharan Africa (Namibia at 8).

• Spain and Ireland made notable advances into the top ten in 2024, climbing eight and two ranks, respectively, compared to 2023.

• Europe leads with 75% of its gender gap closed, followed by Northern America (74.8%) and Latin America & the Caribbean (74.2%).

• The Middle East and North Africa region ranks last, with 61.7% of its gender gap closed.

• The Southern Asia region ranks seventh out of eight regions, with a gender parity score of only 63.7%.

The 2024 Shangri-La Dialogue took place in Singapore from 31 May to 2 June.

• The Philippines issued a statement on the South China Sea conflict, warning that the situation would reach a critical point, or "crossing the Rubicon," if a Filipino citizen were killed by Beijing's on-going actions in the region.

• Canada announced the deployment of a Harry DE Wolf-class Arctic patrol vessel to the Indo-Pacific as part of its efforts to enhance its naval presence.

• The Shangri-La Dialogue has become a key independent forum for international security policy decision-makers to exchange views.

• It offers a unique platform for government ministers, senior officials, business leaders, and security experts to debate and address Asia's evolving security challenges.

The Shangri-La Dialogue:

• It is Asia's premier defence summit.

• This unique meeting allows ministers to debate the region's most pressing security challenges, engage in bilateral talks, and develop new approaches together.

• The Shangri-La Dialogue (SLD) is an annual "Track One" inter-governmental security conference held in Singapore.

• Organized by the International Institute for Strategic Studies (IISS), an independent think tank.

• Named after the Shangri-La Hotel in Singapore, where it has been held since 2002.

• Attended by defence ministers, permanent heads of ministries, and military chiefs from mostly Asia-Pacific states.

• It fosters a sense of community among the most important policymakers in the defence and security sectors in the region.

• Besides government delegations, the summit also attracts legislators, academic experts, distinguished journalists, and business delegates.

• The 2024 Shangri-La Dialogue took place in Singapore from May 31 to June 2, with the Keynote Address delivered by Ferdinand R. Marcos Jr., President of the Philippines.

60TH MEETING OF THE SUBSIDIARY BODIES

As the world gears up for the 29th Conference of Parties (COP) to UNFCCC later this year, Delhi-based think tank Centre for Science and Environment (CSE) has called on developed countries to fulfil their financial obligations in the fight against climate change.

• The 60th meeting of the Subsidiary Bodies (SB60) is conducted in Bonn, Germany

• Purpose and Participants: SB60, also known as the mid-year climate conference, will gather countries that are parties to the United Nations Framework Convention on Climate Change (UNFCCC). The event anticipates around 6,000 attendees, including national delegates and representatives from civil society.

• Strategic Importance: Positioned between the 28th Conference of the Parties (COP28) held in Dubai and COP29 scheduled for Azerbaijan, SB60 plays a crucial role in shaping the outcomes that will influence future global climate negotiations.

• Annual Global Stocktake (GST) Dialogue: A highlight of SB60 will be the inaugural Annual GST Dialogue. This platform aims to facilitate the exchange of effective strategies and lessons learned among countries on integrating GST outcomes into their Nationally Determined Contributions (NDCs). The dialogue aims to foster collaborative learning and advance progress towards achieving the goals outlined in the Paris Agreement.

United Nations

G7 Summit 2024

The Prime Minister attended the annual G7 summit held in Italy from 13 to 15th June 2024. This summit marked the 50th anniversary of the group.

• This marks his first foreign trip since assuming office for the third consecutive term.

Key Highlights of the 50th G7 Summit in Italy:

• Promotion of the G7 PGII (Partnership for Global Infrastructure and Investment):
- • At the 50th G7 Summit, leaders decided to advance concrete G7 PGII initiatives.
- • This initiative, launched by the US and G7 allies at the 48th G7 Summit in 2022, aims to address the USD 40 trillion infrastructure gap in the developing world.
- • It is a "values-driven, high-impact, and transparent infrastructure partnership" designed to meet the vast infrastructure needs of low and middle-income countries.
- • Under this initiative, the G7 will mobilize USD 600 billion by 2027 to deliver infrastructure projects to developing and middle-income countries.

• India-Middle East-Europe Economic Corridor (IMEC):
- • IMEC aims to create a comprehensive transportation network, comprising rail, road, and sea routes, connecting India, the Middle East, and Europe.
- • The IMEC agreement was signed at the G20 Summit in New Delhi in September 2023.
- • This project is part of the PGII.
- • The proposed IMEC will consist of:
  - • Railroad, Ship-to-Rail networks, and Road transport routes extending across two corridors:
    - • East Corridor: Connecting India to the Arabian Gulf
    - • Northern Corridor: Connecting the Gulf to Europe.
- • Additional infrastructure including an electricity cable, a hydrogen pipeline, and a high-speed data cable.

• The signatories of IMEC include India, the US, Saudi Arabia, UAE, the European Union, Italy, France, and Germany.

KAZA Summit 2024

At the KAZA Summit 2024, leaders of the Kavango-Zambezi Trans-Frontier Conservation Area (KAZA-TFCA) decided to oppose the ivory trade ban at the CoP 20 of CITES.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):

• CITES is an international agreement among 184 governments aimed at ensuring that international trade in wild animals and plants does not threaten their survival.

• The convention came into force in 1975, and India has been a party to CITES since 1976.

• All import, export, and re-export of species covered under CITES must be authorized through a permit system.

Appendices of CITES:

• Appendix I: Prohibits commercial trade of critically endangered species.

• Appendix II: Regulates trade to prevent over-exploitation.

• Appendix III: Protects species under national laws.

• Every two years, the Conference of the Parties (CoP), the supreme decision-making body of CITES, applies a set of biological and trade criteria to evaluate proposals from parties to decide if a species should be listed in Appendix I or II.

Ivory Trade:

• The ivory trade involves the commercial trade in elephant ivory tusks and other ivory products.

• Each year, at least 20,000 African elephants are illegally killed for their tusks.

• The ivory trade poses a significant threat to elephant survival, harms ecosystems, endangers local communities, and undermines security.

• Traditionally, the ivory trade has involved smuggling whole or partial elephant tusks from Africa to Asia, where they are processed and carved into ivory products.

• The demand for ivory has been primarily driven by a growing middle class in China, where ivory carving is a longstanding tradition.

UN Assistance Mission for Iraq (UNAMI)

The UN Security Council voted to end the UN mission in Iraq (UNAMI) that was set up after the 2003 US-led invasion.

• UNAMI's job was to help Iraq rebuild after the war and restore a government.

• The resolution doesn't mention the geographical features of Iraq.

• UNAMI will cease operations by December 31, 2025.

• Iraq wants to manage its own security and stability.

• The resolution supports Iraq's reform efforts and helps with remaining issues from the Saddam Hussein era.

• Both the US and Russia agree Iraq is ready for self-reliance.

Maldives Bans Entry to Israeli Passport Holders

Because of rising tensions and popular displeasure over recent events in Gaza, the Maldives has banned visitors with Israeli passports.

• Under pressure from the public and government, President Dr. Mohamed Muizzu decided, with his Cabinet's support, to implement a ban on Israeli passport holders, sparking global reactions.

• The ban was prompted by an Israeli airstrike in Rafah, which killed 45 people in a tent camp marked as a "safe zone," causing widespread anger in the Maldives.

• Following the Rafah incident, President Muizzu announced the ban, initiated a national fundraising campaign for Palestinians, and organized a solidarity rally titled "Maldivians in Solidarity with Palestine."

• The Maldivian Cabinet is responsible for formalizing the ban, changing relevant laws, and setting up a panel to monitor the process, with President Muizzu emphasizing adherence to international law.

• In response, the Israeli Foreign Ministry advised its citizens to avoid traveling to the Maldives and recommended those already there consider leaving, highlighting the ban's implications for international relations. The Maldives had previously lifted a similar ban in the early 1990s and attempted to restore ties in 2010, but these efforts faced setbacks after President Mohamed

World Summit on the Information Society

India played a significant role in the ITU's WSIS+20 Forum High-Level Event and the 'AI for Good' Global Summit. During these events, India showcased its leadership in drafting global standards for responsible and trustworthy AI.

• The WSIS+20 Forum commemorates 20 years of progress since the World Summit on the Information Society (WSIS), which occurred in Geneva in 2003 and Tunis in 2005.

• This annual forum, co-organized by ITU, UNESCO, UNDP, and UNCTAD, aims to create a multi-stakeholder platform addressing issues raised by information and communication technologies inclusively at national, regional, and international levels.

• Its goal is to foster a people-centric, inclusive, and development-oriented Information Society, enabling universal access, utilization, and sharing of information.

NON-PERMANENT MEMBERS OF THE UNSC

Pakistan, Panama, Somalia, Denmark, and Greece have been elected as non-permanent members of the UN Security Council for a two-year term starting in 2025. This marks Pakistan's 8th term as a non-permanent member

• India has been elected as a non-permanent member of the UN Security Council 8 times, the last being 2021-2022.

• The UNSC is one of the six principal organs of the UN, along with the UNGA, Economic and Social Council, Trusteeship Council, International Court of Justice, and UN Secretariat.

• It consists of 15 members, with five permanent members (China, France, Russia, the UK, and the US) holding veto power.

• The UNSC has primary responsibility for maintaining international peace and security.

• United Nations General Assembly (UNGA) annually elects five non-permanent members of the United Nations Security Council (UNSC) for a two-year term through a secret ballot.

KASA: South Korea's Space Agency

South Korea has officially launched its space agency, the Korea AeroSpace Administration (KASA), to lead policy and industrial development in its aerospace sector.

• South Korea has officially launched its space agency, the Korea AeroSpace Administration (KASA), to lead policy and industrial development in its aerospace sector.
• The establishment was made possible after the Country's national assembly passed a special law in January to unify government organizations in charge of space policy and projects.
• The new agency is based in Sacheon, South Gyeongsang Province, with an annual budget of 758.9 billion won ($556 million).

National Space Agency (KASA)

• The Korea Aerospace Administration (KASA) will spearhead South Korea's "space economy," with the involvement of hundreds of businesses and enterprises, aiming to position the country among the world's top five space powers, according to President Yoon.
• South Korea's first lunar lander mission is planned for 2032.
• With the launch of the Nuri rocket in May last year, which successfully placed a commercial-grade satellite in orbit, South Korea became the seventh country to develop indigenous space launch vehicle and satellite development technology.
• KASA will streamline policy and development functions currently distributed among different government ministries, incorporating the aerospace research institute responsible for developing the Nuri and its precursor space launch vehicles.
• South Korea plans at least three more space launches by 2027 and has plans to launch military satellites.

United Nations Global Supply Chain Forum

The inaugural United Nations Global Supply Chain Forum, organized by UN Trade and Development (UNCTAD) and the Government of Barbados, concluded successfully recently.

• The inaugural edition of the UN Global Supply Chain Forum was held from May 21 to 24, 2024, in Barbados.

• Hosted by UN Trade and Development (UNCTAD) in collaboration with the Government of Barbados.

• Over 1,000 participants from around the world convened to address pressing issues such as global disruptions, geopolitical tensions, climate change, and the COVID-19 pandemic and their impact on global trade.

• Key figures in attendance included trade and transport Ministers from several small island developing states (SIDS), representatives from various UN agencies, major ports like the Port of Seattle, and industry leaders in shipping and logistics.

• The forum highlighted the complexities and opportunities in decarbonizing global shipping, especially in developing countries rich in renewable energy resources.

• Critical steps identified included incentivizing low- or zero-carbon fuels, establishing safety frameworks for new fuels, and enhancing port readiness for handling various fuels to drive sustainable freight transport and logistics.

• A major outcome was the launch of the "Manifesto for Intermodal, Low-Carbon, Efficient and Resilient Freight Transport and Logistics," which calls for a transformation in freight transport to achieve global climate targets and improve socio-economic resilience, emphasizing zero-emission fuels, optimized logistics, and sustainable value chains.

• Digital technologies were emphasized as key to enhancing global supply chain resilience.

• Ministers from SIDS advocated for international financial support and investment in green and sustainable technologies to enhance energy efficiency and combat marine pollution.

• Another significant achievement was the launch of the UN Trade and Development Trade-and-Transport Dataset, developed in collaboration with the World Bank. This comprehensive repository provides global data on over 100 commodities and various transport modes, offering a holistic view of trade and transport costs.

AUKUS Alliance and Its Pivot to France

The article discusses the AUKUS alliance among the US, UK, and
Australia to bolster military capabilities against China, including sharing nuclear submarine technology.

• AUKUS, established in 2021 as a trilateral partnership, aims to enhance security and defense interests, primarily as a response to China's influence in the Indo-Pacific region.

• The partnership involves deeper information and technology sharing, as well as the integration of security-related industries.

• India, while not a member, has engaged in informal discussions with the AUKUS bloc regarding emerging technologies, although formal dialogue has not yet occurred.

• AUKUS represents the first time the U.S. has shared nuclear submarine propulsion technology outside of its alliance with the UK, highlighting its significance.

• The partnership spans across eight advanced military domains,
encompassing AI, quantum technologies, cyber warfare, undersea warfare, hypersonic technologies, electronic warfare, and innovation/information sharing.

• Initial technologies include algorithms for enhancing sonobuoy data
sharing from P-8 Poseidon aircraft.

• Despite operating similar aircraft to AUKUS nations, India has not been invited to participate in AUKUS's nuclear technology sharing, which the U.S. typically reserves for its closer allies.
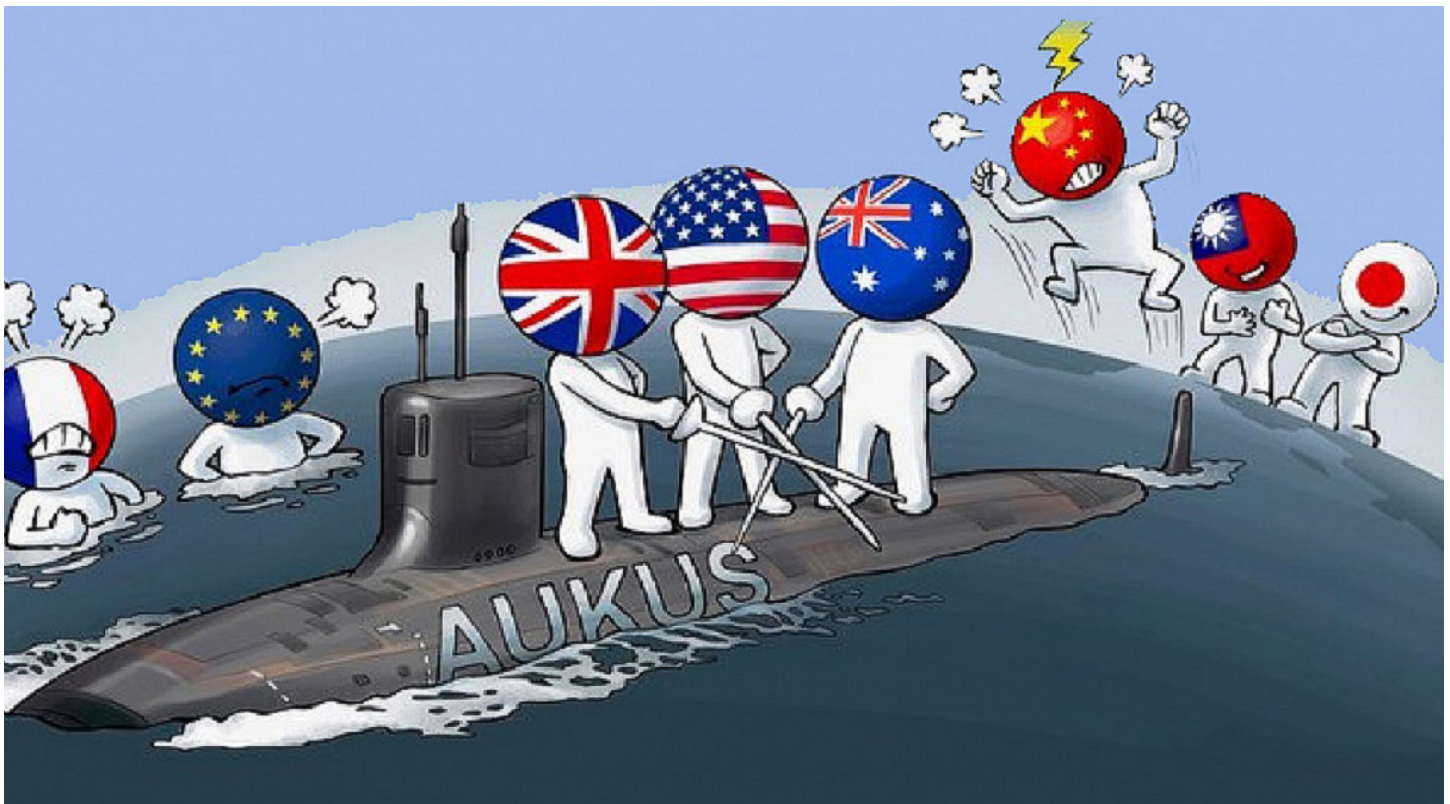
INTERNATIONAL ORGANIZATION OF MIGRATION (IOM)

At least 49 migrants died and 140 others were missing after their boat capsized off the coast of Yemen, the U.N. migration agency said on June 11.

• The International Organization for Migration (IOM) is an intergovernmental organization established in 1951, headquartered in Geneva, Switzerland.

• IOM has 175 member states and 8 observer states, working to promote humane and orderly migration through services and advice to governments and migrants.

• The organization publishes key reports like the World Migration Report and Migration Health Annual Report, informing global policies on migration.

• IOM aims to optimize migration benefits for home and host countries, as well as for migrants themselves, ensuring their well-being and integration.

• Providing crucial health services to migrants and displaced populations is a core focus of IOM, alongside responding to humanitarian crises with emergency relief and recovery efforts such as transportation aid and shelter support.

• IOM plays a pivotal role in combating human trafficking through prevention, protection, and prosecution measures, offering critical assistance to trafficking victims.

43rd Signatory of the Artemis Accords: Armenia

Armenia becomes the 43rd signatory of the Artemis Accords, a set of principles for global space exploration cooperation led by NASA.

• The Artemis Accords, established in 2020 by NASA and seven founding member nations, including the US, are a set of non-binding principles aimed at guiding civil space exploration.

• With 43 signatories, including India (signed in 2023), the accords promote peaceful, sustainable, and transparent cooperation in space, grounded in the Outer Space Treaty of 1967.

• Armenia is a landlocked country in the mountainous Caucasus region between Asia and Europe. Yerevan is the capital.

• Armenia was the first state to adopt Christianity as its official religion.

• It underwent the Armenian genocide during World War I.

• After periods of independence and Soviet rule, it became independent in 1991.

STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE (SIPRI)

A Stockholm International Peace Research Institute (SIPRI) report was released that highlighted the increased risk and instability associated with the ongoing modernisation and expansion of nuclear arsenals worldwide. Key Highlights of the Report:

• All nine nuclear-armed states (USA, Russia, UK, France, China, India, Pakistan, North Korea, and Israel) continued to modernise their nuclear arsenals.

• The total global inventory of nuclear warheads was approximately 12,121 as of January 2024, with about 9,585 in military stockpiles.

• Around 2,100 warheads were kept on high operational alert, primarily by Russia and the USA, but for the first time, China may have some warheads on high alert.

• Russia and USA together hold almost 90% of all nuclear weapons.

• China has significantly increased its nuclear arsenal from 410 to 500 by January 2024 and is expanding its nuclear arsenal faster than any other country.

• North Korea has approximately 50 warheads and materials for up to 90.

• Israel is modernising its arsenal and enhancing plutonium production capabilities (though not officially acknowledged).

• India now has 172 nuclear warheads as of January 2024, ranking 6th globally, ahead of Pakistan (170), and is emphasising longer-range weapons aimed at China.

• Nuclear arms control and disarmament diplomacy faced setbacks, particularly due to the war in Ukraine and Gaza.

• Tensions between Iran and the USA fluctuated and the Israel-Hamas war complicating diplomatic efforts.

• Significant setbacks included Russia's suspension from the New START treaty and withdrawal from the Comprehensive Nuclear-Test-Ban Treaty (CTBT) ratification.

• It also highlighted issues like military expenditure, arms transfers, and the role of private military companies in conflicts.

• It also highlighted the risks related to artificial intelligence, outer space, cyberspace, and the protection of civilians in war zones.

Mitigation Work Programme

The road to the COP29 to the United Nations Framework Convention on Climate Change in Baku appears bumpy after the mid-year climate talks in Bonn, Germany concluded on June 13, with little progress, according to researchers from the Centre for Science and Environment.

• The Mitigation Work Programme (MWP) is a process established by the United Nations Framework Convention on Climate Change (UNFCCC) to help countries scale up their mitigation ambition and implementation to achieve the 1.5°C goal of the Paris Agreement.

• Foster innovative discussions among policymakers and stakeholders to overcome barriers to scaling up mitigation action.

• Ensure diverse participation to support national processes and practical domestic policy making pathways.

• Identify cost-effective and scalable mitigation opportunities to help countries implement and enhance their Nationally Determined Contributions (NDCs).

• Conduct annual global dialogues and investment-focused events from 2023-2026.

• Focus on equity, sustainable development, and synergies with adaptation, considering regional approaches.

IPEF Ministerial Meeting 2024

India participated in the Indo-Pacific Economic Framework for Prosperity (IPEF) Ministerial Meeting, held in Singapore on 6th June 024, showcasing the significant strides made in fostering economic engagement among partner countries in the Indo-Pacific region.

• Members of the International Partnership for Energy and Finance (IPEF) have signed three agreements focusing on the Clean Economy, Fair Economy, and the overarching IPEF Agreement, aimed at advancing energy security, climate resilience, and reducing greenhouse gas emissions.

• India, while supportive, has not yet formally signed these agreements pending domestic approval processes.

• India has initiated a Cooperative Work Programme (CWP) under IPEF, focusing on recovering valuable resources from electronic waste through e-waste urban mining, demonstrating leadership in sustainable resource management.

• The IPEF Catalytic Capital Fund has been launched with initial grant funding of USD 33 million from founding supporters like Australia, Japan, Korea, and the US. This fund aims to leverage USD 3.3 billion in private investment for clean economy infrastructure projects in emerging and upper-middle-income economies within the partnership.

• The agreements strive to enhance transparency and predictability in business environments, promote fair competition, and strengthen anti-corruption efforts across IPEF member states.

• India has highlighted its commitment to digital skills training through programs like Digital Forensics & System-Driven Risk Analysis, offering training opportunities primarily to women and girls in IPEF partner countries.

• Over the past two years, India has provided 10.9 million upskilling opportunities, including 4 million within its own borders, contributing significantly to capacity building and economic empowerment.

Tadoba-Andhari Tiger Reserve

A 32-year-old woman was killed by a tiger in the buffer zone of the Tadoba Andhari Tiger Reserve (TATR) in Maharashtra's Chandrapur district recently.

• Tadoba-Andhari Tiger Reserve is located in the Chandrapur district of Maharashtra.

• It includes Tadoba National Park and Andhari Wildlife Sanctuary.

• It is the largest and oldest Tiger Reserve in Maharashtra.

• The total area of the reserve is 625.4 sq. km.

• The origin of the name "Tadoba" lies with the name of the god "Tadoba" or "Taru", worshipped by the tribes that live in the dense forests of the Tadoba and Andhari regions. "Andhari" refers to the Andhari River that meanders through the forest.

• The reserve has corridor linkages with Nagzira-Navegaon and Pench Tiger Reserves within the State.

Nagi and Nakti Bird Sanctuaries: Added To Ramsar List

Nagi and Nakti bird sanctuaries in Bihar's Jamui district are now recognized under the Ramsar Convention, bringing India's total Ramsar sites to 82.

• Nagi-Nakti Wetland in Bihar's Jamui district, nestled within the Jhajha forest range, are man-made reservoirs surrounded by dry deciduous forests and hills.

• Developed primarily for irrigation, they host diverse flora and fauna, including over 150 bird species, mammals, fish, aquatic plants, reptiles, and amphibians.

• They are also designated as Important Bird and Biodiversity Areas by BirdLife International. They provide habitat for various migratory and resident bird species.

ENVIRONMENT

Red List of Mangrove Ecosystems

The International Union for Conservation of Nature (IUCN) has issued a "Red List of Mangrove Ecosystems" cautioning that half of the world's mangrove ecosystems are at risk of collapsing.

• Mangrove Extent and Importance: Mangroves cover approximately 150,000 km² along tropical, sub-tropical, and warm temperate coasts, accounting for 15% of global coastlines. These ecosystems are crucial for biodiversity conservation, providing essential services to local communities and mitigating climate change impacts. Their collapse poses a significant socioeconomic concern.

• Assessment and Risks: The assessment categorized mangroves into 36 provinces, evaluating threats and collapse risks. Over 50% of global mangrove ecosystems face collapse risks (vulnerable, endangered, or critically endangered), with nearly 1 in 5 at severe risk. Sea-level rise poses a severe threat, potentially submerging 25% of global mangrove areas within 50 years.

• Regional Variations: Specific regions face varying levels of risk: South India (shared with Sri Lanka and Maldives) is classified as "critically endangered," while the Bay of Bengal (shared with Bangladesh) and Pakistan's western coast are considered "least concerned." Significant impacts are anticipated for coasts along the Northwest Atlantic, North Indian Ocean, Red Sea, South China Sea, and Gulf of Aden.

• Primary Threats and Future Projections: Climate change is identified as the foremost threat, impacting 33% of mangroves, followed by deforestation, development, pollution, and dam construction. Increased cyclone frequency and intensity are particularly affecting certain coastlines. Without enhanced conservation efforts, up to 7,065 km² (5%) more mangroves could be lost, and 23,672 km² (16%) could be submerged by 2050.

NATURE AFRICA INITIATIVE

The European Commission (EC) has removed Tanzania from the list of countries eligible for its 18 million Euro conservation grant to be launched in East Africa as part of its NaturAfrica initiative.

• NaturAfrica initiative is a European Union (EU) program aimed at supporting biodiversity conservation in Africa through a people-centred approach.

• It identifies key landscapes for conservation and development, focusing on creating jobs, improving security, and sustainable livelihoods while preserving ecosystems and wildlife.

• The initiative is structured around two pillars: short-term actions in key landscapes and medium-term support to address the root causes of biodiversity loss and environmental degradation by integrating these concerns into other sectors.

World Environment Day is celebrated on 5th June every year to encourage awareness and environmental protection.

• **Biospheres in Tiger Reserves**: In an innovative effort to combat deforestation and restore biodiversity, two environmentalists have led the creation of India's first biospheres within tiger reserves.

• **World Environment Day Origins**: Established by the United Nations Assembly in 1972, World Environment Day (WED) began on the first day of the Stockholm Conference on the human environment. Each year, WED is celebrated with a specific theme and slogan addressing major environmental issues.

• **Recent and Upcoming Celebrations**:
   • WED 2024 is hosted by Saudi Arabia.
   • India hosted the 45th celebration of WED in 2018 with the theme 'Beat Plastic Pollution.'
   • The 2021 WED celebration marked the start of the UN Decade on Ecosystem Restoration (2021-2030), aiming to revive billions of hectares of land and water ecosystems.

• **Theme for 2024 and Milestones:**
   • The theme for WED 2024 is "Land Restoration, Desertification, and Drought Resilience."
   • The year 2024 also commemorates the 30th anniversary of the UN Convention to Combat Desertification (UNCCD)

UN Convention on Combating Desertification (UNCCD) Report on Rangelands and Pastoralists

A UN Convention on Combating Desertification (UNCCD) report on rangelands and pastoralists has said that millions of pastoralists in India need better recognition of their rights and access to markets.

Key Findings of the UNCCD Report

Global Rangelands Overview:
   • Rangelands cover 80 million square kilometers, accounting for 54% of the earth's surface, making them the largest land cover/use type globally.
   • 78% of these rangelands are in drylands, primarily in tropical and temperate regions.
   • Only 12% of rangelands worldwide are protected.
   • Around 40-45% of rangelands are degraded, threatening one-sixth of the world's food supply and one-third of the planet's carbon reservoir.
   • Rangelands contribute 16% of global food production and 70% of feed for domesticated herbivores,

especially in Africa and South America.

Rangelands in India

• Rangelands in India span about 1.21 million square kilometers, from the Thar Desert to Himalayan meadows.

• Less than 5% of India's grasslands are protected, with the total grassland area decreasing from 18 million ectares to 12 million hectares between 2005 and 2015.

• Grazing land comprises approximately 40% of India's total land surface.

Pastoralism and Economic Contributions in India

• Globally, 500 million pastoralists are involved in livestock production and related occupations.

• India has around 13 million pastoralists across 46 groups, including Gujjars, Bakarwals, Rebaris, Raikas, Kurubas, and Maldharis.

• India holds 20% of the world's livestock population, with approximately 77% raised in pastoralist systems.

• The livestock sector contributes 4% to the national GDP and 26% to the agricultural GDP.

• The Forest Rights Act of 2006 has helped pastoralists secure grazing rights across various states.

About Rangelands and Pastoralists

• Rangelands are vast natural landscapes primarily used for grazing livestock and wildlife, dominated by grasses, shrubs, and open-canopy trees.

• Pastoralists are people who raise livestock on natural pastures, often leading a nomadic or semi-nomadic lifestyle, moving their herds seasonally to access fresh pastures and water sources.
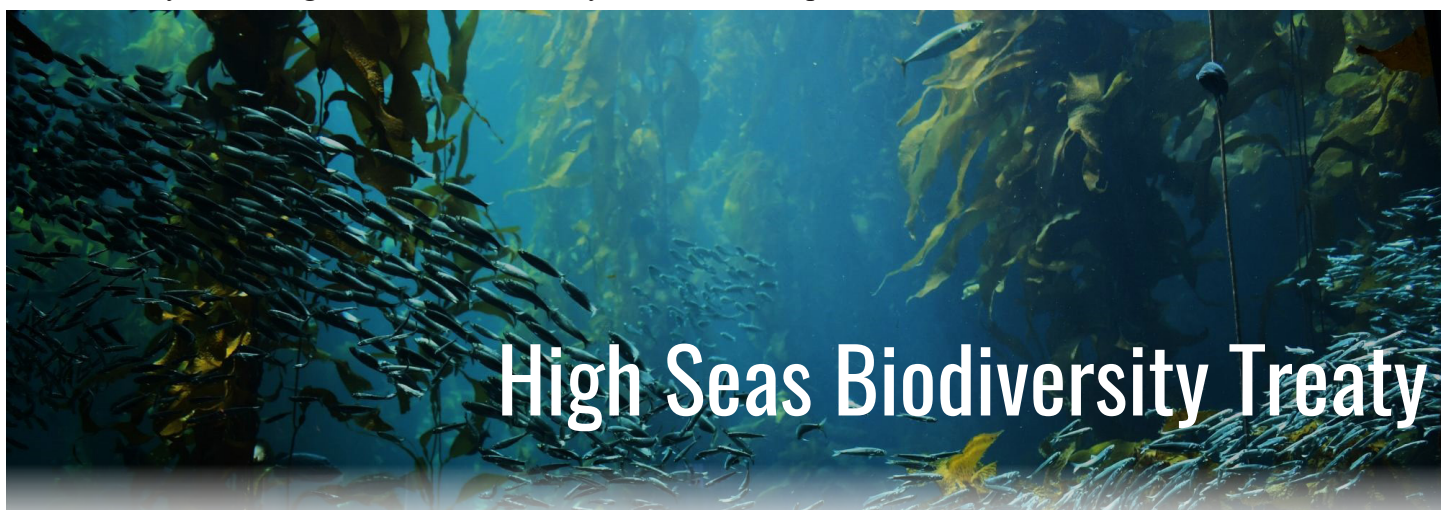
High Seas Biodiversity Treaty

Grethel Aguilar, the director general of the International Union for Conservation of Nature (IUCN), urged countries worldwide "to strive for a fully functional High Seas Biodiversity Treaty".

• The high seas are those areas of the world's oceans that are outside national jurisdictions.

• They constitute a huge chunk of the world's oceans and are home to a wide variety of biodiversity.

• While countries are responsible for the conservation and sustainable use of waterways under their national jurisdiction, the high seas now have added protection from such destructive trends as pollution and unsustainable fishing activities.

•The treaty aims at strengthening resilience and contains provisions based on the polluter-pays principle as well as mechanisms for disputes. It addresses the issue of toxic chemicals and plastic waste flooding into coastal ecosystems.

Sustainable Management of Fish Stocks: More than one third of global fish stocks are over-exploited, according to the UN.

• The treaty underlines the importance of capacity building and the transfer of marine technology.

• The treaty provides a legal framework for addressing various stressors affecting the marine environment in the high seas.

• The treaty is crucial for addressing the triple planetary crisis of climate change, biodiversity loss, and pollution.

• The treaty recognizes traditional knowledge. It has articles regarding the "polluter-pays" principle, and different impacts of human activities including areas beyond the national jurisdiction of the countries making those activities.

• The agreement was adopted by the 193 United Nations Member States.

• Before the treaty can enter into force, it needs to be ratified by at least 60 UN member states.

• However, only seven countries — Belize, Chile, Mauritius, Federated States of Micronesia, Monaco, Palau and the Seychelles — have ratified the treaty. India has neither signed nor ratified the treaty.

• Greenpeace called it "the biggest conservation victory ever". The main achievement is the new possibility to create marine protected areas in international waters.

Bonn Climate Conference 2024

The recent climate meeting in Bonn, Germany, did not achieve significant progress in defining a new climate finance goal.

• Countries have yet to make concrete advancements on issues concerning the funding required to address the climate crisis.

• Climate Financing refers to large-scale investments required for actions to mitigate or adapt to climate change.

• Mitigation involves reducing greenhouse gas emissions, such as increasing renewable energy and expanding forest cover.

• Adaptation involves taking action to prevent or minimise the damage from adverse effects of climate change, such as building infrastructure to protect coastal communities from sea-level rise.

• The 1992 United Nations Framework Convention on Climate Change (UNFCCC) mandated high-income countries to provide climate finance to the developing world.

• As per Copenhagen Commitment, 2009, developed countries agreed to provide USD 100 billion per year to developing countries by 2020.

• The Green Climate Fund was established in 2010 as a key mechanism to deliver climate finance.

• The Paris Agreement in 2015 reinforced the USD 100 billion target and extended it to 2025

ENVIRONMENTAL PERFORMANCE INDEX 2024

According to the 2024 Environmental Performance Index (EPI), India was ranked 176th out of 180 nations.

• Compared to 2022, when it was at the bottom of the index, this shows a small gain. Different external factors are used by Yale and Columbia universities to make the EPI.

• Historically, India's rank has gone up and down, but since 2014, it has gone down a lot.

• India's rank changed from 122 to 127 between 2000 and 2012. In contrast, a steady drop was seen starting in 2014.

• The country was ranked 177th in 2018, 168th in 2020, 180th in 2022, and 176th in 2024.

• The drop is because other countries are doing better and India isn't doing enough to fix its pollution problems.

Environmental Performance Index (EPI):

• It is a biennial ranking developed by Yale and Columbia Universities to assess countries' environmental performance in achieving policy goals.

• Launched in 2006, it incorporates 32 performance indicators across 11 issue categories related to environmental health and ecosystem vitality.

World Crocodile Day 2024

World Crocodile Day is celebrated on 17th June. The day is a global awareness campaign to highlight the plight of endangered crocodiles and alligators around the world.

• The Crocodile Conservation Project was initiated by the United Nations and the Government of India, shortly after the passage of the Wild Life (Protection) Act, 1972.

• The primary objectives were to protect natural habitats, boost crocodile populations through captive breeding, and address the low survival rates of hatchlings in the wild.

• The project set up breeding and rearing centers at 34 sites in India, including Bhitarkanika, to protect and revive the country's endangered crocodilian population, particularly focusing on estuarine or saltwater crocodiles (Crocodylus porosus).

• The saltwater crocodile population in Bhitarkanika has significantly increased from 95 individuals in 1975 to 1,811 as of the latest reptile census report (2023).

• The saltwater crocodile is now found in three primary locations in India: Bhitarkanika, the Sundarbans, and the Andaman and Nicobar Islands.

Centre Has Proposed Eco-sensitive Areas

Karnataka, Maharashtra, and Goa, three of the six states where the Centre has proposed eco-sensitive areas (ESAs) to protect the Western Ghats have requested a reduction in the extent of these ESAs to permit development projects.

• In 2013, the government constituted a High-Level Working Group under the Chairmanship of Dr. Kasturirangan to make recommendations for conserving and protecting the biodiversity of Western Ghats while allowing for sustainable and inclusive development of the region.

• Previously, the Madhav Gadgil Committee (2011) also gave its recommendations of conservation of Western Ghats.

• The Committee had recommended that identified geographical areas falling in the six States of Kerala, Karnataka, Goa, Maharashtra, Gujarat and Tamil Nadu be declared ass ESA.

• The Committee recommended bringing just 37% of the Western Ghats under the ESA, down from the 64% suggested by the Gadgil Committee report.

• All the involved States recognised a need to protect the Western Ghats, however, they expressed their concerns related to the allowed activities and extent of the area mentioned in the draft notification.

• These states argue for the rationalisation of ESAs to facilitate development works.

• Karnataka opposed the K Kasturirangan panel report which proposed 20,668 km2 as ESA, citing adverse effects on local livelihoods.

• Goa also requested a reduction of about 370 km2 from the proposed 1,461 km2 of ESAs.

PANTANAL WETLAND

Fires in Brazil's Pantanal wetlands have surged nearly tenfold so far this year to the highest levels since 2020.

• Pantanal Wetland is the world's largest tropical wetland.

• It is located in the upper Paraguay River basin, the Pantanal straddles Brazil's border with Bolivia and Paraguay.

• About 80 percent of the Pantanal is in Brazil.

• It's a 185,000-square-kilometer (71,000-square-mile) mosaic of grassland swamps fed by rivers, streams and seasonal floods and dense, low-forested savanna.

• It was developed in a structural basin formed as the Andes Mountains rose.

• The climate is tropical, wet and dry.

• It is one of the most biologically rich environments on the planet, with more than 4,700 plant and animal species.

• Noteworthy animals include the jaguar, giant otter, giant armadillo, marsh deer, pampas deer and hyacinth macaw (the biggest parrot on the planet).

• It has the largest concentration of crocodiles in the world, with approximately 10 million caimans.

• In 2000, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) declared a small portion of the Pantanal a World Heritage Site.

• Around 95% of the Pantanal is under private ownership, the majority of which is used for cattle grazing.

PLACENTAL MAMMALS

New research from Stockholm University shows that the typical mammalian heater organ, brown fat, evolved exclusively in modern placental mammals.

• Placental mammals are animals that possess a placenta, a vascular organ formed during gestation in female mammals (excluding monotremes and marsupials).

• The placenta is made of both maternal and fetal tissues and facilitates the transfer of nutrients from the mother to the fetus while eliminating fetal waste products.

• Placental mammals carry their young in the uterus until they are born at an advanced stage.

• The young receive nourishment through the placenta before birth, which provides essential nutrients and oxygen.

• This system allows for a long period of fetal growth in the uterus, enabling the fetus to become large and mature before birth.

• Placental mammals are classified under the subclass Eutheria, with around 4,000 identified species.

• They include all living mammals except for marsupials and monotremes.

• Fossil evidence indicates that the first placental mammals evolved between 163 million and 157 million years ago during the Jurassic Period.

• Unlike placental mammals, marsupials and monotremes have a less-developed and less-efficient type of placenta, resulting in a shorter gestation period.
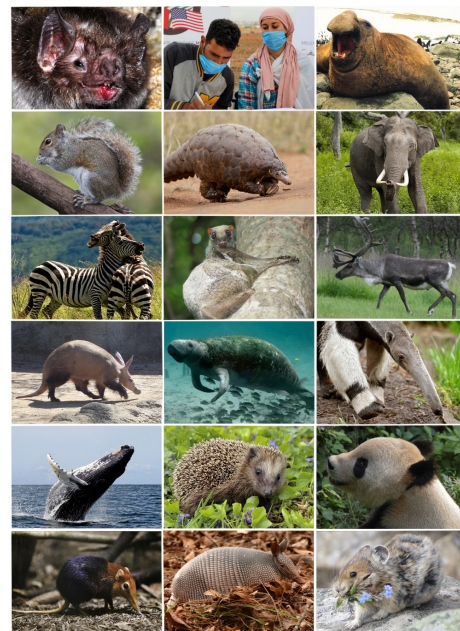
Pigment Purpurogallin

A team of scientists from the UK and Canada traced the evolution of purple glacier algae, revealing their significant impact on glaciers and challenging traditional evolutionary theories.

• These algae, which thrive in extreme glacier environments, have evolved to produce a purple pigment purpurogallin that protects them from UV and visible light, aiding in their survival.

• The study shows that these adaptations likely emerged 520-455 million years ago, rather than during the Snowball Earth period as previously thought.

• The algae's ability to simplify rather than increase in complexity contradicts the traditional "march of progress" hypothesis in evolution.

• These adaptations have enabled glacier algae to persist and significantly affect glacier melt, highlighting their role in fragile ecosystems and the importance of understanding their evolution in the context of climate change.
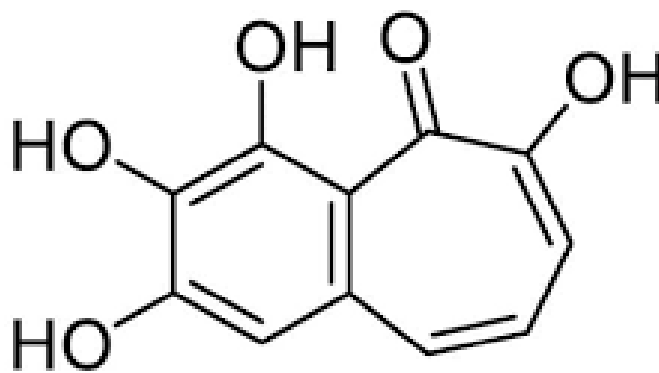
Purpurogallin (1)

Notified Disasters

The ongoing spell of extreme heat in many parts of the country has once again reopened discussions on the inclusion of heatwaves as one of the notified disasters under the Disaster Management (DM) Act, 2005.

• The Disaster Management Act, 2005, defines a disaster as a "catastrophe, mishap, calamity or grave occurrence" arising from natural or man-made causes that results in substantial loss of life, destruction of property, or damage to the environment.

• The Act includes 12 categories of notified disasters, which are: Cyclone, Drought, Earthquake, Fire, Flood, Tsunami, Hailstorm, Landslide, Avalanche, Cloudburst, Pest attack, Frost and cold waves

• These notified disasters are eligible for relief assistance under the State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF).

• The SDRF is primarily used for immediate relief to victims of notified disasters, while the NDRF supplements the SDRF in cases of severe disasters where funds are insufficient.

• However, heatwaves are not currently included as a notified disaster under the Act.

• Although heatwaves are a significant concern in India, particularly in certain regions, the Finance Commission has not been convinced to expand the list of notified disasters.

• States can use up to 10% of their SDRF allocation for local disasters, including heatwaves, which some states have done.

SUMMER SOLSTICE 2024

21st June has been marked as the day of the summer solstice in the northern hemisphere of the world.

• The summer solstice is celebrated as the beginning of summer, or midsummer when one of Earth's poles is at its maximum tilt towards the sun.

• The summer solstice marks the longest day of the year, when the sun reaches its highest point in the sky.

• During the solstice, the Earth's axis (around which the planet spins, completing one turn each day) is tilted in a way that the North Pole is tipped towards the sun and the South Pole is away from it.

• Typically, this imaginary axis passes right through the middle of the Earth from top to bottom and is always tilted at 23.5 degrees with respect to the sun.

• At the Arctic Circle(66°33 north latitude), the sun never sets during the solstice.

• The amount of light received by a specific area in the Northern Hemisphere during the summer solstice depends on the latitudinal location of the place.

Ghaggar River

The Punjab Chief Minister recently visited flood-prone areas along the Ghaggar River to take stock of the preparations for dealing with floods at the ground level ahead of the monsoon.

• Ghaggar River is a seasonal river that flows only during the monsoon season.

• It rises from the Shivalik Range in northwestern Himachal Pradesh.

• The river then flows about 200 miles (320 km) southwest through Haryana state to meet the River Saraswati.

• It eventually dries up in the Thar Desert in Rajasthan.

• This seasonal river feeds two irrigation canals that extend into Rajasthan.

• The Hakra, which flows in Pakistan, is the continuation of the Ghaggar River in India, and they are together called the Ghaggar – Hakra River.

• It is believed that the rivers Sutlej and Yamuna once flowed into the Ghaggar-Hakra river bed.

• The main tributaries of the Ghaggar are the Kaushalya River, Markanda, Sarsuti, Tangri, and Chautang.

Global Wind Day 2024

The Ministry of New and Renewable Energy (MNRE) organised 'Global Wind Day' on the 15th June 2024 with the theme of "Pawan Urja: Powering the Future of India".

• The event aimed at celebrating the success of the Indian Wind Sector and discussing ways to accelerate wind energy adoption in India.

• India has a cumulative installed wind power capacity of 46.4 GW by May 2024 (4th largest in the world) after China, US and Germany.

• Wind energy is crucial for India's efforts to achieve 50% of its electric power installed capacity from non-fossil fuel-based resources (500 GW renewable energy capacity) by 2030 and net zero by 2070.

• Gujarat, Karnataka, and TamilNadu are leading wind-energy producing states in India.

Maitri Setu

The Maitri Setu, also known as the India-Bangladesh friendship bridge, is set to open by September, connecting India's landlocked Northeast to the Bay of Bengal.

• The bridge is 1.9 kilometres long and connects Sabroom in Tripura with Ramgarh in Bangladesh.

• Maitri Setu is constructed over the Feni River, which acts as a boundary between India (in Tripura) and Bangladesh.

• The name 'Maitri Setu' signifies the strengthening of bilateral relations and friendly ties between India and Bangladesh.

• It is a pre-stressed concrete bridge with a single-span structure that facilitates smooth traffic and cargo flow.

• The construction of the bridge has been supervised by the National Highways and Infrastructure Development Corporation Ltd. (NHIDCL).

• NHIDCL is a government-owned company established in 2014 for the development & maintenance of National Highways & Strategic Roads of India.

• It operates as a nodal agency of the Ministry of Road Transport and Highways (MoRTH).

Chenab Rail Bridge : Successful Trial Run

The Indian Railway conducted a successful trial run on the newly-constructed world's highest railway bridge, Chenab Rail Bridge, in Jammu and Kashmir.

• Chenab Rail Bridge is located between Bakkal and Kauri in the Reasi district of Jammu and Kashmir (J&K).

• The 1.3-km-long bridge is located 359 metres above the Chenab riverbed.

• It is the highest single-arch railway bridge in the world.

• It is part of the Udhampur-Srinagar-Baramulla Rail Link project.

• The construction of the Chenab bridge has been a collaborative effort, involving various international organizations and renowned Indian institutions, including the Indian Institutes of Technology (IITs), the Defence Research and Development Organisation (DRDO), and the Geological Survey of India.

• It consists of 17 spans, with the main arch spanning an impressive 467 metres, making it the longest of its kind.

• The arch consists of steel boxes. Concrete has been filled in the boxes to improve stability.

• The bridge consists of 93 deck segments, each weighing approximately 85 tonnes.

Stromatolites: Discovered

Researchers have discovered living stromatolites on Sheybarah Island in the Red Sea, Saudi Arabia.

• Stromatolites are layered rock formations created by microbial communities, representing some of the earliest evidence of life on Earth.

• These structures are formed as layers of sediment accumulated over time, trapping and binding microorganisms like cyanobacteria.

• As these microorganisms grow and photosynthesize, they produce layers of carbonate minerals, gradually
building up the stromatolite structure.

• Despite their simple appearance, stromatolites played a crucial role in shaping Earth's early environment and are considered significant in the study of early life and evolutionary history.

Hindu Kush Himalaya

A recent report by the International Centre for Integrated Mountain Development (ICIMOD) analysed data on snow persistence from 2003 to 2024 and found it to be significantly lower than normal in the Hindu Kush Himalaya (HKH) this year.

• Hindu Kush Himalaya (HKH) region stretches 3,500 kilometres and spans eight countries: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan.

• The range has numerous high snow-capped peaks, with the highest point being Tirich Mir or Terichmir at 7,708 meters (25,289 ft) in Chitral, Pakistan.

• It is considered the Third Pole(after the North and South Poles) and has significant implications for climate.

• It contains the largest volume of ice and snow outside of the Arctic and Antarctica.

• The HKH region is the source of ten large Asian river systems: the Amu Darya, Indus, Ganges, Brahmaputra, Irrawaddy, Salween, Mekong, Yangtse, Yellow River, and Tarim.

• The basins of these rivers provide water to 1.9 billion people, a fourth of the world's population.

• HKH may be divided into three main sections: the eastern Hindu Kush, the central Hindu Kush, and the western Hindu Kush, also known as the Bābā Mountains.

•The inner valleys of the Hindu Kush see little rain and have desert vegetation.

Lipulekh Pass

Indian traders, engaged in border trade through the Lipulekh pass since 1992, urge the government to resume trade with China.

• The route was closed due to the Covid-19 pandemic in 2019, leaving goods worth Rs 15 lakh stranded in Tibet.

• Lipulekh Pass is located near the India-China (Tibet)-Nepal tri-junction in Uttarakhand's Pithoragarh district, is a crucial pass in the Kumaun region's Kali Valley.

• Historically, it has served as a vital trade route for traders, pilgrims, and travelers, facilitating cultural exchange for centuries.

• Importantly, it offers a shorter travel route for the Kailash Mansarovar Pilgrimage, saving considerable travel time.

Dead Zone

National Oceanic and Atmospheric Administration (NOAA) is forecasting an above-average summer "dead zone" in the Gulf of Mexico covering approximately 5,827 square miles.

• The term "dead zone" or "hypoxia" refers to low-oxygen areas in the world's lakes and oceans.

• Because most organisms need oxygen to live, few organisms can survive in hypoxic conditions.

• That is why these areas are called dead zones.

• Hypoxic zones can occur naturally, but human activities can also lead to the creation of new dead zones or the enhancement of existing ones.

• Dead Zone occurs as a result of eutrophication, which happens when a body of water is inundated with too many nutrients, such as phosphorus and nitrogen.

• At normal levels, an organism called cyanobacteria – or blue-green algae – feeds on these nutrients.

• With too many nutrients, it can cause an overgrowth of algae in a short period of time, also called algae blooms.

• Dead zones form when the algae die, sink to the bottom, and are decomposed by bacteria—a process that strips dissolved oxygen from the surrounding water.

• Dense algal blooms also block sunlight, which prevents underwater grasses from growing.

• In turn, the animals that depend on these grasses for food and shelter suffer, as well.

• Human activities mainly cause these excess nutrients to be washed into the ocean, which is why dead zones are often located near inhabited coastlines.

UNESCO State Of Ocean Report 2024

UNESCO's 'State of Ocean Report, 2024' provides crucial insights into the current state of global oceans, emphasising the challenges posed by climate change and human activities.

The key finding of the report:

• The upper 2,000 meters of the oceans have experienced significant warming, with the rate increasing from 0.32 ± 0.03 watt per square meter (W/m²) from 1960 to 2023 to 0.66 ± 0.10 W/m² in the last two decades.

• Oceans are absorbing about 90% of the Earth's excess energy, causing increased deoxygenation and threatening marine ecosystems and human economies dependent on them.

• Ocean acidification is on the rise globally, particularly in the open ocean, with a noted pH decline since the late 1980s; more comprehensive data from coastal areas is needed.

• Sea levels have risen consistently since 1993, necessitating improved monitoring systems at all scales.

• There's growing interest in marine carbon dioxide removal (mCDR) technologies, but their ecological impacts and effectiveness remain uncertain.

STATE OF THE OCEAN REPORT 2024

Arun-III Hydro Power Project

The 900 MW Arun III Hydropower Project in eastern Nepal, constructed with Indian assistance, recently achieved a significant milestone with a tunnel breakthrough.

• Arun-III Hydro Power Project is a 900 MW run-of-the-river hydropower project being constructed on the Arun River in Sankhuwasabha District of Eastern NEPAL.

• Arun is a tributary of the Koshi River in Nepal.

• The project comprises a 70-meter-tall and 466-meter-long concrete gravity dam and a Head Race Tunnel (HRT) of 11.74 km with underground an power house containing four generating units of 225 MW each on left bank.

• It is being developed with Indian assistance at a cost of Rs. 144 billion.

• Once completed, it will be the biggest hydroelectric facility in Nepal.

• It is being developed on a build-own-operate-and-transfer (BOOT) basis by Satluj Jal Vidyut Nigam (SJVN) Arun-III Power Development Company (SAPDC), a joint venture of the Government of India and the Government of Himachal Pradesh.

• SAPDC will operate the facility for a period of 25 years, excluding the construction period of five years, before transferring ownership to the Nepal government.

• Nepal will receive 21.9% of the electricity generated at the power plant as free power during these initial 25 years of commercial operations.

• The output from the power plant will be transferred to Muzaffarpur in India through a 317 km-long 400 kV double circuit transmission ne.

Alaska River: Change in Colour Volcano

• Rivers and streams in Alaska are turning from clear blue to rusty orange due to toxic metals released by thawing permafrost.

• The Arctic is warming four times faster than the rest of the world, causing significant thawing of permafrost and exposing waterways to previously trapped minerals.

• Thawing permafrost releases metals such as iron, zinc, copper, nickel, and lead, which are toxic to river and stream ecosystems.

• Permafrost, which is soil or underwater sediment that remains below 0°C (32°F) for at least two years, can range from less than a meter to over 1,500 meters deep and has been continuously frozen for up to 700,000 years.

• About 15% of the Northern Hemisphere is underlain by permafrost, including large areas of Alaska, Canada, Greenland, and Siberia, with smaller amounts in high mountain regions and the Southern Hemisphere.

Hunga Tonga–Hunga Ha'apai (HTHH) Volcano

A new study published recently shows that the January 15, 2022, eruption of the Hunga Tonga–Hunga Ha'apai Volcano could cause unusual weather for the rest of the decade.

• Hunga Tonga–Hunga Ha'apai (HTHH) is a submarine stratovolcano in the Tongan archipelago in the southern Pacific Ocean.

• The HTHH volcano includes the small islands of Hunga Tonga and Hunga Ha'apai, along with shallow reefs along the caldera rim of a much larger submarine edifice in the western South Pacific Ocean, west of the main inhabited islands in the Kingdom of Tonga.

• It is located about 30 km south of the submarine volcano of Fonuafo'ou and 65 km north of Tongatapu, the country's main island.

• The volcano is part of the highly active Tonga–Kermadec Islands volcanic arc, a subduction zone extending from New Zealand north-northeast to Fiji.

• The Tonga-Kermadec arc was formed as a result of the subduction of the Pacific Plate beneath the Indo-Australian Plate.

• It has erupted regularly over the past few decades.

Stratovolcano:

• It is a tall, steep and cone-shapedtype of volcano.

• Unlike flat shield volcanoes, they have higher peaks.

• They are typically found above subduction zones, and they are often part of large volcanically active regions, such as the Ring of Fire that frames much of the Pacific Ocean.

• Stratovolcanoes comprise the largest percentage(~60%) of the Earth's individual volcanoes and most are characterized by eruptions of andesite and dacite, lavas that are cooler and more viscous than basalt.

Malfunctioning Of The Sensor :
India Meteorological Department

Delhi's Mungeshpur weather station recorded a maximum temperature of 52.9 degrees Celsius on May 29, it was on account of "malfunctioning of the sensor," the India Meteorological Department (IMD) has said.

• The recording of 52.9 degrees Celsius at Mungeshpur marked a record high temperature for any location in India, prompting verification by the IMD.

• IMD, under the Ministry of Earth Sciences and headquartered at Mausam Bhawan, Lodhi Road, New Delhi, serves as the primary agency for meteorological observations, weather forecasting, and seismology.

• Additionally, IMD operates as one of the six Regional Specialised Meteorological Centres sanctioned by the World Meteorological Organisation. Its responsibilities encompass forecasting, cyclone naming, and issuing warnings across the Northern Indian Ocean region, which includes the Malacca Straits, Bay of Bengal, Arabian Sea, and Persian Gulf.

IMD:

• Established in 1875, IMD is the National Meteorological Service of the country.

• IMD is headquartered in Delhi and operates hundreds of observation stations across India and Antarctica.

• It deals with all matters relating to meteorology, seismology, and associated subjects.

• IMD provides a variety of services such as rainfall information, monsoon information, cyclone information, agromet advisory services, climate services, urban meteorological services, aviation services, climate hazard & vulnerability atlas, geospatial services, and forecasts.

LANDSLIDES IN NORTHEAST INDIA: CYCLONE REMAL

Cyclone Remal triggered devastating landslides in northeastern India, underscoring the urgent need for comprehensive disaster resilience strategies capable of addressing multiple hazards. While advancements in cyclone early warning systems have improved, landslides remain a persistent challenge.

• Definition and Nature: A landslide refers to the movement of rock, debris, or earth down a slope, categorized under mass wasting, which involves the downward movement of soil and rock influenced by gravity.

• Types of Movements: Landslides encompass various modes of slope movement, including falls, topples, slides, spreads, and flows.

• Causes: Landslides occur when the gravitational forces acting on a slope exceed the strength of the materials comprising it. Major factors contributing to landslides include geological conditions, terrain morphology, and human activities.

• The recent events highlight the critical importance of enhancing preparedness and mitigation measures against landslides, alongside ongoing efforts to improve early warning systems for cyclones. Addressing these challenges requires a coordinated approach integrating geological understanding, environmental management, and community resilience strategies.

Ozone-Depleting Substances: New Study

A new study released June 11, 2024, has reported the first significant decrease in atmospheric concentrations of potent ozone-depleting substances (ODS) known as hydrochlorofluorocarbons (HCFCs).

• Ozone-Depleting Substances (ODS) are chemicals that cause the depletion of the stratospheric ozone layer.
• This layer is crucial for protecting life on Earth by absorbing the majority of the sun's harmful ultraviolet (UV) radiation.
• The most common ODS include chlorofluorocarbons (CFCs), Halons, Carbon Tetrachloride and Methyl Chloroform.
ODS are substances commonly used in refrigerators, air conditioners, fire extinguishers and aerosols.
• The Montreal Protocol, signed in 1987, is a global agreement to protect the stratospheric ozone layer by eliminating the production and consumption of ODSs like chlorofluorocarbons (CFCs).
• The worldwide production of CFCs has been prohibited since 2010.
A new study released June 11, 2024, has reported the first significant decrease in atmospheric concentrations of potent ozone-depleting substances (ODS) known as hydrochlorofluorocarbons (HCFCs).
• Ozone-Depleting Substances (ODS) are chemicals that cause the depletion of the stratospheric ozone layer.
• This layer is crucial for protecting life on Earth by absorbing the majority of the sun's harmful ultraviolet (UV) radiation.
• The most common ODS include chlorofluorocarbons (CFCs), Halons, Carbon Tetrachloride and Methyl Chloroform.
ODS are substances commonly used in refrigerators, air conditioners, fire extinguishers and aerosols.
• The Montreal Protocol, signed in 1987, is a global agreement to protect the stratospheric ozone layer by eliminating the production and consumption of ODSs like chlorofluorocarbons (CFCs).
• The worldwide production of CFCs has been prohibited since 2010.

Soil Health Scheme: Tamil Nadu

Chief Minister M.K. Stalin started the "Chief Minister's Mannuyir Kaathu Mannuyir Kaappom" plan, which was a big step toward sustainable farming in Tamil Nadu.

• With a budget of ₹206 crore, the project aims to improve soil health and fertility across the region using green manure methods.

• A start-up fund of ₹20 crore is allocated to spread green manure seeds over approximately 200,000 acres starting in 2024-25, directly benefiting over 200,000 farmers.

• In addition to the main program, Chief Minister Stalin launched additional initiatives, including the formal launch of 90 tractors and 90 rotavators purchased for ₹10.25 crore.

• Farmers can rent these tractors and rotavators for a small fee, facilitating easier use of machinery in farming.

• The plan aims to boost immediate agricultural outputs while ensuring long-term sustainability and skill development in Tamil Nadu's farming sector, setting an example for rural development.

Krishi Sakhi Convergence Programme

The Prime Minister of India granted certificates to over 30,000 women from Self Help Groups (SHGs) as 'Krishi Sakhis' under the Krishi Sakhi Convergence Programme (KSCP).

• The Krishi Sakhi Convergence Program empowers rural women as Krishi Sakhis by providing training and certification as Para-extension Workers, aligning with the 'Lakhpati Didi' Program.

• Krishi Sakhis receive training in agro-ecological practices, farmer field schools, seed banks, soil health and conservation, integrated farming systems, livestock management, bio inputs, and communication skills.

• Ongoing refresher training focuses on Natural Farming and Soil Health Cards through DAY-NRLM agencies in coordination with MANAGE.

• The training program has been implemented in 12 states: Gujarat, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Karnataka, Maharashtra, Rajasthan, Odisha, Jharkhand, Andhra Pradesh, and Meghalaya.

AGRICULTURE

Unified India Organic logo:
FSSAI And APEDA

FSSAI and APEDA have developed a new "Unified India Organic" logo to replace the existing India Organic and Jaivik Bharat logos.

• Unified Organic Regulations: The initiative aims to bring uniformity in organic regulations by NPOP and FSSAI.

• New Logo Introduction: A new logo will be introduced soon, with a 3-month transition period for certification bodies.

• The new logo will help distinguish organic products and ensure adherence to National Standards for Organic Production.

• Currently, the India Organic logo is used for NPOP-certified products, and Jaivik Bharat is used for FSSAI-certified products.

• FSSAI regulates organic products through the Food Safety and Standards (Organic Foods) Regulations, 2017, under the Ministry of Health and Family Welfare.

DIRECT SEEDING OF RICE: PROMOTION

The Government of Punjab is actively promoting the Direct Seeding of Rice (DSR) also called the 'tar-wattar' technique of rice cultivation, which promises a multitude of advantages over traditional transplanting.

• Slow Adoption of DSR: Only 1.73 lakh acres in Punjab used Direct Seeding of Rice (DSR) in 2023 out of 79 lakh acres under paddy cultivation.

• Traditional Method: The traditional method involves preparing nurseries, transplanting seedlings after 25-35 days, and requires 25-27 irrigations.

• DSR Technique: DSR skips nursery preparation and transplantation; pre-germinated seeds are directly drilled into the field using a tractor-powered machine 20-30 days earlier.

• Preparation and Irrigation: Fields are irrigated and levelled before seeding with a seed drill; seeds are treated with a fungicide solution, and the first irrigation is done 21 days after sowing.

• Benefits: While DSR is less labour and water-intensive, it maintains crop health and maximizes yields.
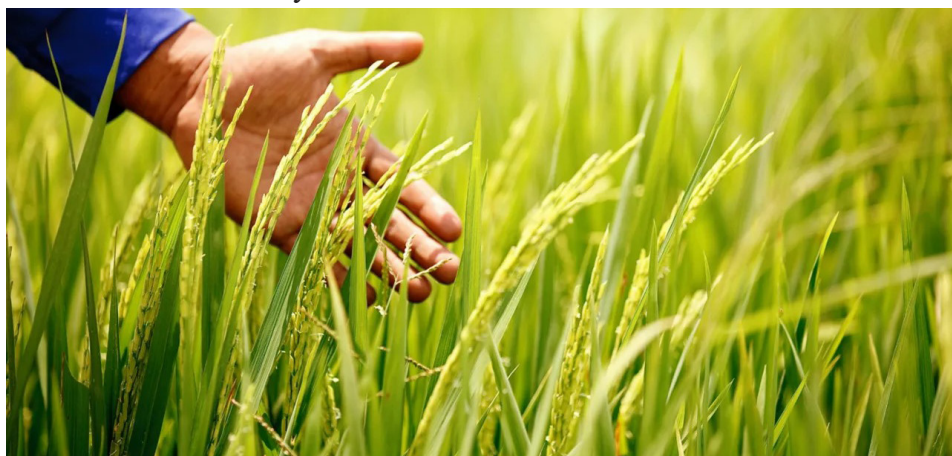
World's Largest Grain Storage Plan

The National Level Coordination Committee (NLCC) for the world's largest grain storage plan held its first meeting in Delhi.

• The plan aims to convert Primary Agricultural Credit Societies (PACS) into Multi-Service Societies by developing agricultural infrastructure like warehouses and processing units.

• Implemented in 11 states, the pilot focuses on at least 10 districts to gather insights for nationwide rollout, supported by the Ministry of Cooperation, NCDC, NABARD, and FCI.

• An IMC will adjust guidelines and methodologies for infrastructure creation at PACS using government schemes, addressing storage shortages and enabling PACS to serve as procurement centers and processing units.

• The initiative aims to reduce food grain wastage, enhance food security, prevent distress sales, lower transportation costs, and strengthen PACS.

• A National Level Coordination Committee was formed within a week, guidelines issued within 15 days, and a portal for PACS linkage and implementation began within 45 days. FCI oversees procurement, storage, and distribution, while CWC handles agricultural warehousing.

NANO-FERTILIZER PLANT AT KAKINADA

Coromandel International (an agriculture solutions provider) has opened a nano-fertiliser plant at its Kakinada complex in Andhra Pradesh.

• The nano fertilisers (such as Nano DAP and Nano urea) ensure optimal nutrient delivery and absorption by the plants, potentially replacing conventional fertilisers and increasing crop yield.

• Nano fertilisers are highly efficient types of fertilisers that provide nutrients like nitrogen to crops through fine granules.

• They are made up of nanoparticles, which are particles that are less than 100 nanometers in size.

• This small size allows the nanoparticles to penetrate plant cells more easily and deliver nutrients directly to the plant.

Meaty Rice

Scientists at Yonsei University in Seoul, South Korea, are working on putting grown beef cells into rice grains.

• The invention of "meaty rice" aims to provide an environmentally friendly protein source without raising animals.

• Fish gelatin is spread over rice grains to help injected beef cells stick. The grains are then grown in Petri dishes for 11 days to allow cell multiplication.

• Professor Hong Jin-kee leverages the slightly open structure of rice for even cell growth inside the grain.

• This method eliminates the need to kill animals, addressing moral issues and significantly reducing the carbon footprint compared to traditional beef production.

• Meaty rice has the potential to revolutionize global food production with its lower carbon dioxide emissions per 100 grams of protein.

17th PM-KISAN Instalment

After being re-elected for a third term, Prime Minister Narendra Modi's first act was to approve the 17th installment of the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) plan. By giving out about Rs 20,000 crore, this new payment is expected to help about 9.3 crore farmers.

• The PM-KISAN scheme, which started in February 2019 and went into force in December 2018, is meant to help all eligible farmers' families across India by giving them money. Each qualified farmer gets ₹6,000 a year from the program.

• This money is given to people in need in three equal payments of ₹2,000 every four months. It is sent straight to their bank accounts.

• The main purpose of the PM-Kisan plan is to help farmers get the money they need to buy farming supplies and take care of their own needs.

• The plan aims to improve the lives and potential productivity of farmers all over India by giving them direct income support.

Role of Nuclear Technology in Global Food Safety

An International Symposium on "Safe Food for a Better Life", jointly organised by the Food and Agriculture Organisation (FAO) and the International Atomic Energy Agency (IAEA) emphasised the importance of nuclear technologies for measuring, managing and controlling food safety.

• The symposium emphasized the potential of nuclear technology to enhance food security through various applications.

• Recognizing the interconnectedness of human, animal, and environmental health, nuclear techniques can detect and monitor contaminants, pathogens, and toxins in food and the environment.

• PCR tests rapidly detect animal diseases, while food irradiation eliminates harmful bacteria, pathogens, and pests, extending shelf life and ensuring safety. Stable isotope analysis verifies the origin and authenticity of food products, detecting adulteration.

• Past nuclear fallouts aid in measuring soil erosion. The Sterile Insect Technique (SIT) controls pests, reducing the need for harmful chemical pesticides.

• Nuclear technology in crop breeding develops varieties adaptable to climate change by irradiating seeds with gamma rays, X-rays, ions, or electron beams, enhancing genetic diversity.
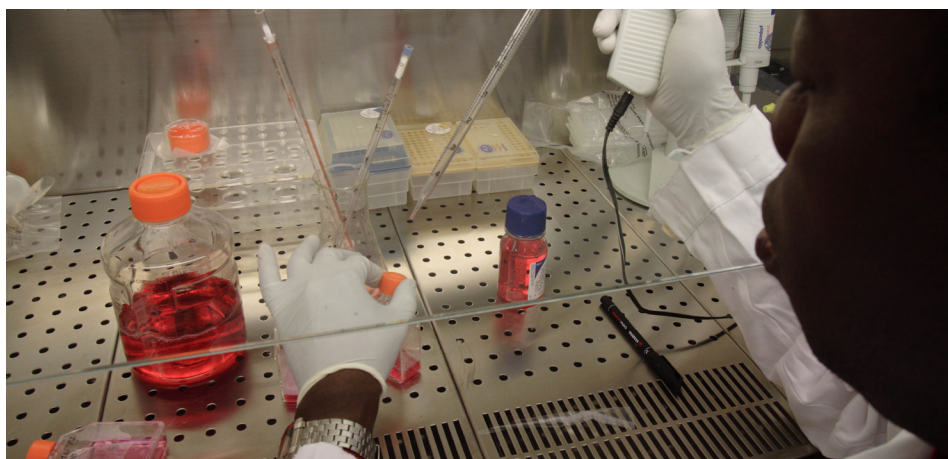
A cryonics company has frozen its first client in Australia in the hope of bringing him back to life in the future.

• Cryonics, the practice of freezing an individual who has died, with the object of reviving the individual sometime in the future.

• The word cryonics is derived from the Greek krýos, meaning "icy cold."

• It is an effort to save lives by using temperatures so cold that a person beyond help by today's medicine can be preserved for decades or centuries until a future medical technology can restore that person to full health.

• A person that is held in such a state is called a "cryopreserved patient", because Cryonicists (the advocates of cryonics) do not regard the cryopreserved person as really dead.

• Cryonic preservation can be performed only after an individual has been declared legally dead.

• The process is initiated shortly after death, with the body being packed in ice and shipped to a cryonics facility.

• There, the blood is drained from the body and replaced with antifreeze and organ-preserving compounds known as cryoprotective agents.

• In this vitrified state, the body is placed in a chamber filled with liquid nitrogen, where it will theoretically stay preserved at -196 °C until scientists are able to find a way to resuscitate the body in the future.

• Currently, there are a few hundred bodies that have been frozen through cryonics.

Sympatric Speciation: Study

A recent study from the Indian Institute of Technology Bombay (IIT-B) sheds light on the mechanisms of sympatric speciation, challenging the traditional view that new species can evolve only when populations are isolated by geographic barriers (a process called allopatric speciation).

• **The study focused on three critical factors**: disruptive selection (favoring extreme traits), sexual selection (mate choice based on resource-relevant traits), and genetic architecture (how genes influence traits). Researchers simulated a bird population to explore these dynamics.

• **Disruptive Selection**: This favors extreme traits over intermediate ones due to uneven distribution of resources in the environment. For instance, birds with smaller beaks excel in gathering nuts, while those with longer beaks are adept at extracting flower nectar.

Example: Researchers observed that disruptive selection, driven by variations in resource availability, can lead to distinct traits within a population, even without geographic isolation.

• **Sexual Selection**: The study challenges traditional views by highlighting that sexual selection, focusing on resource-relevant traits like beak size, drives sympatric speciation. In contrast, arbitrary traits such as feather color do not contribute to speciation and may reduce offspring fitness.

SCIENCE AND TECH

• **Genetic Architecture**: The likelihood of sympatric speciation hinges on genetic factors. Even mild disruptive selection can trigger speciation if the genetic makeup allows for trait changes, such as modifications in beak size. In essence, the study underscores how interactions between disruptive and sexual selection, influenced by genetic architecture, shape evolutionary processes and the emergence of new species within a population.

Sympatric Speciation:

• Speciation occurs when a group within a species develops unique characteristics.

• Sympatric speciation: new species evolve from a single ancestral species in the same geographic region.
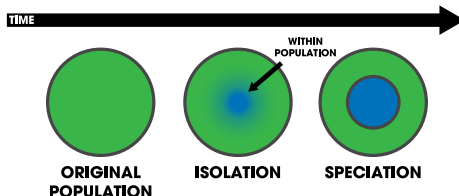
• **Allopatric speciation:** species separate due to a geographical barrier, leading to distinct development.

Example: The Grand Canyon's formation separated a population of squirrels, resulting in two separate species on the north and south rims.

India's First 3D-Printed Rocket Launched

Chennai-based start-up Agnikul Cosmos has launched the world's first rocket, Agnibaan Sub Orbital Technology Demonstrator (SOrTeD), powered by a fully 3D-printed engine.

• The company aims to conduct a test flight to demonstrate its internally developed technologies and gather crucial flight data.

• **Technological Milestones**: This initiative marks several significant achievements for India's space sector, including the first launch from a private pad (Dhanush), the use of a domestically developed semi-cryo engine-powered rocket, and the world's first single-piece 3D printed engine.

• Propellant: The rocket utilizes liquid oxygen and kerosene as its propellants.

• **Support from Authorities**: The launch received support from the Indian Space Research Organisation (ISRO) and the Indian National Space Promotion and Authorization Centre (IN-SPACe).

• **Additive Manufacturing**: Also known as 3D printing, additive manufacturing involves using materials like plastics and metals to transform designs from computer-aided software into tangible three-dimensional objects.

• **Comparison with Subtractive Manufacturing**: Unlike subtractive manufacturing, which involves cutting or hollowing out materials using tools like milling machines, 3D printing builds objects layer by layer, offering new possibilities in manufacturing technology.

• This test flight not only showcases India's technological advancements in space exploration but also underscores the potential of additive manufacturing to revolutionize manufacturing processes across various industries.

Pig Liver Transplant In Cancer Patient

A man with advanced liver cancer who is 71 years old is the first person in history to receive a liver donation from a genetically modified pig.

• Doctors at Anhui Medical University's First Affiliated Hospital in China achieved a significant milestone in medicine with a groundbreaking treatment.

• Breakthrough in Medicine: The medical team successfully conducted a historic treatment using a pig liver at Anhui Medical University's First Affiliated Hospital in China.

• Advancement in Xenotransplantation: This marks a substantial leap forward in xenotransplantation, which involves transplanting organs from animals into humans.

• Genetically Modified Pig Liver: The procedure utilized a pig liver that had been genetically modified in ten specific ways to reduce the risk of organ rejection and other complications.

• Key Details: The pig liver, weighing 514 grams, was meticulously engineered to optimize its functionality within the human body.

• Post-Surgery Success: Following the surgery, the transplanted liver began functioning effectively, producing approximately 200 milliliters of bile daily.

• Patient Recovery: The patient exhibited no immediate or acute signs of rejection, maintaining normal liver function and blood clotting levels.

This achievement underscores the promising potential of xenotransplantation in expanding organ availability for patients in need of transplants.

Phenome India' Project

CSIR concluded the first phase of its longitudinal health monitoring project, Phenome India, and organised a special event, Phenome India Unboxing 1.0.

• Phenome India-CSIR Health Cohort Knowledgebase (PI-CheCK) was launched by CSIR on 7th December 2023.

• It aims to develop India-specific risk prediction models for cardio-metabolic diseases like diabetes, liver, and cardiac diseases.

• It is the first pan-India longitudinal health monitoring study focused on cardio-metabolic diseases.

• Around 10,000 participants, including CSIR employees, pensioners, and their spouses from 17 states and 24 cities, have contributed.

• Data includes clinical questionnaires, lifestyle and dietary habits, anthropometric measurements, imaging/scanning data, and extensive biochemical and molecular data.

• The study is essential for understanding cardio-metabolic disorders in the Indian population, which may differ from Western populations due to ethnic diversity and lifestyle patterns.

• CSIR promotes Predictive, Personalised, Participatory, and Preventive (P4) healthcare tailored to Indian phenotypic and genetic profiles through this project.

UN Declares 2025 As International Year Of Quantum Science And Tech

UN has declared 2025 as International Year of Quantum Science and Tech. Next year marks the centenary of Werner Heisenberg's foundational paper on quantum mechanics.

Quantum computing is a new way of computing that uses the principles of quantum mechanics to perform calculations.

• In traditional computing, data is processed using bits, which are either a 0 or a 1.

• But in quantum computing, the data is processed using quantum bits or qubits, which can be both a 0 and a 1 at the same time.

Apple Intelligence

Apple introduced "Apple Intelligence," a generative AI system integrated into iPhones, iPads, and Macs via iOS 18, iPadOS 18, and macOS Sequoia.

• Apple Intelligence combines generative AI with personal context to provide personalized, context-aware responses, enhancing user experience while prioritizing privacy through on-device processing and Private Cloud Compute.

• Key features include:
• Writing Tools
• Email Management
• Creative Tools
• Enhanced Siri

GNSS-Based Electronic Toll Collection (ETC) System

NHAI has invited expressions of interest (EoIs) from around the world for the implementation of GNSS-based (satellite-based) electronic toll collection to provide a seamless and barrier-free tolling experience for National Highways users.

• GNSS-based Electronic Toll Collection (ETC) system is a barrier-free method of electronic toll collection that uses Global Navigation Satellite System (GNSS) technology to track vehicles and calculate tolls based on the distance travelled on tolled highways.

• The system uses satellites or constellations of satellites to track vehicles' movements and calculate tolls based on the distance travelled on tolled highways.

• Vehicles equipped with GNSS-enabled On Board Units (OBUs) are charged on the distance they have travelled on tolled highway stretches.

• NHAI plans to implement the GNSS-based electronic toll collection (ETC) system within the existing FASTag ecosystem, initially using a hybrid model where both RFID-based ETC and GNSS-based ETC will operate simultaneously.

INTERNATIONAL YEAR OF
Quantum Science
and Technology

• This property of qubits is called superposition, which allows for multiple calculations to be performed simultaneously, making quantum computing exponentially faster than traditional computing for certain types of problems.

> • Foundational Concepts of Quantum Mechanics
> • Wave-Particle Duality: Small objects exhibit both particle and wave characteristics.
> • Quantum Superposition: Particles can exist in multiple states simultaneously until measured.
> • Entanglement: Linked particles affect each other regardless of distance.

• Heisenberg's Uncertainty Principle: The position and speed of a particle cannot both be known with perfect accuracy simultaneously.

KAVACH : In News

The accident involving the Sealdah Kanchanjunga Express on June 17, which claimed 10 lives, has brought to the fore once again the delay in installing Kavach, an indigenously developed automatic train protection (ATP) system, across the country's rail network.

• Experts, including former Railway Minister and West Bengal Chief Minister Mamata Banerjee, raised questions about the delay in the implementation of the system.

• The KAVACH is an indigenously developed Automatic Train Protection (ATP) system by the Research Design and Standards Organisation (RDSO) in collaboration with the Indian industry.

• It is a state-of-the-art electronic system with Safety Integrity Level-4 (SIL-4) standards.

• It is meant to provide protection by preventing trains to pass the signal at Red (which marks danger) and avoid collision.

• It activates the train's braking system automatically if the driver fails to control the train as per speed restrictions.

• In addition, it prevents the collision between two locomotives equipped with functional Kavach systems.

• The system also relays SoS messages during emergency situations. An added feature is the centralised live monitoring of train movements through the Network Monitor System.

5G Intelligent Village And 'Quantum Encryption Algorithm

The Department of Telecommunications (DoT) has announced two significant calls for proposals to stimulate innovation and technological advancement in the telecommunications sector.

• These initiatives aim to promote indigenous R&D, IP creation, and inclusive digital growth across India under the Telecom Technology Development Fund (TTDF) scheme.

• Initiative 5G Intelligent Village Initiative Quantum Encryption Algorithm (QEA)

• Objective is to harness 5G technology to transform rural life, driving digital inclusion and economic growth. To develop an India-specific quantum encryption algorithm for securing digital communication channels.

• Scope Focuses on agriculture, education, healthcare, governance, and sustainability in selected villages across India. Not

• Goals Enable effective utilization of 5G's URLLC and mMTC, establish 5G connectivity in uncovered areas, and unite various stakeholders for R&D in 5G technology. Not Applicable

• Features Not Applicable Unparalleled security, advanced encryption capabilities, and ultrafast, efficient encryption.
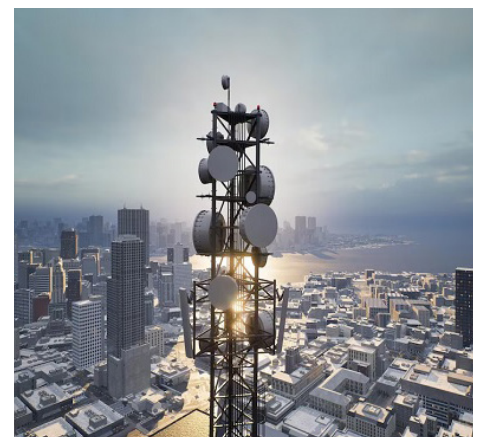
• 'Kavach' is one of the cheapest, SIL-4 certified technologies where the probability of error is 1 in 10,000 years.

• The Traffic collision avoidance system (TCAS), with the help of equipment on board the locomotive and transmission towers at stations connected with Radio Frequency Identification (RFID) tags, helps in two-way communication between the station master and loco-pilot to convey any emergency message.

• The instrument panel inside the cabin helps the loco-pilot know about the signal in advance without visual sighting, and the permissible speeds to be maintained.

• If a red signal is jumped and two trains come face to face on the same line, the technology automatically takes over and applies sudden brakes.

Casimir Effect

Scientists recently discovered how to control the Casimir Effect and supercharge tiny machines.

• The Casimir effect is a physical phenomenon that occurs in quantum field theory where two uncharged conducting plates, positioned very closely, experience an attractive force known as the Casimir force.

• This force arises from the quantum vacuum fluctuations of the electromagnetic field between the plates.

• In quantum field theory, the vacuum is not truly empty but rather filled with fleeting virtual particles and fluctuations in electromagnetic fields.

• Even though the space between the plates may seem empty, it's actually filled with virtual particles constantly appearing and disappearing.

• These particles influence the electromagnetic field, leading to a net attraction between the plates.

• The effect was first predicted in 1948 by Dutch physicist Hendrik Casimir during his research on colloidal solutions.

• This effect has been experimentally verified and finds applications in various fields, such as nanotechnology and condensed matter physics.

• It has also contributed to our understanding of fundamental physics, including the nature of vacuum energy.

• Experimental physicists have recognized its impact on micromachined devices, while advancements in instrumentation have allowed for more accurate measurements of the force
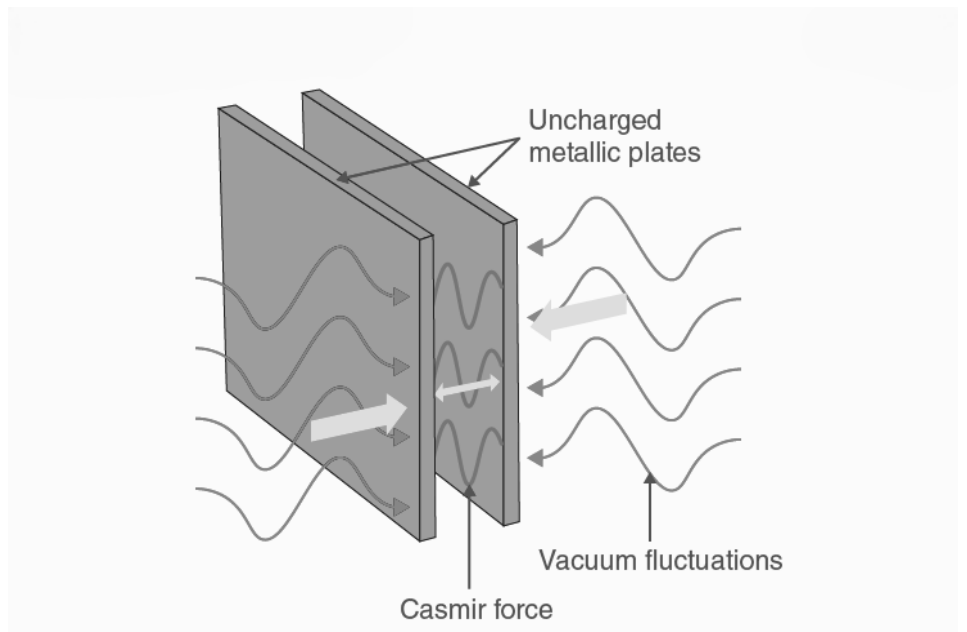
Zircon Mineral

The study of zircon crystals has revealed that Earth had the necessary conditions to support life much earlier than previously thought. It reveals the early interaction of water and land, challenging existing theories of a water-covered Earth.

• Zircon is a mineral belonging to the group of nesosilicates. Its chemical name is zirconium silicate and the chemical formula is $ZrSiO_4$.

• Zircon crystals are notable for their high refractive indices and strong lustre.

• They are naturally occurring in a variety of colours, including clear, green, red, yellow and brown.

• Zircon is used for radiometric dating due to its trace uranium content, allowing precise age determination.

• Its high resistance to weathering makes it valuable for studying sedimentary and metamorphic rock history, providing insights into geological and crustal development over billions of years.

• Zircon grains are important for studying early Earth conditions. They can preserve isotopic signatures that provide insights into the environment and temperatures of ancient Earth.

• Zircon crystals found in the Jack Hills in Western Australia's Midwest can be up to 4.4 billion years old, providing insight into early Earth.

• The study of oxygen isotopes in zircon crystals reveals the presence of fresh water and dry land on early Earth, challenging existing theories of a water-covered Earth.

Matsya 6000

India set to be the 6th country to have its own Deep Sea Mission; 1st Stage of harbor trail (40-50m) deep of deep sea mission planned by September 2024; The Mission has the potential to contribute greatly to the overall growth of Indian economy

• The Matsya 6000 is a three-person submersible that will be able to go 6,000 metres under the sea.

• The vessel is being developed by Chennai's National Institute of Ocean Technology (NIOT).

• Made of 80mm-thick titanium alloy, it will be able to withstand a pressure 600 times greater than that at sea level. The

• Matsya 6000 will be able to operate from 12 to 16 hours straight and will have an oxygen supply of 96 hours

National Institute of Ocean Technology:

• It was established in November 1993 as an autonomous society under the Ministry of Earth Sciences.

Quantum Data

A new quantum computing study claims that a recent finding in the production, storage and retrieval of "quantum data" has brought us one step closer to the quantum internet

• Quantum Data refers to information that is stored and processed using the principles of quantum mechanics.

• Unlike classical data, which is represented by binary states (0s and 1s), quantum data is represented by quantum bits or qubits.

• Qubits can exist in multiple states simultaneously due to a property called superposition, and they can be entangled with other qubits, allowing for a kind of interconnectedness and correlation that classical bits cannot achieve.

Applications of Quantum Data:

• Quantum key distribution (QKD) leverages the principles of quantum mechanics to create secure communication channels that are theoretically immune to eavesdropping.

• Quantum algorithms can potentially solve complex optimization problems more efficiently than classical algorithms.

• Quantum computers can simulate other quantum systems, which is useful for understanding chemical reactions, materials science, and fundamental physics.

• Quantum machine learning algorithms could handle large datasets and complex models more efficiently.

• Objectives to develop reliable indigenous technologies to solve the various engineering problems associated with harvesting of non-living and living resources in the Indian Exclusive Economic Zone (EEZ), which is about two-thirds of the land area of India.

Deep Sea Mission:

• The Deep Ocean Mission (DOM) is an ambitious Indian initiative to explore and harness the depths of the ocean.

• It is a five-year mission, approved by the Union Cabinet in 2021, with a budget of nearly ₹4,077 crore.

• The mission aims to develop technologies for deep-sea mining, manned submersibles, and underwater robotics, as well as for ocean climate change advisory services, deep-ocean survey and exploration.

DIVYA DRISHTI AI TOOL

A Woman-led Start-up Developed 'Divya Drishti', a cutting-edge AI Tool for Personal Identification, under a Technology Development Fund.

• The AI tool "Divya Drishti" integrates face recognition with immutable physiological parameters such as gait and skeleton.

• It was developed by Ingenious Research Solutions Pvt Ltd., a start-up established by a woman entrepreneur, Shivani Verma.

• This innovative solution marks a significant advancement in biometric authentication technology, offering enhanced accuracy and reliability in identifying individuals.

• This dual approach enhances identification accuracy, minimizing the risk of false positives or identity fraud and has versatile applications across diverse sectors including Defence, Law Enforcement, Corporate and Public Infrastructure.

• The AI tool has been developed under the technical guidance and mentoring of the Centre for Artificial Intelligence & Robotics (CAIR), a laboratory of DRDO based in Bangalore.

The Technology Development Fund (TDF):

• The TDF scheme is a flagship programme of the Ministry of Defence executed by DRDO under 'Make in India'

• It grants aid for defence and dual-use technology development.

• Objectives: To build Indian industries' capacity and capability for defence technology development, foster a culture of design and development, and create an R&D ecosystem.

• It supports niche technology development, and prototype creation, and achieves 'Aatmanirbharta' in defence technology.
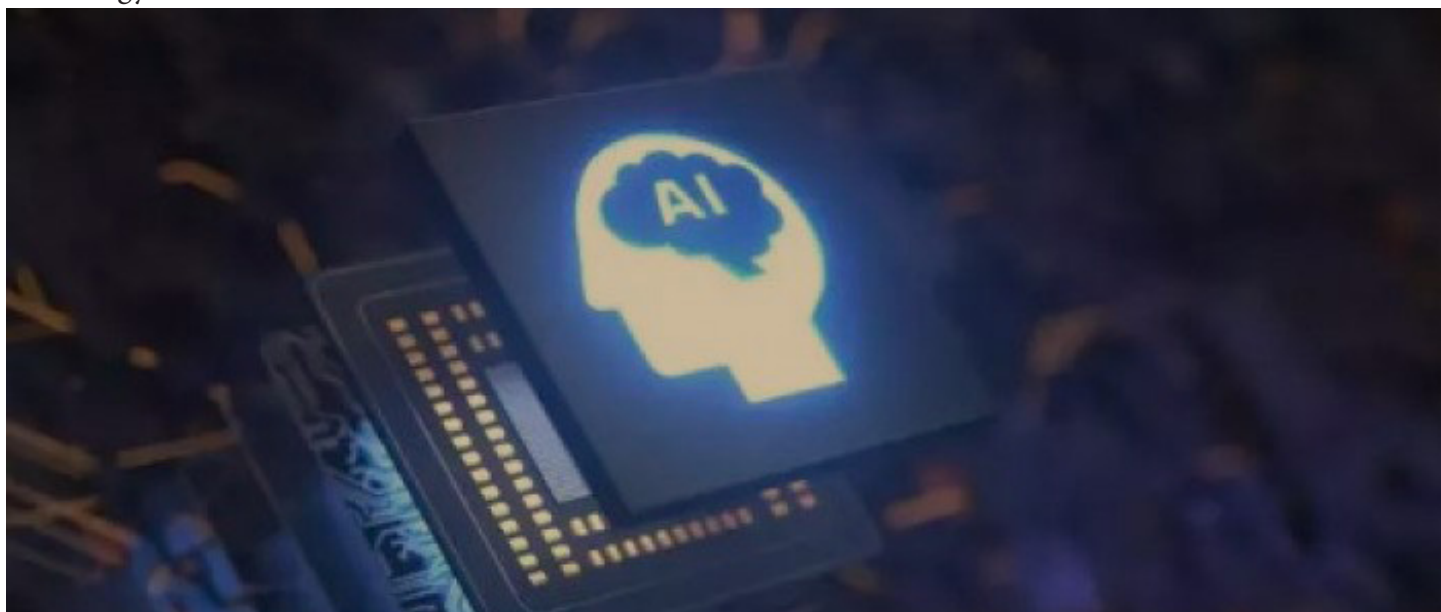
Chlorella Growth Factor

Scientists at CSIR-Indian Institute of Chemical Technology (IICT) have spotlighted the potential of Chlorella Growth Factor (CGF), a protein-rich extract derived from the microalgae 'Chlorella sorokiniana', as an ideal ingredient for a wide range of food and feed applications.

• Chlorella Growth Factor (CGF) is rich in amino acids and proteins of high quality, making it a promising alternative source for both human and animal diets.

• It contains essential amino acids and nutrients like peptides, nucleotides, polysaccharides, vitamins, and minerals, than commercial soy meal.

• The extraction of CGF involves a non-chemical autolysis process, preserving the integrity of amino acids and other valuable components.

• Adding CGF to chicken feed improves egg quality, showing promise as a better protein supplement for animals.

• Microalgae like Chlorella sorokiniana are considered "under-exploited crops" that do not compete with traditional food crops for space and resources, offering a sustainable solution to meet the increasing global demand for high-quality protein sources.

Chlorella Sorokiniana:

• Chlorella Sorokiniana, an oval-shaped single-celled algae, is a standout in the microscopic realm, boasting a unique ability to grow actively.

• Each cell is a self-contained organism with all the essential nutrients needed for life, making it complete and self-sustaining.

• Chlorella Sorokiniana can rapidly reproduce, growing from one cell to 24 cells in just 24 hours when exposed to plenty of sunlight and nutrients.

Donanemab : New Alzheimer's Drug

A new Alzheimer's drug, donanemab, has received support from an FDA advisory committee, moving closer to approval.

• Intended for early-stage Alzheimer's, it shows significant slowing of cognitive decline.

• The drug works by targeting amyloid beta protein deposits in the brain.

• Alzheimer's disease is a brain disorder that slowly destroys memory and thinking skills and is the most common type of dementia.

• It's characterized by changes in the brain that lead to protein deposits, brain shrinkage, and eventually cell death.
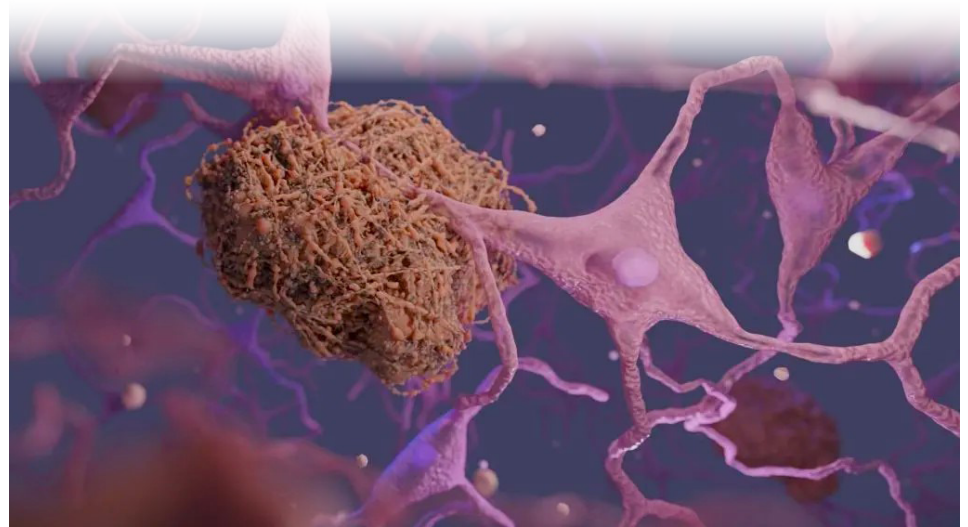
ABHA-BASED SCAN AND SHARE SERVICE

The National Health Authority (NHA) has achieved a milestone of generating over 3 crore tokens for Out-Patient Department (OPD) registrations through the ABHA-based Scan and Share service.

• It enables patients to conveniently register for OPD appointments by scanning a QR code displayed at the OPD registration counter.

• It has eliminated the need to wait in long queues for appointments, benefiting vulnerable groups such as the elderly, pregnant women, and those with mobility challenges.

• Uttar Pradesh has generated the maximum tokens followed by Andhra Pradesh, Karnataka and Jammu and Kashmir.

• This service was launched under the Ayushman Bharat Digital Mission (ABDM) in 2022.

• ABHA is a unique 14-digit number used to link all the health records of a person, which intends to create a digital health ecosystem & aims to promote the digitisation of healthcare.

Hydroxyurea : To Treat Sickle Cell Disease

The Indian Council of Medical Research (ICMR) is seeking to develop a pediatric oral formulation of hydroxyurea to treat sickle cell disease in India, where over 20 million individuals are affected.

• Currently, hydroxyurea is mainly available in 500 mg capsules or 200 mg tablets, making dosing for children challenging.

• This initiative is crucial, especially with the launch of the National Mission to eliminate Sickle Cell Anemia/SCD by 2047.

SCD (Sickle Cell Disease):

• Sickle Cell Disease (SCD) is a genetic disorder that affects the shape of red blood cells, causing them to become sickle-shaped instead of round.

• This abnormal shape can lead to various complications, including pain, anemia, and organ damage.

• SCD is one of the most common inherited blood disorders and can result in serious health issues, including stroke and organ failure.

National Institute Of Indian Medical Heritage (NIIMH)

The World Health Organization (WHO) has designated the National Institute of Indian Medical Heritage (NIIMH) in Hyderabad as a Collaborating Centre for "Fundamental and Literary Research in Traditional Medicine" (CC IND-177) for four years.

• This marks the first time a WHO Collaborating Centre has been established for this specific field.

• NIIMH, under the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush, is recognized for its extensive medico-historical research in Ayurveda and related traditional medicine systems in India.

• Established in 1956, NIIMH has contributed significantly through digital initiatives such as the AMAR Portal, which catalogues and digitizes Ayush manuscripts, and the SAHI Portal, which showcases medico-historical artefacts.

• It also maintains a Medical Heritage Museum and Library with rare manuscripts and publishes the Journal of Indian Medical Heritage.

• As a WHO Collaborating Centre, NIIMH will help standardize terminologies for Ayurveda, Unani, Siddha, and Sowa-Rigpa, update the Traditional Medicine Module for the International Classification of Diseases (ICD-11), and assist in developing research methodologies for Traditional Medicine

MIFEPRISTONE

The US Supreme Court rejected a petition from anti-abortion groups aiming to overturn the Food and Drug Administration's (FDA) approval of an abortion pill "mifepristone".

• Mifepristone is a medication used to end pregnancies by blocking the hormone progesterone and dilating the cervix.

• It is typically taken with misoprostol to induce contractions and end a pregnancy within 10 weeks. The success rate of this pill is 97.4%.

• On the other hand, 'miscarriage' is used when a fetus is expelled from the fourth to the seventh month of gestation, before it is viable.

• Section 312 of IPC criminalises causing a miscarriage, except to save the woman's life. The woman who attempts to cause her own miscarriage also falls under this section.

• The Medical Termination of Pregnancy (MTP) Act, of 1971 was introduced to allow safer abortions.

• As per the amended act (2021) for pregnancy up to 20 weeks, the opinion of one doctor is required and for pregnancy of 20 to 24 weeks, the opinion of two doctors is required.

• Unmarried women seeking abortions after 20 weeks face challenges due to a lack of specific provisions.

• The term 'abortion' is used only when an ovum is expelled within the first three months of pregnancy.

Human African Trypanosomiasis

In a landmark achievement, Chad has become the first country in 2024 and the 51st globally to eliminate a neglected tropical disease (NTD) — the gambiense form of human African trypanosomiasis (HAT).

• Human African Trypanosomiasis (HAT) is also known as sleeping sickness.

• It is caused by protozoan parasites transmitted by infected tsetse flies and endemic in sub-Saharan Africa.

• It takes 2 forms, depending on the subspecies of the infecting parasite:

• Trypanosoma brucei gambiense is found in 24 countries of west and central Africa, currently accounts for 92% of reported cases and causes a chronic illness.

• A person can be infected for months or even years without major signs or symptoms. When evident symptoms emerge, often the disease is advanced with the central nervous system already affected.

• Trypanosoma brucei rhodesiense is found in 13 countries of eastern and southern Africa, accounts for 8% of reported cases and causes an acute disease.

• First signs and symptoms emerge a few weeks or months after infection.

• The disease develops rapidly with multi-organ invasion, including the brain.

• Tsetse flies inhabit sub-Saharan Africa and only certain species transmit the disease.

• Rural populations which depend on agriculture, fishing, animal husbandry or hunting are the most exposed.

• To date, WHO has validated the elimination of the gambiense form of HAT in seven countries: Togo (2020), Benin (2021), Ivory Coast (2021), Uganda (2022), Equatorial Guinea (2022), Ghana (2023) and Chad (2024).

Biopharmaceutical Alliance

India, South Korea, the United States, Japan, and the European Union (EU) have formed a Biopharmaceutical Alliance to address drug supply shortages during the COVID-19 pandemic.

• The alliance aims to coordinate bio policies, regulations, and research and development support measures among participating countries.

• Inaugural meeting held in San Diego during the Bio International Convention 2024, emphasized the importance of a reliable and sustainable supply chain.

• The initiative originated from discussions between South Korea and the U.S. and expanded to include Japan, India, and the EU.

• Shortages of Covid-19 vaccines occurred globally, impacting various countries' vaccination efforts.

• Drugs such as Remdesivir, used for treating severe Covid-19 cases, experienced shortages in many countries.

• As COVID-19 cases surged, many countries faced shortages of medical oxygen, crucial for treating severe respiratory symptoms.

• Shortages of PPE, including masks, gloves, and gowns, occurred worldwide, posing risks to frontline healthcare workers.

CRISPR/Cas9 : Study

Researchers recently used CRISPR/Cas9 to alter photosynthesis for the first time.

• CRISPR, short for Clustered Regularly Interspaced Short Palindromic Repeats, is a gene-editing technology that can be used to alter the genetic sequence of a specific gene by removing, adding, or altering sections of the DNA sequence.

• It makes it possible to correct errors in the genome and turn on or off genes in cells and organisms quickly, cheaply, and with relative ease.

• Some bacteria have a similar, built-in gene editing system to the CRISPR-Cas9 system that they use to respond to invading pathogens like viruses, much like an immune system.

• Using CRISPR, the bacteria snip out parts of the virus DNA and keep a bit of it behind to help them recognise and defend against the virus next time it attacks.

• Researchers adapted this immune defense system to edit DNA.

• The CRISPR-Cas9 system consists of two key molecules that introduce a change (mutation) into the DNA. These are:

• An enzyme called Cas9, acts as a pair of 'molecular scissors' that can cut the two strands of DNA, at a specific location in the genome so that bits of DNA can then be added or removed.

• A piece of RNA called guide RNA (gRNA), consists of a small piece of pre-designed RNA sequence (about 20 bases long) located within a longer RNA scaffold.

• The scaffold part binds to DNA and the pre-designed sequence 'guides' Cas9 to the right part of the genome.

• This makes sure that the Cas9 enzyme cuts at the right point in the genome.

• The guide RNA is designed to find and bind to a specific sequence in the DNA.

• Cas9 follows the guide RNA to the same location in the DNA sequence and makes a cut across both strands of the DNA.

Streptococcal Toxic Shock Syndrome: High Alert In Japan

Japan's health officials are on high alert because the number of Streptococcal Toxic Shock Syndrome (STSS) cases has increased significantly.

• STSS is a serious illness that usually ends in death.

• So far this year, on June 2, 977 cases have been reported, more than the 941 cases reported all last year.

• Because of this scary number, health officials and doctors are working extra hard to stop and understand how quickly this is spreading.

• Streptococcal Toxic Shock Syndrome (STSS) is a disease brought on by group A Streptococcus bacteria infections.

• When these bacteria get into deep tissue or the bloodstream, they release strong toxins that cause a severe inflammatory reaction that quickly affects many organs.

• Most people don't get this disease, and big risk factors include skin wounds and other health problems that lower immunity.

Symptoms of STSS:

• Within 24 to 48 hours, STSS symptoms start quickly and are very bad.

• They start with fever, chills, and muscle pain and then move on to nausea and vomiting.

• It gets so bad that low blood pressure, a fast heart rate, fast breathing, and the loss of multiple organs happen.

• For kids, the bacteria can cause strep throat, but for adults, it can lead to more serious health problems like major limb pain, tissue death, and organ failure.
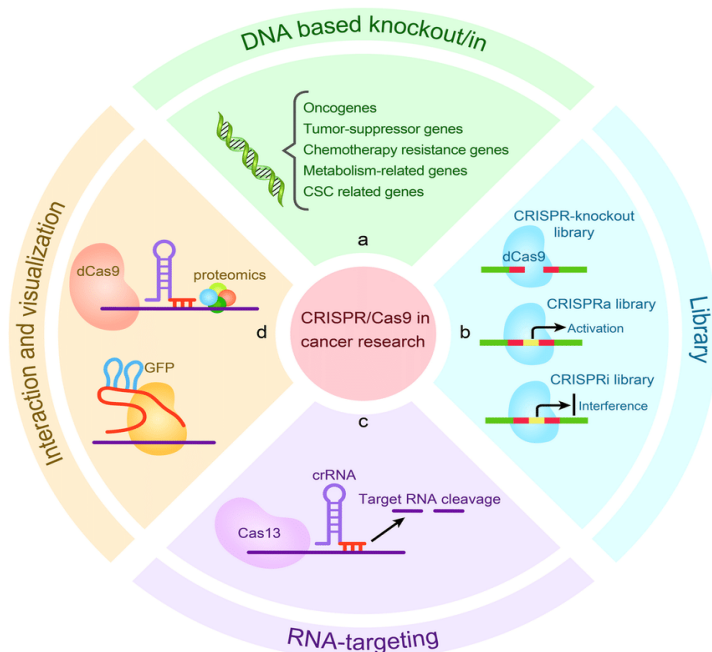
Aedes Albopictus Mosquito : Study

Warmer conditions are helping the Aedes albopictus mosquito, which transmits dengue, chikungunya and Zika viruses thrive, said the EU health agency.

• Climate change is expected to significantly impact the spread of dengue in Europe.
• Rising temperatures and increased rainfall create more favorable conditions for the spread of the disease, particularly in areas where the Aedes albopictus mosquito is present.
• In southern Europe, particularly in Spain, Italy, and France, the risk of dengue is expected to increase due to the presence of Aedes albopictus and the rising temperatures and humidity.
• However, in some countries like Spain and Portugal, the expected rise in summer droughts may decrease habitat suitability for Aedes albopictus.
Aedes albopictus mosquito:
• The Aedes albopictus mosquito, commonly known as the Asian tiger mosquito, is a highly invasive species known for its distinctive black and white striped appearance.
• This mosquito is a known vector for several diseases, including: Dengue fever, Chikungunya, Zika virus, Yellow fever.

Digital Health Incentive Scheme : Extension

The central government has given a year-long extension to the Digital Health Incentive Scheme (DHIS) meant for digitising patients' health records and linking them with the Ayushman Bharat Digital Health Account (ABHA ID).

• The Digital Health Incentive Scheme (DHIS) is a national initiative by the National Health Authority (NHA) aimed at promoting the adoption of digital health practices in India.

• It was launched on January 1, 2023, under the Ayushman Bharat Digital Mission (ABDM) to create a robust digital health ecosystem and enhance the quality of care for patients.

• With this extension, the scheme will now remain in effect till June 30, 2025.

• Health facilities (hospitals, diagnostic labs), digital solution companies, and other healthcare providers are eligible to participate in the scheme.

• Incentives are provided based on the number of digital health records created and linked to Ayushman Bharat Health Account (ABHA) numbers of patients.

• Healthcare institutions and digital solution entities can register for the scheme through the Health Facility Registry (HFR) and ABDM Sandbox, respectively.

• Transactions that qualify under the scheme include creating any ABHA-linked health record, such as teleconsultations, lab reports, prescriptions, etc.

National Health Authority (NHA):

• It is the apex body responsible for implementing AB PM-JAY.

• It has been entrusted with the role of designing strategy, building technological infrastructure and implementation of "National Digital Health Mission " to create a National Digital Health Ecosystem.

Minuteman III : Intercontinental Ballistic Missile

The US conducted an unarmed Minuteman III intercontinental ballistic missile (ICBM) test from Vandenberg Space Force Base, California.

• The LGM-30G Minuteman III, a solid-fueled ICBM first deployed by the USAF in the 1960s, serves as the sole land-based component of the U.S. nuclear triad.

• Designed and manufactured by Boeing, it was initially intended for a ten-year service life but has been continually modernized

• Intercontinental ballistic missiles (ICBMs) are long-range missiles capable of delivering nuclear warheads across continents.

• They are a key component of a nation's nuclear deterrent strategy due to their ability to strike distant targets quickly.

• In India, examples of ICBMs include the Agni series, such as Agni-V, which has a range of over 5,000 kilometres, and Agni-VI, which is currently under development and is expected to have an even longer range.

Red Flag 24 Exercise

An Indian Air Force (IAF) contingent recently arrived at the Eielson Air Force Base in Alaska to participate in the prestigious multi-national exercise, Red Flag 24

• Red Flag 24 is an advanced two-week aerial combat training exercise that fosters multinational aircrew integration in a realistic and challenging environment.

• Over 3,100 service members will operate and support more than 100 aircraft during the exercise, held at the Joint Pacific Alaska Range Complex, the world's largest combat training range spanning 77,000 square miles.

• The Indian Air Force has deployed Rafale fighter jets for Red Flag 24, enhancing its participation in the multinational training event.

• Originating in 1975, Red Flag exercises at Nellis Air Force Base, Nevada, and Eielson Air Force Base, Alaska, simulate realistic combat scenarios to provide comprehensive learning experiences.

• Managed respectively by the United States Air Force Warfare Center and Pacific Air Forces, Red Flag exercises are pivotal for integrating diverse

Nagastra

The army has got its first indigenous man-portable suicide drones that are designed to target enemy training camps, launch pads and infiltrators with precision, without endangering the lives of soldiers.

• The Indian army has integrated the Nagastra 1 loitering munition, designed by Economic Explosives Limited (EEL), as its first indigenous man-portable suicide drone.
• These drones enhance the army's precision strike capabilities against enemy training camps and infiltrators, with a focus on reducing dependence on imports and promoting self-reliance in defence technology.
• With the potential for exports to friendly nations, Nagastra 1 showcases India's advancement in developing cost-effective solutions for modern warfare.
• The Nagastra-1 is fully designed and developed in India, with an indigenous content of over 75%.
• The drone can carry out GPS-enabled precision strikes with an accuracy of 2 meters and has a range of almost 30 km.
• The drone has a low acoustic signature and electric propulsion, making it a silent killer.
• The drone has a parachute recovery mechanism, which can bring back the munition in case of an aborted mission, enabling it to be used multiple times.
• The drone weighs 6 kg and can stay airborne for up to 60 minutes.

JIMEX Exercise-24

JIMEX exercise–24 commenced at Yokosuka in Japan.
JIMEX- 2024 is the eighth edition of JIMEX, since its inception in 2012.
• The exercise includes both harbour and sea phases.
• The harbour phase will comprise professional, sports and social interactions.
• During the exercise, navies of both the countries will jointly hone their war fighting skills at sea and enhance their interoperability.
• Indian Navy's indigenous Stealth Frigate INS Shivalik is participating in the bilateral maritime exercise. Japan is being represented by the Guided Missile Destroyer JS Yugiri.
• It provides an opportunity to learn from each other's best practices and facilitates operational interactions between India and Japan.
• The exercise also reaffirms their shared commitment towards maritime security in the Indo-Pacific region.

INS Sunayna: Entered Port Victoria

INS Sunayna entered Port Victoria, Seychelles on 15 Jun 24 in the company of Seychelles Coast Guard Ship (SCGS) Zoroaster and aims to strengthening the camaraderie and mutual cooperation between Indian Navy and Seychelles Coast Guard in line with the vision of SAGAR (Security & Growth for All in the Region).

• INS Sunayna is a Saryu class Offshore Patrol Vessel which was commissioned at Kochi.

• It is based under Southern Naval Command and is built at Goa Shipyard Limited.

• The warship is designed to undertake fleet support operations, coastal and offshore patrolling, ocean surveillance and monitoring of Sea Lines of Communications and offshore assets, and escort duties.

• It can achieve speeds of 25 knots.

• The ship also has an automatic power management system.

• It is fitted with the latest Navigation, Communication and Electronic Support Systems.

• Other Sarayu class includes the INS Sumitra and INS Sumedha.

SAGAR (Security & Growth for All in the Region) initiative:

• It is an Indian foreign policy doctrine that was introduced in 2015.

• The aim of SAGAR is to enhance cooperation and mutual trust between India and its neighbouring countries, particularly in the Indian Ocean region.

Standard Missile 6 (SM-6)

The US SM-6 missiles are hogging the headlines again after photographs of a US Navy F/A-18 Super Hornet appeared carrying an air-launched variant of the SM-6, or the RIM-174 missile.

• Standard Missile 6 (SM-6) is a multi-mission missile capable of anti air warfare, terminal ballistic missile defense, and anti ship strike roles.

• It was developed by Raytheon Company, a major U.S. defense contractor, primarily for the United States Navy.

• The first version of the Standard Missile-6 became operational in December 2014.

• It is the first missile of its kind, with anti-air, anti-surface, and sea-based terminal defence capabilities.

• It has a length of 6.6 m and a diameter of 0.5 m. It weighs 1,500 kg and carries a 64 kg blast fragmentation warhead.

• It is an extended-range active missile (ERAM) that uses the sophisticated signal processing and guidance technologies of the AMRAAM (Advanced Medium-Range Air-to-Air Missile).

• The interceptor uses semi-active homing and active homing guidance to achieve accurate engagement of the assigned targets.

• At its surface-to-air published range, the SM-6 achieves ranges of 240 km, with even higher estimated ranges up to 463 km.

Joint Communique On a Peace Framework

Only proposals acceptable to both Russia and Ukraine can lead to peace, said India as New Delhi decided to disassociate itself from the final document issued on June 16 at the conclusion of a Peace Summit in Switzerland.

• The ongoing war in Ukraine, initiated by the Russian Federation, continues to cause significant human suffering and global crises.

• A high-level summit was held in Switzerland on 15-16 June 2024 to discuss pathways to a comprehensive, just, and lasting peace for Ukraine.

• Attendees reaffirmed their commitment to international law and the United Nations Charter, referencing resolutions A/RES/ES-11/1 and A/RES/ES-11/6 from the UN General Assembly.

• Ensuring the safe operation of Ukraine's nuclear power plants, including Zaporizhzhia, under Ukraine's sovereign control and in line with IAEA principles. Any threat or use of nuclear weapons in the conflict is unacceptable.

• Emphasizing the importance of uninterrupted food production and supply, safe navigation, and access to sea ports.

• Attacks on merchant ships and port infrastructure are unacceptable, and Ukrainian agricultural products should be freely provided to other countries.

• Calling for the release of all prisoners of war through complete exchange and the return of all unlawfully displaced Ukrainian children and civilians.

Leading Edge Actuators & Airbrake Control Module

The Defense Research and Development Organisation (DRDO)'s Aeronautical Development Agency (ADA) handed over the first batch of the indigenous Leading Edge Actuators and Airbrake Control Module to Hindustan Aeronautics Limited (HAL).

• The successful completion of flight trials for Leading Edge Actuators and Airbrake Control Modules has paved the way for production clearance, enabling HAL to gear up for equipping the Mk-1A variant of Light Combat Aircraft -Tejas.

• It used to control the leading edge slats on aircraft wings.

• These are developed in collaboration with Research Centre Imarat (RCI), Hyderabad, and Central Manufacturing Technology Institute (CMTI), Bengaluru.

• RCI is a Hyderabad based (DRDO) premier lab.

• CMTI is a Research & Development organization under the aegis of the Ministry of Heavy Industries.

INDIAN NAVY'S FIRST WOMAN HELICOPTER PILOT

Sub Lieutenant Anamika B. Rajeev made history at INS Rajali, Arakkonam, when she became the first woman in the Indian Navy to fly a helicopter. Last week, this important milestone was reached during the passing out parade. The 102nd Helicopter Conversion Course was completed.

• During the event, Vice Admiral Rajesh Pendharkar, who is in charge of the Eastern Naval Command, also gave the prestigious "Golden Wings" to 21 officers.

• The passing out parade, which took place on June 7, marked the end of both Stage I training for the 4th Basic Helicopter Conversion Course and graduation from the conversion course.

• Lieutenant Gurkirat Rajput won the FOC-in-C, Eastern Naval Command Rolling Trophy for being the best pilot among his peers.

• The Sub-Lieutenant Kunte Memorial Book Prize was given to Lt Nitin Sharan Chaturvedi for his outstanding work on ground topics.

• Lieutenant Deepak Gupta won first place in the Overall Order of Merit and was given the Governor of Kerala Rolling Trophy.

Grey-Zone Warfare

China is using 'grey-zone' tactics against Taiwan involving sophisticated methods to frustrate the island's leadership.

• This includes simulated audiovisuals depicting invasion scenarios and sustained pressure through military sorties and cognitive warfare tactics.

• Grey-zone warfare refers to a strategic approach where aggressors employ a combination of conventional and non-conventional methods to harm adversaries without triggering a full-scale military response.

• It operates in the ambiguous space between peace and overt conflict, utilizing tactics like cyberattacks, economic coercion, disinformation campaigns, and proxy forces to achieve strategic objectives.

Characteristics of Grey-zone Warfare:

• Below threshold operations: Aggressors employ non-military tools that don't warrant a military response.

• Gradual bold steps: Actions unfold over time, often spanning years or decades, minimizing chances for decisive countermeasures.

• Lack of attributability: Aggressors evade accountability, making it challenging to attribute actions and formulate responses.

• Target specificity: Typically targets vulnerable nations with limited capacity for retaliation due to domestic or strategic constraints.

Iris-T Missile

According to a recent report, the Bundeswehr, Germany's armed forces, lost an Iris-T missile, sparking serious concerns about the crucial technology being compromised.

• The IRIS-T missile is an advanced short-range air-to-air missile developed through a collaborative effort led by Germany, involving Greece, Norway, Italy, Spain, and Sweden. Diehl BGT Defence, a German defense company, serves as the prime contractor for the program.

• Operational Capabilities: Designed for both short-range and medium-range air defense, the IRIS-T SLM effectively neutralizes a wide array of airborne threats including aircraft, cruise missiles, drones, and helicopters at distances of up to 40 km (25 miles).

• Advanced Features: Characterized by exceptional maneuverability crucial for close-in air combat, the IRIS-T missile incorporates an innovative infrared seeker, thrust-vector control, and a motor optimized for dogfight scenarios.

• Versatility: The missile's capabilities include engaging targets in front of and behind the launching aircraft, supporting both lock-on before launch and lock-on after launch operations.

• The IRIS-T missile represents a significant advancement in air defense technology, enhancing the operational capabilities of its member nations in various combat scenarios.

ISRO Set for Final RLV Landing Experiment

The Indian Space Research Organization (ISRO) is putting its Reusable Launch Vehicle (RLV) technology through a set of testing that are very important. Within a larger plan to create spacecraft that can be launched, recovered, and used again, these tests are a big part of making space trips much cheaper.

• The third and final RLV Landing Experiment (RLV LEX), which is part of ISRO's ongoing work, is set to happen in the first half of June.

• As long as the weather is good, this test will take place at the Aeronautical Test Range in Chitradurga, Karnataka.

• This important goal has been reached by the task readiness review.

• For the RLV LEX flights, an unmanned prototype with wings is used. It is called "Pushpak."

• The upcoming LEX-03 mission will be harder because an IAF Chinook helicopter will have to take Pushpak to a height of 4.5 km and 500 meters laterally from the runway.

• When it is let go, Pushpak has to find its way to the runway by itself, changing its direction and altitude as needed before landing.

• This mission will also try to lower the sink rate so that the effect on landing is less severe.

• A real-time kinematics (RTK) package will be used to help with this.

ASTEROID 2024 LZ4 : THREAT TO EARTH

NASA has recently been keeping an eye on three asteroids that are moving toward Earth.

• Asteroid 2024 LZ4 will pass closer to Earth than the Moon, by 173,000 miles.

• Because it is so close, it stands out even more, but because it is only 72 feet long, about the length of an airplane, it has not been labelled as a possibly dangerous object.

• Most asteroids are in the belt between Mars and Jupiter, but those close to Earth are closely watched because they could be dangerous.

• An asteroid is considered possibly dangerous if it is within 4.6 million miles of Earth and is more than 150 meters across.

• Even though it is close, asteroid 2024 LZ4 doesn't meet these requirements because it is too small.

• Monitoring is essential for protecting the world, including observing and making predictions.

• Asteroid 2024 LZ4 is only about 72 feet wide, which is about the size of an airplane.

PraVaHa Software

SRO's Vikram Sarabhai Space Centre (VSSC) develops PraVaHa (Parallel RANS Solver for Aerospace Vehicle Aero-thermo-dynamic Analysis), a Computational Fluid Dynamics (CFD) software for aerodynamic design and analysis of aerospace vehicles.

• PraVaHa simulates external and internal flows on launch vehicles, winged, and non-winged re-entry vehicles, aiding in the evaluation of aerodynamic and aerothermal loads during launch and re-entry.

• It is extensively used in the Gaganyaan program for analyzing human-rated launch vehicles and is designed to utilize CPU and GPU architectures for efficient simulation.

Oleg Kononenko (Russian Cosmonaut): 1st Person to Spend 1,000 Days in Space

Oleg Kononenko, a 59-year-old Russian cosmonaut, recently achieved a historic landmark by becoming the first person to spend 1,000 days in space.

• This milestone was reached during Kononenko's fifth mission to the International Space Station (ISS) which commenced on September 15, 2023.

• Kononenko has been traveling in space since his first trip in 2008, and he has always made improvements to space research.

• His total amount of space-time was longer than Gennady Padalka's record of 878 days, which had been held since 2015, until February 2024.

• Kononenko will have been in space for a total of 1,110 days if his mission ends on September 23, 2024, as planned.

Double Sun halo: Celestial Phenomenon

A rare celestial phenomenon known as a "double sun halo" was witnessed in the skies over Ladakh.

• It is a rare optical phenomenon where two concentric rings appear around the sun.

• This occurs when sunlight is refracted through ice crystals suspended in cirrus clouds, creating this dazzling visual effect.

• It is a variation of the more common 22-degree halo, where a bright ring encircles the sun.

• In this case, two halos are visible – an inner halo with a radius of approximately 22 degrees and an outer halo with a radius of around 46 degrees from the sun's center.

• The formation of a double sun halo is a result of the unique shape and orientation of the ice crystals in the cirrus clouds.

• These crystals, typically hexagonal in shape, act as natural prisms, refracting and reflecting the sunlight in specific angles.

• When the ice crystals are randomly oriented, the refracted sunlight creates the inner 22-degree halo.

• However, if the crystals are aligned horizontally, with their flat faces parallel to the ground, an additional refraction occurs, resulting in the outer 46-degree halo.

• This precise alignment of the ice crystals is rare, making the double sun halo a relatively uncommon sight, especially in regions like Ladakh, where the atmospheric conditions are ideal for such phenomena.

TRISHNA Mission

Thermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) mission, a collaboration between ISRO and CNES (French Space Agency), aims to monitor surface temperature and water management globally.

• It includes two primary payloads: Thermal Infra-Red (TIR) from CNES for infrared imaging and VNIR-SWIR from ISRO for surface reflectance mapping.

• Operating in a Sun-synchronous orbit, it will aid climate monitoring, urban planning, and disaster management.

• The mission aims to monitor the energy and water budgets of continental biospheres, alongside high-resolution observation of water quality and dynamics.

• It provides detailed monitoring of surface temperature, emissivity, and radiation variables, aiding regional to global surface energy budgeting.

• Additionally, it assists in assessing urban heat islands, detecting thermal anomalies, and monitoring snow-melt runoff, glacier dynamics, aerosol optical depth, atmospheric water vapour, and cloud cover.

LIGNOSAT : JAPANS TINY WOODEN SATELLITE

Japanese researchers have built a world first tiny wooden satellite named LignoSat that will be launched into space in September.

• LignoSat a fusion of "ligno" (the Latin word for wood) and "satellite"

• It is developed by collaborative research and development by a team comprising members from Kyoto University and Sumitomo Forestry Co.

• Their objective is to leverage the eco-friendliness and cost-effectiveness of wood in space exploration.

• It is constructed from magnolia wood, chosen for its durability and adaptability.

• Wooden satellites are viewed as more environmentally friendly upon re-entering the Earth's atmosphere at the conclusion of their mission.

• Unlike metal satellites, which pose air pollution risks due to the generation of metal particles during re-entry, wooden satellites mitigate these concerns.

• It will first be sent to the International Space Station (ISS) aboard a SpaceX rocket from the Kennedy Space Center.

• Once it reaches the ISS, it will be released from the Japanese experiment module to test its durability and strength.

• Researchers will receive data from the satellite to monitor its performance, including signs of strain and its ability to withstand extreme temperature changes.

Starship: SpaceX's

SpaceX's Starship rocket accomplished its first fully successful test flight last week, with both its booster and spacecraft making a gentle splashdown after an hour-long sub-orbital space flight.

• SpaceX's Starship is an ambitious spacecraft designed to be fully reusable for missions to various destinations in space, including Mars.

• It is part of a two-stage-to-orbit launch system composed of the Super Heavy booster and the Starship spacecraft itself:

• Super Heavy Booster: The first stage, responsible for lifting Starship out of Earth's atmosphere.

• Starship Spacecraft: The second stage, designed for space travel, including carrying crew and cargo.

• Both stages are designed to be fully reusable, aiming to significantly reduce the cost of space travel.

• Capacity: Crew: Can carry up to 100 passengers.

• Cargo: Large payload capacity, with different configurations for various missions.

• Engines: Powered by Raptor engines, which use liquid methane and liquid oxygen (Metalox) as propellants.

Alaska

- Alaska lies at the extreme northwest of the North American continent, and the Alaska Peninsula is the largest peninsula in the Western Hemisphere.
- Because the 180th meridian passes through the state's Aleutian Islands, Alaska's westernmost portion is in the Eastern Hemisphere.
- Thus, technically, Alaska is in both hemispheres.
- Alaska is bounded by the Beaufort Sea and the Arctic Ocean to the north, Canada's Yukon territory and British Columbia province to the east, the Gulf of Alaska and the Pacific Ocean to the south, the Bering Strait and the Bering Sea to the west, and the Chukchi Sea to the northwest.
- Alaska, constituent state of the United States of America. It was admitted to the union as the 49th state on January 3, 1959.
- The capital is Juneau, which lies in the southeast, in the panhandle region.

Techo Funan Canal

Cambodia will start constructing the Chinese-backed Techo Funan Canal.
- The 180-km canal aims to connect the Mekong River basin to the Cambodian coast.
- Despite tensions with Vietnam and concerns about potential military use by China, Cambodia asserts the canal will reduce reliance on Vietnamese ports, lower transportation costs, and benefit millions of people through improved irrigation.
- Cambodia is a Southeast Asian country bordering Thailand, Laos, and Vietnam, with a coastline along the Gulf of Thailand.
- A 1997 coup established Hun Sen and the Cambodian People's Party's dominance, making Cambodia a de facto one-party state despite being constitutionally multi-party.
- Designated a least developed country by the UN, Cambodia is a member of ASEAN, WTO, and other international organizations.
- Its economy is primarily agricultural, with growing sectors in textiles, construction, garments, and tourism, making it vulnerable to climate change

Suhelwa Wildlife Sanctuary (SWS) : New Tiger Reserve

New tiger reserve will soon be established in Uttar Pradesh, following evidence of tiger population in the Suhelwa Wildlife Sanctuary (SWS).

• Suhelwa Wildlife Sanctuary (SWS) is located in the Shravasti, Balrampur, and Gonda districts of Uttar Pradesh.

• The forest of SWS was owned by the Maharaja of Balrampur before the implementation of the Zamindari Abolition Act 1952 and was known as Balrampur Estate.

• It was declared a Wildlife Sanctuary in 1988.

• Sprawling an area of 452 sq km, this sanctuary is a strip of land, approximately, 120 km long from the east to west and 6-8 km wide.

• The Sohelwa Wildlife Division is situated on the Indo-Nepal International Border.

• It is one of the important places in the Bhabar-Terai Ecosystem area, which is rich in biodiversity.

• The Tharu tribe, having mongoloid features, have been residents of this area since long.

Mount Kanlao

A volcanic eruption at Mount Kanlaon in the Philippines led to rivers of cold lava, or lahar.

• Cold lava, or "lahar," is a hazardous flow of volcanic material, debris, and water that descends rapidly from volcanoes, resembling a fast-moving landslide rather than molten lava.

• This dense mixture forms when water interacts with volcanic ash and debris on a volcano's slopes, creating a river-like flow that can be more destructive than molten lava due to its speed and force.

• The term "cold lava" is misleading, as it remains hot internally but appears and behaves like wet concrete.

• Driven by gravity and the volume of displaced material, lahars can travel far from the volcano's summit, picking up additional debris and increasing in volume and destructive power.

Volkhov River : In News

Four medical students from Maharashtra studying at a university in Russia drowned in the river Volkhov near St. Petersburg.

• The Volkhov River is in northwestern Russia.

• It flows from Lake Ilmen, passes through Novgorod, and goes north-northeast into Lake Ladoga through a flat, swampy area.

• In the town of Volkhov, the first hydroelectric station in the Soviet Union was built in 1926.

• The Volkhov, in early times part of the important Baltic Sea–Black Sea trade route, is navigable only by small craft.

• As per the data released by the Ministry of External Affairs (MEA) in 2022, there were nearly 16, 500 Indian students in Russia

Delos Island

A remarkable ancient site on the tiny Greek island of Delos is "doomed to disappear" within decades due to rising sea levels and geological processes, an expert has said.

• Delos Island is one of the most important sanctuaries of the ancient Greek and Roman world.

• It is a rocky island, part of the Cyclades archipelago in the Aegean Sea, was first settled in the 3rd millennium B.C.

• But in the 1st millennium B.C

• It is a UNESCO world heritage site.

• It is found that increasing temperatures combined with high levels of humidity can significantly affect the chemical composition of certain materials used in cultural heritage monuments.

• Aegean Sea is located in the East Mediterranian Basin with the Greek peninsula to its west and Anatolia (consisting of the Asian side of Turkey) to its east.

• The Bosphorus and Dardanelles Straits connect the Aegean Sea to the Black Sea and the Marmara Sea respectively.

• The vast majority of the Aegean Islands belong to Greece.

• The only sizable possessions of Turkey in the Aegean Sea are Imbros (Gökçeada) and Tenedos (Bozcaada), in the northeastern part of the Sea.

PARAPARATRECHINA NEELA : NEW ANT SPECIES

Indian researchers recently discovered a new ant species named Paraparatrechina neela from Arunachal Pradesh's remote Siang Valley.

• Paraparatrechina neela is a new ant species discovered from Siang Valley in Arunachal Pradesh.

• It belongs to the rare genus Paraparatrechina and has been named Paraparatrechina neela.

• The word "neela" signifies the colour blue in most Indian languages—a fitting tribute to the ant's unique colour.

• This discovery signifies the first new species of Paraparatrechina in 121 years since the description of the sole previously known species, P. aseta (Forel, 1902), in the Indian subcontinent.

• This species has a distinct metallic blue colour that is different from any other species in its genus.

Spot Bellied Eagle Owl

Pench Tiger Reserve (PTR), Maharashtra, recently reported the first photographic record of a spot-bellied eagle owl.

• Spot Bellied Eagle Owl is also known as the forest eagle-owl, is a large bird of prey with a formidable appearance.

• Scientific Name: Ketupa nipalensis

• It can be found in a variety of habitats, including tropical and subtropical forests, woodlands and savannas.

•It is commonly found in India, Sri Lanka, Nepal, Bhutan, Bangladesh and parts of Southeast Asia.

• It is a large species of owl. It measures about 50 to 65 cm in length and weighs 1500 to 1700 grams.

• Its wingspan can reach up to 1.7 meters.

• The most distinguishing feature is its striking colouration.

• The upperparts of its body are a rich chocolate brown, speckled with white spots.

• The feathers on its wings and tail are barred with alternating shades of brown and white, creating a stunning pattern that helps it blend in with its surroundings.

SPECIES IN NEWS

• The underside of the owl is where it gets its name; its belly and breast are a light cream colour, covered in bold black spots.

• It is primarily nocturnal.

• It is an apex predator, feeding on a variety of prey, including rodents, small mammals, reptiles, and insects.

• It is a solitary bird that is territorial and maintains a home range.
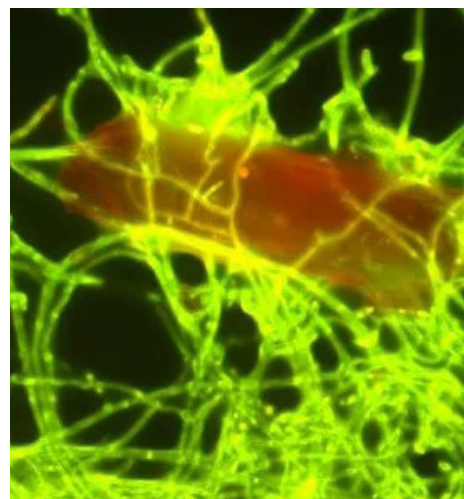
Conservation Status:

• IUCN Status: Least Concern

• Wildlife (Protection) Act, 1972: Schedule IV

• CITES: Appendix II.

Migratory Diadromous Fishes

A recent study has raised concerns about the effectiveness of Marine Protected Areas (MPAs) in safeguarding the habitats of rare migratory fish species.

• The study found that a significant portion of these protected areas do not align with the core habitats of the target species, raising questions about the efficacy of current conservation efforts.

• The study examined 11 rare and data-poor diadromous fish species. These species migrate between saltwater and freshwater environments.

• The researchers found that only 55% of the modelled core habitats for these species overlapped with the designated MPAs.

• And, of these protected areas, only 50% had measures in place for the protection of the fish.

• Less than 30% of endangered species, such as the Mediterranean twaite shad, had their core habitats within the MPAs.

• Species like European eel and European smelt, which had nearly 70% of their core habitats within MPAs.

Diadromous fishes:

• These are a group of fish that migrate between freshwater and saltwater environments throughout their lives.

• This unique life cycle allows them to take advantage of the different resources available in each habitat.

Parengyodontium album : Marine Fungus

A marine fungus called Parengyodontium album has been discovered to break down plastic polyethene (PE) in the ocean.

• Parengyodontium album is a marine fungus that can break down plastic polyethene (PE), the most common plastic in the ocean.

• It was discovered by Marine microbiologists from the Royal Netherlands Institute for Sea Research (NIOZ).

• In this bioremediation process, the PE-derived carbon is converted into the fungal biomass of album, serving as its energy source.

• Initial photodegradation of PE by UV sunlight is crucial for this process. It makes the fungus useful to degrade the floating oceanic plastic litter.

• Humans produce over 400 billion kilograms of plastic annually, much of which ends up in the ocean.

• Considering fungi as the 'masters of degradation' that they utilise a plethora of digestive enzymes for plastic degradation, researchers expect that there could be more plastic-degrading fungi in the deeper parts of the ocean.

New Freshwater Diatom Genus Discovered

Researchers have discovered a new genus of the Gomphonemoid diatom found in the clean water river of the Eastern Ghats and it has been named Indiconema to value its restricted distribution in the country.

• Indiconema differs in having a pore field at both the head and foot pole rather than having only at the foot pole.

• Researchers reported one species of Indiconema from the Eastern Ghats and another from the Western Ghats.

• A similar pattern of sharing endemic elements between two mountain systems has been observed for other endemic-rich groups, such as reptiles.

• Diatoms are photosynthetic, single celled organisms.

• These are microscopic algae and serve as a base of the aquatic food chain.

• Due to their sensitivity towards any water chemistry changes, they are excellent indicators of aquatic health.

• They are a major group of algae and form one of the most common forms of phytoplankton.

• They are found in almost every aquatic environmentincluding fresh and marine waters.

Light Microscopic Images of new genus *Indiconema*

Masila waterfalls habitat of the new genus *Indiconema*

Scanning Electron Microscopic Images of new genus *Indiconema*

• Diatoms have cell walls made of silica, Each species has a distinct pattern of tiny holes in the cell wall (frustule) through which they absorb nutrients and get rid of waste.

• Collectively, they are responsible for generating up to 50% of the oxygen produced globally each year.

Greater Spotted Eagles

A recent report revealed that the ongoing war between Russia and Ukraine has forced greater spotted eagles, a large raptor species, to change their migratory paths.

• It is a member of the subfamily Aquilinae, commonly known as "booted eagles".

• It was once classified as a member of the genus Aquila, but has been re-classified to the distinct genus Clanga, along with the two other species of spotted eagle.

• During breeding season, greater spotted eagles are widely distributed across Eastern Europe, parts of Central Europe, central Russia, central Asia and parts of China, along with other isolated areas.

Four-Horned Antelope

A rare four-horned antelope has been sighted for the first time in Veerangana Durgavati Tiger Reserve (Sagar district), which was earlier known as Nauradehi Sanctuary.

• Four-Horned Antelope also called Chousingha, is a small bovid antelope.

• They are the smallest antelopes found in Asia.

• Scientific Name: Tetracerus quadricornis

• It is endemic to India and Nepal.

• In India, they range from the foothills of the Himalayas in the north to the Deccan Plateau in the south.

• They mostly occur in open, dry, deciduous forests in hilly terrain.

• They inhabit areas with significant cover from grasses or heavy undergrowth, and close to water bodies.

• They have a yellowish-brown to reddish coat and are slender, with small legs and a short tail.

• These antelopes have four horns, which distinguish them from most other bovids, which have two horns.

• Only males in this species grow horns. One pair of horns is located between the ears, and the other on the forehead.

• They are usually diurnal and solitary by nature; however, can be spotted in loose groups of three to four.

• Conservation Status: IUCN Red List: Vulnerable

• During winter, they migrate, primarily to South Asia, Southeast Asia, the Middle East, the upper Mediterranean Basin, and parts of East Africa.

• Greater spotted eagles favor wetter habitats than most other booted eagles, preferring riparian zones as well as bogs, lakes, ponds, and other bodies of water surrounded by woodland

• IUCN Status: Vulnerable

• Mostly vanished from western and central Europe, with a limited breeding population in Polesia, Belarus.

• India's Wildlife Protection Act, 1972: Schedule I (Other eagle species)

Monsoon Croaks Bioblitz

The Kerala Forest Research Institute (KFRI) is organising Monsoon Croaks Bioblitz 2024.

• The "Monsoon Croaks Bioblitz" is a four-month-long public participation science project aimed at documenting the frogs of Kerala during the monsoon season, running from June to September.

• The scientific observations will be part of the Global Biodiversity Information Facility (GBIF) database, which can be used for biodiversity awareness, habitat conservation, species conservation etc.

• The project aims to identify key habitats to protect frogs, which serve as indicators of the ecosystem's health.

• Factors such as climate change, untimely rainfall patterns, habitat loss, and water pollution are challenging the survival of frogs, leading to 41% of the world's frogs being on the IUCN Red List of endangered species.

• Kerala alone has more than 200 frog species, emphasising the importance of conservation efforts.

• The topmost observed species is the Wayanad Bush Frog (Pseudophilautus wynaadensis) followed by the Asian Common Toad (Duttaphrynus melanostictus).

• The important amphibian species recorded includes Critically Endangered Resplendent Shrub frog (Raorchestes resplendens), Endangered Malabar Torrent Toad (Blaira ornata), Vulnerable Anaimalai Flying Frog (Rhacophorus pseudomalabaricus) and the Near Threatened Purple Frog (Nasikabatrachus sahyadrensis).

*The Ministry of Health and Family Welfare (GoI), organized an event to-day to observe World No Tobacco Day 2024.*

• World No Tobacco Day was established by the Member States of the World Health Organization in 1987, and since 1988, it has been observed annually on May 31st following a Resolution.

• Awareness Campaign: This global initiative aims to highlight the harmful and potentially fatal consequences of tobacco use and exposure to sec-ond-hand smoke. It also strives to discoura ge the consumption of tobacco in any form.

• Theme Focus: The current theme is "Protecting Children from Tobacco Industry Interference," emphasizing safeguarding young people from the influences of tobacco companies.

• Tobacco Cultivation in India: In India, tobacco cultivation is concentrated in states like Andhra Pradesh, Gujarat, Karnataka, Uttar Pradesh, and Bi-har. Gujarat leads with 45% of the cultivated area (0.13 million hectares) and 30% of the production (0.16 million metric tons).

• Productivity: Gujarat also boasts the highest productivity at 1700 kg per hectare, followed closely by Andhra Pradesh.

• World No Tobacco Day serves as a critical platform to advocate for public health policies that reduce tobacco consumption and protect individuals, especially children, from its harmful effects.

Satnamis Protest : Chhattisgarh

A large mob from the Satnami community in Chhattisgarh's Baloda Bazar district attacked the Superintendence of Police (SP) office, over the alleged desecration of a 'jaitkhamb' (victory pillar, a sacred structure for the Sat-nami community).

• Satnami Community is the largest Scheduled Caste (SC) community, in-cluding peasants, artisans, and untouchables in Chhattisgarh.

• It was founded by Guru Ghasidas, a 19th-century saint, who preached monotheism, believing in one God called Satnam "Truthful Name" and social equality.

• They've faced challenges in securing land rights, obtaining fair employ-ment opportunities, and accessing education and healthcare encountered social prejudice and haven't had a strong voice in government.

• The Chhattisgarh government renamed a section of the Sanjay-Dubri Ti-ger Reserve to Guru Ghasidas National Park in his honour.

Energy Transition Index
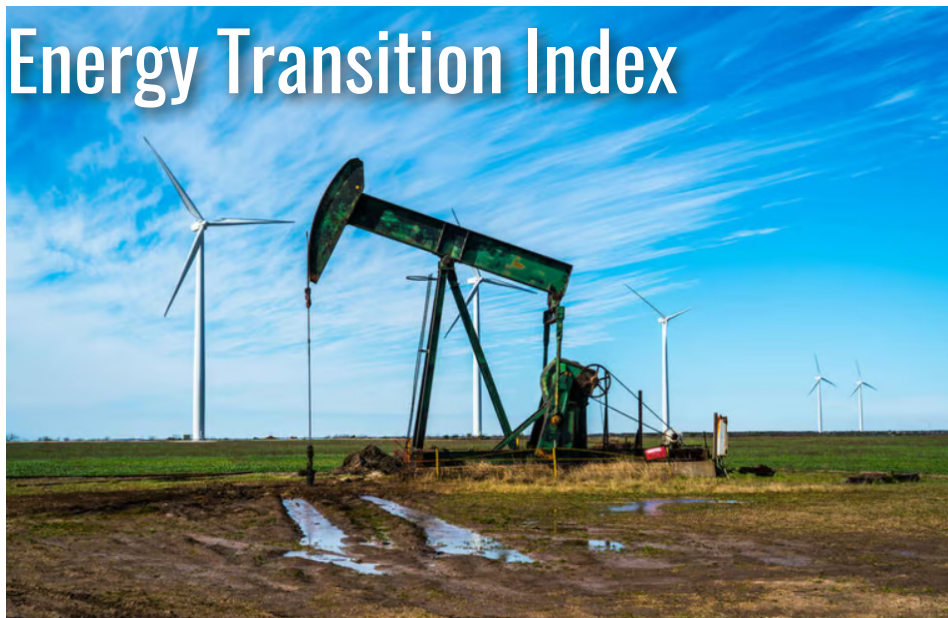
India has been ranked 63rd on a global Energy Transition Index released by the World Economic Forum.

• Energy Transition Index is published by the World Economic Forum.

• It was developed with the ambitious aim to comprehensively monitor the global energy transition.

• The heart of the Index is an analytic framework that measures transition as a shift towards an energy system that supports sustainability, security and access, and towards institutions that enable this performance.

• European countries lead the World Economic Forum Energy Transition Index 2024 rankings; Sweden came top, followed by Denmark, Finland, Switzerland and France.

• Emerging economies such as Brazil and China made notable progress, although 83% of countries moved backwards from last year in at least one of the three energy system performance dimensions – security, equity and sustainability.

• India has been ranked 63rd in ETI -2024.

• The gap in energy transition performance between advanced and developing economies continues to narrow, although disparities in investments and regulation remain.

• While 107 of the 120 countries benchmarked in the report demonstrated progress on their energy transition journeys in the past decade, the overall pace of the transition has slowed and balancing its different facets remains a key challenge.

• The WEF also lauded the strides made by India in its clean energy infrastructure, with renewable energy and biomass comprising 42 per cent of its power generation capacity, making it the fourth-largest renewables market globally.

10th International Day Of Yoga In Srinagar

Prime Minister Narendra Modi participated in the 10th International Day of Yoga in Srinagar.

• PM Modi emphasised the global journey of Yoga, mentioning that in India, the AYUSH department has established the Yoga Certification Board for yoga practitioners.

• The term "Yoga" originates from the Sanskrit word "yuj," which means to join or unite.

• Yoga aims to harmonize the mind, body, and soul, fostering a connection between individual consciousness and universal consciousness.

• The International Day of Yoga (IDY) is observed annually on June 21st.

• India proposed the idea of IDY during the opening of the 69th session of the United Nations General Assembly (UNGA) in 2014.

• The UN officially declared June 21st as IDY by passing a resolution in December 2014.

• The theme for International Yoga Day 2024 is "Yoga for Self and Society".

• This theme emphasizes the dual benefits of yoga practice: enhancing personal well-being and contributing to the betterment of society

OPERATION BLUESTAR

Slogans favouring Khalistan (sovereign state for Sikhs) were raised recently in the premises of the Golden Temple complex in Punjab's Amritsar during the 40th anniversary of 'Operation Bluestar'.

• In June 1984, Prime Minister Indira Gandhi ordered Operation Bluestar, an Indian military operation to remove militant Sikh separatists who had taken over the Golden Temple in Amritsar, the holiest shrine for Sikhs.

• The group was led by Jarnail Singh Bhindranwale, a Sikh fundamentalist and former head of the Sikh seminary Damdami Taksal, and a prominent figure in the emerging Khalistan separatist movement.

• The operation commenced on June 1, 1984, with the deployment of Indian Army troops around the Golden Temple complex. Bhindranwale and his followers fiercely resisted, leading to intense gun battles. The army intensified its assault using heavy artillery, tanks, and helicopters, resulting in extensive damage to the Akal Takht and other parts of the Golden Temple.

• The operation concluded on June 6, 1984, with the Indian Army gaining control of the Golden Temple complex. The Indian government reported about 400 deaths, including 87 soldiers. The operation's goal was achieved, but it also led to widespread outrage among some Sikhs who viewed it as an attack on their faith.

• The aftermath of Operation Bluestar had profound consequences. Prime Minister Indira Gandhi was assassinated by her Sikh bodyguards in revenge five months later, in October 1984.

IAS HUB

MGOCSM CIVIL SERVICE ACADEMY

SINCE 1992

(A project of MGOCSM, the student wing of the Malankara Orthodox Church)

Orthodox Christian Student Centre, Opp. AKG Centre, Palayam, Thiruvananthapuram 695 001

9567 744 544, 9946 944 544

iashubcivilserviceacademy.com   **mail@mgocsmcsa.com**

follow us: