Dear Readers,

As we embrace the month of July, 'Amigos IAS' magazine is proud to present an edition that delves into critical legal, social, and technological advancements shaping our world and their implications for India.

This month, we commemorate the 10th anniversary of the International Day of Yoga, centered around the theme "Yoga for Self and Society." This theme underscores the profound influence that yoga exerts on both individuals and communities, emphasizing the synergy between mind and body, and the comprehensive approach to health and wellness that yoga offers. Yoga, recognized as an intangible cultural heritage by UNESCO, has been a cornerstone of India's soft power, fostering global harmony and well-being.

In this edition, we explore the India-U.S. initiative on Critical and Emerging Technology (iCET), which aims to foster innovation ecosystems, advance space technology partnerships, and deepen defense innovation. Key areas of collaboration include semiconductor technology, sustainable agriculture, clean energy, and pandemic preparedness. The joint mission to the International Space Station and the development of semiconductor supply chains highlight the strategic importance of this partnership.

We also delve into the pressing issue of global refugee crises, with a focus on India's historical tradition of offering asylum. Despite not being a party to the UN Refugee Convention, India has a long history of providing refuge to those in need. The proposed Asylum Bill, 2021, aims to address the gaps in India's asylum framework and uphold our legacy of humanitarian values.

On the healthcare front, we cover India's significant strides in developing gene therapy to combat sickle cell disease, a hereditary blood disorder prevalent among Scheduled Tribes. The National Sickle Cell Anemia Elimination Mission, introduced in the Union Budget 2023, focuses on addressing this health challenge, with the goal of eliminating the disease's genetic transmission by 2047.

In the realm of women's representation, we analyze the trends in the Lok Sabha, highlighting the gradual yet inconsistent progress in achieving gender parity. We emphasize the need for policy measures and greater efforts to encourage women's participation in politics to foster a more inclusive political environment.

Lastly, we examine the recent legal developments, such as the Madras High Court's ruling that cooperative societies are not subject to the RTI Act and the challenges associated with the 50% reservation ceiling in government jobs and educational institutions.

Your journey is a testament to your commitment and potential. Keep striving, and may you achieve all that you aspire to.

Warm regards,
AMIGOS IAS Editorial Team
Jai Hind!

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Recognition of International Yoga Day (IYD)

This year commemorates the **10th anniversary of the International Day of Yoga,** centered around the theme **"Yoga for Self and Society."** This theme underscores the profound influence that yoga exerts on both individuals and communities. Yoga, renowned for its transformative effects, epitomizes the synergy between mind and body, the equilibrium between thought and action, and the fusion of restraint and fulfillment. It unifies the physical, mental, spiritual, and emotional aspects of a person, providing a comprehensive approach to health and wellness that instills serenity into our busy lives. Further, the marvel of yoga lies in its ability to catalyze change, a quality that we commemorate on this momentous occasion.

What is Yoga?

- Yoga, an ancient spiritual discipline rooted in a profound science, seeks to establish a harmonious relationship between the mind and body.

- Derived from the Sanskrit word 'yuj', meaning "to join" or "to unite," Yoga is both an art and a science dedicated to fostering overall well-being.

- According to Yogic teachings, the practice of Yoga aims to unify an individual's consciousness with the universal consciousness.

- Modern scientific understanding suggests that everything in the universe is interconnected at a fundamental level. Achieving a sense of oneness with existence through Yoga leads one to a state of freedom, known as mukti, nirvana, kaivalya, or moksa, making them a yogi.

- Yoga encompasses an inner science consisting of diverse methods to facilitate the union of body and mind for self-realization. Through dedicated practice (sadhana), Yoga empowers individuals to transcend suffering, thus enabling them to experience holistic health, happiness, and inner harmony in all aspects of life.

- Recognized as an intangible cultural heritage, Yoga was inscribed by UNESCO on the Representative List of the Intangible Cultural Heritage of Humanity in 2016.

- This ancient Indian practice incorporates physical postures, breathwork, meditation, and ethical principles to attain spiritual enlightenment and inner balance.

- Embraced globally as a potent tool for enhancing physical and mental well-being, Yoga serves as a unifying practice across diverse cultures worldwide.

A Brief History and Development of Yoga

Ancient Beginnings

- Yoga, a profound and ancient science, can be traced back thousands of years before organized religions and belief systems. The ancient seers and sages spread this potent Yogic science to regions across Asia, the Middle East, northern Africa, and South America.

- Modern scholars have noticed significant similarities between ancient cultures worldwide. However, India became the hub where the Yogic system flourished in its most comprehensive and sophisticated form.
- The sage Agastya, one of the Saptarishis, journeyed throughout the Indian subcontinent, establishing a culture centered around the Yogic way of life.

Indus Saraswati Valley Civilization Roots

- Yoga is often seen as an enduring cultural legacy of the Indus Saraswati Valley Civilization dating back to 2700 BCE.
- This civilization has left behind numerous seals and fossil remains adorned with Yogic motifs and figures in Yoga poses, indicating the presence of Yoga in ancient India. The seals and idols of the Mother Goddess suggest the practice of Tantra Yoga.
- Traces of Yoga are also evident in folk traditions, Vedic and Upanishadic heritage, Buddhist and Jain traditions, various philosophical schools (Darshanas), and the epics Mahabharata and Ramayana, including the Bhagavad Gita.

Standardization by Patanjali

- Yoga, although practiced in the preVedic era, was systematized and codified by the great sage Maharishi Patanjali through his Yoga Sutras around 400 CE, defining the existing Yogic practices, their meanings, and related knowledge.
- This text presented a comprehensive structure for Yoga, outlining an "eight-limbed path" towards enlightenment.

Development and Spread

- After Patanjali, many sages and Yoga masters contributed to preserving and advancing Yoga through documented practices and literature.
- Hatha Yoga, emphasizing physical postures (asanas) and breathing techniques (pranayama), emerged in the 11th century.

Introduction to Western Culture

- Yoga embarked on its Western journey in the late 19th century when Swami Vivekananda introduced it to the United States at the 1893 Parliament of Religions in Chicago.
- In the 1920s and 30s, gurus like Paramahansa Yogananda and Swami Sivananda played crucial roles in popularizing Yoga in the West.

20th Century Resurgence

- The 1960s witnessed a surge in Yoga interest as part of the counterculture movement.
- Renowned teachers like B.K.S. Iyengar, K. Pattabhi Jois, and T.K.V. Desikachar developed distinct Yoga styles, such as Iyengar, Ashtanga, and Viniyoga, respectively.

Modern Worldwide Trend

- In recent years, Yoga has become a mainstream global trend.
- The United Nations designated June 21st as the International Day of Yoga in 2015, showcasing Yoga's universal appeal.

Current Practices

- Although Yoga initially aimed for spiritual liberation, it is now commonly used for physical fitness and stress relief.
- Modern adaptations like hot Yoga, power Yoga, and even goat Yoga have emerged.
- However, many still follow Yoga in its traditional form, integrating meditation and breathwork with physical poses.

Themes of International Yoga Day Over the Past 10 Years

- **2015:** Yoga for Harmony and Peace
- **2016:** Yoga for achievement of sustainable development goals.
- **2017:** Yoga for Health
- **2018:** Yoga for Peace
- **2019:** Yoga for Heart
- **2020:** Yoga for Health Yoga at Home
- **2021:** Yoga for Well-being
- **2022:** Yoga for Humanity
- **2023:** Yoga for Vasudhaiva Kutumbakam
- **2024:** Yoga for Self and Society
- Each theme has highlighted different aspects of the benefits of yoga, demonstrating its versatility and broad appeal.
- From promoting physical health to fostering global harmony, the themes reflect yoga's universal relevance.

Yoga as a Tool of Soft Power

- Yoga's worldwide popularity has elevated its status as a key component of India's soft power strategy. Soft power, defined by political scientist Joseph Nye, is the capacity to sway others through cultural or ideological means, rather than coercion or payment.

- India has leveraged yoga as a cultural emissary, propagating its rich heritage and philosophy on a global scale. The broad acceptance of yoga has enriched India's international reputation, nurturing goodwill and understanding among nations.
- **Yoga bolsters India's soft power in various ways:**
  1) **Cultural Diplomacy:** By promoting yoga globally, India presents its ancient traditions and holistic approach to health and wellness. This cultural offering helps shape a positive perception of India as a land with profound, valuable customs.
  2) **Health and Well-being:** The universal allure of yoga's physical and mental health benefits transcends cultural and national borders, establishing it as an inclusive practice that resonates with diverse populations.
  3) **Educational Exchange:** Yoga has facilitated educational partnerships and collaborations, with numerous international institutions integrating yoga studies into their curriculum, fostering deeper cultural connections.
  4) **Tourism:** The global fascination with yoga has sparked tourism to India, with many seeking authentic yoga experiences in its place of origin. This not only boosts the economy but also encourages cultural interaction.
- By commemorating the International Day of Yoga, India reinforces its soft power, amplifying its influence and nurturing global peace and collaboration through the collective practice of yoga.

Way Forward

- Yoga has the potential to greatly allure tourists visiting India. The various tourist circuits in India should include a dedicated 'yoga/spiritual circuit' to boost India's reputation as a peace-loving nation, increase revenue, boost foreign exchange earnings, and create job opportunities for locals.
- To leverage yoga as a form of soft power to the fullest, India should tap into the rich cultural and civilizational heritage of the Indian diaspora. Fostering innovation and entrepreneurship should be a key aspect of India's soft power strategy domestically and internationally.
- India ought to establish a well-structured higher education system specializing in yoga, akin to the one in the US that draws numerous students to India. Strengthening the tourism industry will not only result in economic benefits but also lead to job creation and foster cultural exchange.
- India needs to capitalize on its strengths through effective governance, drive sustainable economic growth, and uplift the quality of life for its citizens. By leveraging the positive reputation and soft power emanating from yoga, India can propel itself to greater prominence on the global stage.

Conclusion

- Yoga has garnered widespread admiration and captured the imagination of people worldwide, making it a significant pillar of India's soft power.
- Indian public diplomacy has been active in showcasing yoga and should further promote literature and narratives about the practice.
- Yoga, as a gift from India to the world, serves as a key to longer, better, and happier lives. Let humanity come together to celebrate this invaluable gift.
- India's strength lies in its rich culture, heritage, and pluralistic society. The nation has the potential to emerge as a global leader not only economically but also as a free, vibrant, and dynamic society. By harnessing and enhancing its soft power, India can complete its journey towards global influence.
- With the enduring promotion of yoga, India can aspire to a future of increased influence and global leadership.

India and U.S. enhance Cooperation in High Technology

Why is it in the news?

- India and the U.S. engage in discussions regarding the initiative on Critical and Emerging Technology (iCET).

Key Focus Areas

- **Fostering Innovation Ecosystems:** The two countries are allocating US$90 million in government funding over the next five years towards the India-US Global Challenges Institute to nurture impactful university and research collaborations in fields like semiconductor technology, sustainable agriculture, clean energy, health equity, and pandemic preparedness.

- **Advancing Space Technology Partnership:** A significant milestone is the joint mission to the International Space Station involving collaboration between NASA and ISRO astronauts.
  1) The Strategic Framework for Human Spaceflight Cooperation aims to improve interoperability in space, including advanced training for ISRO astronauts at NASA's Johnson Space Center.
  2) Noteworthy projects include the NASA-ISRO Synthetic Aperture Radar satellite for Earth surface mapping and partnerships between the US Space Force and Indian startups like 114ai and 3rdiTech for space situational awareness advancements.

- **Deepening Defense Innovation:** Progress is being made on India's acquisition of MQ-9B platforms, coproduction of land warfare systems, and other defense endeavors.
  1) The deployment of high-altitude, long-endurance drones like MQ-9Bs will enhance India's surveillance capabilities for monitoring extensive maritime and land borders efficiently.
  2) The recent INDUS-X Summit showcased multiple initiatives, such as the INDUS-X Investor Summit and the allocation of $1.2 million in seed funding to companies from both countries.

- **Expanding Telecommunications Opportunities:** Achievements include finalizing the India-US Open RAN Acceleration Roadmap and ongoing collaboration in 5G and 6G R&D. Collaborative efforts are underway to implement cost effective Open RAN technology, with significant contributions from companies like Qualcomm and Mavenir.

- **Enhancing Biotechnology and Bio-manufacturing:** The establishment of the Track 1.5 Biopharmaceutical Supply Chain Consortium aims to improve supply chain resilience and encourage collaborative R&D.

- **Securing Semiconductor Supply Chains:** A strategic semiconductor partnership between General Atomics and 3rdiTech will focus on joint semiconductor design and manufacturing efforts. The Semiconductor Readiness Assessment has identified immediate industry opportunities and strategic plans for semiconductor ecosystem development.

- **Promoting Clean Energy and Critical Minerals Partnership:** India plays a crucial role in the Mineral Security Partnership, with investments in lithium and rare earth projects. The Advanced Materials R&D Forum seeks to enhance collaboration between American and Indian researchers. Initiatives are underway to finalize a bilateral Critical Minerals Memorandum of Understanding, emphasizing technologies related to critical minerals.

- Advancing Quantum, AI, and High-Performance Computing Collaboration: New cooperation in quantum science and technology includes organizing workshops on post-quantum cryptography and facilitating exchanges of Indian technical experts to US quantum institutions. The India-US Science and Technology Endowment Fund will announce winners of the "Quantum Technologies and AI for Transforming Lives" competition, promoting joint R&D efforts.

About iCET

- Initiated by India and the USA during the Quad Summit in Tokyo in 2022, officially intro-duced by the NSAs in 2023.
- Encompasses crucial technology domains like space, semiconductors, advanced telecommu-nications, artificial intelligence, quantum, biotechnology, and clean energy.
- Expanded to include new focus areas: biotechnology, critical minerals and rare earths processing technologies, digital connectivity, digital public infrastructure, and advanced materials.

Achievements So Far

- Both nations have implemented the Quantum Coordination Mechanism, introduced a public-private dialogue on telecommunications to foster collaboration in OpenRAN, 5G, and 6G.
- Signed a Memorandum of Understanding on establishing a semiconductor supply chain, paving the way for the semiconductor sub committee's formation.
- Unveiled the India-U.S. Defense Acceleration Ecosystem (INDUS-X) to boost hightech cooperation.
- Concluded a roadmap for Defense Industrial Cooperation to steer policy decisions in the coming years.
- Established a Strategic Trade Dialogue to overcome regulatory barriers and revise export control norms for strategic technology and trade partnerships under iCET.

Significance

- **Enhancing bilateral ties:** iCET contributes a new strategic dimension to the deepening India-U.S. relations.
- **Countering China's rise:** The growing alignment of Indian and U.S. interests in addressing security, economic, and technological issues posed by a rising China adds urgency to iCET.
- **Reducing reliance on Russia:** India aims to diversify its defense procurement and engage in more domestic production partnerships with Western nations.
- This alliance is poised to drive innovation, bolster security, and stimulate economic growth for both countries and the wider Indo-Pacific region.

Blueprints that surpass boundaries, providing solace and sanctuary Analysing the issue of Refugees

Why is it in the news?

- Currently, the global population of refugees exceeds 43.4 million, and with ongoing conflicts around the world, this number continues to rise. However, as these numbers increase, there is a risk of perceiving these individuals only as statistics rather than human beings with necessities, fears, aspirations, and desires. Yet, this is precisely what they are.

- World Refugee Day (June 20) is a solemn reminder to contemplate all these individuals an unending sequence of families with ambitions and longings, moments of joy and laughter whose lives have been disrupted, homes demolished, and futures put in jeopardy. Nevertheless, this day also prompts us to consider the safety provided, asylum ensured, refugees protected, and solutions discovered.

Background

- India is wellequipped to acknowledge this significant day. Over time, our history stands witness to this fact. Our legacy of offering asylum dates back millennia, encompassing the Jews finding refuge in India centuries prior to the birth of Christ after the destruction of their Jerusalem Temple by the Babylonians and subsequently the Romans, the Zoroastrians escaping Islamic persecution in Persia, the East Bengalis for whose national cause we fought with Pakistan in 1971, leading to the liberation of presentday Bangladesh as well as Tibetans, Sri Lankan Tamils, and more recently, droves of Nepalis, Afghans, and Rohingyas.

- As a nation that gained independence amidst one of the most devastating refugee crises in history, when 13 million to 15 million people crossed the newly drawn borders between India and Pakistan, we understand all too well the dangers faced by refugees and the imperative to aid them in rebuilding their lives.

Proposed Legislation for Asylum Seekers and Refugees

- Despite India's historical tradition of offering sanctuary to refugees from around the world, it is concerning that our country is not a party to the UN Refugee Convention or its 1967 Protocol, and lacks a domestic asylum framework. This failure to uphold our legacy on refugee rights undermines our reputation and contradicts our past positive record.

- In response to these gaps, a Private Member's Bill called the Asylum Bill, 2021 was introduced in the Lok Sabha in February 2022. This bill outlined clear criteria for recognizing asylum seekers and refugees, defining their rights and obligations. The aim was to address the government's noncompliance with the principle of nonrefoulement and to uphold India's tradition of granting asylum.

- The legislative proposal followed the expulsion of Rohingya refugees to Myanmar, highlighting the urgent need for legal protection for refugees and asylum seekers in India. The bill aimed to end arbitrary treatment of foreigners and establish a National Commission for Asylum to handle asylum applications, ensuring fair decisions are made while respecting government authority.

The Need for National Asylum Law

- Without a comprehensive legal framework for asylum seekers, India relies on outdated laws that treat all foreigners alike, lacking a specific focus on refugees.

- To ensure adequate support for refugees beyond mere asylum, provisions for basic services like healthcare, education, and employment are necessary.

- The call for a National Asylum Law, mirrored in the presented bill, is crucial. It would not only enhance India's standing as a humane state but also enable proper handling of refugeerelated issues, safeguarding refugee rights and fundamental freedoms.

Upholding Judiciary Decisions

- The Supreme Court's recognition of the rights of all individuals in India signifies a pivotal step towards protecting refugees. Judicial decisions like the one in the Chakma refugees' case emphasize the importance of due process and nonrefoulement principles when dealing with asylum seekers.

- By legislating refugee rights, India can reduce reliance on inconsistent judicial interpretations and bureaucratic discretion. This proactive approach aligns with international efforts to address refugee challenges collectively and reflects India's commitment to humanitarian values.

Conclusion

- India, as a prominent global player, should take the lead in refugee management by enacting progressive asylum laws.

- By championing solutions that transcend borders and foster international cooperation, India can uphold its democratic values and contribute significantly to addressing the global refugee crisis.

1) Decades of Uncertainty for Tibetans in India

- Tibetans who arrived in India more than 60 years ago due to Chinese occupation are neither foreigners nor refugees, but their status remains uncertain.

Background and Current Status

- In 1959, thousands of Tibetans sought refuge in India following the flight of the Dalai Lama from Chinese occupation.

- The Indian government granted asylum and temporary settlement assistance to the arriving Tibetans.

- Tibetans in India, now thirdgeneration settlers, face uncertainty due to challenges in India's citizenship laws and absence from the 1951 UN Convention on Refugees.

- To reside in India, Tibetans must acquire registration certificates under the Foreigners Registration Act, 1946, with separate Identity Certificates and Special Entry Permits for travel.

- In 2016, the Ministry of Home Affairs modified norms for online RC renewals every five years.

- A visible migration trend in recent years has led to a decline in the Tibetan refugee population in India.

- There are concerns about the future persist among young Tibetans, especially regarding the leadership transition post the Dalai Lama.

- The Tibetan Legal Association highlights challenges in obtaining Identity Certificates online, with delays causing difficulties in international travel planning.

- The lack of clarity on citizenship status and restrictions on property ownership contribute to uncertainties among Tibetan refugees in India.

Conclusion:

- There exist challenges in raising awareness about the Tibetan movement and the political recognition of Tibet.

- Efforts by the Indian government, including the issuance of comprehensive guidelines and the revival of forums like the AllParty Indian Parliamentary Forum for Tibet, aim to address some of the concerns voiced by the Tibetan community.

2) Invisible Suffering of Rohingya Refugees in India

- During a group psychosocial support session in Delhi, Rohingya women refugees shared experiences of paralyzing fear and anxiety, often disguised with laughter.
- Many women described instances where they had to flee halfnaked in fear of fires in their camps, highlighting the ongoing trauma they face.
- Laughter serves as a defense mechanism for trauma survivors, shielding them from confronting their profound pain.

Current Struggles in India

- Over 22,000 Rohingya refugees reside in India after fleeing Myanmar due to violent actions by the military between 2012 and 2017.
- The refugees in Delhi live in shantylike huts and face recurrent fires, triggering fear and retraumatization among them.
- Discriminatory treatment in India exacerbates their suffering, with limited access to essential services and the constant threat of detention and deportation.

- Many Rohingya refugees, suffer from severe mental health conditions such as depression and dissociative identity disorder, impacting their daily lives.
- The lack of adequate mental health support and the enduring trauma from their past experiences contribute to acute psychological distress within the community.
- The challenge for Civil society organizations supporting Rohingya refugees in India is due to inadequate funding and limited resources.

Way Forward :

- Urgent international attention is needed to address the mental health crisis affecting Rohingya refugees in India, emphasizing the importance of tailored support and access to healthcare services.
- A multifaceted approach is crucial, focusing on addressing the root causes of retraumatization, enhancing healthcare access, and supporting grassroots initiatives to create safe spaces for healing and recovery.

US-Saudi Accord : Evolving from a Fist-Bump to an Embrace

Why is it in the news?

- The proposed Strategic Alliance Agreement may have been a response to Washington's concerns about potential disconnection from Riyadh.

Background

- Through more than 80 years of diplomatic history between the United States and Saudi Arabia, marked by notable events like the 1973 oil embargo and the 2018 Jamal Khashoggi assassination, two pivotal moments define their relationship.

1) Firstly, the historic encounter on Valentine's Day 1945 between U.S. President Franklin D. Roosevelt and Saudi King Abdul Aziz Al-Saud set the stage for an enduring bilateral partnership anchored in an implicit "oil for security" understanding.

2) The second defining moment came on July 15, 2022, when U.S. President Joe Biden and Saudi Crown Prince Mohammed bin Salman exchanged a fist bump in Riyadh, symbolizing a shift towards a more balanced and transactional relationship.

- Amid speculations, a noted closeness between Riyadh and Washington suggests a forthcoming Strategic Alliance Agreement (SAA). This potential agreement, dubbed a "Grand Bargain," has been in negotiation for a year, driven by Saudi ambitions under Prince Mohammed bin Salman (MbS) and the White House's desire for a notable diplomatic achievement to support President Biden's re-election bid.

Key Aspects of the Agreement

- Delving into the media reports, the SAA is expected to encompass three interconnected dimensions: bilateral, regional, and global.

- At a bilateral level, the agreement aims to formalize the existing alliance into a strategic defense pact resembling the U.S.-Japan treaty, obliging U.S. military intervention in the event of an attack on Saudi Arabia. Furthermore, the U.S. is poised to provide Riyadh with cutting-edge defense assets, including F-35 stealth aircraft. Surprisingly, Washington is also open to facilitating Saudi Arabia's access to nuclear technology for peaceful applications.

- On a regional scale, Saudi Arabia seeks to broker a ceasefire in Gaza and advance towards a two-state solution for the Israel-Palestine issue. In exchange for Riyadh's requests, Washington has outlined its own substantial demands, including Saudi recognition of Israel and aligning foreign policy to distance itself from U.S. adversaries such as Beijing and Moscow.

- While the specific economic arrangements of the anticipated SAA are undisclosed, they are anticipated to be substantial. Even though the U.S. is no longer heavily reliant on Saudi oil, both countries are likely to maintain

their partnership in balancing global energy markets to satisfy U.S. energy needs while supporting Saudi oil revenue goals. The SAA may prioritize American firms in major projects linked to MbS's Vision 2030 initiative.

- China's President Xi Jinping's significant state visit to Riyadh in December 2022 spurred a reevaluation of U.S.-Saudi ties. This visit prompted a U.S. diplomatic effort to prevent a potential estrangement from Saudi Arabia. Despite waning reliance on the oil-for-security dynamic, Saudi Arabia retains significance for U.S. strategists.

- As the guardian of Islam's holy sites and a pivotal voice in the Muslim world, Saudi Arabia's decisions carry substantial influence. Should Saudi Arabia join the Abraham Accords and recognize Israel, it could not only reshape the Middle East but also sway much of the Islamic community. Furthermore, Saudi Arabia provides the largest economy in the Arab and Muslim world, presenting lucrative opportunities through Vision 2030.

- Lastly, Crown Prince Mohammed bin Salman's tenure marked by bold reforms positions him as a key figure in navigating any future agreements.

Challenges facing the SAA Project :
- In the past decade, there has been a decline in trust between Saudi Arabia and the U.S., marked by instances like the lack of swift action by the U.S. in response to attacks on Saudi oil facilities in 2019.

- U.S. actions, such as restrictions on weapon supplies during the Yemeni war and perceived ambivalence towards Iran, have contributed to Saudi Arabia seeking closer ties with China and Russia.

- The ongoing conflict in Gaza has made it politically challenging for Riyadh to consider any rapprochement with Israel, crucial for securing U.S. Senate approval for the SAA project.

- Resolving the Gaza conflict and reviving the two-state solution are essential steps for progress, but past efforts have not been successful, creating a complex situation as the U.S. pres-idential elections approach.

Significance for India :
- India, as a significant neighbour, has vested interests in the Middle East region and must monitor developments around the SAA project.

- A successful SAA could lead to improved regional stability, economic opportunities, and support India's efforts in the India-Middle East-Europe Economic Corridor.

- It could also allow the U.S. to focus more on its Indo-Pacific Strategy, aligning with India's own strategic goals.

Conclusion :
- The quest for the SAA represents a critical juncture, with potential implications for regional dynamics and peace efforts in the Middle East.

India nears breakthrough in treating Sickle Cell Anaemia

Why is it in the news?

- India is making significant strides in developing a gene therapy to combat sickle cell disease.

- The country's efforts to eradicate sickle cell disease by 2047 include the development of a gene therapy involving CRISPR technology.

- Celebrated every June 19 as World Sickle Cell Day, the event aims to raise awareness about this hereditary blood disorder and educate individuals on managing their lifestyles.

About Sickle Cell Disease (SCD)

- Sickle cell disease is a genetic blood disorder with a high prevalence among Scheduled Tribes.

- This group of hereditary red blood cell disorders affects the shape of red blood cells that normally carry oxygen.

- Healthy red blood cells are round, but in SCD, they take on a characteristic sickle shape, impacting oxygen delivery throughout the body.

Credit: MRS Bulletin

- The disease causes these sickle-shaped cells to die prematurely, resulting in a chronic shortage of red blood cells and obstruction of blood flow in small vessels.

- Threats posed by sickle cell anemia include an increased risk of infection and various complications like stroke, heart issues, kidney problems, and challenges during pregnancy.

- Currently, gene therapy and stem cell transplants are potential cures for sickle cell anemia, although these options are expensive and still in developmental stages.

- In the absence of definitive cures, blood transfusions, where red blood cells from donated blood are given to a patient, remain a trusted treatment method.
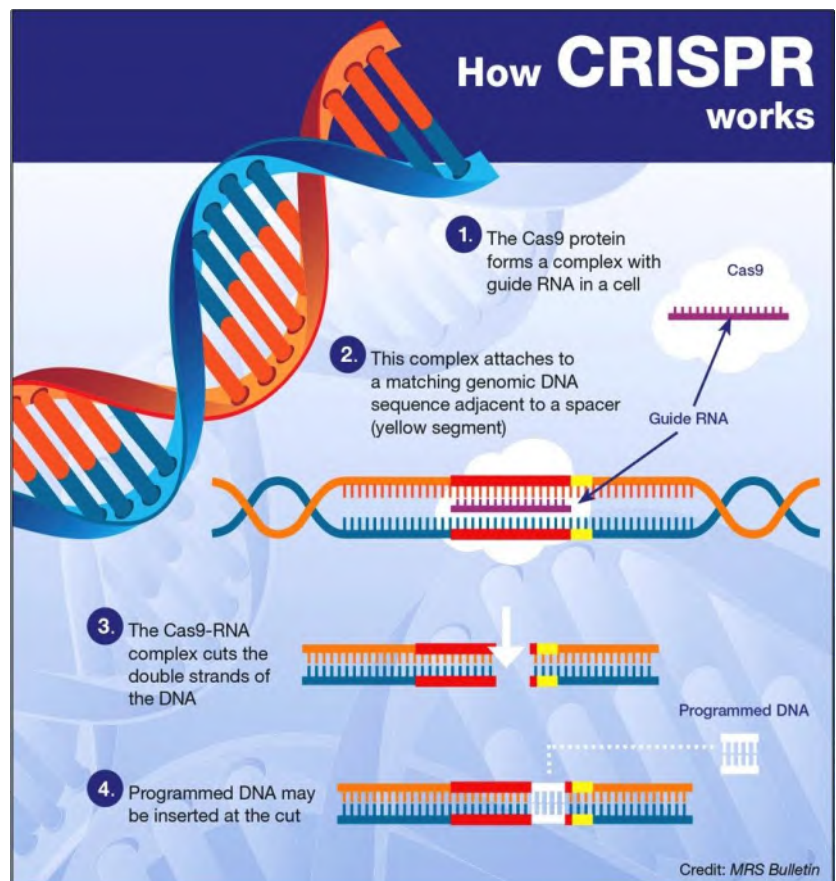
CRISPR-Cas9 Technology

About

- Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) refer to a gene editing technology that mimics the natural defense mechanism found in bacteria to combat viral attacks utilizing a specialized protein known as Cas9. This technique typically involves the addition of a new gene or the suppression of an existing gene through a process known as genetic engineering. Notably, CRISPR technology does not entail the introduction of any new genes from external sources.

- CRISPR-Cas9 technology is often analogized as the 'Genetic Scissors,' likening its functionality to the 'cut-copy-paste' or 'find-replace' features in common computer software. When a faulty segment in the DNA sequence, responsible for a disease or disorder, is identified, it is excised, replaced with a 'correct' sequence using specific protein and RNA molecules.

- Moreover, this technology emulates a natural defense mechanism observed in certain bacteria that likewise safeguards against viral invasions.

Operational Process

- The initial step involves pinpointing the problematic gene sequence.

- Subsequently, an RNA molecule is programmed to locate this sequence on the DNA strand, akin to a 'find' or 'search' function on a computer.

- Accomplishing this, Cas9 is employed to cleave the DNA strand at precise locations to extract the flawed segment.

- Although a broken DNA strand naturally heals itself if left unaltered, the repaired sequence has the possibility of regrowth. Therefore, scientists intervene during the autorepair process by providing the correct genetic code sequence, aiding in the replacement of the damaged section. This entire procedure is programmable and notably efficient, although the probability of errors cannot be entirely eliminated.

- It is the most prevalent, cost-effective, and potent system employed for genome manipulation.

Casgevy And Lyfgenia: Gene Therapies Using CRISPR Technology

- Casgevy by Vertex Pharmaceuticals and CRISPR Therapeutics, and Lyfgenia by Bluebird Bio are designed for individuals aged 12 and above.

- Both therapies, Casgevy and Lyfgenia, harness the Nobel-winning CRISPR/Cas 9 genome editing technology through distinct mechanisms.

Casgevy Therapy

- Casgevy therapy utilizes the patient's blood stem cells, precisely edited using Crispr-Cas9.

- This therapy focuses on the gene BCL11A, essential for the transition from fetal to adult hemoglobin.

- By prompting the production of more fetal hemoglobin within the body, Casgevy alleviates symptoms related to both conditions.

Lyfgenia Therapy

- Lyfgenia employs a viral envelope to transport a healthy hemoglobin-producing gene.

- It involves utilizing a segment of a lentivirus (belonging to the HIV family) to deliver a functional form of the haemoglobin-producing gene.

Government efforts to combat Sickle Cell Anemia

- The National Sickle Cell Anemia Elimination Mission, introduced in the Union Budget 2023, focuses on addressing the health challenges posed by sickle cell disease, particularly among tribal populations. Implemented in 17 high-focus states, this initiative aims to enhance care for sickle cell disease patients and reduce the disease's prevalence, with the goal of eliminating genetic transmission by 2047.

- Government initiatives include plans to issue special cards in tribal areas for individuals below 40 to streamline screening processes and enhance targeted interventions.

- The Ministry of Tribal Affairs has also launched the Sickle Cell Disease Support Corner, a portal aiming to bridge the gap between patients and healthcare services, providing a platform for patient registration and access to relevant information.

- Moreover, the establishment of the National Council on Sickle Cell Disease facilitates timely and effective actions by senior officials and healthcare bodies for combating this hereditary blood disorder.

POLITY & GOVERNANCE

1

Trends in Women's Representation in the Lok Sabha: A Comparative Analysis

Why is it in the news?

- Despite a general inclination towards enhancing women's representation in the Lok Sabha, progress has been gradual and inconsistent.

- India has elected 74 women MPs to the Lok Sabha in 2024, four fewer than in 2019, constituting only 13.63% of the elected strength.

Women in Lok Sabha 2024 (PRS data)

PARTY WISE WOMEN LS MPs

BJP 31
Congress 13
Total Women MPs 74
TMC 11
SP 5
Others 7
DMK 3
LJPRV 2
JD(U) 2
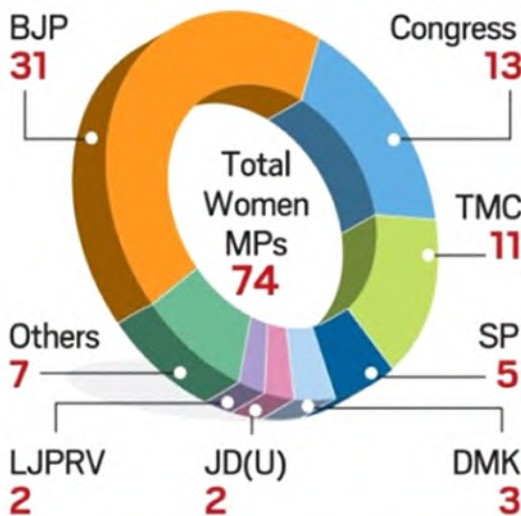
OTHERS: JMM, NCP (SP), RJD, SAD, Apna Dal, YSRCP, TDP won 1 seat each

Demographic Observations:

- **Partywise Distribution:** Women MPs come from 14 different parties, with the BJP leading with 31 women MPs, followed by the Congress with 13.

- **Trend in Representation:** Over the years, there has been a slow and non-linear increase in women's representation, from 4.41% in 1952 to a peak of 14.36% in 2019.

- **New Faces and Younger Representation:** Out of the 74 women MPs elected, 43 are first-time MPs, with an average age of 50 years, younger than the overall House age of 56 years.

Comparison with Other Countries:

- India lags behind several countries in terms of women's representation, with countries like South Africa, the UK, and the US having higher percentages of women MPs.

- Women make up 46% of MPs in South Africa, 35% in the UK, and 29% in the US.

What Needs to Be Done?

- **Increase in Representation:** Greater efforts are needed to increase women's representation in the Lok Sabha to achieve gender parity.

- **Policy Measures:** Implementation of policy measures such as reserving seats for women could help improve representation.

- **Encouraging Participation:** Encouraging more women to enter politics and providing support for their political careers can contribute to greater representation.

- **Education and Awareness:** Promoting education and awareness about the importance of gender equality in politics is essential for fostering a more inclusive political environment.

Mission Karmayogi : Empowering Citizen Oriented Civil Servants

Why is it in the news?

- The Indian Institute of Public Administration (IIPA) evaluated the impact of recent training programs by gathering feedback from supervisors, revealing enhanced proficiency in data analytics and e-governance tools among recently trained staff.

Observations Assessed by the Indian Institute of Public Administration

- **Increased Proficiency:** Notable improvements in data analytics and e-governance tools proficiency among recently trained staff were observed.
- **Skill Development:** Completion of 15 lakh online learning modules on various topics, including data analytics and Government e Marketplace (GeM), has led to enhanced skill levels among section officers and administration assistants nationwide.
- **Supervisor Feedback:** Feedback from supervisors highlighted significant improvements in the capabilities and efficiency of trained staff, indicating the positive impact of training programs.

About Mission Karmayogi and Gati Shakti

- **Mission Karmayogi:** Aims to transform India's civil servants into citizen-centric, future-ready professionals through digital training courses and an online learning portal, iGOT Karmayogi Bharat.
- **Capacity Building Commission (CBC):** Provides policy guidance and tools to enhance the capabilities of India's civil services, collaborating with ministries and training institutions.
- **PM Gati Shakti:** Integrates legal and geographic layers for efficient planning and execution of mega infrastructure projects, promoting a holistic approach for national priorities.

Issues and Challenges :

- **Resistance to Change:** Bureaucratic resistance to change may hinder the adoption of new approaches and technologies.
- **Shift from Generalist to Specialist Approach:** Transitioning to specialist roles may face resistance despite the need for domain expertise.
- **Technical Governance Demands:** Effective governance requires technical proficiency, which may be lacking and hinder the mission's implementation.

What is Needed to Achieve the $30 Trillion Economy by 2047?

- **Improved Governance:** Efficient and competent civil services are crucial for achieving India's ambitions.
- **Infrastructure Development:** Accelerate the construction of mega infrastructure projects and overcome delays through integrated planning.
- **Skill Development and Training:** Equip civil servants with skills in emerging technologies and promote continuous learning.
- **Citizen-Centric Approaches:** Promote citizen-centric approaches among civil servants to enhance public service delivery.
- **State and Municipal Roles:** Strengthen the roles of state governments and municipal corporations in service delivery.
- **Tax System Reforms:** Develop a taxpayer-friendly tax system and train tax personnel to address grievances effectively.

Way Forward :

- Expand online learning platforms to offer specialized courses for civil servants.
- Establish robust evaluation systems to assess training effectiveness and identify areas for improvement.

Madras HC: Cooperative Societies Not Subject to RTI Act

Why is it in the news?

- The Madras High Court has determined that cooperative societies in the state are exempted from the provisions of the Right to Information (RTI) Act, 2005, as they do not qualify as public authorities and therefore are not obligated to provide information to citizens regarding their operations.

More about the news

- The Madras High Court overturned a directive by the Tamil Nadu Information Commission (TNIC) instructing a cooperative society to disclose information related to its loan activities.
- The court clarified that cooperative societies established under the Tamil Nadu Cooperative Societies Act of 1983 in the state do not meet the definition of 'public authority' as outlined in Section 2(h) of the RTI Act, 2005.

About Cooperative Societies

- Cooperative societies are voluntary unions of individuals with shared economic, social, and cultural objectives.
- Originating in the agricultural sector, India's cooperative movement emerged to empower farmers against exploitation by moneylenders.
- Formally structured in the late 19th century, the Indian cooperative movement was influenced by the German model of agricultural credit banks.
- These societies in India cover a wide spectrum, from providing credit to engaging in the production, procurement, and marketing of various commodities such as fertilizers, milk, sugar, and fish.

Constitutional Provisions

- Management of cooperative societies falls under the jurisdiction of states.
- The 97th constitutional amendment introduced Part IXB on Cooperative Societies.
- The right to form cooperative societies was recognized as a fundamental freedom under Article 19(1) of the Constitution.
- Additionally, Article 43-B was inserted as a Directive Principle of State Policy under Part 4, emphasizing the promotion of cooperative societies with voluntary formation, democratic control, and professional management.

Issues

- As government oversight on cooperatives grew, concerns about mismanagement and corruption surfaced.
- State intervention in cooperative operations, supposedly in the public interest, has increased over time.
- Financial sustainability and operational success remain challenges for many cooperative societies across India, leading to uneven growth in the cooperative movement.
- Irregular elections and frequent supersession of cooperative bodies are prevalent issues.

Relevant Initiatives

- Multi-State Cooperative Societies (MSCS) were established to streamline operations nationwide.
- The Multi-State Cooperative Societies (Amendment) Act & Rules, 2023, were implemented to enhance governance, transparency, accountability, and electoral processes for cooperative entities.
- The Ministry of Cooperation was established, focusing on promoting cooperative business practices and facilitating the development of Multi-State Cooperative Societies.

Way Forward :

- Cooperatives have played a vital role in poverty reduction, ensuring food security, and managing natural resources sustainably.
- Upholding the autonomous nature of cooperative societies is essential for their effective functioning.
- Reform and rejuvenation of the cooperative movement are imperative for its continued relevance and impact.

NITI Aayog's Measures to Promote Innovation

Why is it in the news?

- NITI Aayog, through its prominent initiative, the Atal Innovation Mission (AIM), has introduced the 'AIM - ICDK Water Challenge 4.0' and the latest edition of the 'Innovations for You' handbook.

AIM - ICDK Water Challenge 4.0

- The India-Denmark Water Challenge (IDWC) 4.0 serves as an open innovation platform aimed at tackling essential water issues in India through inventive solutions.
- This initiative is a key element of the Indo-Danish bilateral green strategic partnership.
- The program promotes the exploration of sustainability, digital solutions, inclusion, and universal design principles.
- The challenge is open for entries under two tracks: one for students and the other for young entrepreneurs, both below the age of 35.
- The chosen teams will constitute the Indian cohort, participating in the global Next Generation Digital Action program and collaborating with young talents from prominent universities and innovation hubs across 9 countries (India, Denmark, Ghana, Kenya, Korea, Tanzania, South Africa, Ghana, Colombia, and Mexico).

5th edition of 'Innovations for You' handbook

- This series of coffee table books highlights the efforts of SDG Entrepreneurs in India.

- The 5th edition showcases 60 entrepreneurs from various regions of India, each making contributions to societal improvement through sustainable innovations.

Pradhan Mantri Awas Yojana

Why is it in the news?

- The Cabinet's recent decision entails a substantial extension of the Pradhan Mantri Awas Yojana, aiming to construct an additional 3 crore rural and urban dwellings.

About the Pradhan Mantri Awas Yojana (PMAY):

- Initiated by the Government of India in 2015-16, the Pradhan Mantri Awas Yojana (PMAY) aims to provide support to eligible rural and urban households for constructing residences equipped with essential facilities.
- Beyond housing, the PMAY provisions include provisions for other essential amenities like Household Toilets, LPG connections, Electricity connections, Functional Household Tap Connections, etc., through combined efforts with various schemes of the Central and State Governments.
- The PMAY comprises two segments, namely, PMAY-U for urban impoverished households and PMAY-G for those residing in rural areas.

PMAY-Urban:

- The Ministry of Housing and Urban Affairs has overseen the implementation of PMAY-U under the 'Housing for All' Mission since June 2015 by offering Central assistance to implementing bodies through States/Union Territories for providing resilient, basic civic amenities-equipped residences to eligible urban beneficiaries.
- This scheme operates on a demand-driven model, without any set targets for housing construction on the part of the Indian government.
- The PMAY-U initiative operates through four distinct facets: Beneficiary Led Construction (BLC), Affordable Housing in Partnership (AHP), In-Situ Slum Redevelopment (ISSR), and Credit Linked Subsidy Scheme (CLSS).
- The Government of India contributes a fixed sum as Central Assistance, including Rs.1.0 lakh under ISSR and Rs.1.5 lakh for AHP and BLC verticals under PMAY-U.

PMAY-Gramin:

- The Ministry of Rural Development initiated PMAY-G from April 1, 2016, to cater to the 'Housing for All' mandate in rural locales, aiming to build 2.95 crore solid houses with basic amenities by March 2024.
- PMAY-G provides financial assistance of Rs.1.20 lakh in plain areas and Rs.1.30 lakh in challenging terrains, including hill states, North-eastern states, Jammu & Kashmir, and Ladakh, as well as Integrated Action Plan (IAP) districts. Additional funds of Rs.12,000 are allocated for constructing toilets.

Significance and Progress:

- The Pradhan Mantri Awas Yojana (PMAY) serves as a ray of hope in a nation where countless aspire to own a home.
- It reflects the government's dedication to offering economical housing and enhancing living standards.
- Beyond a housing scheme, PMAY signifies a mission to grant citizens a sense of dignity and security.
- Over the past decade, a total of 4.21 Crore residences have been constructed for deserving underprivileged families through PMAY.

On the size of Council of Ministers

Why is it in the news?

- The Union Council of Ministers, led by Prime Minister Narendra Modi, took office on June 9, 2024.
- The current Council comprises the Prime Minister, 30 Cabinet Ministers, 5 Ministers of State with independent charge, and 36 Ministers of State.

Composition of the Council of Ministers

- The Council of Ministers in India, at both the Centre and in States, plays a crucial role in governance.
- Article 74 of the Constitution outlines the formation of the Council, headed by the Prime Minister to aid and advise the President.

- Membership in the Council requires individuals to be members of either the Lok Sabha or the Rajya Sabha.
- The structure typically includes Cabinet Ministers, Ministers of State with independent charge, Ministers of State, and Deputy Ministers, with informal classifications based on responsibilities.

Historical Context

- The first Council of Ministers post-independence had 15 Ministers, headed by Prime Minister Jawaharlal Nehru.
- Subsequent governments saw the Council grow in size, with instances such as the United Front governments having fewer Ministers.
- To address the issue of an unwieldy Council, the Venkatachaliah Commission recommended a maximum of 15% of the total strength of the Lok Sabha/ State Legislative Assembly for Ministerial positions.
- This led to the 91st Constitutional amendment in 2003, imposing limits on the number of Ministers in the Council.

Challenges and Controversies

- Despite the constitutional limits, the appointment of Parliamentary Secretaries in States has been a contentious issue.
- Various States have used Parliamentary Secretaries to bypass the maximum Ministerial limit, leading to legal challenges.
- Recent instances, such as in Himachal Pradesh, have highlighted the need to enforce the constitutional restrictions on Ministerial appointments effectively.

Bail in money laundering cases, and the 'twin test' under PMLA

Why is it in the news?

- A day after a trial court granted bail to Delhi Chief Minister Arvind Kejriwal who is in jail on charges under the Prevention of Money Laundering Act (PMLA), the Delhi High Court stayed the order.
- A Bench heard an urgent plea by the Enforcement Directorate (ED) seeking a stay on the bail, and reserved its order until next week.
- The ED challenged the trial court's order on the ground that the court had failed to apply the 'twin test' for granting bail under PMLA.

What is the twin test, and why is bail under PMLA so contentious?

- Section 45 of the PMLA, which deals with bail, initially states that no court can grant bail for offences under this law, and then outlines a few exceptions. The provision's negative tone suggests that bail is the exception rather than the rule under PMLA.
- The provision mandates the public prosecutor's input in all bail applications, and if the prosecutor opposes bail, the court must apply a twin test. These two conditions are:
  (i) that there are "reasonable grounds for believing that the accused is not guilty of such offence"; and (ii) that "he is not likely to commit any offence while on bail".
- Similar provisions exist in various other laws addressing serious offences-such as Section 36AC of The Drugs and Cosmetics Act, 1940, Section 37 of The Narcotic Drugs and Psychotropic Substances Act, 1985, and Section 43 D (5) of The Unlawful Activities Prevention Act, 1967.

Legal challenges to twin test

- The twin test's constitutional validity faced its first challenge in a 2017 ruling, Nikesh Tara-chand Shah v Union of India.
- A two-judge Bench declared the bail provision unconstitutional, citing the onerous conditions as an unreasonable classification. 'Reasonable classification' is a component of the right to equality, a fundamental right.
- Despite this, Parliament reintroduced these provisions through the Finance Act, 2018, following an amendment. This reinstatement was met with challenges in various High Courts and eventually reached the Supreme Court, leading to a series of petitions heard in 2022 as Vijay Madanlal Choudhary v Union of India.

- The petitioners contended that the rationale behind the Nikesh Tarachand Shah verdict remained valid even after Parliament's reinstatement of the law. Nonetheless, a three-judge Bench presided over by Justice A M Khanwilkar (now retired) declined to uphold the earlier ruling.

- Legal experts have raised concerns about equating money laundering with stringent anti-terror and narcotics laws, despite the offense of money laundering, though severe, carrying a maximum sentence of only seven years. The maximum sentence is extended to 10 years only in money laundering cases involving narcotics.

- In court, the government argued that individuals involved in money laundering are "influential, intelligent, and resourceful, and the crime is committed with full pre-meditation, ensuring that the offense remains undetected and even if discovered, the investigating agency struggles to trace evidence".

- Further, the government defended the stringent bail conditions by highlighting that the offense is executed "with the help of advanced technology to conceal the transaction".

Current position in law :

- One significant aspect of the challenge to the amendment concerning bail conditions remains unresolved even after the Vijay Madanlal Choudhary ruling: the passage of these amendments through the Money Bill route.

- A distinct larger Bench challenge regarding whether certain laws, such as the Aadhaar Act, service conditions of Tribunal members, etc., can be passed as a Money Bill is pending before the SC. A Bench is yet to be constituted to address this issue.

- Although the Supreme Court has agreed to review its ruling in Vijay Madanlal Choudhary, the ruling remains in force as no stay has been imposed on it.

- As per the ruling, the twin test must be rigorously applied by all courts-special courts handling money laundering offenses as well as constitutional courts. This standard also applies to both regular bail and anticipatory bail.

- Despite this, an accused can still benefit from Section 436A of the Code of Criminal Procedure (CrPC), allowing bail after serving half of the maximum sentence as an undertrial.

- Consequently, in most money laundering cases, if the Enforcement Directorate fails to conclude the trial within three and a half years, the accused is entitled to bail, regardless of the twin test.

Union Education Ministry cancelled UGC-NET 2024

Why is it in the news?

- Union Education Ministry has called off the UGC-NET 2024 examination due to cheating and paper leak incidents compromising the exam's integrity.

- The UGC-NET, conducted by the National Testing Agency, faced issues leading to the cancellation of the exam.

CBI registers case over 'compromised integrity' of UGC-NET"

- The Central Bureau of Investigation (CBI) registered a case under sections 420 (cheating) and 120B (criminal conspiracy) of the Indian Penal Code following a complaint by the Ministry of Education.

- The action was taken after concerns were raised regarding the integrity of the University Grants Commission-National Eligibility Test 2024 (UGC-NET) examination.

- The UGC-NET exam, conducted by the National Testing Agency (NTA), is pivotal for determining eligibility for various academic positions and PhD admissions.

- Bihar Police's Economic Offences Unit is already investigating alleged paper leaks in the NEET case and has made several arrests.

- Opposition parties have criticized the government for the back-to-back paper leaks affecting millions of students and have demanded justice.

- Union Education Minister Dharmendra Pradhan acknowledged the institutional failures in preventing paper leaks and assured that appropriate actions would be taken based on evidence.

Reasons for cheating in examinations :
- **Positive attitude towards cheating:** Students evade responsibility for their actions.
- **Societal pressures:** Emphasis on marks over learning integrity.
- **Delayed justice perception:** Judicial system seen as slow and ineffective.
- **Overambition and self-interest pursuit:** Seeking unjust advantages through cheating.

Ethical arguments against cheating in exams
- **Violation of deontological ethics:** Unfair means for favourable ends.
- **Opposed to Utilitarianism:** Cheating doesn't serve society's interests.
- **Justice as Fairness Principle violation:** Undermining human liberties and equality.
- **Virtue Ethics:** Values of truth, trust, and honesty oppose deception.

The Public Examinations (Prevention of Unfair Means) Act, 2024
- Aims to enhance transparency, fairness, and credibility in public examination systems.
- Addresses various unfair means, including question paper leaks.
- Specifies 15 actions considered unfair in public examinations for monetary gain.
- All violations under the Act are cognizable, non-bailable, and non-compoundable.

Bihar quota struck down: what is the 50% ceiling that court relied upon?

Why is it in the news?
- The Patna High Court has overturned the Bihar government's notifications that aimed to increase reservation in government jobs and educational institutions from 50% to 65%, citing a violation of the right to equality.
- It stated that, it is important to uphold merit alongside providing opportunities to backward classes, and the 50% limit for reservations was established based on this principle.

More about the news
- The move by the present government in November 2023 effectively raised the reservation in Bihar to 75% when considering the 10% quota for economically weaker sections (EWS).
- However, a division bench of the High Court, invalidated the government's notifications, stating that it encroached upon the right to equality.
- The decision came after a petition filed by Nalanda residents, highlighting how the quota increase infringed on right to equality and other constitutional norms.
- The petition sought the annulment of the Bihar Reservation of Vacancies and Posts in Services (for Scheduled Castes, Scheduled Tribes and Other Backward Classes) (Amendment) Act 2023, arguing that the Constitution emphasized "adequate representation" over proportionate representation.
- The petitioner also pointed out that similar decisions had been overturned by the Supreme Court in the past, questioning the prudence of the state government's decision to raise the quota cap.

Background of the 50% Quota Ceiling
- The 50% ceiling for quotas was set by the Supreme Court in the 1992 landmark Indra Sawhney v Union of India case to ensure administrative efficiency.
- The ruling upheld a 27% reservation for socially and economically backward classes (SEBC) and emphasized that reservation should be based on social and educational back-wardness.
- Previous judgments had already established the 50% limit for vertical quotas, except in exceptional circumstances.
- The Indra Sawhney ruling has been consistently upheld in subsequent cases to maintain the 50% limit.
- Despite this, challenges to exceed the 50% limit have emerged in various states, including Bihar, with political implications.
- During the Lok Sabha election campaign, there were calls to extend reservations beyond the 50% limit.
- Legal challenges to the 50% ceiling are ongoing in the Supreme Court, with laws attempting to breach the limit being struck down.

Recent Developments on the Quota Ceiling
- In 2019, the introduction of a 10% quota for the Economically Weaker Sections (EWS) was an exception to the 50% limit.

- A Supreme Court decision in November 2022 upheld the EWS quota, stating that the 50% ceiling applied only to SC/ST and OBC quotas, not to separate quotas outside the 'back-wardness' framework.

Why Shivraj Singh Chouhan needs to be empowered like Sharad Pawar and Jagjivan Ram

Why is it in the news?
- In the governance landscape, providing an idea to the government often results in the creation of dedicated departments or ministries. This practice of specialization and fragmentation has profoundly impacted India's agriculture sector over the years.

Background
- During the period of Independence, Jawaharlal Nehru's cabinet featured a single Minister of Food and Agriculture, Rajendra Prasad, who later served as India's first President.
- Subsequent governments, including those led by Nehru and Lal Bahadur Shastri, also maintained only one food and agriculture minister. Notably, figures like C Subramaniam played pivotal roles during this time, crucial for driving initiatives like the Green Revolution and the White Revolution.
- As administrative changes evolved, with the inclusion of "community development" and "cooperation" into the Ministry of Food and Agriculture, the sector witnessed shifts in its structure. The merger of the Ministry of Irrigation with the Ministry of Agriculture in 1974 marked a transformative phase, emphasizing the integral relationship between agriculture and irrigation.

Current State
- Fast forward to the present, the agriculture ministry has undergone significant fragmentation.
- Particularly starting in the mid-1970s, separate ministries emerged for fertilizers, rural development, irrigation, and food & civil supplies. This decentralization trend continued with the establishment of additional ministries like the Ministry of Food Processing Industries and the Ministry of Fisheries, Animal Husbandry, and Dairying in subsequent years.
- The current state of the agriculture ministry reflects a shadow of its former self. Key aspects like policy formulation for fertilizers and water, marketing, and MSP procurement now fall under disparate ministries or organizations. While agricultural research and education remain within the ministry's purview, crucial functions such as commercial cultivation and trials of genetically-modified crops are overseen by other authorities.
- For a holistic approach to agricultural policy, a re-evaluation of the ministry's structure is imperative. Drawing inspiration from models like the US Department of Agriculture, there is a clear need for a centralized authority overseeing various facets of agriculture, from production to research to rural development.

Conclusion
- Shivraj Singh Chouhan's appointment as the agriculture minister signals a potential for positive change.
- To emulate the legacy of leaders like Subramaniam, Jagjivan Ram, and Pawar, Chouhan must be given both political and administrative empowerment, echoing the support granted by past leaders like Shastri and Indira Gandhi.

Caste away: On Justice K. Chandru Committee report

Why is it in the news?
- The Justice K. Chandru Committee was established by the Tamil Nadu government in response to caste-related violence among schoolchildren.
- The committee's comprehensive report recommends measures to eliminate caste distinctions in educational institutions.

Measures recommended
Prohibition of Caste Signifiers:
- The Justice K. Chandru Committee recommends prohibiting students from displaying caste identities through colored wristbands, rings, or forehead marks (tilaka).

- Students are advised against using bicycles painted with any caste-related symbols.
- **School Name Restrictions:** The committee suggests that school names should not contain any caste appellations to avoid reinforcing caste associations.
- **Confidentiality and Oversight:** A Social Justice Monitoring Committee of academicians and social activists is proposed to oversee curriculum modifications focusing on social justice, equality, and non-discrimination.
- **Academic Revisions:** B.Ed and Diploma in Elementary Education syllabuses may be revised to promote inclusivity.

Critique and Alternative Suggestions

Centralized Kitchen Proposal:
- Instead of scrapping noon meal kitchens in schools, the recommendation suggests establishing central kitchens in every block/panchayat union.
- However, concerns regarding logistical challenges and potential impact on food quality and freshness exists.

Social Justice Students Force:
- A proposal to create a Social Justice Students Force is met with caution.
- Despite endorsing drills and exercises, it is suggested that the existing NCC, Scouts and Guides, and NSS setup can sufficiently cater to students' needs.

Addressing Discrimination:
- Emphasis is placed on addressing discrimination in children's surroundings, where caste-identifiable colors persist.
- Efforts to promote harmony among students may not be effective without addressing caste considerations at the village level and beyond political agendas.

Pro-tem Speaker of Lok Sabha

Why is it in the news?
- Bhartruhari Mahtab has been appointed and administered oath by the President of India as the pro-tem Speaker of the 18th Lok Sabha.

About Pro-tem Speaker

Appointment:
- The Pro-tem Speaker is appointed temporarily until the formal Speaker of the House is elected through a simple majority in the Lok Sabha.

- The most senior member of the Lok Sabha, usually from the opposition party, is typically chosen to act as the Pro-tem Speaker.

Role:
- The Pro-tem Speaker's main responsibility is to administer the oath of office to newly elected Members of Parliament and conduct other essential proceedings at the beginning of a new Lok Sabha session.
- The term 'pro-tem' signifies that the position is held on a temporary basis until the permanent Speaker is elected.

Legal Basis:
- Although the Indian Constitution does not explicitly mention the Pro-tem Speaker, the 'Handbook on the Working of Ministry of Parliamentary Affairs' outlines the procedures for the appointment and swearing-in of the Pro-tem Speaker.

Post Office Act 2023

Why is it in the news?
- The implementation of the Post Office Act 2023 is effective starting from 18th June 2024.
- The enactment of the Post Office Bill (2023) aimed to revoke the Indian Post Office Act, 1898 and consolidate and modify the laws concerning Post Offices in India.

Objectives
- The Act streamlines the legal framework governing postal services by eliminating clauses such as the exclusive right to collect, handle, and distribute letters.
- By eliminating unnecessary constraints, the Act promotes ease of conducting business.

- It guarantees that citizens can conveniently access essential services.

Key features

- Unlike the previous Indian Post Office Act, 1898, the new Act does not stipulate any penal provisions.
- The Act lays down a structure for establishing standards for addressing items, address identifiers, and utilization of postcodes.

About Postal Services in India

- Postal services fall under the Union List (Schedule VII) of the Indian Constitution.
- Governed by the Indian Post Office Act, 1898, the Union government oversees the postal services provided by India Post, a governmental enterprise.
- It accords the Union government the exclusive right to convey letters.
- Post offices now serve not only as centers for letter distribution but also as providers of various financial and other services.
- The postal network comprises over 1.5 lakh post offices, with more than 1.29 lakh located in rural regions.

National Forensic Infrastructure Enhancement Scheme (NFIES)

Why is it in the news?

- Approval from the Union Cabinet has been granted for the implementation of the National Forensic Infrastructure Enhancement Scheme (NFIES) aimed at improving conviction rates in criminal cases.

About NFIES

- NFIES is categorized as a Central Sector Scheme with an allocated budget of Rs. 2254.43 crore spanning from 2024-25 to 2028-29.

The Cabinet has endorsed the subsequent elements within this initiative:

- Establishment of National Forensic Sciences University (NFSU) Campuses nationwide.
- Establishment of Central Forensic Science Laboratories across the country.
- Improvement of the existing infrastructure of the NFSU's Delhi Campus.

Rationale Behind the Scheme

- The recent implementation of stricter criminal legislation necessitating forensic investigations for offenses carrying sentences of seven years or more is anticipated to escalate the workload within forensic science laboratories. A notable deficiency exists in terms of trained forensic personnel in the nation's Forensic Science Laboratories (FSL).
- Augmented forensic infrastructure will enable India to align with global standards, fostering enhanced cooperation with international forensic entities and law enforcement bodies.

Benefits of Enhanced Forensic Investigation Facilities

- **Enhanced Crime Examination:** The inception of new CFSLs enhances the ability for scientific evidence analysis, aiding in the expeditious and precise resolution of criminal cases.
- **Expedited Justice:** Effective and prompt forensic analysis contributes to hastening the conclusion of legal cases, ensuring timely delivery of justice.
- **Job Generation:** The establishment of new campuses and laboratories offers job prospects for academic, administrative, and technical personnel.

ECONOMY

IRDAI's new health insurance rules

Why is it in the news?

- IRDAI introduced reforms in the health insurance sector to enhance service standards for policyholders.

VITAL STATISTICS

Over ₹1 lakh crore premium income in FY24, or over 38% of ₹2.9 LAKH CR general industry revenue

Customers: Over 500 MILLION or 38% penetration

Cashless claims ratio in FY24: 60

FY24 claim ratio in volume: 98.02 down from 98.64

Cashless ratio in value: 93.8, down from 94.69

Empanelled hospital network: OVER 40,000

May 29: Irdai issues a new master circular repealing as many as 55 existing circulars. Asks insurers to include a CIS

REGULATOR ASKS HEALTH INSURERS TO ACCEPT/REJECT CASHLESS CLAIMS IMMEDIATELY OR MAXIMUM WITHIN 1 hr

Recent Reforms by IRDAI

1) Cashless Processing:

- Insurers are now mandated to accept or reject cashless claims within one hour and settle such claims on discharge within three hours.
- Any delay beyond this period would result in the insurer bearing the additional costs, if any.

2) Claim Settlement:

- Insurers cannot repudiate a claim without the approval of their claims review panel. This ensures a fair and transparent process.
- Documents for claim settlement must be collected from hospitals or third-party administrators, not from the insured. This reduces the burden on policyholders and ensures accuracy in documentation.

3) Policyholders with Multiple Health Policies:

- Policyholders with multiple health policies can now select the policy under which they want to make a claim.
- The primary insurer is then responsible for coordinating the settlement of the balance amount from other insurers. This simplifies the claim process for policyholders.

4) Reward for No Claims:

- Policyholders who do not make any claims during the policy period may receive either an increased sum insured or discounted premium amounts. This incentivizes individuals to maintain good health and reduces the financial burden on insurers.

5) Renewal Policies:

- All individual health policies are renewable and cannot be denied based on previous claims, except in cases of fraud, non-disclosures, or misrepresentation. This ensures continuity of coverage for policyholders.
- No fresh underwriting is required for renewal policies unless there is an increase in the sum insured, streamlining the renewal process for policyholders.

6) Portability Requests:

- Stricter timelines are imposed on portability requests via the Insurance Information Bureau of India portal. This ensures timely processing of portability requests, allowing policyholders to switch insurers seamlessly.

7) Customer Information Sheet:

- Insurers are now required to include a customer information sheet as part of the policy document.

This sheet explains all customer-facing details such as policy type, sum assured, coverage details, exclusions, deductibles, and waiting periods. This enhances transparency and helps policyholders make informed decisions.

Challenges in the Health Insurance Sector:

1) **Opaque Policy Details and Claim Processes:** Policyholders often struggle to understand the intricacies of insurance contracts, leading to uncertainty about coverage entitlements and reimbursement procedures.

2) **Claim Rejections:** Policyholders frequently face claim rejections due to inadequate documentation and ambiguous claims processes. This leads to frustration and dissatisfaction among policy-holders.

3) **Delays in Claim Settlement:** Insurance companies often take a long time to process claims, causing inconvenience and financial stress for policyholders. Delays in claim settlement can worsen the financial burden on policyholders during times of medical emergencies.

About IRDAI

- The Insurance Regulatory and Development Authority of India (IRDAI) is the regulatory body overseeing the insurance sector in India, constituted under the Insurance Regulatory and Development Authority Act, 1999.

- The composition of IRDAI typically includes a Chairman and members appointed by the Government of India.

- The authority regulates various aspects of insurance, including licensing, pricing, and policy holder protection, to ensure the stability and growth of the insurance industry while safe-guarding the interests of policyholders.

Conclusion :

- IRDAI's recent reforms in the health insurance sector aim to address the challenges faced by policyholders by mandating timely cashless claim processing, transparent claim settlement, and policyholder rewards for no claims.

- These changes enhance customer trust and satisfaction, ultimately leading to a more efficient and consumer-friendly insurance sector.

- IRDAI plays a crucial role in ensuring fair practices and protecting the interests of policyholders in India.

Settling trade disputes through 'litigotiation'

Why is it in the news?

- In March, India and the U.S. settled their final WTO poultry dispute, concluding seven trade disputes resolved since Prime Minister Modi's U.S. visit.

Litigotiation

- Litigotiation is a strategic blend of litigation and negotiation used to manage legal disputes.

- It combines courtroom litigation with settlement negotiations, recognizing that most disputes are resolved through settlements rather than court verdicts.

- This approach aims to reach mutually agreeable resolutions during the litigation process.

Trade Dispute on Poultry Products between India and USA at the WTO

1) **Indian Scenario:**
   - India prohibited the import of various agricultural products from the U.S. due to concerns related to Avian Influenza.

2) **U.S. Argument:**
   - The U.S. challenged India's import restrictions, arguing they were not scientifically justified.
   - Claimed India deviated from internationally recognized standards set by the World Organization for Animal Health.
   - Alleged that India's measures violated the WTO's Sanitary and Phytosanitary (SPS) Agreement.

3) **Dispute Timeline:**
   - The dispute was initiated by the U.S. in 2012.
   - It remained unresolved for over a decade, making it the oldest of seven trade disputes between India and the U.S.
   - In 2015, India lost the dispute at the WTO over poultry imports from the U.S.

4) **Recent Settlement:**
   - The settlement allowed India to avoid an annual $450 million claim.
   - In exchange, India agreed to reduce tariffs on select U.S. products such as cranberries, blue-berries, frozen turkey, and premium frozen duck meat. This marked a significant diplomatic breakthrough.

Standards Set by the World Organization for Animal Health

1) The Terrestrial Animal Health Code:

- First published in 1968.
- Provides standards for the improvement of terrestrial animal health and welfare and veterinary public health worldwide.
- Veterinary Services should use these standards to set up measures for the early detection, reporting, and control of pathogenic agents, including zoonotic agents, and prevent their spread.

2) The Aquatic Animal Health Code:

- Introduced in 1995.
- Provides standards for the improvement of aquatic animal health and welfare worldwide.
- Aquatic Animal Health Services should use these standards to set up measures for the prevention, early detection, reporting, and control of pathogenic agents in aquatic animals (amphibians, crustaceans, fish, and mollusks).
- Implementation ensures the safety of international trade in aquatic animals and aquatic animal products.

About WTO

- The World Trade Organization (WTO) is an intergovernmental organization established in 1995 to regulate and facilitate international trade among its 164 member countries.
- It represents over 98% of global trade and GDP.

Conclusion :

- The India-US settlement highlights the effectiveness of diplomatic negotiations in resolving complex trade disputes, strengthening bilateral ties, and fostering a stable international trade environment.

RBI launches PRAVAAH, Retail Direct mobile app and FinTech Repository

Why is it in the news?

- The Reserve Bank of India (RBI) has recently introduced three significant initiatives aimed at modernizing regulatory processes, empowering retail investors, and enhancing understanding of the fintech sector.

About PRAVAAH Portal

- The PRAVAAH portal, standing for Platform for Regulatory Application, Validation, and Authorization, serves as a centralized web-based platform initiated by the Reserve Bank of India (RBI).
- It streamlines the process of seeking regulatory approvals from the RBI by consolidating 60 different application forms across various regulatory departments into one accessible platform.
- One of its key features is the provision for online application submission and status tracking, enabling individuals and entities to monitor the progress of their applications conveniently.
- By offering a transparent and efficient authorization process, the portal aims to enhance regulatory transparency and reduce administrative burdens for stakeholders.

About RBI Retail Direct Mobile App

- The RBI Retail Direct Mobile App is designed to empower retail investors by providing them with direct access to government securities (G-Secs) trading from their smartphones.
- Available on both Android and iOS platforms, the app ensures accessibility to a wide range of retail investors, enabling them to engage in securities transactions conveniently. It simplifies transactions in both primary and secondary markets, offering a user-friendly interface and intuitive features for executing trades and managing investments.
- By facilitating easier access to G-Secs trading, the app encourages greater participation of retail investors in the securities market, thereby promoting financial inclusion and democratizing investment opportunities.

About FinTech Repository

- The FinTech Repository is a repository established by the RBI with the objective of providing comprehensive data on Indian fintech firms.
- It aims to facilitate better regulatory understanding and policy formulation in the rapidly evolving fintech landscape by offering insights into the operations, innovations, and trends within the sector.
- The repository serves as an information hub for policymakers, regulators, industry stakeholders, and researchers, enabling them to access relevant data and analysis to inform decision-making and strategic planning.

- By promoting transparency and knowledge-sharing within the fintech ecosystem, the repository contributes to the promotion of innovation, collaboration, and sustainable growth in the financial technology sector.

Other Initiatives

EmTech Repository:
- Focuses on the adoption of emerging technologies such as Artificial Intelligence (AI), Machine Learning (ML), Cloud Computing, and Quantum Computing by RBI-regulated entities.
- Provides valuable insights and analysis on the implementation and impact of these technologies in the financial services industry.

Reserve Bank Innovation Hub (RBIH):
- Oversees the management of both the FinTech Repository and the EmTech Repository.
- Demonstrates the RBI's commitment to fostering innovation, research, and collaboration in the financial sector to address emerging challenges and opportunities.

UN Global Supply Chain Forum

Why is it in the news?
- The inaugural United Nations Global Supply Chain Forum, jointly organized by the Government of Barbados and the UN Trade and Development (UNCTAD), was successfully wrapped up recently.

About the UN Global Supply Chain Forum:
- The UN Global Supply Chain Forum, organized by UNCTAD and the Government of Barbados, took place from May 21 to 24, 2024, in Barbados.
- **Objective:** The forum convened a diverse audience of over 1,000 participants worldwide to address challenges such as global disruptions, geopolitical tensions, climate change, and the impacts of the COVID-19 pandemic on international trade.
- **Participants and Focus Areas:** Attendees included trade and transport Ministers from small island developing states (SIDS), UN agency representatives, key players from major global ports like the Port of Seattle, and leaders in the shipping and logistics sectors.
- **Projects and Results:**
  1) Introduction of the "Manifesto for Intermodal, Low-Carbon, Efficient and Resilient Freight Transport and Logistics," designed to revolutionize freight transport to align with global climate objectives and enhance socio-economic resilience.
  2) Rollout of the UN Trade and Development Trade and Transport Dataset, a collaboration with the World Bank. This dataset offers comprehensive global data on over 100 commodities and diverse transport.

Pioneering Grain Storage Initiative on a Global Scale

Why is it in the news?
- In 2023, the Ministry of Cooperation greenlit a groundbreaking initiative set to establish the world's largest grain storage system, aimed at alleviating the scarcity of food grain storage capacity in India.
- This ambitious endeavor is poised to launch as a Pilot Project across various states and union territories (UTs) nationwide.

More about the news
- The project plans to develop diverse agricultural facilities at the Primary Agricultural Credit Societies (PACS) level, which includes warehouses, custom hiring centers, processing units, Fair Price Shops, among others.
- The initiative embraces a comprehensive government approach by amalgamating ongoing schemes such as Agriculture Infrastructure Fund (AIF), Agricultural Marketing Infrastructure Scheme (AMI), Sub Mission on Agricultural Mechanization (SMAM), and Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme (PMFME).
- PACS can access subsidies and interest subvention benefits for the construction of storage facilities and other agricultural infrastructure.
- NABARD extends subsidized refinancing to PACS (approximately 1%) post the inclusion of 3% interest subvention under the AIF scheme for projects up to Rs. 2 Crore.
- The National Cooperative Development Corporation (NCDC) spearheads the Pilot Project with support from NABARD, Food Corporation of India (FCI), Central Warehousing Corporation (CWC), NABARD Consultancy Services (NABCONS), in collaboration with concerned States/ UTs.
- Furthermore, the pilot initiative is being expanded to an additional 500 PACS with the assistance of State Governments, NCCF, National Buildings Construction Corporation (NBCC), etc.

- The Ministry of Cooperation has established an Implementation Monitoring Committee (IMC) to ensure efficient execution, with the authority to adjust guidelines and strategies as required.

Advantages

- By boosting grain storage capacity, the initiative guarantees a more consistent food supply, mitigating shortages and bolstering national food security.
- Proper storage facilities help in reducing food grain wastage caused by spoilage, pests, and other factors, thus conserving essential resources.
- It will curb distressed crop selling by farmers and enable them to realize better prices for their produce.
- Farmers can secure finance against their stored crops for the subsequent crop cycle, maintaining cash flow and investing in the upcoming planting season.
- The initiative empowers PACS to offer storage facilities, Fair Price Shops, and Custom Hiring Centers. This bolsters the rural economy and benefits millions of cooperative-linked farmers.
- India's endeavors in efficient grain storage are poised to be internationally recognized.

Challenges

- Setting up decentralized storage infrastructure at the grassroots level demands substantial investment and coordination. Erecting storage facilities, custom hiring centers, and processing units across varied regions poses logistical hurdles.
- Coordinating ongoing schemes from three ministries involves intricate planning and execution.
- India's heterogeneous geography and diverse agricultural practices necessitate customized storage solutions per state and UT.
- Adapting the initiative to cater to regional nuances while ensuring consistency presents a challenge.
- Ensuring the enduring financial sustainability of Primary Agricultural Credit Societies (PACS) remains a prime challenge.

Conclusion

- The Pioneering Grain Storage Initiative on a Global Scale marks a monumental stride towards enhancing food security, reducing wastage, and fortifying cooperative societies.
- It carries vast potential to revolutionize grain storage practices in India, benefiting millions and bolstering cooperative entities.

Horticulture Production in India (2023-24)

Why is it in the news?

- Estimates for horticulture production in India for the year 2023-24 indicate a total of approximately 352.23 million tonnes, showing a decrease of around 32.51 lakh tonnes (0.91 per cent) compared to the finalized figures of 2022-23.

Key Strategies to Address Challenges in Horticulture Industry

1. National Horticulture Mission (2005-06)
2. National Horticulture Board (NHB)
3. Mission for Integrated Development of Horticulture (MIDH) (2014)
4. Rashtriya Krishi Vikas Yojana (RKVY)
5. Sub-Mission on Agriculture Mechanization (SMAM)

Horticulture Industry in India

- Horticulture involves the cultivation of fruits, vegetables, flowers, and ornamental plants, encompassing various activities such as plant propagation, production, management, and marketing.
- With a substantial contribution of about 33% to the Gross Value Added (GVA) of agriculture, the horticulture sector plays a crucial role in the Indian economy.
- India holds the top position in the production of several crops including Banana, Lime & Lemon, Papaya, Okra, and ranks as the second-largest producer of vegetables and fruits globally.

Challenges and Concerns Faced by the Sector

- The lack of infrastructure for post-harvest operations, storage, and transport results in significant losses of perishable horticultural products.
- Given its water-intensive nature, horticulture is vulnerable to issues of water scarcity and inefficient water management, impacting crop yields and quality.

- Pests and diseases pose substantial threats to horticultural crops, with the misuse of pesticides contributing to environmental pollution and health risks.
- Limited market access and price instability negatively impact farmers' income and deter investments in horticultural production.
- Unpredictable weather patterns like erratic rainfall and temperature shifts present challenges to horticultural production, necessitating adaptation strategies.
- Meeting quality benchmarks and securing certifications for export markets can be daunting for small-scale horticultural producers.

Key Strategies to Address Challenges:

- **National Horticulture Mission (2005-06):** Aims to foster comprehensive growth in the horticulture sector by enhancing production, productivity, and crop quality, with a focus on infrastructure development, technical aid, and market linkages.
- **National Horticulture Board (NHB):** Provides financial support, technical expertise, and market insights to horticulture stakeholders to boost production, processing, and marketing. The Cluster Development Program under NHB's central scheme aims to harness the specialization of horticulture clusters for integrated and market-driven development across various activities.
- **Mission for Integrated Development of Horticulture (MIDH) (2014):** Consolidates multiple horticulture development schemes to offer holistic assistance across the value chain from pre-production to post-harvest management and marketing.
- **Rashtriya Krishi Vikas Yojana (RKVY):** Assists states in formulating and executing horticulture development strategies through financial aid for infrastructure, capacity building, and other interventions.
- **Sub-Mission on Agriculture Mechanization (SMAM):** Supports mechanization adoption in horticulture for enhanced efficiency and reduced labor dependency in activities such as land preparation, planting, harvesting, and post-harvest management.

National Health Claim Exchange (NHCX)

Why is it in the news?

- The National Health Claim Exchange (NHCX) is being launched by the Health Ministry in collaboration with the Insurance Regulatory and Development Authority of India (IRDAI).

About

- The primary aim of the National Health Claim Exchange (NHCX) is to facilitate patients in accessing high-quality healthcare more expeditiously and with reduced out-of-pocket expenses.
- Acting as a conduit for sharing claims-related information among different stakeholders with-in the healthcare and health insurance sectors, the NHCX is anticipated to bring about seamless interoperability in health claims processing, thereby improving efficiency and transparency in the insurance industry, ultimately benefiting policyholders and patients.
- By simplifying the process, the National Health Claim Exchange (NHCX) will greatly reduce the administrative burden on hospitals, which currently grapple with multiple portals for various insurers.

IRDAI

- IRDAI is an independent statutory body entrusted with overseeing and regulating the insurance and reinsurance industry in India.
- Comprising a chairman, five fulltime members, and four parttime members, IRDAI was established under a parliamentary act in 1999, with its headquarters located in Hyderabad.

2024 Report on Global Fisheries and Aquaculture Released

Why is it in the news?

- The Food and Agriculture Organization (FAO) has prepared and released a report with a special focus on "Blue Transformation in Action".

Key findings of the report:

- According to the report, world fisheries and aquaculture production reached a record high in 2022, totalling 223.2 million tonnes.
- India is the second-largest producer of aquatic animals, accounting for 8 percent of the total production.

More about the news:

- Aquaculture has overtaken capture fisheries as the primary producer of aquatic animals for the first time.
- India also leads in inland fisheries production, producing 1.9 million tonnes.
- Aquatic foods play a crucial role in climate action, as recognized by the 2023 United Nations Framework Convention on Climate Change (UNFCCC) Ocean Dialogue.
- The FAO incorporates traditional knowledge to adapt to climate change in specific regions, focusing on local species that are well-suited to changing conditions.
- FAO introduced its "Blue Transformation" vision in 2021 to utilize aquatic food systems for enhancing food security, improving nutrition, and more. The objectives include sustainable aquaculture expansion, effective fisheries management, and upgraded aquatic value chains to ensure social, economic, and environmental sustainability.

> In the context of Global Biodiversity Agreements, the Convention on Biological Diversity (CBD) adopted the Kunming-Montreal Global Biodiversity Framework (GBF) in 2022.
> - This framework aims to help countries develop national plans for biodiversity protection and coexistence with nature.
> - Aquatic food systems directly contribute to several GBF targets, such as managing aquatic spaces and reducing species extinction risks.
> - In 2023, UN members agreed to a legally binding treaty to conserve and sustainably use marine biological diversity beyond national jurisdictions.

GREAT Scheme

Why is it in the news?

- Recently, the Empowered Programme Committee (EPC) greenlit 7 startup proposals as part of the GREAT scheme.

About GREAT scheme

- The GREAT scheme (Grant for Research and Entrepreneurship across Aspiring Innovators in Technical Textiles) stands as a pivotal initiative under the National Technical Textiles Mission (NTTM) of the Ministry of Textiles.
- Successful applicants may receive a grant-in-aid of up to Rs.50 lakhs over an 18-month period through this scheme.
- This opportunity is extended to individual entrepreneurs, startups, and companies engaged in innovative technical textiles projects.
- The scheme contributes to fostering innovation, entrepreneurship, and domestic production within India's technical textiles domain.

Direct Seeding of Rice (DSR) in Punjab

Why is it in the news?

- The Punjab government has actively promoted the direct seeding of rice (DSR), also known as the 'tar-wattar' technique, as it offers various advantages over traditional methods.
- Despite the government's efforts and incentives, such as providing Rs.1,500 per acre, the widespread adoption of DSR in Punjab remains limited.

Factors Hindering the Adoption of Direct Seeding of Rice (DSR)
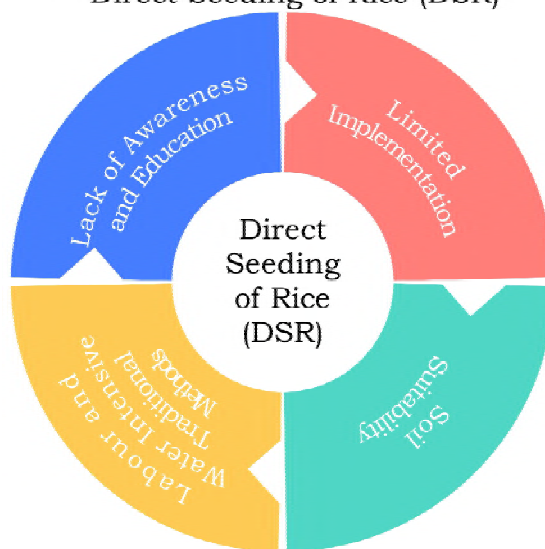
Factors Hindering the Adoption of DSR
Limited Implementation:

- Only 1.73 lakh acres out of 79 lakh acres under paddy cultivation in Punjab utilized DSR last year.
- The target of bringing 7 lakh acres under DSR this year falls short of covering even 10% of Punjab's total rice acreage.

Soil Suitability:
- It is essential for successful implementation of DSR.
- Light textured soils are unsuitable for DSR as they require frequent irrigation, negating water-saving benefits.

Labour and Water Intensive Traditional Methods:
- Traditional rice farming practices are labour and water-intensive, demanding substantial amounts of water and manual effort.
- DSR, on the other hand, requires less labour, reduces water usage by 15% to 20%, and matures faster.

Lack of Awareness and Education:
- Many farmers may not be aware of the benefits and proper implementation of DSR.
- Education and awareness programs could help in increasing adoption rates.

About Direct Seeding of Rice (DSR)
- DSR eliminates the need for nursery preparations and transplantation.
- Paddy seeds are sown directly using techniques like seed drills or lucky seeders.
- Proper soil texture is crucial, with heavy or medium-to-heavy-textured soils being more suitable.
- Seed treatment, timely irrigation, and soil quality are critical factors for successful DSR implementation.

Prime Minister's Economic Advisory Council Calls for Revising India's Official Poverty Line

Why is it in the news?
- PM's Economic Advisory Council head, Bibek Debroy, advocates for reconsidering India's official poverty line.
- Debroy questions the decrease in inequality reflected in the recent household consumption expenditure survey and challenges the significance of this trend.
- He criticizes the ongoing debate between the survey results and the expenditure data from the national income accounts as unproductive.

More about the news
- Emphasizing the absence of an official poverty line beyond the Tendulkar recommendations of 2009, Debroy suggests the necessity of establishing a new poverty line.

- He highlights that previous efforts to revisit the poverty threshold, like the Rangarajan Committee in 2014, were not officially adopted, indicating a gap in defining poverty accurately.
- Debroy dismisses the Multidimensional Poverty Index (MDPI) by Niti Aayog as inadequate for determining the poverty line, highlighting its limitations compared to a comprehensive poverty measure.
- He proposes a new poverty line that aligns better with the recent Consumption Expenditure Survey data and serves as a versatile metric for various applications.
- Debroy identifies persistent challenges with household expenditure surveys, categorizing some as irrelevant distractions.He underlines the global issue of reconciling aggregate consumption expenditure with national income accounts data across countries.
- Debate arises around the measurement of inequality based on personal incomes, despite the lack of official data collection on this matter in India.ss
- Debroy questions whether the decline in the Gini coefficient is inherently positive and probes into the relevance of aggregate inequality metrics in the context of India's changing economic landscape.
- Debroy points out criticisms faced by India's statistical system and the Ministry of Statistics and Programme Implementation (MoSPI) in recent times, citing issues related to quality, timeliness, and lack of clarity in communication.

Conclusion
- He expresses the importance of user conferences like the one discussing the Household Consumption Expenditure Survey to address misunderstandings and misinformed criticisms surrounding statistical decisions and methodologies.

Hybrid vs Electric Vehicles

Why is it in the news?
- According to the International Energy Agency, India's road transport segment contributes approximately 12% of the nation's CO_2 emissions, positioning it as the third-largest emitter of greenhouse gases after energy and agriculture.
- Since 2015, the government has been actively engaged in reducing carbon footprints through initiatives like FAME (Faster Adoption and Manufacture of Hybrid and Electric Vehicles).

Electric Cars ⚡ VS. Hybrid Cars

- While initially incentivizing electric and hybrid vehicles, the focus of the policy has shifted progressively towards supporting electric vehicles (EVs) over hybrids.

Benefits of Hybrid Vehicle Adoption

- Hybrid trucks, despite constituting only 5% of vehicles, contribute a significant 34% of emissions in freight.
- Passenger car hybrids offer 25-30% higher fuel efficiency than internal combustion engines (ICE), even though they are less prevalent in the market.
- Hybrid vehicles entail smaller battery packs and marginally higher overall ownership costs due to tax differentials, albeit being currently taxed more than ICE vehicles.
- Hybrids typically exhibit the least environmental impact among options including ICE and Electric vehicles.

Drawbacks of Electric Vehicle Adoption

- In India, over 75% of electricity is coal generated, causing emissions during EV charging. When evaluating policies for ICE, hybrids, and EVs, a careful examination of their impact on emission reduction is vital.
- A scrutiny of lifecycle emissions (LCA), kilometer usage, production, mining, recycling, and total cost of ownership (TCO) reveals instances where electric vehicles emit more than both ICE vehicles and hybrids. In India, the focal point lies mainly on emissions and costs during the usage phase, with lesser emphasis on factors like battery replacement costs.
- Procuring raw materials such as cobalt, nickel, and lithium for battery electric vehicles presents significant challenges.

Way Forward

- Foster a balanced approach amidst the transition towards cleaner grids and the promotion of transport electrification.

- Acknowledge improvements in electric vehicle (EV) efficiency and tailor policies to incorporate technological advancements and shifts in industrial domains.
- FAME 3 policies should extend equal treatment to hybrids for subsidies, supporting a spectrum of technological solutions geared towards realizing zero-emission goals.

MSP hike for 14 Kharif Crops

Why is it in the news?

- The Union Cabinet has sanctioned an increase in the minimum support prices (MSP) for all 14 kharif crops during the 2024-25 crop season.

Understanding MSP

- Minimum Support Price (MSP) is a mechanism adopted by the Government of India to shield agricultural producers from drastic declines in farm prices. It acts as a safety net for farmer producers during periods of abundant harvests.
- However, MSPs lack legal backing farmers cannot claim MSP as an entitlement.
- The government declares the MSP for 22 specified crops, including:
  1) 14 kharif crops (paddy, jowar, bajra, maize, ragi, tur/arhar, moong, urad, groundnut, soyabean, sunflower, sesamum, niger seed, cotton),
  2) 6 rabi crops (wheat, barley, gram, masur/lentil, rapeseed and mustard, safflower), and commercial crops (jute and copra).
- Moreover, the MSP for Toria and dehusked coconut is determined based on the MSPs of rapeseed & mustard and copra, respectively.

Fair and Remunerative Price (FRP)

- FRP represents the minimum rate at which sugar mills procure sugarcane from farmers.
- The Cabinet Committee of Economic Affairs sets the FRP following recommendations from Commission for Agricultural Costs and Prices (CACP).

Calculation of MSP :

- The Cabinet Committee of Economic Affairs declares the MSP at the commencement of each sowing season, considering advice from the Commission for Agricultural Costs and Prices (CACP).
- While proposing MSPs, the CACP evaluates various factors, including:

1) commodity demand and supply,
2) production costs,
3) market price trends (domestic and international),
4) inter-crop price parity,
5) agriculture versus non-agriculture price ratios,
6) ensuring a minimum margin of 50% above production costs, and
7) assessing the impact of MSP on consumers.

- The CACP relies on state specific cost estimates for different crops provided by the Directorate of Economics & Statistics in the Ministry of Agriculture.
- The CACP does not conduct on the ground cost assessments.

Three cost variants are calculated for each mandated crop by the CACP: A2, A2+FL, and C2.

- **A2 cost:** Represents direct costs borne by farmers in cash and kind on inputs like seeds, fertilizers, pesticides, labor, land, fuel, and irrigation.
- **A2+FL cost:** Includes A2 plus an estimated value of unpaid family labor.
- **C2 cost:** The highest of the three expenses, encompassing rentals, land and capital interest, alongside A2+FL costs.
- The National Commission for Farmers under the chairmanship of MS Swaminathan suggested using the C2+50 percent formula for MSP determination, which combines total costs (C2) with a 50% profit. However, the government announces MSP based on A2+FL costs.

Advantages of Minimum Support Price (MSP)

- **Income Assurance:** MSP ensures farmers receive a minimum rate for their crops, providing stability and safeguarding against price fluctuations.
- **Price Consistency:** MSP aids in maintaining stable agricultural prices, averting extreme swings and ensuring fair prices for consumers.
- **Boosting Production:** MSP encourages farmers to enhance agricultural output by offering reasonable prices for their harvest.
- **Food Security:** MSP fosters a steady food supply by promoting staple crop cultivation, reducing import reliance, and enhancing domestic food security.

Challenges with the MSP System

- Crop Bias: MSP policies often prioritize select crops like rice and wheat, leading to unbalanced crop emphasis. This imbalance can result in overproduction of certain crops and neglect of others, impacting agricultural diversity and sustainability.
- **Market Interference:** MSPs can distort markets by influencing crop selection and causing oversupply of specific produce. Surplus production may pose storage issues, market inefficiencies, and price distortions.
- **Limited Reach:** The MSP framework predominantly covers a limited crop range, leaving farmers of non-MSP crops vulnerable to market volatility and price uncertainties.
- **Storage and Logistics Issues:** Effective storage and logistics infrastructure are essential for successful MSP operations. Inadequate facilities can lead to wastage and storage-related losses.
- Financial Strain: Implementing MSPs can strain government finances. Procuring crops at fixed rates and managing surplus stocks demand substantial financial resources, impacting fiscal budgets.

Future Strategies

- **Diversification of Agriculture:** Prioritize investments in animal husbandry, fisheries, fruits, and vegetables for enhanced nutrition and greater income opportunities.
- **Private Sector Engagement:** Encourage private sector participation in developing efficient agricultural value chains through cluster based approaches.
- **Enhanced MSP Intervention:** Advocate for genuine MSP intervention where government steps in when market prices drop below a set threshold, especially during excess production, oversupply scenarios, or price collapses due to global factors.

How demand for cereals in India is changing

Why is it in the news?

- India has boosted its production of cereal grains by more than 1.5 times in the past two decades, as reported by the agriculture ministry.
- However, a growing portion of this increase is directed not towards direct human consumption, but for processing into products like bread, biscuits, cakes, noodles, vermicelli, flakes, pizza base, and others, or for manufacturing animal feed, starch, alcohol, and ethanol fuel. This shift can be observed in data from official household consumption expenditure surveys (HCES).

More about the news

- The most recent HCES report from the National Sample Survey Office indicates a consistent decrease in the amount of cereals consumed per person per month, dropping from 12.72 kg to 9.61 kg in rural areas and from 10.42 kg to 8.05 kg in urban regions between 1999-2000 and 2022-23.

- Overall, the per capita consumption, using weights based on the rural-urban distribution of sample households from HCES, has reduced from 11.78 to 8.97 kg during this timeframe.

- When this weighted average consumption is multiplied by 12 months and the country's population, it calculates the annual total consumption of cereals by Indian households, either in direct form or in processed at home form. This total has shown only a slight increase, from 148.4 million tonnes (mt) in 1999-2000 to 153.1 mt in 2022-23, and has actually declined over the past decade.

- Despite stagnant or declining direct household consumption, cereal production has significantly risen from 196.4 mt in 1999-2000 to 303.6 mt in 2022-23.

- Furthermore, the disparity between officially estimated production of cereals and household consumption based on HCES has widened from around 48 mt in 1999-2000 and 29.5 mt in 2004-05 to nearly 151 mt in 2022-23.

INDIA'S ESTIMATED HOUSEHOLD CEREAL CONSUMPTION VERSUS PRODUCTION

Monthly per capita cereal consumption (in kg)

	1999-2K	2004-05	2009-10	2011-12	2022-23
Rural	12.72	12.12	11.35	11.23	9.61
Urban	10.42	9.94	9.39	9.32	8.05
Weighted Average#	11.78	11.33	10.54	10.44	8.97
Population##	1050.01	1145.64	1232.08	1266.1	1422.03
Annual Consumption*	148.43	155.76	155.83	158.62	153.07
Annual Production*	196.38	185.23	203.45	242.2	303.63

Where is this excess production going

- In the fiscal year 2021-22 (April to March), India set a new record by exporting 32.3 million tonnes of cereals, with 21.2 million tonnes being rice, 7.2 million tonnes wheat, and 3.9 million tonnes other grains, primarily maize.

- Even in the year 2022-23, cereal exports remained high at 30.7 million tonnes, comprising 22.3 million tonnes of rice, 4.7 million tonnes of wheat, and 3.6 million tonnes of other grains.

- However, these exports of 31-32 million tonnes represented only a fifth of the over 150 million tonnes difference between cereal production and direct household consumption in 2022-23.

- Another significant portion of cereals is consumed by households in processed forms such as bread, biscuits, noodles, etc. Assuming this additional consumption to be 25% above direct cereal consumption, it amounts to approximately 38 million tonnes.

BREAK-UP OF ESTIMATED CEREAL CONSUMPTION AND PRODUCTION: 2022-23 (in million tonnes)

	Per capita monthly consumption (in kg)			Implied Annual Consumption	Estimated Annual Production
	Rural	Urban	Average*		
Rice	5.321	4.281	4.9	83.62	135.76
Wheat	3.935	3.583	3.79	64.67	110.55
Other cereals	0.357	0.183	0.29	4.95	57.32
Total	9.613	8.047	8.97	153.07	303.63

- Moreover, a considerable quantity of cereal grains is utilized in the manufacturing of feed or industrial starch. The agriculture ministry estimates that India produced 38.1 million tonnes of maize in 2022-23, with the vast majority being used in poultry, livestock, aqua feed, or processed into starch for various industries like paper, textile, pharmaceutical, food, and beverages.

- In addition, cereals like maize, barley, and millets such as bajra (pearl millet), jowar (sorghum), and ragi (finger millet) were produced at 57.3 million tonnes, of which less than 5 million tonnes were directly consumed in Indian households. Much of the consumption of these coarse grains occurs indirectly through milk, eggs, and meat from cows, buffaloes, and poultry birds.

- Beyond feed and starch production, cereal grains are also used in the fermentation process to produce alcohol, which is then distilled into rectified/industrial spirit or ethanol of high purity.

- The ethanol blending program by the government has encouraged the installation of multi-feed distilleries in sugar mills, allowing them to utilize grains during the off-season for producing ethanol. This shift highlights that cereals are not only food and feed sources but also crucial as fuel grains in various industries.

The unexplained surplus

- Adding 32 million tonnes in exports, 38 million tonnes used in processed food, and 50-55 million tonnes diverted for feed, starch making, and fermentation purposes (rough estimates) to directly meet household consumption of 150-155 million tonnes would bring the total annual demand for cereals to 275-280 million tonnes at best.
- This demand is significantly below the estimated domestic cereal output of over 300 million tonnes.
- The surplus grain is absorbed by government agencies and stored in the Food Corporation of India's warehouses.
- During the 2022-23 crop year (July-June), approximately 56.9 million tonnes of rice and 26.2 million tonnes of wheat were procured, exceeding the total annual cereal requirement of 59-60 million tonnes for the public distribution system (PDS).

Conclusion

- As per the National Food Security Act, about 813.5 million individuals receive 5 kg of wheat or rice per month free of charge through the PDS (previously priced at Rs 2 and Rs 3 per kg, respectively). This entitlement covers more than half of the monthly per capita cereal consumption, which stands at 9.61 kg in rural areas and 8.05 kg in urban India for 2022-23.
- If the agriculture ministry's cereal output projections are accurate, the country is generating a surplus of at least 25 million tonnes of grain annually, leading to downward pressure on market prices and potentially increasing government stocks.

Sustainable Development Report 2024

Why is it in the news?

- The Sustainable Development Report 2024 has been released by the UN Sustainable Development Solutions Network (SDSN).

About SDSN

- Since 2016, SDSN has been publishing the annual report, reviewing the progress made by 193 UN Member States towards the Sustainable Development Goals (SDGs).
- Established in 2012, SDSN operates under the UN Secretary General to advance integrated approaches for the implementation of the SDGs and Paris Agreement through activities such as education, research, policy analysis, and global cooperation.

Key Findings of the Report

- Only 16% of the SDG targets globally are currently on track to be achieved by 2030.
- Goals such as SDG2 (Zero Hunger), SDG11 (Sustainable Cities and Communities), SDG 14 (Life Below Water), SDG 15 (Life on Land), and SDG 16 (Peace, Justice and Strong Institutions) are notably behind schedule.
- Progress towards SDGs varies significantly among countries, with Nordic countries leading, BRICS countries making substantial progress, and Poor & Vulnerable countries lagging.
- Finland holds the top spot, followed by Sweden and Denmark.
- India occupies the 109th position out of 166 countries, showcasing on-track performance in Poverty reduction and Quality Education targets but declining progress in Sustainable Cities and Climate Action targets.
- A new Index of Support to UN-based Multilateralism (UN-Mi), ranks countries based on their engagement with the UN System. Barbados is the top ranker, India stands at 139th place, and the USA is positioned last.

Recommendations by the UNSDSN

- The Sustainable Development agenda should continue as the cornerstone of global cooperation up to 2050 and receive adequate financing.
- Strengthening of UN agencies and systematic monitoring of UN-based multilateralism is imperative.
- Enhanced multilateral governance of technological risks and universal access to vital technologies and R&D capacities is crucial.
- Proposal to establish a UN Parliamentary Assembly and reform the UN Security Council by adding India as a permanent member and introducing processes to bypass a veto.

World Economic Forum's "Fostering Effective Energy Transition 2024" Report

Why is it in the news?

- The "Fostering effective energy transition 2024" report is grounded in the Energy Transition Index (ETI), which assesses 120 countries based on their energy system performance and readiness for secure, sustainable, and inclusive energy systems.

- Energy transition (ET) signifies the shift from fossil fuels to renewable energy sources aimed at reducing CO_2 emissions.

Key Insights from the Report

- **Investment Trends:** Clean energy infrastructure investments totaled $1.8 trillion in 2023, with a notable 90% of growth since 2021 observed in advanced economies and China.
- **Top Performers:** Leading performers include Sweden, Denmark, Finland, Switzerland, and France. Among the top 20 performers globally are six G20 countries, namely France, Germany, Brazil, China, the UK, and the USA. India is positioned 63rd on the ETI.
- **Net-Zero Emissions:** Eight countries achieved net-zero emissions in 2022, including Bhutan, Comoros, Gabon, Guyana, Madagascar, Niue, Panama, and Suriname.
- **Digital Innovations:** Generative AI could potentially aid energy companies in saving over $500 billion annually.

Challenges in Energy Transition

- Lack of incentives for private sector investments in clean electricity.
- Merely 6% of G20 recovery funding is allocated towards clean energy.
- Continued subsidies for fossil fuels.
- Some advanced economies and major energy companies are retracting crucial energy transition commitments.

Initiatives in Energy Transition

- **Global Renewables and Energy Efficiency Pledge:** Signed by 133 countries, aiming to triple the rate of renewables capacity by 2030.

- **Technology Gap Addressing Initiatives:** Pursuits of the G20 to bridge technology gaps for energy transitions.
- **Just Energy Transition Partnerships:** Launched in 2022 by the International Energy Agency and World Economic Forum (WEF) to support developing countries in transitioning to clean energy.
- **Carbon Border Adjustment Mechanism (CBAM):** Introduced by the EU in 2023.

Krishi Sakhi Convergence Program (KSCP)

Why is it in the news?

- The Prime Minister approved certificates for 30,000 Krishi Sakhis under the Krishi Sakhi Convergence Program (KSCP).

About KSCP

- KSCP is an endeavor established through a Memorandum of Understanding between the Ministry of Agriculture and Farmers' Welfare and the Ministry of Rural Development.
- It aims to enrich the skills of rural women in agriculture through certified training programs.

- The certification program is designed to align with the goals of the "Lakhpati Didi" initiative, which strives to promote economic autonomy and financial self-reliance among rural women.

Women's Role in Agriculture Sector

- According to NITI Aayog, approximately 80% of rural women are engaged in the agricultural sector.
- Female operational holdings have increased from 12.78% in 2010-11 to 13.78% in 2015-16.
- Women in agriculture significantly contribute to producing 60-80% of the country's food supply.
- The rising participation of women in agriculture has led to a notable increase in the sector's contribution to the GDP per capita.

- However, challenges faced by women in agriculture include limited credit and market access, issues related to land inheritance, and a lack of essential information.

Government Schemes for Women Farmers

- **Mahila Kisan Sashaktikaran Pariyojana:** A scheme aimed at empowering women in agriculture by making strategic investments to boost their involvement and productivity.
- **Namo Drone Didi:** An initiative providing training on drone technology to women belonging to selected Women Self-Help Groups for offering agricultural drone rental services.
- **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):** A scheme focused on extending financial support to landholding farmer families, including women farmers.

Vadhavan Greenfield Major Port in Maharashtra

Why is it in the news?

- The Union Cabinet has given the green light for the establishment of a Greenfield Major Port in Vadhavan, Maharashtra.

More about the news

- Construction will be carried out by a Special Purpose Vehicle (SPV) created by the Jawaharlal Nehru Port Authority and Maharashtra Maritime Board.
- The port will be an all-weather Greenfield deep draft major port, built on undeveloped land from scratch.

- Aligned with the PM Gati Shakti program, the Vadhavan Port Project will be situated in Palghar District and will follow a landlord model through Public-Private Partnership (PPP).
- The port will be developed in two phases and will have a total capacity of 23.2 million TEUs, with a draft of 20 meters to accommodate mega vessels.

- **Significance of the Project:** Enhances Export-Import (EXIM) trade flow through IMEC (India Middle East Europe Economic Corridor) and INSTC (International North South Transportation Corridor) and reduces goods turnaround time with state-of-the-art infrastructure and modern technologies.

3 SCIENCE AND TECHNOLOGY

Green Ammonia Production under SIGHT Program

Why is it in the news?

- Solar Energy Corporation of India (SECI) has started the bidding process for a total capacity of 5.39 lakh Metric Tonnes (MT) per annum of Green Ammonia production.
- The initiative falls under Mode 2A of the Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme, part of the National Green Hydrogen Mission led by the Ministry of New & Renewable Energy (MNRE).

Green Ammonia

- Green ammonia, also known as renewable ammonia, is produced using renewable energy sources, proposed as a sustainable, emission-free alternative with various applications.
- It is created by combining nitrogen with hydrogen, generated through water electrolysis using renewable energy, and then reacting the hydrogen and nitrogen to form ammonia.

National Green Hydrogen Mission

- Launched in January 2023 to make India a 'global hub' for using, producing, and exporting green hydrogen.
- The objective is to cut down carbon emissions and increase the use of renewable energy sources.

Key Features

- Aims to promote a green hydrogen production capacity of at least 5 MMT per annum with an associated renewable energy capacity addition of about 125 GW by 2030.
- Envisages an investment of over Rs.8 lakh crore and creation of over 6 lakh jobs by 2030.

- Aims for a cumulative reduction in fossil fuel imports of over Rs.1 lakh crore and abatement of nearly 50 MMT of annual greenhouse gas emissions by 2030.
- Facilitates demand creation, production, utilization, and export of green hydrogen.
- Provides distinct financial incentive mechanisms under the SIGHT Programme.
- Identifies and develops regions capable of supporting large-scale production and/or utilization of hydrogen as Green Hydrogen Hubs.

About SIGHT Program

- In the initial stage, two distinct financial incentive mechanisms are proposed with an outlay of Rs.17,490 crore up to 2029-30:
    1) Incentive for manufacturing of electrolysers.
    2) Incentive for production of green hydrogen.
- Specific incentive schemes and programs will continue to evolve depending upon markets and technology development as the Mission progresses.

CSIR's PI-CHeCK Project

Why is it in the news?

- The Council of Scientific and Industrial Research (CSIR) celebrated the completion of the initial phase of its pioneering health monitoring project, 'Phenome India-CSIR Health Cohort Knowledgebase' (PI-CHeCK).

Understanding Phenome

- The human phenome encompasses observable physical and biochemical traits, behaviours, and characteristics influenced by genetics, environment, and lifestyle. It includes physical characteristics, biological functions, behavioural traits, disease susceptibility, health outcomes, and environmental factors.

About the PI-CHeCK Project

- Launched on Dec 7, 2023, it assesses risk factors for cardio-metabolic disorders in the Indian population.
- **Target Population:** CSIR employees, pensioners, and spouses across 17 states and 24 cities participated in 'Phenome India' health check-up camps.
- Nearly 10,000 volunteers provided comprehensive health data.

Objectives of the PI-CHeCK Project

Developing India-Specific Algorithms	Advancing Precision Medicine	Catalyzing Nationwide Initiatives
• Emphasizes the need for risk prediction algorithms tailored to India's genetic and lifestyle di-versity. • Existing algorithms may not accurately represent the Indian population.	• Demonstrates CSIR's commitment to advancing precision medicine. • Focuses on Predictive, Personalized, Participatory, and Preventive healthcare.	• Aims to catalyze similar initiatives nationwide by generating a comprehensive phenome data-base. • Ensures more accurate risk prediction algorithms for India's diverse population.

FSSAI Directive on Fruit Juices

Why is it in the news?

- The Food Safety and Standards Authority of India (FSSAI) has taken a significant step by mandating the removal of claims stating '100% fruit juices' from labels and advertisements of reconstituted fruit juices by all Food Business Operators (FBOs).

- This move aims to ensure transparency and accuracy in food labelling, particularly concerning the composition of fruit juices available in the market.
- FBOs are required to comply with this directive by utilizing existing pre-printed packaging materials before September 1, 2024.

Compliance Guidelines on Fruit Juices :

In adherence to the Food Safety and Standards (Labelling and Display) Regulations, 2020, products must meet specific criteria:

- The term "reconstituted" must be explicitly mentioned in the ingredient list for juices reconstituted from concentrate.
- Products containing added nutritive sweeteners exceeding 15 gm/kg must be labelled as 'Sweetened juice'. This requirement aims to inform consumers about the presence of additional sweeteners in the product.

Issues with 'Sweetened Juice'

The decision to enforce the removal of claims stating '100% fruit juices' arises from several concerns:

- **Misleading Marketing Practices:** FSSAI has observed various inaccuracies in the labelling of reconstituted fruit juices as 100% fruit juices, which could mislead consumers.
- **Regulatory Assessment:** Upon evaluation, it was determined that such claims are misleading, especially when water is the major ingredient or when the juice is reconstituted using water and fruit concentrates. This misrepresentation undermines consumer trust and transparency in the food industry.

About Food Safety and Standards Authority of India (FSSAI)

- The FSSAI is an autonomous body under the Ministry of Health & Family Welfare, Government of India, established in 2006.
- It plays a pivotal role in safeguarding public health through the regulation and supervision of food safety.
- The functions of FSSAI encompass setting standards, licensing and registration, inspections and monitoring, awareness and education, and research and development.

Health Awareness Initiatives by FSSAI

- **"Heart Attack Rewind":** A campaign aimed at eliminating transfat from India by 2022.
- **FSSAI-CHIFSS Collaboration:** Partnership for enhancing food safety through collaborations between industry, scientific community, and academia.
- **State Food Safety Index (SFSI):** Evaluation of states' performance on key food safety parameters to drive improvement.
- **Eat Right India Movement:** A nationwide initiative to ensure safe, healthy, and sustainable food for all citizens.
- **Eat Right Station Certification:** Certification for railway stations meeting food safety benchmarks, ensuring the provision of safe and wholesome food to passengers.

Mission TRISHNA

Why is it in the news?

- The recent announcement from the Indian Space Research Organisation (ISRO) unveiled the specifics of the collaborative Indo-FrenchThermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) Mission.

About TRISHNA Mission

- Jointly undertaken by ISRO and the French National Space Agency CNES, this initiative is designed to provide detailed monitoring of Earth's surface temperature, emissivity, biophysical properties, and radiation variables at a high spatial and temporal resolution for regional to global scale energy budgeting.

Mission Objectives:

- Conducting thorough assessments of the energy and water cycles in terrestrial ecosystems to quantify water stress, water usage, and offering high-resolution observations of water dynamics and quality in coastal and inland waters.
- Addressing key challenges related to water and food security by focusing on the impacts of human-induced climate change and promoting efficient water resource management through monitoring evapotranspiration.
- Facilitating a comprehensive evaluation of urban heat islands, identification of thermal irregularities associated with volcanic activities and geothermal resources, and precise monitoring of glacier dynamics and snow-melt runoff.
- Providing essential data on aerosol optical depth, atmospheric water vapor, and cloud coverage.
- Aid in climate monitoring by tracking essential indicators like droughts, permafrost transformations, and evapotranspiration rates.

Importance of Nuclear Techniques in Establishing Global Food Standards

Why is it in the news?

- The Director-General of the Food and Agriculture Organization of the United Nations (FAO) emphasized the critical role that nuclear technologies can play in the establishment of science-based food standards.

Significance of Nuclear Techniques in Defining Global Food Standards

- **Detection of Pathogens:** Technologies like polymerase chain reaction (PCR) and radiolabeled probes are utilized to identify and classify pathogens in food.
- **Addressing Antimicrobial Resistance (AMR):** Through stable isotope and molecular/genomic methodologies, potential antimicrobial resistance in farm animal environment samples can be detected.
- **Ensuring Food Quality and Safety:** Nuclear techniques employing gamma rays, electron beams, and X-rays aid in reducing pathogens and prolonging the shelf life of food products.
- **Phytosanitary Applications:** Irradiation fulfills pest quarantine regulations, establishing standards for international trade by guaranteeing that agricultural products are free of pests without the need for chemical treatments.
- **Validation of Origin and Authenticity:** Techniques such as Stable Isotope Ratio Analysis (SIRA) and trace element analysis verify the geographical origin and production methods of food.
- **Testing and Traceability:** Nuclear techniques deliver swift, on-site screening tests for contaminants and methods to trace the source of contaminated products.

Key Benefits

- **Certification and Labeling Programs:** Support transparency and consumer trust by certifying and labeling genuine food products.
- **Phytosanitary Applications:** Aid in meeting international pest quarantine standards by sterilizing pests in agricultural products without resorting to chemical treatments.
- **Enhanced Laboratory Capabilities:** Nuclear techniques enhance laboratory capabilities to detect and respond to evolving contamination patterns resulting from climate change, setting the stage for robust food safety measures.

Utilization of Radiation Technologies in India

- Two technology demonstration plants were established based on R&D conducted at Bhabha Atomic Research Centre (BARC):
- The first, known as KRUSHAK in Lasalgaon, Nashik, Maharashtra, focuses on low-dose radiation treatment for sprout inhibition and quarantine treatment of fresh produce like mangoes.
- The second, located in Vashi, Navi Mumbai, Maharashtra (Radiation Processing Plant, RPP), concentrates on high-dose irradiation for microbial decontamination of products such as spices, herbal items, and pet food.

Future Prospects

- Nuclear technologies provide competitive and often distinctive solutions to address hunger, reduce malnutrition, promote environmental sustainability, and ensure food safety and authenticity.
- The Food and Agriculture Organization (FAO) and the International Atomic Energy Agency (IAEA) maintain a strategic partnership to assist member countries in the safe and effective utilization of these technologies.
- Nuclear techniques are also instrumental in formulating protocols and collaborating with Co-dex Alimentarius, the global body responsible for defining food standards.

India to be a part of the First 'High-Altitude Platform Coalition'

Why is it in the news?

- India is set to join an exclusive group of nations that possess their own advanced, long-endurance High-Altitude Platforms (HAPs).

Understanding HAPs

- HAPs represent autonomous aerial vehicles flying at altitudes ranging from 18-20 km, surpassing air traffic and atmospheric conditions, and capable of prolonged flight compared to drones.
- The National Aerospace Laboratories (NAL) is developing a HAP intended to remain airborne for up to 90 days.
- Primarily used for surveillance and earth imaging purposes, catering to both civilian and strategic needs.
- While satellites excel in offering diverse functionalities and extended operational durations, HAPs are designed to complement satellites rather than substitute them.
- Unlike satellites relying on gravitational forces for orbital flight, a HAP necessitates a propulsion system along with self-sufficient energy production capabilities.

Significance

- HAPs serve as supremely effective tools for communication and surveillance owing to their extended atmospheric presence and high-altitude capabilities, second only to satellites.
- In addition to being cost-effective alternatives to satellites, HAPs boast additional advantages such as multi-purpose usage and potential for mission payload maintenance or upgrades.
- Employing techniques akin to space vehicles, including solar energy utilization and cutting-edge materials and technologies, HAPs are engineered to withstand the challenges of near-space environments.

PREFIRE Mission

Why is it in the news?

- Recently, NASA effectively sent the "Ready, Aim, PREFIRE" climate satellite into orbit to investigate heat emissions in Earth's polar regions.

More about the news

- The PREFIRE initiative signifies "Polar Radiant Energy in the Far-InfraRed Experiment".
- It involves a duo of small CubeSats, each containing a Thermal Infrared Spectrometer designed to detect

far-infrared radiation from Earth's coldest and most secluded areas.

- The currently launched satellite is one of the duo of climate satellites encompassing the PRE-FIRE mission. The other, named "PREFIRE and ICE," is scheduled for launch soon.
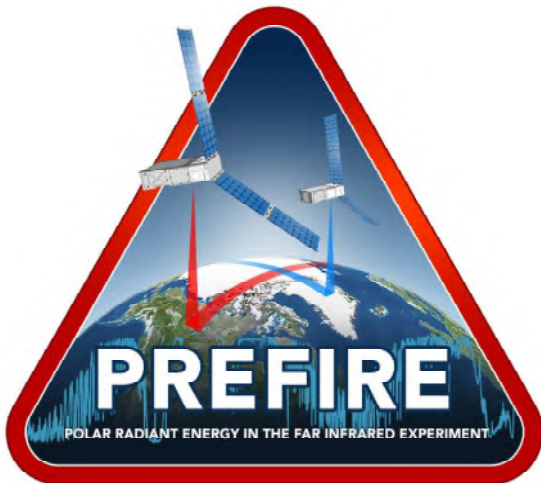
Significance

- The findings from PREFIRE will enhance our understanding of Earth's heat equilibrium, aiding in the forecast of forthcoming alterations in ice, oceans, and climate due to global warming.

- The initiative specifically targets far-infrared radiation emitted from the Arctic and Antarctica, which is not currently thoroughly monitored.

2025 Declared International Year of Quantum Science and Tech

Why is it in the news?

- The year 2025 has been designated by the United Nations as the International Year of Quantum Science and Technology.

- Quantum Science and Technology involves the exploration and usage of the principles of quantum mechanics that govern the behaviour of matter and energy at atomic and subatomic scales.

Key concepts in quantum mechanics:

- **Wave-particle duality:** Objects at extremely small scales exhibit characteristics of both particles and waves.

- **Quantum superposition:** Objects or systems can exist in multiple states simultaneously until observation.

- **Entanglement:** Two particles can be connected in a unique way, affecting each other regardless of distance.

- **Uncertainty Principle:** It is impossible to know both the position and speed of a particle with absolute precision at the same time.

Applications of quantum technologies:

- **Industry and infrastructure:** Quantum communication drives technological advancements and secures financial networks.

- **Health and well-being:** Quantum photonics enhances medical imaging, while Quantum chemistry aids in developing new medical treatments.

- **Climate action:** Quantum technologies contribute to more energy-efficient solar cells, low-emission LED lighting, and improved climate models.

In India, initiatives in Quantum Technology include:

- **National Quantum Mission (2023):** Setting the foundation for scientific and industrial R&D in Quantum Technology.

- **Quantum Enabled Science & Technology (QuEST):** A research initiative aimed at enhancing quantum capabilities.

- **Quantum Computing Applications Lab (QCAL):** Focused on advancing quantum computing research and enabling new scientific breakthroughs.

Carbon Fiber and Prepregs Center

Why is it in the news?

- The inauguration of the National Aerospace Laboratories' Carbon Fiber and Prepregs Center was led by the Vice President during his visit to the National Aerospace Laboratories.

About National Aerospace Laboratories' Carbon Fiber and Prepregs Center

- Established by the National Aerospace Laboratories (NAL) in Bengaluru, India.

- The center is dedicated to the development and production of carbon fiber, a lightweight, high-strength material utilized in industries like aerospace, automotive, and renewable energy.

- Its objective is to reduce India's reliance on imported carbon fiber, drive innovation in composite materials, and bolster the growth of various sectors.

More about Prepregs & Carbon Fibers:

- Prepregs are composite laminates of fiber sheets infused with uncured polymer resins.
- Carbon fibers are manufactured through the thermal conversion of organic fibers with lower carbon content, such as polyacrylonitrile (PAN), comprising several thousand filaments.
- Carbon fiber is a material known for its high strength, stiffness, and light weight, extensively employed in aircraft, missiles, launch vehicles, and satellites. It also serves as a crucial raw material in diverse industrial applications like wind energy, infrastructure, sports, and transportation.

IISc Creates Sustainable Solution for Removing Toxic Heavy Metals

Why is it in the news?

- Scientists based at the Indian Institute of Science (IISc) in Bengaluru have developed a sustainable three-step technique to eradicate toxic heavy metals like arsenic from contaminated groundwater.

Key Highlights of the Method:

- The innovative technique has been crafted by researchers at IISc's Centre for Sustainable Technologies (CST).
- The primary goal is to eliminate heavy metals and guarantee safe disposal to prevent recontamination of the environment.
- The novel remediation process consists of three crucial steps:

  1) **Adsorption:** Contaminated water passes through a chitosan-based adsorbent infused with iron and aluminium compounds, trapping inorganic arsenic with electrostatic forces. The system recycles the alkaline wash used to rejuvenate the adsorbent bed.

  2) **Membrane Separation:** A membrane process isolates arsenic from the alkaline wash solution, concentrating the toxic metal for subsequent treatment.

  3) **Bioremediation:** Microbes present in cow dung convert highly toxic inorganic arsenic into less harmful organic forms through methylation. The resulting cow dung sludge containing organic arsenic can be disposed of safely in landfills.
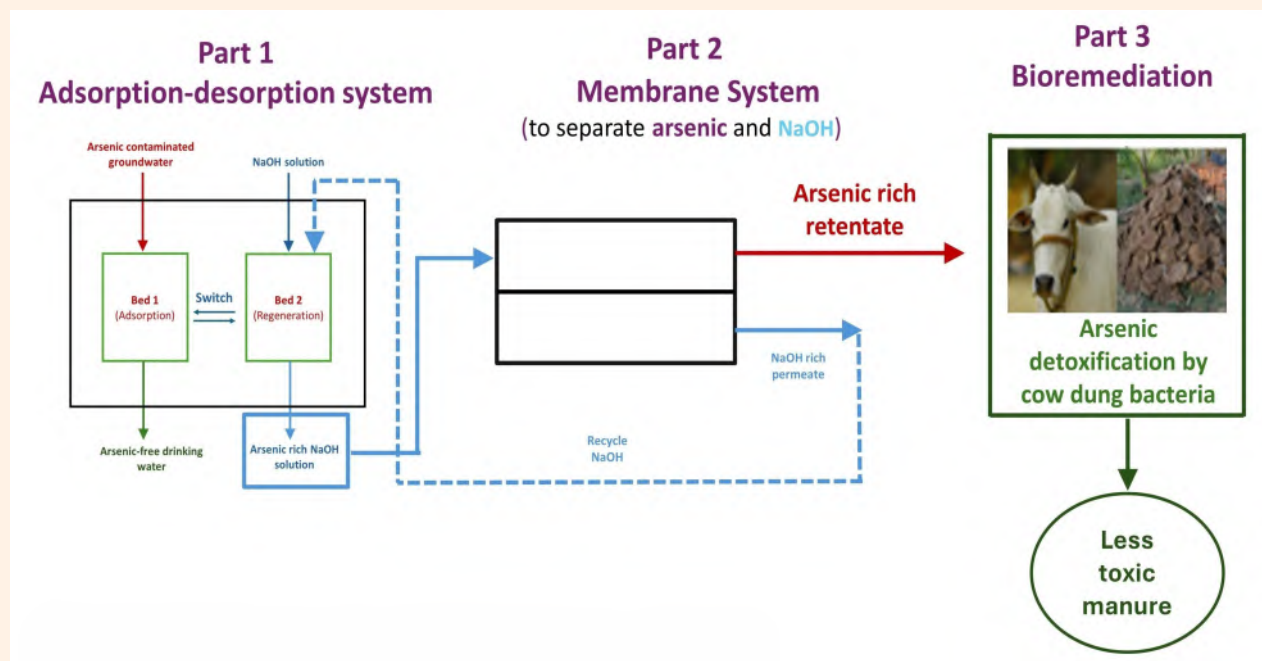
Noteworthy benefits of the method :

- **Reduced Toxicity:** Organic arsenic species are about 50 times less toxic compared to inorganic forms.
- **Ease of Assembly and Operation:** The system is straightforward to assemble and operate, making it suitable for community-level implementation and maintenance by local residents.
- Researchers anticipate that their cost-effective and sustainable solution could be expanded to combat arsenic contamination nationwide with adequate financial backing.

Understanding Arsenic: A Hazardous Substance

- Arsenic occurs naturally in the earth's crust and is prevalent in the environment, including air, water, and land, posing serious health risks in its inorganic state.
- Human exposure to elevated levels of inorganic arsenic is primarily through consuming contaminated water, using it in food preparation, and irrigating crops.
- Prolonged consumption of arsenic-contaminated water can lead to arsenic poisoning or arsenicosis, resulting in severe health issues such as skin, bladder, kidney, or lung cancers, and various skin and vascular diseases.
- In India, states like West Bengal, Jharkhand, Bihar, Uttar Pradesh, Assam, Manipur, and Chhattisgarh are significantly impacted by groundwater arsenic contamination exceeding permissible levels.

'Doordarshan': Embracing Artificial Intelligence

Why is it in the news?

- DD Kisan recently introduced two AI anchors, AI Krish and AI Bhoomi, capable of conversing in fifty different languages.

About AI Anchors (Krish and Bhoomi):

- DD Kisan, the government-backed TV channel, is pioneering the use of AI anchors in India.
- Designed to cater to the needs of farmers nationwide, from Kashmir to Tamil Nadu and Gujarat to Arunachal Pradesh, AI Krish and AI Bhoomi serve as virtual news anchors.

- The AI anchors, working endlessly without fatigue, aim to provide vital information to the farming community.

Main Features of AI Anchors:

- **Human-like Interaction:** AI Krish and AI Bhoomi emulate human news anchors by delivering news updates and engaging with viewers.
- **Multilingual Capability:** These anchors are proficient in fifty languages, ensuring that farmers can access essential information irrespective of their language.
- **Continuous Service:** Unlike their human counterparts, AI Krish and AI Bhoomi can provide uninterrupted coverage on agricultural research, market trends, weather updates, and government initiatives, ensuring that farmers remain well-informed.

Expansion of Digi Yatra Initiative

Why is it in the news?

- The CEO of Digi Yatra Foundation stated that the facial-recognition technology of Digi Yatra could be expanded beyond airports to hotels and public places like historical monuments.
- A prototype has been developed for implementing Digi Yatra at hotels and other public places, with ongoing discussions with government agencies, including the Ministry of Tourism.
- The aim is to create a comprehensive travel stack to facilitate seamless movement across India, enhancing the overall travel experience for tourists.

More about the news

- Digi Yatra could potentially streamline processes like hotel check-ins and verifications at public places, eliminating the need for producing physical identity documents.
- Extending Digi Yatra to hotels and public places aims to prevent data leakage, as the system does not store personally identifiable information.
- The Digi Yatra Central Ecosystem stores only a hash value or numerical identifier to maintain security and confidentiality of passengers' data.

- Digi Yatra is a digital processing system using biometrics like facial scans instead of boarding passes for paperless movement through airport checkpoints.
- Implemented in 14 airports by December 2022, with plans to expand to 15 more airports by the end of 2024.
- Original aim was to enhance passenger throughput at airports, but the initiative's potential role has expanded to include non-air travel sectors.

Is the EU's proposed Chat Control law compromising online privacy?

Why is it in the news?

- The EU's Chat Control law has become a source of controversy within the member states of the bloc.
- Initially introduced by the European Commissioner for Home Affairs, Ylva Johansson, in May 2022 as part of the bloc's efforts to combat online child sexual abuse, the bill's framework has faced criticism and has been mockingly dubbed "Chat Control."

More about the news

- Countries like France, Germany, and Poland have strongly opposed a provision in the law that permits the mass scanning of private messages by circumventing end-to-end encryption. This stance has been supported by several tech companies, trade associations, and privacy experts who all stand against this regulation.
- On the other hand, the Interior Ministers of Spain and Ireland have expressed their backing for the proposal.
- Meanwhile, a coalition of organizations and individuals advocating for children's rights in Europe has criticized EU leaders for their failure to address child sexual abuse on the internet.

Concerns opposing the proposal

- The issue of scanning end-to-end encrypted messages remains contentious due to the inevitable creation of vulnerable backdoors that could be exploited by third parties, thus compromising the integrity of end-to-end encryption.
- Tech companies that have attempted bypassing encryption have often faced backlash. For instance,

in 2021, Apple introduced NeuralHash, a feature capable of scanning iCloud photo libraries for child sexual abuse material. However, due to concerns raised by employees and activist groups regarding privacy implications, Apple eventually abandoned the initiative.

- Furthermore, there is a looming concern that authoritarian governments could potentially misuse such features to target dissenting individuals. Apple recognized this risk, emphasizing the unintended consequences and potential for widespread surveillance.
- While the UK's Online Safety Bill proposed a similar clause for scanning private and encrypted messages, the plan was met with resistance from encrypted messaging app providers like WhatsApp and Signal. In the final stages, the House of Lords delayed the implementation of such scanning until its technical feasibility was assured.

The Current status of the EU's Chat Control law

- A revised draft of the proposal, set to be reviewed on June 30, no longer includes the scanning of text messages and audio. Instead, the focus is now on monitoring shared photos, videos, and URLs in response to critics' concerns.
- Additionally, a new modification involving obtaining user consent before scanning shared content is being considered. However, this compromise has been heavily criticized as users who refuse scanning may be restricted from sending or receiving certain content without a true choice.
- Despite these adjustments, there have been exemptions to these regulations in the EU's enforcement. A temporary derogation of the E-Privacy Directive against child sexual abuse material was proposed in November 2023, allowing certain online service providers to monitor messages to detect and remove harmful content. However, plans for further extensions of this regulation have faced delays, raising questions about the effectiveness of these measures.

Conclusion

- Critics like Meredith Whittaker, President of Signal app, have labeled these modifications as "superficial"

and have expressed concerns about undermining end-to-end encryption.

- Furthermore, a joint statement signed by over 60 organizations emphasizes the potential implications of these regulations on government surveillance beyond the EU.

Claude 3.5 Sonnet

Why is it in the news?

- Anthropic, the main rival of OpenAI, has unveiled its newest AI model named Claude 3.5 Sonnet, marking the initial release in the impending Claude 3.5 AI model series.

- Claiming superiority over competitors like OpenAI's GPT-4o, Google's Gemini-1.5 Pro, Meta's Llama-400b, as well as Anthropic's own proprietary models - Claude 3 Haiku and Claude 3 Opus - Claude 3.5 Sonnet is hailed for its enhanced performance metrics and affordability.

- Renowned for its accelerated speed compared to Claude 3 Opus, Anthropic asserts that Claude 3.5 Sonnet is well-suited for intricate tasks such as tailored customer support and managing intricate workflows.

Claude 3.5 Sonnet

About:

- Claude 3.5 Sonnet, part of the lineage of Large Language Models (LLMs) developed by Anthropic, is categorized as a generative pre-trained transformer model.

- Positioned as the sequel to the March-introduced Claude 3 Sonnet, Claude 3.5 Sonnet is anticipated to function as the intermediate model within Anthropic's forthcoming AI model series, with the smallest and largest models yet to debut.

- Anthropic's claim of Claude 3.5 Sonnet surpassing Claude 3 Opus significantly is substantiated by the accolade that the novel model operates at double the speed of Claude 3 Sonnet.

Performance:

- Anthropic asserts that Claude 3.5 Sonnet has erected novel industry standards in coding proficiency (HumanEval), graduate-level reasoning (GPQA), and undergraduate-level knowledge (MMLU).

- The model exhibits marked improvements in discerning subtleties, humor, and convoluted instructions.

- Distinguished for its adeptness in producing premium content with a realistic and engaging demeanor, Claude 3.5 Sonnet is positioned favorably according to Anthropic.

- Emboldened by the benchmark evaluations disclosed on Anthropic's official platform, Claude 3.5 Sonnet notably outperforms GPT-4o, Gemini 1.5 Pro, and Meta's Llama 3 400B in seven of eight overall benchmarks.

Vision capabilities:

- Anthropic states that Claude 3.5 Sonnet is their most powerful vision model. In AI, a vision model can interpret and analyze visual data like images and videos.

- The company asserts that the enhancements in Claude 3.5 Sonnet are most prominent in tasks involving visual reasoning, such as analyzing charts and graphs.

- The model can accurately transcribe text from imperfect images. For instance, a random photo using Claude's iOS app was taken and inquired about the location. The model promptly identified the location by reading a poster and text on a distant wall.

- This transcription capability is what makes Claude 3.5 Sonnet valuable for industries like retail, logistics, and financial services, where AI relies on insights derived from images, graphics, or illustrations more than text, as per Anthropic.

4 ENVIRONMENT AND BIODIVERSITY

Two bird sanctuaries of Bihar added to Ramsar List

Why is it in the news?

- Nagi and Nakti bird sanctuaries in Bihar have recently been added to the prestigious global list of wetlands of international importance under the Ramsar Convention, elevating India's total Ramsar sites to 82.

About Nagi-Nakti Wetlands

- Situated within Bihar's Jamui district, nestled in the Jhajha forest range.
- These wetlands were man-made reservoirs primarily constructed for irrigation purposes through the building of dams.
- They provide a rich biodiversity, accommodating over 150 species of birds, mammals, fish, aquatic plants, reptiles, and amphibians.

Nakti Bird Sanctuary

- Initially developed for irrigation by constructing the Nakti dam. Recognized as a bird sanctuary in 1984 due to its vital role as a wintering habitat for migratory species.
- During winter, it hosts a significant population of birds, including one of the largest congregations of red-crested pochard in the Indo-Gangetic plain.

Nagi Bird Sanctuary

- Emerged from the damming of the Nagi River, leading to the gradual formation of water bodies.
- Home to a diverse array of wildlife, supporting over 75 bird species, 33 fish species, and 12 aquatic plant species. Particularly notable for hosting one of the largest congregations of bar-headed geese in the Indo-Gangetic plain.

Nagi and Nakti bird Sanctuaries

Ecological Significance :

- **Migratory Bird Haven:** Serve as critical wintering grounds for numerous migratory bird species, attracting over 20,000 birds during the colder months.
- **Species Diversity:** Enriched with a wide variety of flora and fauna, including various bird, fish, and aquatic plant species.
- **Bar-headed Geese Congregation:** Notably, these wetlands are renowned for hosting one of the largest gatherings of bar-headed geese in the region, underscoring their significance as crucial migratory bird habitats.

Global Temperature Crosses Critical 1.5°C Threshold

Why is it in the news?

- Recently, Europe's Copernicus Climate Change Service (C3S) has revealed that the month of May 2024 marked the highest temperatures ever recorded, suggesting a concerning trend in global warming.

- Moreover, there is a significant 80% probability that the global temperature will surpass the critical 1.5-degree Celsius threshold within the next five years.

Insights into the Current Climate Conditions

- The month of May 2024 recorded the highest temperatures on record, with the preceding 12 months consistently setting new records for warmth.

- Last month's average global temperature soared to 1.5°C above the pre-industrial reference period of 1850-1900. Over the period from June 2023 to May 2024, the average temperature rose to 1.63°C above this reference level.

- The World Meteorological Organization (WMO) anticipates an 80% likelihood that at least one year between 2024 and 2028 will observe average temperatures surpassing the 1.5°C threshold above pre-industrial levels.

Insights on the 1.5 Degree Celsius Limit

- The 2015 Paris Agreement, endorsed by 195 nations, aims to restrict global temperature increases to "well below" 2°C above pre-industrial levels, with an ambitious target of capping warming at 1.5°C.

- Climate experts commonly use the period from 1850 to 1900 as the benchmark for assessing temperature rises.

- Breaching the 1.5°C threshold poses significant risks to certain regions and vulnerable ecosystems over prolonged periods.

- The 1.5°C threshold is established to prevent the catastrophic and irreversible consequences of climate change, which intensify significantly at a 2°C warming level.

Ramifications of Surpassing the Threshold

- Exceeding 1.5°C does not immediately trigger a climate catastrophe but notably elevates the likelihood and severity of adverse outcomes like sea level rise, severe floods, droughts, and wildfires.

- The world is already witnessing severe heatwaves, coral bleaching, and other climate-related incidents exacerbated by escalating temperatures.

- Recently, North and Central India experienced a scorching heatwave with temperatures nearing 50°C, attributed to global warming.

- Elevated ocean temperatures led to the fourth global mass coral bleaching event, adversely impacting marine ecosystems and human communities dependent on reefs.

- Warming is encroaching upon five crucial climate tipping points, creating the risk of irreversible transformations in the environment.

India's Environmental State

Why is it in the news?

- Recently, the Center for Science and Environment (CSE) published the 2024 Overview of India's Environmental Situation in Numbers.

About India's Climate Trends in 2023 and 2024

- In 2023, India encountered its second-hottest year on record. Over 102 weather stations nationwide broke their highest 24-hour maximum temperature records in 122 years.

- Ten of these stations were situated in cities with populations exceeding one million. Twenty-seven stations in Andhra Pradesh, Kerala, and Tamil Nadu recorded record-breaking temperatures.

- The nation observed its highest minimum temperature in 122 years in 2023. Apart from October, minimum temperatures in the remaining five months consistently exceeded normal levels.

- Anomalies rose from 0.57°C in July to 1.71°C in December. December reported the greatest minimum temperature anomaly in 122 years (1.71°C above normal).

- The average minimum temperature in the southern peninsular region surpassed normal levels throughout all four months. The region consistently registered its second highest minimum temperature in 122 years.

- The data implies a new normal for minimum temperatures, pointing towards warmer nights.

- Escalating maximum temperatures and record-breaking warmth in Delhi and other states are concerning. The persisting pattern in minimum temperatures underscores the transition towards warmer nights.

46th Antarctic Treaty Consultative Meeting

Why is it in the news?

- India successfully hosted the 46th Antarctic Treaty Consultative Meeting (ATCM-46) and the 26th Committee on Environmental Protection (CEP-26).

More about the news

- The Ministry of Earth Sciences, in collaboration with the National Centre for Polar and Ocean Research (NCPOR) in Goa, orchestrated the ATCM-46 and CEP-26 with assistance from the Antarctic Treaty Secretariat based in Argentina.
- ATCM-46 was centered around the theme of "Vasudhaiva Kutumbakam," emphasizing the unity of Earth as one family and one future.
- The meeting saw the reaffirmation of the Antarctic Treaty (1959) and the Protocol on Environmental Protection to the Antarctic Treaty (the Madrid Protocol, 1991) by all participating Parties.

Further Insights

- The ATCM and CEP serve as critical global platforms for annual discussions on Antarctic matters, fostering collaborative efforts to safeguard the pristine Antarctic environment.
- A special working group delved into crafting a framework for sustainable tourism in Antarctica.
- Responding to CEP recommendations, the Parties approved 17 revised and new management plans for Antarctic Specially Protected Areas (ASPAs).

- The ATCM pushed for the promotion of renewable energy usage and robust biosecurity measures to combat potential risks like Highly Pathogenic Avian Influenza.

Antarctica's Research Significance

- **Climate Change and Global Warming:** Research in Antarctica is pivotal for understanding climate dynamics, including ice melting, sea level rise, and broader effects on the planet's polar regions.
- **Ozone Layer Depletion:** Scientists in Antarctica monitor ozone layer recovery and gauge the effectiveness of international agreements like the Montreal Protocol in curtailing ozone-depleting substances.
- **Space Analog:** Antarctica's extreme conditions make it an ideal setting for simulating challenges that may arise in future space explorations, akin to missions to Mars.
- **Scientific Discoveries:** Antarctica offers a unique domain for discovering ancient organisms, meteorites, and insights into Earth's geological evolution.

India's Engagement with Antarctica :

- **Antarctic Treaty:** Encompassing the region below 60°S latitude, the treaty, signed in 1959 at Washington D.C., aims at demilitarizing Antarctica. India became a signatory in 1983.
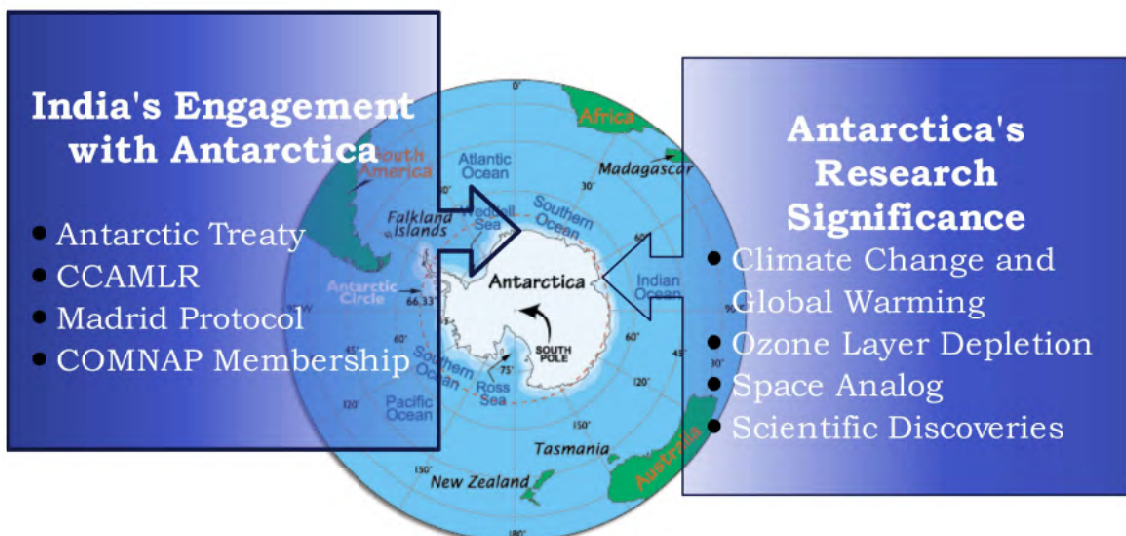
- **CCAMLR:** The Convention on the Conservation of Antarctic Marine Living Resources, signed in Canberra in 1980, works towards safeguarding the Antarctic environment and marine living resources, with India ratifying it in 1985.
- **Madrid Protocol:** Signed in Madrid in 1991, this protocol reinforces the Antarctic Treaty system and establishes a comprehensive regime for preserving the Antarctic environment. India ratified the Madrid Protocol in 1998.
- **COMNAP Membership:** India's presence in the Council of Managers of the National Antarctic Programme (COMNAP) and the Scientific Committee of Antarctica Research (SCAR) underscores its significant role in Antarctic scientific endeavors.

About Antarctica

- Antarctica stands as the world's southernmost and fifth largest continent, noted for its extreme climatic conditions. It comprises East and West Antarctica, separated by the Transantarctic Mountains.
- East Antarctica features older, igneous rocks, whereas West Antarctica consists of younger volcanic and sedimentary formations.
- Mount Erebus, situated on Ross Island, represents the world's southernmost active volcano.
- The Longest River on the continent is Onyx, and the Largest Lake is Vostok.

EarthCARE Mission

Why is it in the news?
- The EarthCARE Mission was recently launched to investigate the impact of clouds on the climate.

More about the news
- The EarthCARE (Cloud, Aerosol and Radiation Explorer) mission aims to enhance our understanding of how clouds and aerosols influence the reflection of solar radiation and the retention of infrared radiation emitted from Earth's surface.
- This mission is a collaboration between the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA).

Instruments Utilized in EarthCARE
- The Atmospheric Lidar (ATLID) offers vertical profiles of aerosols and thin clouds at a 355 nm wavelength.
- The Cloud Profiling Radar (CPR) provides vertical cloud profile data and assesses vertical cloud particle velocities using Doppler measurements at a frequency of 94GHz.
- The Multi-Spectral Imager (MSI), integrated into EarthCARE, delivers cloud and aerosol information across different wavelengths including visible, near-infrared, shortwave, and thermal infrared.
- The Broad-Band Radiometer (BBR) measures top-of-the-atmosphere radiance and fluxes.

Gandhi Sagar Wildlife Sanctuary

Why is it in the news?
- The Madhya Pradesh government has finalized the arrangements for its ambitious cheetah reintroduction project at Gandhi Sagar Wildlife Sanctuary.
- This sanctuary is set to become the second home for cheetahs in India, following Kuno National Park.

About Gandhi Sagar Wildlife Sanctuary:
- Gandhi Sagar Wildlife Sanctuary is situated on the western border of the Malwa plateaus, adjacent to the banks of the majestic Chambal River.
- With a total area of 368.62 sq. km, the sanctuary spans across Mandsaur and Neemuch districts.
- Its northern boundary aligns with the interstate boundary of Madhya Pradesh and Rajasthan.
- The sanctuary is renowned for hosting rare wildlife species like Wild Dogs (Dholes), Chinkara, Leopard, Otter, and Mugger crocodile.

Critical Tiger Habitat (CTH)

Why is it in the news?
- In a recent development, the Supreme Court has issued a directive to the Rajasthan government to shut down 68 mines located within a one-kilometer radius of the critical tiger habitat (CTH) of the Sariska reserve.

Understanding Critical Tiger Habitat (CTH):
- Designated as specific zones within National Parks and Sanctuaries under the Wild Life Protection Act (WLPA) of 1972, Critical Wildlife Habitats (CWLHs)

are essential for wildlife conservation, particularly for protecting tiger populations.

- These areas are carefully identified to serve as inviolate zones exclusively dedicated to tiger conservation, ensuring that the rights of Scheduled Tribes and other forest dwellers are safe guarded.

CWLHs consist of two primary components within a tiger reserve:

- **Core or Critical Tiger Habitat:** This region with National Park or Sanctuary status is crucial for the survival and thriving of tigers.
- **Buffer or Peripheral Area:** Encompassing the core habitat, this zone provides supplementary support for tiger conservation efforts.
- The core habitat is specifically designated to secure the longterm sustainability of tiger populations while upholding the rights of Scheduled Tribes and other forest dwellers.
- Recognizing the territorial nature of tigers, the core habitat is distinct from the broader "critical wildlife habitat" applicable to other wildlife species.

Goals and Criteria for CWLHs:

- The identification of CWLHs is a meticulous scientific undertaking carried out in a case-by-case manner, involving collaboration between Forest Departments and scientific institutions.
- The declaration of CWLHs entails resolving the rights of tribals and other traditional forest dwellers as a primary step.

The notification of CTH is executed by the state government in consultation with an expert committee established for this specific purpose.

GSAP SKILLS Platform

Why is it in the news?
- The Global Species Action Plan (GSAP) SKILLS Platform was officially unveiled during the Fourth meeting of the Subsidiary Body on Implementation, Convention on Biological Diversity.

About GSAP SKILLS Platform:
- The GSAP SKILLS platform brings the content of GSAP online, enabling real-time updates of technical tools and resources for species conservation.
- It aims to foster global collaboration and partnerships by connecting decision makers, species conservation practitioners, and experts at various levels.
- It provides real-time updates on technical tools to ensure accessibility and relevance. Each Global Biodiversity Framework target includes a brief summary of species conservation interventions, actions, and resources, aiding in the scaling-up of implementation efforts.
- Proactively managed by IUCN, the platform caters to the needs of governments and stake-holders involved in species conservation actions. Additionally, it receives support from the Ministry of Environment, Republic of Korea, and the Tech4Nature Initiative launched by IUCN and Huawei in 2020.

About Global Species Action Plan (GSAP):

- The Global Species Action Plan (GSAP) supports the implementation of the Kunming-Montreal Global Biodiversity Framework (GBF) and addresses the global biodiversity loss issue.
- It details actions required to effectively preserve and sustainably use wild species.
- The GSAP incorporates strategies like incorporating species data into spatial planning and developing wildlife corridors to aid animal migration.
- The primary objective of GSAP is to strategize interventions for conserving and managing species sustainably, ensuring fair benefits distribution.

INCOIS's new product to forecast El Niño and La Niña conditions

Why is it in the news?

- Indian National Center for Ocean Information Services (INCOIS), based in Hyderabad, has introduced a novel tool called the Bayesian Convolutional Neural Network (BCNN) to forecast El Niño and La Niña conditions up to 15 months in advance.

- The June 5 bulletin predicts a 70-90% probability of La Niña conditions from July to September, persisting until February 2025.

ENSO

- ENSO refers to a climate phenomenon involving temperature changes in the central and eastern tropical Pacific Ocean, affecting global weather patterns with its warm (El Nino), cool (La Nina), and neutral phases.

About BCNN :

- The BCNN utilizes Artificial Intelligence (AI), deep learning, and machine learning (ML) technologies to enhance ENSO phase predictions.

- It calculates the Niño3.4 index value, derived from sea surface temperature anomalies in specific equatorial regions, to generate forecasts.

- BCNN combines dynamic modelling with AI, providing more accurate forecasts compared to traditional statistical and dynamic models.

- BCNN can predict El Niño and La Niña emergence up to 15 months ahead, surpassing the 6 to 9-month forecasts of other models.

Pacific Ocean cleared of El Nino Conditions: NOAA

Why is it in the news?

- The National Ocean and Atmospheric Administration (NOAA) confirmed the end of El Nino conditions that have been present since mid-2023.

- These conditions have now transitioned to the El Nino Southern Oscillation (ENSO) neutral phase.

ENSO

- ENSO is a recurring climate pattern characterized by changes in sea surface temperatures in the central and eastern tropical Pacific Ocean.

- The cycle occurs irregularly every 2 to 7 years.

- **It includes extreme phases:** El Nino (warm phase), La Nina (cold phase), and a neutral phase between them.

- During ENSO Neutral Phase, sea surface temperatures in the tropical Pacific are near average.

About El Nino

- El Nino, meaning "the Christ Child," involves warming of ocean surface temperatures in the central and eastern tropical Pacific Ocean.

Key Impacts:

- Suppresses rainfall over India during the monsoon season.

- Brings rain to South America and results in droughts in Indonesia and Australia.

About La Nina

- La Nina, referring to "Little Girl," represents the periodic cooling of ocean surface temperatures in the east-central equatorial Pacific.

Key Impacts:

- Opposite effect to El Nino, associated with a strong monsoon, above-average rains, and colder winters in certain regions.

Solid Waste Management Cess

Why is it in the news?

- The Bruhat Bengaluru Mahangara Palike (BBMP) aims to impose a Solid Waste Management (SWM) Cess of ?100 per month per household.

Solid Waste Management in India
Current state:

- India generates 160,038.9 tons of solid waste daily with approximately 95% being efficiently collected (CPCB, 2020-21).

- Around 50% of the collected waste undergoes treatment, while 31.7% remains unaccounted.

Challenges in Solid Waste Management in India:

- **Segregation of Waste:** Inadequate waste segregation at the source increases waste disposal costs.

- **Collection and Transportation:** Lack of waste storage infrastructure and limited door-to-door collection.

- **Disposal and Treatment:** Use of open dumps leading to methane gas emissions, fires, explosions, and global warming.
- **Municipal Finance:** Struggle to generate sufficient revenue and attract private capital due to creditworthiness issues.

- **Applicability:** Rules apply to Municipal areas, urban agglomerations, census towns, and notified industrial townships.
- **Segregation of Waste:** Generators must segregate waste into Biodegradable, Non-biodegradable, and Sanitary/Domestic Hazardous waste.
- **Collection & Disposal of Waste:** Local authorities are responsible for establishing waste collection, transportation, processing, and disposal systems.
- **Recovery and Recycling Facility:** Developers of specific zones need to allocate space for recovery and recycling facilities.

Snow Update for the Hindu Kush Himalaya (HKH) Region

Why is it in the news?
- The International Centre for Integrated Mountain Development (ICIMOD) has recently issued an update on snow conditions in the Hindu Kush Himalaya from 2003 to 2024.
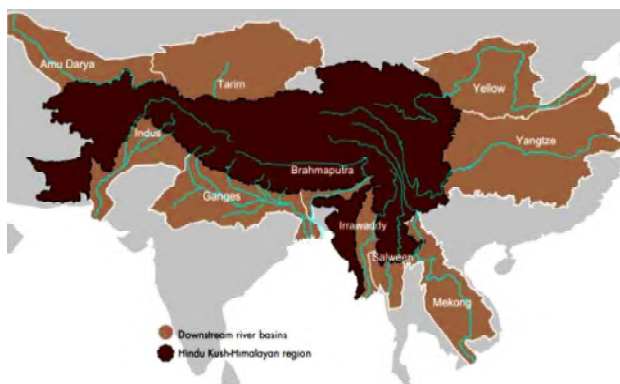
Snow Cover

- Snow cover duration, the time snow remains on the ground, is crucial for sustaining water resources for people and ecosystems.
- Snowmelt in the river basins of the Hindu Kush Himalaya (HKH) is a significant water source, contributing to 23% of the total runoff in the region's 12 major river basins annually.

Overview of the Hindu Kush Himalaya Region
- Spanning over 3,500 km across eight countries, including Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan.
- Known as the "water towers of Asia," as they are the origins of 10 key river systems on the continent, such

as Amu Darya, Indus, Ganga, and others, providing water to a quarter of the global population.
- These river basins supply water to nearly 25% of the global population and serve as a crucial freshwater resource for 240 million individuals in the HKH region.

Current Snow Cover Status
- **Ganga River Basin:** Experienced the lowest snow persistence in 22 years, 17% below the long-term average.
- **Brahmaputra Basin:** Recorded snow persistence 14.6% lower than normal in 2024.
- **Indus river basin:** Snow persistence was 23.3% below normal this year, mitigated by surpluses in lower altitudes.
- **Amu Darya river Basin:** Noted its lowest snow persistence in 2024, 28.2% below the usual levels.
- The Helmand River faced a substantial drop of nearly 32% in snow persistence in 2024, impacting water supply to Iran and Afghanistan.
- Snow cover in the region where the Mekong River originates from the Himalayas was slightly below normal this year.
- **Yellow River basin in China:** Snow persistence exceeded normal levels by 20.2% in 2024.

Reasons Behind Lower Snow Persistence
- Decreased snowfall attributed to weak western disturbances, influenced by erratic sea-surface temperatures in the Mediterranean, Caspian, and Black Seas.
- Climate change and warming are contributing to the instability of this weather pattern.

Way Forward

- Long-term initiatives such as reforestation with native trees can enhance snow retention.
- Implementing improved weather forecasting and early warning systems can help communities brace for water scarcity.
- Enhancing water infrastructure and enacting policies to safeguard snowfall areas are crucial for sustainable change.
- Community engagement in decision-making processes and fostering regional cooperation are essential for enduring solutions to snow sustainability.

Strategic imperative and environment concern in Great Nicobar project

Why is it in the news?

- The Opposition party has raised serious concerns about the Great Nicobar project's implications for the island's indigenous inhabitants and fragile ecosystem.
- They have demanded an immediate suspension of all clearances and a thorough review of the project by relevant parliamentary committees.
- The party views the infra upgrade as a grave threat and argues for a more impartial assessment of its potential impacts on the environment and local communities.

Background

- Great Nicobar Island is home to two national parks, a biosphere reserve, and small populations of the Shompen and Nicobarese tribal peoples.
- The island's proximity to key maritime routes and its strategic location have made it a focal point for development, raising concerns over its environmental and social consequences.
- President Droupadi Murmu's visit to the archipelago highlighted the importance of engaging with indigenous communities and addressing their needs in the development plans.
- The project has faced legal scrutiny and challenges related to forest clearance, environmental impact assessment, and consultation with local tribal councils.

- The National Green Tribunal declined to interfere but called for a high-power committee to review the clearances, underscoring the complexities of balancing development goals with environmental protection and indigenous rights.

Numbers are distance from Port Blair (in km)

Infrastructural Development:

- The proposed project aims to develop Great Nicobar Island through the implementation of a mega infrastructure project.
- It includes the construction of an International Container Transshipment Terminal (ICTT), a greenfield international airport, a township, and a gas and solar-based power plant over 16,610 hectares.
- The project is seen as crucial for the holistic development of Great Nicobar and leverage its strategic location for economic growth.

Strategic Importance:

- Given its location in the Bay of Bengal and the Indian Ocean region, the project holds strategic significance for India.
- This is particularly important due to concerns over the Chinese People's Liberation Army Navy's activities in the region and China's attempts to expand its maritime presence.
- Development on Great Nicobar Island is part of India's broader strategy to enhance its naval presence and surveillance capabilities to counter regional security threats.

Environmental Concerns:

- The project has faced criticism and opposition from various stakeholders, including wildlife biologists, conservationists, and local tribal councils, due to environmental concerns.

- Critics have highlighted potential threats to the local ecosystem, including deforestation, destruction of coral reefs, and impacts on vulnerable species like the Nicobar Megapode bird and leatherback turtles.

- There are also concerns about the project's impact on the indigenous Shompen tribe, their rights, and the ecological balance of the island.

European Commission's anti-dumping duties on Indian Optical Fiber Cable Makers

Why is it in the news?

- In a move on June 14, the European Commission's Directorate General for Trade issued provisional anti-dumping duties on Indian optical fiber cable manufacturers following an investigation that started in November 2023.

- Europacable, representing the industry union of optical fiber cable manufacturers, reported dumping practices from India to the detriment of the European industry.

More about the news

- Optical fiber cables play a crucial role in telecommunications and broadband coverage.

- Europacable observed a significant increase in imports of single-mode optical fiber cables from India, leading to adverse effects on the European industry in terms of sales, pricing, and market share.

- The allegations were based on comparisons between domestic and export prices, indicating significant dumping margins for Indian products. Consequently, the European Commission initiated a proceeding in November 2023 to investigate these claims further.

- The European Commission provisionally levied anti-dumping duties ranging from 8.7% to 11.4% on different Indian cable manufacturers.

- Various companies face different duty rates, with HFCL being the only manufacturer exempt from these measures based on their product quality and relationships with European telecom operators.

- In a previous instance, the European Commission imposed anti-dumping duties on Chinese manufacturers in 2021 following similar complaints from Europacable. This action resulted from observations of unfair competition practices and government subsidies benefiting Chinese producers.

Implications

- Data shows that China was the largest importer of optical fiber cables to the EU, followed by India. The imposed duties could impact European consumers as they seek alternative suppliers.

- The declining exports of optical fiber cables from India underscore the challenges the domestic industry faces, including inventory pile-ups and reduced market share due to dumping practices.

European Union's new Nature Restoration Plan

Why is it in the news?

- The European Union recently approved a comprehensive Nature Restoration Plan aiming to restore ecosystems across the continent.

- This initiative is a vital component of the EU's 2030 biodiversity strategy and aligns with the overarching goals of the European Green Deal.

Some of the Key Inclusions

- The primary objectives of the new law are to facilitate the long-term recovery of diverse and resilient ecosystems, support the EU's climate mitigation and adaptation targets, and fulfill international obligations.

- Currently, 81% of EU habitats are deemed to have a "poor" status, and a significant decline is observed in one out of every three bee and butterfly species.

- The legislation sets ambitious targets for ecosystem recovery, aiming to cover a minimum of 20% of the EU's land and sea areas by 2030 and achieve restoration for all ecosystems by 2050.

- Emphasis will be placed on areas falling under the Natura 2000 network - a collection of 27,000 protected natural sites within the EU.

- Specific targets encompass various ecosystems such as urban, forest, marine, and agricultural landscapes, as well as goals related to pollinating insects and river connectivity.

- Notable objectives include reversing pollinator population decline by 2030, no net loss of urban green spaces, increasing organic carbon stocks, restoring

drained peatlands, and rehabilitating habitats of marine species like dolphins and seabirds.

Key Issues and Challenges

- EU countries are required to submit National Restoration Plans to the European Commission by mid-2026 detailing how they intend to meet these targets. The estimated annual cost for restoring 30% of habitats by 2030 is approximately €8.2 billion.

- However, additional funding will be necessary to address marine and urban ecosystems, alongside areas not covered by the Habitats Directive.

- One of the primary challenges will be securing ample funding for the implementation of the plan. Similar to other conservation efforts globally, financial support is a critical barrier.

- The recent electoral setbacks faced by the European Greens, a political party advocating for environmental protection, may further complicate the task of fulfilling the plan's objectives.

Global Study on Persistent Organic Pollutants (POPs)

Why is it in the news?

- Conducted by the UN Environment Programme (UNEP) and funded by the Global Environment Facility (GEF), a comprehensive global study monitored the status of 30 Persistent Organic Pollutants (POPs) listed under the Stockholm Convention as of 2021.

Key Findings

- Regulatory actions globally since 2004 have led to a decline in the use of 12 POPs.

- The use of DDT (dichloro-diphenyl-trichloroethane), a synthetic insecticide, has decreased by over 70% in human milk samples since 2004.

- High levels of replacement POPs, such as per-and polyfluoroalkyl substances (PFAS), were detected due to their similar properties.

Persistent Organic Pollutants (POPs)
About:

- Chemical substances (carbon-based) that persist in the environment, including pesticides, industrial chemicals, or unwanted by-products of industrial processes. They exhibit resistance to photolytic, biological, and chemical degradation and include examples like Dieldrin, Endrin, and Heptachlor.

Key Properties:

- Typically halogenated with low water solubility.

- Highly lipid-soluble, facilitating bioaccumulation in living organisms.

- Semi-volatile in nature, allowing them to travel long distances in the atmosphere before deposition.

Impact of POPs:

- Linked to cancer, liver damage, decreased fertility, and increased risks of asthma and thyroid disease due to their endocrine disrupting properties.

About Stockholm Convention

- An international legally binding agreement on POPs adopted in 2001 and enforced in 2004.

- India ratified the Stockholm Convention in 2006, and the Ministry of Environment, Forest and Climate Change (MoEFCC) notified the 'Regulation of POP Rules, 2018' under the Environment (Protection) Act, 1986.

- GEF serves as the designated interim financial mechanism for the Convention.

Environmental Flows Monitoring System

Why is it in the news?

- Recently, the Environmental Flows Monitoring System, developed by the National Mission for Clean Ganga (NMCG), was introduced by the Union Ministry of Jal Shakti.

About the Environmental Flows (E-flows) Monitoring System

- This system is a key component of the extensive PRAYAG Portal, enabling real-time analysis and monitoring of water quality in rivers, specifically focusing on the Ganga and its tributaries.

- Its purpose is to empower authorities to oversee river water quality, evaluate project impacts, and strategize future undertakings with enhanced precision and ecological awareness.

- The system strives to analyze both natural factors and human-induced effects on water quality across India's coasts, tackling issues like industrial discharges, urban development, river flow, and agricultural runoff.

- It plays a crucial role in supervising Namami Gange Program activities, which are dedicated to the cleanliness and preservation of the Ganga. This oversight includes monitoring the functionality of Sewage Treatment Plants (STPs) and other infrastructure essential for preserving river well-being.
- The system is in alignment with broader environmental initiatives, such as those carried out by INCOIS, which has introduced a coastal water quality monitoring system.

Environmental Flows (E-flows)

- It refers to the water flow maintained within a river, wetland, or coastal area to sustain eco-systems and their benefits amidst competing water demands and controlled flow modifications aimed at enhancing river health.

Miyawaki Plantation initiative on National Highways

Why is it in the news?

- National Highways Authority of India (NHAI) is set to launch a unique project focusing on establishing Miyawaki plantations on land parcels located near National Highways in different areas.

About Miyawaki Method

- The Miyawaki method, also referred to as Miyawaki plantations, is a distinct ecological restoration and afforestation technique originating from Japan.
- Developed in the 1970s by renowned Japanese botanist and plant ecology expert, Mr. Akira Miyawaki, this approach involves planting indigenous trees, shrubs, and groundcover plants in each square meter.

Advantages:

- The primary goal is to create dense, native, and diverse forests rapidly.
- Through this methodology, trees grow ten times quicker and serve as effective sound and dust barriers. It contributes to enhancing micro-climatic conditions by improving air and soil quality.
- Additionally, it supports biodiversity conservation, accelerates green cover growth, facilitates efficient carbon absorption, assists in soil revitalization, and aids in establishing habitats for local flora and fauna.
- These forests promote groundwater retention and assist in replenishing the groundwater table.

Global Air Quality Report 2024

Why is it in the news?

- The "State of Global Air-2024" report, released by the Health Effects Institute, a US-based research organization in conjunction with United Nations Children's Fund (UNICEF), provides insights on exposures to common air pollutants and their health impacts.
- The report covers data from 1990 to 2021, focusing on pollutants like fine particulate matter, ozone, and nitrogen dioxide.

Key Findings of the Report

- In 2021, air pollution ranked as the second leading cause of death globally, resulting in 8.1 million deaths, following high blood pressure.
- 99% of the world's population resides in areas with unhealthy levels of PM2.5 pollution (particles less than 2.5 μm in diameter).
- Individuals in low- and middle-income countries are exposed to 1.3-4 times higher levels of PM2.5 pollution compared to other regions.
- Air pollution exacerbated COVID-19 outcomes by compromising immune systems and causing lung inflammation and oxidative stress.

Air Pollution in India

- India and China accounted for 54% of the total global disease burden due to air pollution.
- In 2021, almost half of the ozone-related Chronic Obstructive Pulmonary Disorder (COPD) deaths worldwide occurred in India.

Initiatives in India to tackle Air Pollution

- **National Clean Air Program:** A program aimed at enhancing air quality in 131 cities across 24 states.
- Implementation of BS-VI fuel standards across the nation since April 1, 2020.
- **National Air Quality Index:** Provides the public with daily air quality information.

New Limbless Amphibian Species Discovered in Kaziranga

Why is it in the news?

- A recent survey of herpetofauna in Kaziranga National Park and Tiger Reserve revealed a newly identified species of limbless amphibian known as the striped caecilian (Ichthyophis spp).

More about the news

- Caecilians are limbless amphibians that primarily inhabit underground burrows, offering important insights into evolution and intercontinental speciation.
- Reptiles and amphibians, collectively referred to as herpetofauna, play a crucial role in maintaining ecological equilibrium and serve as key indicators of environmental well-being.

Kaziranga National Park

- Located in Assam, Kaziranga National Park is positioned along the banks of the Brahmaputra River amidst the Brahmaputra River and the Karbi (Mikir) Hills.
- Kaziranga is renowned for harboring approximately two-thirds of the global population of Great Indian One-Horned Rhinos. It also shelters the endangered and endemic Western Hoolock Gibbon and the critically endangered Bengal Florican, which are exclusive to India.
- Furthermore, it is categorized as part of the Eastern Himalayan Biodiversity Hotspots.
- The park is traversed by the Diphlu River and National Highway 37.
- Established as a National Park in 1974, it attained the status of a Tiger Reserve in 2006.
- Recognized as a UNESCO World Heritage site in 1985, it has also been designated as an Important Bird Area by Birdlife International.

Heatwave Crisis in Northern India

Why is it in the news?

- Northern India is currently experiencing the longest stretch of heatwaves seen in the past 15 years.

Current Status

- Daytime temperatures in some regions have consistently surpassed 45°C, while even cooler areas are facing temperatures 3°-6°C higher than normal.
- Night temperatures have also been elevated by 3°-6°C due to low moisture levels and lack of rainfall.
- The monsoon, crucial for relief, has been delayed and is currently stalled in central India, leading to further heatwave exacerbation.

More about the news :

- Recent reports show a record-breaking power demand surge in northern India, reaching 89 GW (89,000 MW) in a single day.
- To meet this demand, around 25%-30% of power had to be imported from other regions, stressing the northern grid's capacity.
- Despite the installed power capacity of 113 GW, the need for imported power signals underutilization and infrastructure strain.
- Instances like the half-hour blackout at Delhi's international airport highlight the strain on the grid caused by prolonged heatwaves and increased cooling demands.
- In addition to power strains, Delhi is facing a severe water crisis aggravated by increased demand exacerbated by the extreme heat.
- Haryana, a crucial water source for Delhi, has declined to increase supply, citing its own limitations, intensifying the water scarcity issue.

Conclusion

- It is imperative for the government at both the Centre and State levels to acknowledge the prolonged summer as a natural disaster requiring urgent and comprehensive attention.

UNESCO's State of Ocean Report 2024

Why is it in the news?

- The United Nations published the UNESCO State of Ocean Report 2024, catching global attention.

About the UNESCO State of Ocean Report 2024

- The Intergovernmental Oceanographic Commission (IOC-UNESCO) launched the UNESCO 'State of the Ocean Report' at the 2022 United Nations Ocean Conference.

- This report offers a comprehensible snapshot of the ocean's status, aiding in monitoring the advancement of the UN Decade of Ocean Science for Sustainable Development (2021-2030) and promoting endeavors towards fostering a sustainable future for our oceans.

- The inaugural report in 2022 enlisted contributions from over 100 marine science experts focusing on areas such as ocean acidification, pollution, and tsunami alerts.

- New installments of this report are unveiled annually on World Oceans Day (June 8), in accordance with the seven objectives of the UN Ocean Decade.

Crucial Findings of the Report

- Ocean Heat Increase: The top 2,000 meters of the oceans have been substantially warming, with the warming rate escalating from 0.32 ± 0.03 watts per square meter (W/m^2) to 0.66 ± 0.10 W/m^2 over the past two decades.

- Energy Absorption: Oceans are absorbing roughly 90% of the Earth's excess energy, leading to deoxygenation and posing a threat to marine ecosystems and dependent human economies.

- Ocean Acidification: Global ocean acidity is on the rise, notably in the open seas, with a noticeable pH decline since the late 1980s.

- Sea Level Ascend: Sea levels have been steadily increasing since 1993, necessitating enhanced monitoring mechanisms for comprehensive tracking.

- Marine Carbon Dioxide Capture: There is a burgeoning interest in technologies geared towards extracting carbon dioxide from the ocean, although their efficacy and environmental consequences remain uncertain.

INTERNATIONAL RELATIONS

Forum for India-Pacific Islands Cooperation (FIPIC)

Why is it in the news?

- In June 2024, as a member of FIPIC, India pledged $1 million for relief efforts in flood-hit Papua New Guinea.

Overview

- Established in 2014 during the first FIPIC Summit in Suva, Fiji.
- Initiated by Indian Prime Minister Narendra Modi.

Purpose:

- To enhance India's engagement with Pacific Island nations.
- Support the development priorities of these nations through cooperative projects and initiatives.
- Part of India's broader "Act East" policy aimed at strengthening ties with the Asia-Pacific region.

Members:

- India

- 14 Pacific Island Nations: Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Niue, Samoa, Solomon Islands, Palau, Papua New Guinea, Tonga, Tuvalu and Vanuatu.

Key Summits :

First Summit - Suva, Fiji (November 2014)

- Held after the re-establishment of democracy in Fiji.
- Marked the beginning of India's focused engagement with Pacific Island nations.
- Highlighted the region's growing geopolitical importance with major powers showing interest.
- Notably, Chinese President Xi Jinping visited Fiji shortly after Modi, underscoring the strategic interest in the region.

Second Summit - Jaipur, India (August 2015)

- Built on the discussions from the first summit.
- Participants: Leaders of the 14 Pacific Island nations.

Discussion Areas:

- **Blue Economy:** Sustainable use of ocean resources for economic growth and improved livelihoods.
- **Oil and Natural Gas:** Exploration and development opportunities.
- **Information Technology (IT):** Collaboration in tech advancements and digital infrastructure.
- **Healthcare:** Enhancing medical facilities and healthcare services.
- **Fishing and Marine Research:** Joint initiatives in sustainable fishing practices and marine studies.
- **Climate Change:** Modi committed to addressing the climate change concerns of the Pacific Island nations at the 2015 UN Climate Change Conference (COP 21) in Paris.

Third Summit - Papua New Guinea (May 2023)

- **Current Focus:** Continued cooperation and strengthening of ties.
- Emphasis is on furthering collaborative efforts and addressing current challenges faced by the Pacific Island nations.

Way Forward

- **Strategic Engagement:** FIPIC serves as a crucial platform for India to enhance its strategic and economic engagement with the Pacific Island nations.
- **Cooperative Initiatives:** Through various summits, FIPIC has facilitated discussions and collaborations in critical areas such as the blue economy, IT, healthcare, and climate change.
- **Humanitarian Support:** India's recent pledge for flood relief in Papua New Guinea high-lights its role in providing humanitarian aid and supporting regional stability.

How Europe's AI convention balances innovation and human rights

Why is it in the news?

- The growing complexity of global AI governance, characterized by diverse national approaches, indicates potential challenges for universally accepted treaties despite their broad backing.

About Council of Europe (COE)

- Established in 1949, COE is an intergovernmental organization with 46 member states, including the Holy See, Japan, the U.S., and EU countries.
- Aims to uphold human rights, democracy, and the rule of law in Europe.

Europe's AI Convention: Framework Convention on Artificial Intelligence and Human Rights, Democracy, and the Rule of Law

- Adopted by COE on May 17, this convention addresses the need for comprehensive regulation of AI.
- Focuses on AI's impact on human rights, democracy, and the rule of law.
- Defines AI systems and their scope, aligning with the EU AI Act and the OECD's definition.

Coverage of the Convention:

- Applies to activities involving AI systems conducted by both public authorities and private actors acting on their behalf.

- Requires parties to address risks and impacts from AI systems activities by private actors, consistent with the convention's objectives.

Difference Between Framework Convention and Protocol

- **Framework Convention:** Legally binding treaty specifying broad commitments and objectives, allowing parties discretion in achieving objectives.
- **Protocol:** Specific agreements negotiated under a framework convention to achieve detailed measures.

Addressing National Security in the AI Convention

- Provides exemptions for national security interests, research, development, testing, and national defense, excluding military AI applications from the convention's scope.
- Balances flexibility and regulation, accommodating national security needs while applying the convention to the private sector.
- Ensures the protection of human rights, democratic integrity, and the rule of law, requiring parties to address disinformation and deep fakes as part of their national security measures.
- Allows parties to exceed specified commitments to address national security concerns related to AI.

Conclusion:

- The AI convention reinforces existing human and fundamental rights within AI applications.
- It emphasizes the responsibility of governments to uphold these rights and implement effective remedies and procedural safeguards, rather than creating new rights.

Expansion of the BRICS Grouping

Why is it in the news?

- BRICS Ministers of Foreign Affairs/International Relations convened in Russia recently.
- Russia assumed the chairmanship of BRICS on January 1, 2024.

More about the news

- This ministerial meeting marked the first gathering subsequent to the expansion of BRICS in 2023, wherein Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE joined Brazil, Russia, India, China, and South Africa as full-fledged members.
- Discussions among the BRICS ministers encompassed various topics, including the increased utilization of local currencies in trade and financial transactions among BRICS nations.

About BRICS

- The original members of BRIC (Brazil, Russia, India, and China) convened for the inaugural meeting in St. Petersburg, Russia, during the G8 Outreach Summit in July 2006.
- The group was rechristened BRICS (Brazil, Russia, India, China, South Africa) after South Africa's induction as a full member at the BRIC Foreign Ministers' meeting in New York in September 2010.
- BRICS stands as a significant consortium uniting major emerging economies globally.

Key Tenets of BRICS

- **Political and Security:** Bolstering cooperation on global and regional security issues and modernizing the multilateral system to align with contemporary needs of the 21st century. Further, countering terrorism and its financing are pivotal components under this theme.
- **Economic and Financial:** Fostering economic growth and development for mutual benefit through intra-BRICS collaboration in trade, agriculture, infrastructure, SMEs, energy, finance, and banking. The collaboration is geared towards advancing joint strategies for achieving Sustainable Development Goals.
- **Cultural and People-to-People Exchanges:** Enriching intra-BRICS interactions through cultural, educational, youth, sports, and business exchanges. Regular engagement among parliamentarians and young scientists forms part of this initiative aimed at fortifying intra-BRICS ties.

Significance

- BRICS serves as a testament to the efficacy of collective endeavors and shared objectives.
- The recent expansion holds the promise of intensified economic collaboration, heightened geopolitical sway, varied perspectives, and revitalized vigor within the BRICS architecture.
- The enlarged BRICS platform facilitates market expansion by offering access to new markets and trade and investment prospects.
- This potential upsurge in economic activities can bolster economic growth and stability with-in the group. Diversifying economic interests is critical for mitigating risks and establishing a more robust financial ecosystem.
- Furthermore, the inclusion of new members brings fresh viewpoints and experiences to the consortium.

Upcoming Challenges :

- The BRICS nations still encounter challenges in articulating a coherent purpose and remain entangled in internal contradictions.
- Ongoing conflicts in the Middle East and North Africa (MENA) region.
- Issues such as climate change, pandemics, terrorism, and regional disputes.
- Progress towards establishing a common currency within BRICS faces hurdles owing to eco-nomic divergences, complexities in monetary policies, and divergent national priorities.
- China's economic predominance may raise concerns regarding equitable benefit distribution and currency influence.

Conclusion:

- BRICS persists in advocating for a more equitable global order, underlining principles of parity, mutual esteem, and confidence.
- The consortium has evolved from a mere dialogue platform to a notable participant on the global arena.
- Its trajectory underscores the potential of strategic alliances in addressing the multifaceted challenges of our era.
- Despite existing challenges, the collective strength and shared goals position BRICS as a platform teeming with potential.
- Moving ahead, BRICS remains committed to playing a pivotal role in global governance, championing a balanced and fair international order.
- The Indian Prime Minister has voiced support for BRICS' expansion, emphasizing that India has

consistently championed this move, believing that the addition of new members will enhance BRICS as an organization.

IPEF Clean Economy Investor Forum

Why is it in the news?

- A recent gathering, led by the Department of Commerce and Invest India, was organized to present a range of investment possibilities within India.

India's Opportunities at IPEF Clean Economy Investor Forum

- The Department of Commerce and Invest India convened a gathering to shed light on diverse investment opportunities within India. The event took place at Marina Bay Sands, Singapore on June 7, 2024.

- The event saw participation from over 60 global investors and financial institutions, along with more than 15 Indian companies.

Significant points highlighted during the event :

- India's growth rate surpasses that of other emerging market economies significantly.

- Indian startups are increasingly seeking capital access and tax benefits within the country.

- The pivotal role of AI and data centers in driving future growth was emphasized.

- Reforms tailored towards simplifying regulations, enhancing transparency, and improving the Ease of Doing Business.

- Governments' emphasis on sustainable infrastructure, climate technology, and renewable energy projects to achieve Net Zero targets.

Indo-Pacific Economic Framework for Prosperity (IPEF)

- The Indo-Pacific Economic Framework for Prosperity (IPEF) is an economic initiative instituted by U.S President Joe Biden in 2022.

- The framework aims to provide a platform for regional collaboration to advance resilient, sustainable, and inclusive economic growth, fostering cooperation, stability, and prosperity in the region.

- It comprises 14 partner nations - Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, USA, and Vietnam.

- The Department of Commerce plays a pivotal role in engaging with IPEF initiatives.

- Trade, Supply Chain, Clean Economy, and Fair Economy form the four fundamental pillars of cooperation within IPEF.

China-Pakistan Economic Corridor (CPEC)

Why is it in the news?

- Pakistan and China have reached an agreement to enhance the China-Pakistan Economic Corridor (CPEC) during its second phase.

- Phase 1 of the CPEC focused on infrastructure, energy, and port development projects, while Phase 2 will centre on the development of Special Economic Zones and industrialization.

More about the news:

- The CPEC is a 3,000-kilometer-long network of infrastructure projects that links China's northwest Xinjiang Uyghur Autonomous Region to Gwadar Port in the western province of Balochistan in Pakistan.

- Launched in 2015, the CPEC serves as a key project under the Belt and Road Initiative (BRI), a multi-billion-dollar initiative initiated in 2013 to connect Southeast Asia, Central Asia, the Gulf region, Africa, and Europe through a network of land and sea routes.

India's concern:

- India has raised concerns that the CPEC passes through Gilgit-Baltistan (Pakistan-occupied Kashmir), thus infringing on India's sovereignty and territorial integrity.

- The development of Gwadar Port poses a challenge to India's maritime security in the Arabian Sea and its energy and oil imports through the Gulf of Oman.
- Moreover, India has highlighted the economic non-viability of some BRI projects, which have resulted in debt trap situations in certain countries like Sri Lanka.

Steps taken by India to counter CPEC:
- In response to the CPEC, India has taken steps to counter it by establishing the Chabahar port in Iran to boost connectivity and rival Gwadar port's influence.
- India has also pursued the International North-South Transport Corridor to connect with Central Asia and Eurasia, bypassing Pakistan.

Spain Joins the International Solar Alliance

Why is it in the news?
- Spain has become the 99th nation to join the International Solar Alliance.

More about the news:
- The International Solar Alliance (ISA) was launched jointly by India and France during the 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris in 2015.
- The main aim of ISA is to support the implementation of the Paris Climate Agreement through the rapid and widespread adoption of solar energy.
- Currently, the ISA Framework Agreement has 119 signatory countries, with 98 nations having submitted the necessary ratification instruments to become full members of the ISA.

China's Grey-zone Warfare tactics

Why is it in the news?
- China has utilized Grey-zone Warfare tactics in regions such as Taiwan, the South China Sea, India's border disputes, and more as part of its strategic objectives.

About Grey-zone Warfare:
- Grey-zone Warfare is defined as an intermediate space between open conflict and peace, designed to harm an opponent without overtly provoking conflict or alerting them to an attack. It utilizes a blend of conventional and unconventional methods of warfare.

- Strategies like salami slicing involve incremental military actions aimed at gradually seizing enemy territory, along with covert economic activities such as sanctions, cyberattacks, psychological operations like disinformation campaigns, and the use of proxy forces.

Characteristics of Grey-zone Warfare:
- **Sub-threshold operations:** Employing non-military tools to avoid triggering a military response.
- **Gradual progression of aggressive actions:** A gradual, prolonged approach that can unfold over years or decades, making it challenging for adversaries to mount a strong counter-response.
- **Lack of accountability:** Perpetrators disavow responsibility for their actions, creating ambiguity and complicating responses.
- **Targeted approach:** Typically focusing on vulnerable nations with limited ability to retaliate due to internal or strategic constraints.

Recommended Actions
- Enhanced vigilance through active information sharing among allied nations.
- Deterrence through demonstrating capability and upholding a rule-based international order.

India's approach to countering Grey-zone Warfare:
- Coordination by the Chief of Defence Staff to align the efforts of the Indian Army, Air Force, and Navy.
- Promotion of self-reliance in defence manufacturing through initiatives like the Defence Procurement Procedure (DAP) 2020.

- Collaboration with like-minded countries, demonstrated through agreements such as the General Security of Military Information Agreement (GSOMIA) with the United States.
- Establishment of the Indian Computer Emergency Response Team (CERT-In) and other relevant measures.

Is Pakistan employing digital firewall to limit social media platform access?

Why is it in the news?
- Recent reports from Pakistani media outlets suggest that the country may be considering the implementation of a 'National Firewall' akin to that seen in China to block users from accessing platforms like X, Facebook, and YouTube.

More about the news
- While certain sources have indicated plans to filter keywords and regulate content, conflicting accounts regarding the existence and scope of the proposed firewall have emerged.
- Pakistan has a history of restricting online access, with instances such as the 2017 Twitter block and disruptions during electoral periods.

Digital Firewalls

Functionality of Digital Firewalls
- Firewalls, essential for cybersecurity, serve to block online traffic to specific destinations. Though primarily designed for security, they are increasingly associated with censorship.
- Extensive firewalls like the Great Firewall of China can prevent access to large portions of the Internet by countries.

Impact of Government-Implemented Firewalls
- Such firewalls can hinder access to information critical of authorities, impacting activists and journalists.
- Internet shutdowns and social media blocks can disrupt education and healthcare services, with substantial economic costs.

Challenges and Concerns with Firewalls
- Implementation and maintenance of firewalls entail high costs and ongoing supervision to counter threats.
- Antitrust worries may arise due to restricted competition and favoritism towards government-sanctioned platforms.

- Indications of potential alignment with market monopolies, leading to diminished user experiences and stifled innovation.

Previous Instances of Internet Restrictions in Pakistan
- Past actions have seen Pakistan block websites and social media services intermittently over the years.
- The development of a Chinese-style national firewall has been under discussion, with instances of significant online restrictions in the past.

50th Group of Seven (G7) Summit

Why is it in the news?
- 50th G7 Summit was hosted by Italy with India participating in the G7 outreach session on Artificial Intelligence, Energy, Africa, and Mediterranean.

Key Outcomes :
G7 Apulia Food Systems Initiative (AFSI)
- Aims to intensify efforts to overcome structural barriers to food security and nutrition.

Partnership for Global Infrastructure Investment (PGII)
- Mobilize up to USD 600 billion through the PGII by 2027. Joint initiative of G7 countries to help fund infrastructure projects in developing countries through public and private investments.

Artificial Intelligence
- Announced the development of a brand to support the implementation of the International Code of Conduct for Organizations Developing Advanced AI Systems.

About G7 Summit
- Informal forum comprising Italy, Canada, France, Germany, Japan, United Kingdom, and the United States of America.
- The European Union also participates in the Summit.
- Established in response to the 1973 energy crisis as a platform for economic and financial cooperation.
- Expanded into the G8 between 1997 and 2013, including Russia temporarily until its suspension in 2014.

Relevance of G7
- Collective economic power to shape global economic policies, coordinate financial regulations, and address economic challenges.
- Launched PGII in response to China's Belt and Road Initiative (BRI). Played a key role in creating international financial institutions like the Financial Action Task Force (FATF).

How India plans to engage with China in Modi 3.0?

Why is it in the news?

- As India marks four years since the Galwan clashes that shook India-China relations, the unresolved border standoff continues to challenge the Narendra Modi government in its third term.

- Approximately 50,000 to 60,000 troops remain stationed on each side of the border, under-scoring the urgency of managing the relationship with China.

- During the upcoming leaders' summit of the Shanghai Cooperation Organisation (SCO) in Astana on July 3-4, Prime Minister Modi and China's President Xi Jinping are expected to be present simultaneously. Whether a meeting between the two leaders occurs and if it leads to a breakthrough remains uncertain.

Recent developments have set the stage for the Astana summit

- In April, Prime Minister Modi emphasized the significance of India's relationship with China and called for addressing the border situation swiftly to normalize bilateral interactions.

- Stressing the importance of stable and peaceful relations with China for the broader region and the world, Modi expressed optimism about achieving lasting peace through constructive engagement at diplomatic and military levels.

- China responded positively to Modi's remarks, highlighting the multifaceted nature of the relationship beyond the border issue and advocating for strategic dialogue and cooperation to strengthen trust and stability.

- In May, External Affairs Minister S Jaishankar expressed hope for resolving remaining issues with China, particularly focusing on patrolling rights and abilities in Ladakh amid the ongoing standoff. This nuanced approach signaled a shift from the previous emphasis on disengagement and deescalation.

Challenges

- While these developments raised hopes for conflict resolution, recent events have underscored continuing complexities in the region.

- First, tensions flared as India-Taiwan interactions drew Chinese ire. A public exchange between Prime Minister Modi and Taiwan's President Lai Chingte sparked controversy, with China decrying all official ties between Taiwan and nations adhering to the 'One China' policy.

- Second, a US Congress delegation's meeting with the Dalai Lama led to Chinese criticism, emphasizing the importance of recognizing Tibet as part of China. These interactions revealed ongoing sensitivities surrounding Tibet and Taiwan, underscoring the delicate balance India must maintain in its regional engagements.

Pelosi's Visit to Taiwan and Congressional Action

- Speaker Pelosi disregarded Beijing's warnings and visited Taiwan in August 2022.

- On June 12, the House of Representatives approved the bipartisan Promoting a Resolution to the Tibet-China Dispute Act, which had previously passed the Senate.

An Analysis

- Some analysts suggest that India's stance on the border issue is evident based on statements from the PM and Jaishankar. Pelosi's visit to the Dalai Lama may signal India's position before a potential Modi-Xi meeting in Astana.

- Others argue that India's intent to resolve the border situation post the Lok Sabha election shifted due to the weaker-than-expected NDA mandate. The government aims to avoid criticism by ensuring any reconciliation aligns with India's terms.

- Further, Australia's ties with China faced challenges during the Centre-right governments but are now showing signs of rapprochement under Prime Minister Albanese. Recent high-level discussions between Premier Li Qiang and Prime Minister Albanese highlighted the commitment to manage disputes between the two countries properly.

Modi-Xi Bilateral Relations

- Recent meetings between Modi and Xi have been inconclusive, mainly due to the border dispute, resulting in limited political progress.

- While trade relations remain robust between India and China, there is an increasing focus on security concerns leading to efforts to reduce dependence on China.

- The Australian approach presents potential opportunities for India, contingent on several factors, including Xi's political will.

Hold talks with Dalai Lama, U.S. lawmakers tell China

Why is it in the news?

- U.S. lawmakers, following the passage of the Resolve Tibet Act by the U.S. House of Representatives, called on the Chinese government to hold discussions with the Dalai Lama.

More about the news

- A group of influential U.S. lawmakers met with the Tibetan spiritual leader in Dharamshala, emphasizing that the United States stands firm against Beijing's interference in the Dalai Lama's succession.
- The delegation, led by Republican U.S. House Foreign Affairs Committee Chair Michael McCaul, reiterated the U.S.'s unwavering support for Tibet and criticized China's historical claims to the region.
- Representative Gregory Meeks affirmed the U.S.'s solidarity with the Tibetan people and called for Beijing to engage in direct dialogue with the Dalai Lama.
- However, the U.S. lawmakers' visit was described as "private," and they refrained from commenting on China's assertions to safeguard its sovereignty.

Dalai Lama Succession and Tibetan Rights

- Reflecting on the Dalai Lama's exile in 1959 and his efforts to protect Tibetan culture, Mr. McCaul highlighted the ongoing threats to Tibetan freedom posed by the Chinese Communist Party (CCP).
- The U.S. delegation's visit coincided with speculation about the future of the Dalai Lama's position and reiterated the U.S.'s commitment to preserving Tibetan self-determination.
- U.S. Representative Jim McGovern emphasized the U.S.'s enduring support for Tibetans and criticized China's propaganda regarding Tibet, reiterating America's stance on countering mis-information.

Conclusion

- U.S. lawmakers underscored the importance of upholding Tibetan rights under international law and rejected China's claims regarding Tibet's history.
- The Resolve Tibet Act, passed with bipartisan support in Congress, reaffirms America's backing for Tibetans' right to self-determination and combats misinformation spread by China about Tibet.
- Former U.S. House Speaker Nancy Pelosi conveyed a message of long-lasting impact from the Dalai Lama's contributions and reiterated the U.S.'s commitment to supporting Tibetans.

Over 5,000 Myanmar refugees take shelter in Manipur's Naga district

Why is it in the news?

- More than 5,000 Myanmar refugees have sought shelter in Manipur's Naga district, particularly in Kamjong, fearing aerial attacks and bombardment.
- These refugees have been residing in temporary settlements since November, with concerns revolving around safety in Myanmar and a perceived threat leading to their displacement.

More about the news

Demographic Complications

- The influx of undocumented migrants in the district has exacerbated the existing ethnic conflict in Myanmar, mainly between the Kuki-Zo and Meitei communities.
- The presence of a diverse population in Manipur, including 34 Scheduled Tribes like the Kuki-Zo-Hmar people and the Nagas, adds to the complexity of the situation.

Security Concerns

- The deployment of Assam Rifles along the Myanmar border in response to smuggling activities has stirred fear among the local populations, exacerbating the already delicate situation.
- Efforts to curb illegal activities like arms and narcotics smuggling have been intensified, amid concerns raised by Naga bodies about the impact on villagers.

Humanitarian Appeal

- The United Naga Council, in collaboration with civil society organizations, has urged for the removal of Assam Rifles from Naga areas, citing a sense of war preparedness and fear among villagers.
- While acknowledging the challenges posed by the refugee influx, Naga bodies emphasized the need for a safe repatriation process for the immigrants back to Myanmar.

From Displacement to Empowerment: The Story of Sri Lankan Tamils in Tamil Nadu

Why is it in the news?

- In 1983, an influx of Sri Lankan Tamils sought refuge on the shores of Tamil Nadu, fleeing ethnocentric violence and upheaval in their homeland.
- Stripped of everything, their sole aim was survival. Opting for India due to proximity, accessibility, and

shared language, Tamil Nadu became their sanctuary against the turmoil in Sri Lanka.

More about the news

- Over the years, the Sri Lankan Tamil community in Tamil Nadu has thrived despite the challenges. Since 1983, a total of 3,34,797 refugees have sought solace in Tamil Nadu in four waves coinciding with periods of heightened conflict in Sri Lanka.
- Presently, 57,975 reside in government-run camps, while around 40,000 live outside with police registration.
- Transitioning from individual family setups to communal living in camps marked a significant lifestyle change for the refugees.
- Adapting to shared resources and amenities, like public toilets and common water sources, became the new norm. With systematic registration, refugees receive monthly aid and access to essential services, education, and welfare schemes, fostering a sense of security and stability.

Upholding Dignity and Building Futures

- Welfare initiatives have played a pivotal role in uplifting the Sri Lankan Tamil community, facilitating education, empowerment, and breaking caste barriers.
- With the government's support and advocacy, the refugees have made significant strides, culminating in a renaming of camps as Sri Lankan Tamil Rehabilitation Camps to destigmatize the refugee identity.

Conclusion

- Despite facing obstacles in citizenship and resettlement, the Sri Lankan Tamils in Tamil Nadu continue to persevere, armed with resilience, education, and community support.
- Their journey reflects a model of refugee care and empowerment, with the potential to rebuild their nation and contribute as skilled individuals in a changing world.

Mark Rutte Secures NATO Top Position

Why is it in the news?

- Outgoing Dutch Prime Minister Mark Rutte secured the position of the next NATO head after his only competitor, Romanian President Klaus Iohannis, opted out recently.

- The experienced 57-year-old politician is anticipated to be officially appointed by NATO's 32 nations in the upcoming days. He is set to take over from the current chief Jens Stoltenberg on October 1.

More about the news

- Mr. Rutte's appointment coincides with a critical phase for the Western allies, amidst ongoing conflicts such as Russia's actions in Ukraine and the upcoming U.S. presidential elections.
- Once Rutte assumes leadership from Stoltenberg, he will inherit significant responsibilities, including navigating the volatile political landscape surrounding the U.S. elections.
- Rutte will need to address the potential implications of a Trump presidency and focus on maintaining NATO's readiness in the face of external threats, particularly from Russia.
- Further, enhancing the European nations' defense capabilities will be a priority, aligning with previous demands set by U.S. leaders and aiming to bolster NATO's collective security measures.

Russia-North Korea Security Pact

Why is it in the news?

- Russian President Vladimir Putin and North Korea's leader Kim Jong-un recently forged a significant security partnership in Pyongyang.
- This move aims to enhance their security ties and challenge the prevailing Western-dominated global order.
- During his first visit to North Korea in 24 years, President Putin signed a "comprehensive strategic" partnership agreement with Kim Jong-un. Experts have hailed this pact as the strongest between Moscow and Pyongyang since the Cold War's end, with North Korea's leader deeming it a breakthrough.

Historical Ties between Russia and North Korea

- North Korea and Russia's relations date back to the Soviet era. The Soviet Union was the first to recognize North Korea when it was established in 1948 under Kim Jong-un's grandfather, Kim Il-sung.
- The Soviet Union supported North Korea during the 1950-53 Korean War, contrasting with U.S. support for South Korea. This alliance showcased through Kim Il-sung's gratitude to Soviet leader Joseph Stalin for his support during DPRK's struggle for independence.

- Despite an initial strong bond, the relationship between Russia (successor to the Soviet Union) and North Korea deteriorated with the growing divide between China and Russia post-Korean War. Russia furthered its diplomatic ties with South Korea, distancing itself from North Korea, although relations continued.
- Putin's election brought about a shift favoring North Korea, evidenced by his meetings with Kim Jong-II in 2000 criticizing U.S. missile defense plans.
- In 2012, Russia forgave 90% of North Korea's $11 billion debt. However, tensions arose as North Korea accelerated nuclear tests, leading to UN sanctions favored by Russia.

About the New Pact

- The recent treaty between Kim Jong-un and Putin centers on safeguarding core interests, deepening the strategic partnership, and alliance between both nations.
- It promotes immediate military support using all available means during a conflict, in line with the UN Charter's Article 51 on self-defense.
- The pact also emphasizes building a just and multipolar world order, enhancing defense capabilities, and addressing food shortages in North Korea.

Geopolitical Implications

- North Korea's backing of Russia's actions in Ukraine hints at a positive turn in their relationship.
- Allegations suggest North Korea supplied military equipment to Russia amidst the conflict. This partnership, coupled with Russia's energy supply to North Korea, underscores a mutual stance against the U.S., aligning with China for global power restructuring.

Conclusion

- The recent spike in rail traffic between Russia and North Korea post-summit symbolizes potential arms exchange.
- Experts speculate North Korea's acquisition of advanced weaponry and missile technologies from Russia in exchange for arms sales. This partnership serves as a counterbalance to the West's influence, uniting Russia and North Korea under shared interests.

Cybercrimes in India

Why is it in the news?

- A growing number of Indians are falling victim to online financial fraud.
- The Indian Cybercrime Coordination Centre (I4C) analyzed data from January to April and found that 46% of reported fraud cases during this period originated from Myanmar, Laos, and Cambodia.

Different Types of Online Cybercrimes

Trading Scam:

- Scammers utilize social media platforms to promote free trading tips, often impersonating well-known stock market experts to entice victims into exclusive groups.
- Victims are coerced into downloading unregulated trading apps and making financial investments, only to realize later that they cannot withdraw their funds until they attain a very high account balance.

Digital Arrest

- Victims receive deceptive phone calls alleging their involvement in illegal activities, with fraudsters posing as law enforcement officers demanding money to resolve fictitious issues.
- In some instances, victims are placed in a "digital arrest" situation, required to remain on a video call until they meet the scammers' financial demands.

Investment Scam (Task-Based)

- Individuals are promised quick money for completing straightforward online tasks aimed at enhancing social media ratings.
- After fulfilling initial tasks, victims are convinced to invest more money for promised higher returns, which never materialize, resulting in repeated requests for additional investments.

Romance/Dating Scam:

- Scammers create fake online dating profiles to establish romantic connections, then fabricate emergencies that purportedly necessitate financial aid.
- The scheme often progresses to a point where the fictional partner claims to be detained and in urgent need of funds for release.

Global Spending on Nuclear Weapons by Nuclear-Armed Nations in 2023

Why is it in the news?

- A report by the International Campaign to Abolish Nuclear Weapons (ICAN) revealed a $10.7 billion increase in global spending on nuclear weapons in 2023 compared to 2022.
- The United States accounted for 80% of this increase, with a total spending of $51.5 billion in 2023.

More about the news

- ICAN's report highlighted that the total spending on nuclear arsenals by the nine nuclear-armed states amounted to $91.4 billion in 2023.
- The United States, China, and Russia were the top spenders, with the US alone contributing more than all other nuclear-armed countries combined.
- China spent $11.8 billion, and Russia spent $8.3 billion on their nuclear weapons programs in 2023.

Global Nuclear Weapons Landscape

- According to the Stockholm International Peace Research Institute (SIPRI), the world's nine nuclear-armed countries continued to modernize their nuclear weapons in 2023, deepening their reliance on nuclear deterrence.
- SIPRI stated that Russia and the USA together accounted for almost 90% of all nuclear weapons globally.
- While operational nuclear warheads have increased annually, SIPRI noted that China has also introduced warheads on high operational alert for the first time.
- Transparency around nuclear forces has decreased post-Russia's invasion of Ukraine in 2022, sparking discussions on nuclear-sharing agreements between the US and Russia.
- SIPRI's estimates indicated that India, Pakistan, and North Korea are striving to deploy multiple warheads on ballistic missiles, joining the US, Russia, France, UK, and China in this capability. This capacity allows for a rapid escalation in deployed warheads and the ability to threaten the destruction of more targets by nuclear-armed nations.

Joint Doctrine for Cyber Operations

Why is it in the news?

- The Joint Doctrine for Cyberspace Operations was unveiled by the Chief of Defence Staff during the meeting of the Chiefs of Staff Committee (COSC).

Cyberspace

- Cyberspace comprises interactions among individuals, software, and services, facilitated by the global dissemination of information and communication technology (ICT) devices and networks.

Significance of Cyber Domain in Defense

- Alongside the traditional warfare domains of Land, Sea, and Air, the Cyber domain has emerged as a critical and intricate field in contemporary warfare.
- Unlike the physical boundaries of the land, sea, and air domains, cyberspace is a globally shared entity with mutual sovereignty.
- Malicious activities in cyberspace can impact the national economy, social cohesion, political decision-making processes, and the nation's defense capabilities.
- It's essential to integrate cyber operations into the national security framework to shape strategies and capabilities for gaining advantages and influencing events across various operational domains and instruments of power.
- India has been actively enhancing its cyber defense capabilities to adapt to the changing landscape of modern warfare, where cyberspace plays a pivotal role.

Key Initiatives

1) Joint Doctrine:

- This foundational document serves as a guiding light for Commanders to navigate Cyberspace Operations within the complex military operational environment.
- It underscores the necessity of comprehending the military dimensions of cyberspace operations.
- The doctrine offers strategic guidance to commanders, staff, and operators for planning and executing operations in cyberspace while promoting awareness among warfighters at all echelons.

2) **Indian Computer Emergency Response Team (CERT-In):** The Ministry of Home Affairs established the 'Indian Cyber Crime Coordination Centre' (I4C) to combat cyber-crimes efficiently and cohesively.

3) **Defense Cyber Agency (DCA):** Formed to streamline cybersecurity efforts across the armed forces and bolster their capabilities against cyber threats.

4) **Cyber Surakshit Bharat:** The Ministry of Electronics and Information Technology initiated the Cyber Surakshit Bharat (CSB) program to educate and empower Chief Information Security Officers (CISOs) and the broader IT community in Central/State Governments, Banks, PSUs, and Government organizations to address cyber security challenges.

Challenges

- India confronts a wide array of cyber threats, including sophisticated malware, phishing attacks, and cyber espionage targeting sensitive military data.

- The interconnectivity of defense systems and the reliance on digital technologies make them susceptible to adversarial exploitation.

- Despite efforts to fortify cybersecurity, challenges like rapid technological evolution, emerging cyber threats, and the shortage of skilled cybersecurity professionals persist.

Way Forward :

- India's defense sector is poised to harness emerging technologies such as artificial intelligence, quantum computing, and secure communication networks to boost operational effectiveness and situational awareness.

- The fusion of cyberspace with other domains like space and electronic warfare will redefine modern warfare capabilities.

- By embracing a proactive cybersecurity approach and fostering innovation, India can fortify its defense resilience and ensure a secure cyberspace environment for national security.

- As India navigates the complexities of cyber warfare, investing in skilled personnel, advanced technology, and robust policy frameworks remains pivotal to safeguard national security in the digital era.

National Security Doctrine for India

Why is it in the news?

- The Chief of Defence Staff (CDS) recently emphasized the need for a National Security Strategy (NSS) comprising policy, processes, and practices to ensure success, highlighting the absence of a written policy despite existing frameworks in place.

- Questions arise around the purpose of engaging in this exercise over the past two decades and the progress of the Defence Planning Committee established in 2018 to develop the NSS and National Defence Strategy.

More about the news

- Despite examples from countries like China and Pakistan having formal NSS documents, India's unique challenges necessitate a tailored approach that requires urgent clarification.

- A well-crafted NSS would promote a holistic national approach, facilitate coordination for leveraging comprehensive national power, and aid in setting goals for modernization and national self-reliance efforts.

- However, concerns exist over the current transition in defense planning processes and the need for more robust assessment tools and accountability measures, including peer review by think tanks.

- Addressing operational clarity and decision-making efficiency is crucial, especially in the context of decentralized command structures like the proposed Directive Style of Command (DSOC).

- The NSS should delineate clear objectives, strategies, and resources while encouraging delegation, synergy, and operational flexibility, fostering a culture of initiative and innovation.

- Embracing a well-defined NSS is essential for the implementation of theater commands and transformation, aiming to cultivate bold and effective military leaders in line with historical figures like Field Marshal 'Sam' Manekshaw.

SOCIETY AND SOCIAL JUSTICE

UNICEF's Report on Child Food Poverty

Why is it in the news?

- UNICEF has recently published a report titled "Child Food Poverty: Nutrition Deprivation in Early Childhood."

Child Food Poverty (CFP)

- UNICEF defines child food poverty as the inability of children to access and consume a nutritious and diverse diet during early childhood, spanning the first five years of life.

More about the news

- The report examines the causes and consequences of inadequate nutrition among young children worldwide, covering nearly 100 countries across various income brackets.
- It particularly emphasizes low- and middle-income nations, where a significant portion of children in child food poverty are concentrated, and delves into the implications of this issue on malnutrition and developmental setbacks.
- The study offers insights into the current state, trends, disparities, and factors driving child food poverty during the early years of life.

Key Highlights of the Report

- Globally, an alarming one in four children experience severe child food poverty during early childhood, totaling 181 million children under the age of 5.
- A significant number of parents and households struggle to provide young children with the necessary nutritious and varied foods crucial for their optimal growth and development.

- The worldwide food and nutrition crisis, coupled with localized conflicts and environmental adversities, significantly exacerbates severe child food poverty, particularly in fragile regions. Global efforts to combat Child Food Poverty remain sluggish.
- Severe child food poverty impacts all corners of the globe unevenly, with South Asia and sub-Saharan Africa hosting over two-thirds (68%) of the 181 million children living in severe child food poverty.

Status of Child Food Poverty in India

- **Severe Food Poverty:** According to a report by UNICEF, India ranks among the top 20 countries contributing to 65% of the total population of children facing severe child food poverty between 2018 and 2022.
- **Disparities:** Despite progress in narrowing the severe CFP gap between impoverished and affluent households in the last decade, socioeconomic, caste, gender, and geographical disparities persist in India.
- **Micronutrient Deficiencies:** Anemia, a form of micronutrient deficiency, notably impacts many Indian children, hampering cognitive growth and learning capabilities.

- **Zero-Food Children:** Recent findings from a study in The Lancet Child & Adolescent Health in 2023 revealed that 19.3% of Indian children under 5 years encountered zero-food days, the highest prevalence among 92 surveyed low- and middle-income countries.

Impacts

Health Consequences:

- Child Food Poverty constitutes the primary factor behind child malnutrition, culminating in issues like stunting, wasting, and underweight conditions.
- Exposure to CFP escalates the susceptibility to childhood ailments such as diarrhea, pneumonia, and measles, which can lead to premature mortality.
- **Hindered Cognitive Progress:** Malnutrition during the critical developmental phase can exert irreversible effects on brain maturation, resulting in diminished cognitive capabilities.
- **Diminished Productivity:** Malnourished children often grow up to be less efficient adults with restricted physical and mental capacities, constraining their earning prospects and economic contributions.
- **Elevated Healthcare Costs:** Child Food Poverty necessitates higher healthcare outlays for both families and governmental bodies due to escalated medical treatments and hospitalizations required.
- **Social Ostracism and Stigmatization:** Families grappling with Child Food Poverty may encounter social marginalization and bias, further alienating them from societal acceptance.
- **Depletion of Human Capital:** CFP strips nations of their most valuable resource human capital.
- **Strain on Healthcare Infrastructure:** The escalating healthcare demands of malnourished children pose a burden on the healthcare system, diverting resources from critical services.

Addressing Challenges in Managing CFP in India :

- **Economic Disparity:** The significant portion of the population that cannot afford a balanced diet serves as a fundamental reason for child food poverty.
- **Insufficient Nutritional Intake:** The trend towards processed foods, which often lack vital nutrients, contributes to the problem.
- **Inadequate Sanitation:** The absence of proper sanitation facilities raises the likelihood of infections and diseases, which can exacerbate malnutrition and impede nutrient absorption.
- **Limited Healthcare Infrastructure:** The scarcity of medical professionals, particularly in rural regions, hampers access to healthcare services. Consequently, children affected by malnutrition may face delays in diagnosis and treatment.

Suggestions

- In order to combat child malnutrition, governments and partners should allocate resources towards enhancing children's access to varied and nutritious diets while eradicating severe child food poverty.

UNICEF urges national governments, development and humanitarian organizations, donors, civil society, media, academic institutions, and research entities to:

- Revamp food systems by ensuring that food environments prioritize nutritious, diverse, and wholesome foods as the most accessible, affordable, and appealing options for feeding young children. Additionally, the food and beverage industry should adhere to regulations that safeguard children from unhealthy food and drinks.
- Utilize healthcare systems to provide essential nutrition services, which include guidance and assistance on child feeding, to prevent and address child malnutrition, focusing on the most vulnerable children.
- Implement social protection systems that address income inequality in a manner that considers the food and nutrition requirements of the most vulnerable children and their families. This may involve social benefits aimed at safeguarding children at the highest risk of child food poverty.
- Enhance data systems to evaluate the prevalence and severity of child food poverty; catch early signs of an increase in child food poverty, even in unstable and humanitarian settings; and monitor progress at national and global levels in diminishing severe child food poverty.

Digital Health: India's Progress and Global Collaboration

Why is it in the news?

- India recently hosted a side event at the 77th World Health Assembly in Geneva, focusing on Digital Health, a critical area in the realm of healthcare transformation.

Global Initiative on Digital Health (GIDH) :

- Managed by the WHO, GIDH serves as a network involving organizations, institutions, and government agencies dedicated to advancing national digital health transformation.

- The primary objective is to bring together global standards, best practices, and resources to accelerate the transformation of digital health systems.

Key Focus Areas:

- Strategic Investments: GIDH aims to develop targeted investment plans to drive digital health transformation and enhance resource allocation in countries.

- **Enhanced Transparency:** The initiative focuses on improving transparency and reporting mechanisms related to digital health resources to enable better progress tracking.

- **Promoting Collaboration:** GIDH facilitates knowledge exchange and collaboration among regions and countries to expedite progress in digital health initiatives globally.

- **Holistic Approaches:** It advocates for comprehensive government strategies to govern digital health within countries effectively.

- **Support Initiatives:** GIDH aims to increase technical and financial assistance to implement the Global Strategy on Digital Health 2020-2025 and its subsequent phase.

India's Digital Health Strategy :

- **Digital Public Infrastructure (DPI):** India leverages DPI to revolutionize healthcare delivery and foster an inclusive society. Leveraging India's DPI enables streamlined health data exchange, improved service delivery, and enhanced patient outcomes a potential blueprint for other nations.

- **Global Cooperation:** The need for global collaboration in leveraging digital technologies for improved health outcomes was emphasized by the Union Health Secretary. Collaborative efforts were shared by the United States, Japan, Australia, and India, underlining the importance of international cooperation.

Advancements in Indian Digital Health :

- As part of India's G20 Presidency, the country's dedication to enhancing digital health systems is evident through the Global Initiative on Digital Health.

- **Recent discussions on Digital Health highlighted India's milestones, including:**

  1) **Equitable Healthcare:** Digital Health plays a crucial role in providing equal and accessible healthcare services.

  2) **Toward Universal Health Coverage:** It contributes significantly to achieving Universal Health Coverage and Sustainable Development Goal 3 (Good Health and Well-being).

  3) **Scale of Implementation:** India successfully implemented digital public infrastructure at scale, incorporating Aadhaar for digital identities and Unified Payments Interface (UPI) for financial transactions.

  4) **UWIN:** Transforming Co-WIN into UWIN for the National Immunization Programme aims to centralize and provide vaccination records for newborns, mothers, and school health.

  5) **Ayushman Bharat Digital Mission (ABDM)**
  - **National Digital Health Ecosystem:** ABDM strives to establish a robust national digital health ecosystem.
  - **Health IDs:** Over 618 million Unique Health IDs (ABHA IDs) have been generated.
  - **Health Facilities and Professionals:** With 268,000 health facilities and 350,000 healthcare professionals registered under ABDM.
  - **National Health Claims Exchange (NHCX):** Through ABDM, India is launching NHCX to modernize insurance payments, facilitating real-time settlements via automated claim adjudication.

Other Initiatives :

- **AB PMJAY:** This scheme offers health coverage of Rs 500,000 to 550 million vulnerable populations, with 70 million treatments valued at US$ 11.2 Billion provided.

- **e-Sanjeevani:** The largest telemedicine initiative worldwide has served 241 million patients, leading to savings of US$ 2.15 billion in out-of-pocket expenses.
- **NI-KSHAY:** An initiative aimed at TB management.
- **SAKSHAM:** An online platform for health professional training.

Conclusion

- Since the first WHO resolution on eHealth in 2005, over 120 WHO Member States have developed national digital health policies.
- Strengthening support is crucial to transition from pilot digital health projects to robust national digital health infrastructures, necessitating governance, policies, and skilled health workforce.
- WHO commended India for implementing DPI, showcasing its scalability in healthcare delivery.

Donanemab Antibody to fight Alzheimer

Why is it in the news?

- Donanemab, currently undergoing trials, has displayed promising potential in decelerating cognitive decline in individuals diagnosed with early stage Alzheimer's disorder.

More about the news:

- Donanemab is a monoclonal antibody designed to target amyloid, an adhesive protein that builds up in the brains of Alzheimer's patients.
- It has exhibited superior efficacy in subjects with low to moderate tau levels at the commencement of the trial, as opposed to those with elevated tau levels.
- The presence of the tau (t-tau) protein reflects the extent of neuronal damage in neuro-degenerative conditions like Alzheimer's disease (AD).

Breakthrough in Dampening Cognitive Deterioration:

- In a phase III trial, Donanemab reduced cognitive decline by 35% when compared to a place-bo.
- This achievement marks a remarkable advancement in Alzheimer's research, being the second medication in one year to prove effective in delaying cognitive decline in patients at the initial stages.
- While Donanemab and similar treatments do not halt or reverse Alzheimer's disease, they play a pivotal role in enhancing the quality of life by decelerating cognitive deterioration in affected individuals and their families.
- Given the projected rise to 14 million dementia cases, including Alzheimer's, in India by 2050, there is an urgent need for efficacious therapies.

About Alzheimer's Disease

- Alzheimer's disease is an advancing and irreversible neurological malady.
- Beta-amyloid, a crucial brain protein, transforms into a toxic form in Alzheimer's patients, aggregating into clumps that disturb brain cell connections, resulting in cognitive impairments such as memory loss.
- These protein accumulations obstruct neuronal signaling, prompting the decline and demise of brain cells.
- Initial symptoms encompass forgetfulness, word-finding difficulties, problem solving impediments, confusion, and disorientation.
- The precise etiology remains incompletely elucidated, incorporating genetic, environmental, and lifestyle elements.
- A family history, genetic mutations, head traumas, cardiovascular conditions, and certain lifestyle choices heighten the susceptibility.

Kerala Migration Survey 2023

Why is it in the news?

- Recently presented at the Lok Kerala Sabha, the Kerala Migration Survey (KMS) 2023 report, a biennial effort by the International Institute of Migration and Development (IIMD) and Gulati Institute of Finance and Taxation, highlighted key findings from the ongoing emigration trends.
- The survey covered a sample of 20,000 households across all 14 districts of Kerala using a stratified multi-stage random sampling method. This immense sample size makes it one of Kerala's most comprehensive socio-economic surveys to date, surpassing the National Family Health Survey (NFHS-5).

More about the news

- The KMS 2023 estimated a total of 2.2 million emigrants from Kerala, marking a slight increase from

the 2018 figures. Notably, the number of emigrants returning home has risen substantially, reaching 1.8 million in 2023 from 1.2 million in 2018.

Some of the noteworthy trends

- **Decrease in Gulf Emigration:** The preference for destinations outside the Gulf Cooperation Council (GCC) countries has surged, rising from 10.8% in 2018 to 19.5% in 2023. This shift aligns with a long-standing trend observed since 1998, where GCC destinations dominated Kerala's emigrant landscape.

- **Surge in Student Emigration:** The study unveiled a notable increase in student emigrants who opt for destinations beyond the GCC nations for their higher education, possibly steering the directional change in emigration patterns. Student emigrants now constitute 11.3% of Kerala's overall emigrant population, with numbers nearly doubling since 2018, from 129,763 to 250,000.

- **Growing Female Emigration:** A rise in female emigrants, from 15.8% in 2018 to 19.1% in 2023, was observed. Noteworthy is that women emigrants exhibit higher educational qualifications compared to men, with a significant proportion engaged in the nursing sector.

- Regional Emigration Patterns: North Kerala continues to be a significant source of emigrants, contributing 41.8% to Kerala's emigrant population. Central and South Kerala also play substantial roles, with variations in migration destinations and demographic profiles.

- **Religious Demographics:** Muslims account for 41.9% of Kerala's emigrant population, exceeding their population share in the state. Hindus and Christians also form significant portions of the emigrant community.

- **Remittance Trends:** Kerala saw a substantial increase in remittances, totalling Rs 216,893 crores in 2023, marking a noteworthy surge post-pandemic. The data indicates diversified expenditure patterns for remittances among migrant households.

- **Returnee Dynamics:** The survey noted a growing trend of emigrants returning to Kerala, reaching 495,962 individuals in the past five years, largely influenced by the Covid-19 pandemic-induced job losses.

- **Long-Term Trends:** Over the past three decades, Kerala's emigrant population has witnessed fluctuations, culminating in the current figures of 2.2 million. The global Malayali diaspora is estimated at 5 million, with 3 million residing outside Kerala within India.

Way Forward

- The rising trend of Indian students pursuing education abroad underscores the need for strategic policy interventions, emphasizing the enhancement of educational infrastructure and the facilitation of secure migration pathways for student emigrants.

- Efforts in skill development for labour emigrants can lead to better employment opportunities and potentially diversify emigrant destinations beyond the GCC nations.

- Addressing the rehabilitative and reintegration needs of returning migrants is crucial in navigating the evolving emigration landscape efficiently.

Ageing in India

Why is it in the news?

- The report titled 'Ageing in India Examining Preparedness & Response to Care Challenges An Analysis by HelpAge India' was published in anticipation of World Elder Abuse Awareness Day (15th June).

- By 2050, individuals aged 60 and above will make up 20.8% of the total population, a significant increase from 8.6% in 2011.

Key findings

- **Employment:** Only 15% of elderly individuals are currently employed, with a noticeable gender gap as 24% of elderly males work compared to just 7% of elderly females.

- **Social Security:** Merely 29% of elders have access to social security programs.

- **Health Challenges:** 54% of elderly individuals suffer from two or more Non-Communicable Diseases.

- **Digital Access:** 59% lack access to digital devices.
- **Social Participation:** Only 7% are active members of social organizations.

Elderly care initiatives in India
- **Pradhan Mantri Vaya Vandana Yojana (2015):** A pension scheme providing regular income to citizens aged 60 and above.
- **Rashtriya Vayoshri Yojana (2017):** Offering assisted-living devices and support services to senior citizens under the poverty line category.
- **Maintenance and Welfare of Parents and Senior Citizens Act, 2007:** Focuses on upholding the maintenance and welfare of senior citizens by legally mandating support from children and relatives.

Global Gender Gap Report 2024

Why is it in the news?
- The World Economic Forum (WEF) released the Global Gender Gap Report 2024, shedding light on the persistent gender disparities prevalent across various sectors globally.

About the Report
- Published by the World Economic Forum, the Global Gender Gap Report 2024 evaluates gender equality in four main areas: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment.
- As the oldest index monitoring countries' advancement in narrowing gender discrepancies since its establishment in 2006, the report plays a pivotal role in assessing progress over time.

Key Highlights from the Study
- The global gender disparity score among the 146 countries covered in this version stands at 68.5%.
- In the 101 countries continuously monitored since 2006, the overall gender gap has shown a slight improvement, reaching 68.6%.
- While no nation has achieved complete gender parity, 97% of the economies featured in this edition have managed to shrink more than 60% of their gender gap, as opposed to 85% in 2006.
- **Top-Performing Nations:**
  1) Iceland remains the most gender-equal country for the 14th year in a row, with a gender gap score of 91.2%.

  2) Norway, Finland, and Sweden consistently secure high rankings, placing within the top five.
- India holds the 129th position in the latest index, marking a slight decline compared to the preceding report.
- This slip is attributed to marginal drops in 'Educational Attainment' and 'Political Empowerment,' although there was a slight enhancement in 'Economic Participation and Opportunity.'
- Ranking as the third-lowest among South Asian economies, India trails behind Bangladesh, Nepal, Sri Lanka, and Bhutan.
- The Economic Participation subindex considers gender gaps in labour force participation, share in managerial positions, wage disparities, and wage parity. India's score of 39.8% places it 142nd among 146 countries, showing improvement from 2021 but lower than the 2012 score of 46%.
- Countries like Bangladesh, Sudan, Iran, Pakistan, India, and Morocco exhibit lower levels of gender parity in earned income and labour force participation.

Does H5N1 present a risk to humans?

Why is it in the news?
- The highly pathogenic avian influenza (HPAI) H5N1 strain has been causing concerns due to human infections in dairy farm workers for the first time, raised fears of potential virus transmission from cattle to humans.
- H5N1 outbreaks have been reported in multiple locations in Kerala, particularly in areas with water bodies, migratory birds, fowls, and integrated farms.

More about the news
H5N1 a Severe Threat?
- Since its emergence in 1996, H5N1 has caused mass mortality in wild birds and fowls and has shown the ability to infect several mammalian species, including cattle and humans.
- The risk perception of H5N1 causing a global pandemic has increased due to the virus's spread among animals and the potential for more human infections.

Risk Level to Humans

- Human infections of H5N1 have been reported in several countries, with a considerable fatality rate.
- While the risk of human infection is currently considered low, it may change rapidly as the virus spreads to animals in close contact with humans, such as dairy cows and domestic mice.

Symptoms of H5N1

- Symptoms of H5N1 are similar to influenza-A illnesses and may include respiratory difficulties, fever, cough, sore throat, pneumonia, and, in some cases, conjunctivitis.
- Early detection of respiratory illness or conjunctivitis, coupled with exposure to livestock or dead birds, is vital for promptly diagnosing H5N1 infections.

Precautions to be taken

- People should avoid exposure to infected birds or animals and their environments.

- It is crucial to monitor oneself for respiratory illness symptoms, especially conjunctivitis, and seek medical advice if exposed to possible H5N1 contamination.
- Consuming pasteurized milk and thoroughly cooking poultry products can help prevent potential food-borne transmission of H5N1.

Conclusion

- Prominent precautionary measures are advised to reduce the risk of H5N1 transmission from animals to humans.
- Comprehensive surveillance, containment efforts, and public awareness are essential to mitigate the potential threat posed by H5N1.

8 GEOGRAPHY AND DISASTER MANAGEMENT

Stromatolites- Geological Structures

Why is it in the news?

- In recent news, researchers have uncovered living stromatolites, ancient geological formations created by algae, on Sheybarah Island in Saudi Arabia's northeastern Red Sea shelf.

About Stromatolites :

- These are layered formations created by microorganisms, primarily cyanobacteria (blue-green algae), also known as stromatoliths.

- **Formation Process:** Organisms capture and bind sedimentary particles in shallow waters, gradually forming mound-like structures through layered accumulation.

- **Appearance:** Stromatolites typically exhibit thin, alternating light and dark layers, varying in shapes from flat to rounded (hummocky) or dome-shaped.

Historical Significance :

- They are ancient structures, most prevalent during the Precambrian era, over 542 million years ago.

- While predominantly marine, some ancient stromatolites from more than 2.5 billion years ago are discovered in various environments from intertidal zones to freshwater lakes.

- Presently, living stromatolites are scarce, predominantly found in select salty lagoons or bays, notably in Western Australia. Shark Bay stands out as a significant site for these living marine stromatolites.

Importance of Stromatolites :

- They offer crucial evidence of early life on Earth, with fossils dating back over 3.5 billion years.

- Cyanobacteria in stromatolites are photosynthetic, generating oxygen as a byproduct of their metabolic processes.

- Around 2.5 billion years ago, as stromatolites proliferated, they notably elevated oxygen levels in the atmosphere, transitioning it from carbon dioxide-rich to oxygen-rich. This atmospheric shift set the stage for the emergence of more complex life forms, including the development of eukaryotic cells with nuclei.

Subansiri River

Why is it in the news?

- The Department of Fisheries in Arunachal Pradesh and NHPC Ltd. have officially agreed to implement a fisheries management strategy at the 2000 MW Subansiri Lower Hydro Electric Project (SLP) in Assam through a Memorandum of Agreement (MoA).

Overview

- Subansiri Lower Hydro Electric Project (SLHEP) is a gravity dam currently under construction on the Subansiri River.

- The Subansiri River, also referred to as the Gold River, is a significant tributary of the Brahmaputra River,

flowing through Tibet, Arunachal Pradesh, and Assam in India.

- Originating from the eastern Himalayas, it enters India through the Miri hills in Arunachal Pradesh.
- Notable tributaries of the river include Laro, Nye, Yume, Tsari, and Kamla.
- The river is famed for its gold deposits, earning it the nickname "Gold River."

Declared Disasters in India

Why is it in the news?

- There have been suggestions to officially classify heat waves as declared disasters under the Disaster Management Act, 2005.

About Declared Disasters in India:

- India, with its diverse geographical landscape, is susceptible to a variety of disasters.
- The Disaster Management Act (2005) was established post the devastation caused by the Orissa super-cyclone (1999) and the Tsunami (2004). It defines a disaster as a significant event resulting from either natural or man-made factors.
- Currently, there are 12 distinct categories of disasters that are officially recognized under this Act. These include cyclones, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, and frost and cold waves.

Allocation of Funds under DMA (2005):

- The Disaster Management Act (2005) permits states to access funds from the National Disaster Response Fund (NDRF) and the State Disaster Response Fund (SDRF) at the national and state levels, respectively.
- Initially, states use the resources from the SDRF, with a shift to the NDRF only if the disaster's scale exceeds the SDRF's capacity.

- While the entire NDRF funding is provided by the Central Government, States contribute 25% of the SDRF amount (10% for special category states), with the remaining coming from the Centre.
- Funds from these sources are solely designated for responding to and managing recognized disasters.

Heatwaves in India

- A Heat Wave is characterized by abnormally high temperatures above the typical maximum temps experienced during the summer season in the North-Western regions of India.
- The extreme heat and resulting atmospheric conditions have adverse effects on residents, leading to physiological stress and, at times, fatalities.

Heat Wave Criteria (according to the IMD):

- Heat waves are only acknowledged once a station's maximum temperature hits at least 40°C for Plains and 30°C for Hilly areas.

When a station's usual maximum temperature is less than or equal to 40°C:

- Heat Wave: Normal deviation is 5°C to 6°C
- Severe Heat Wave: Normal deviation is 7°C or more

When a station's usual maximum temperature exceeds 40°C:

- Heat Wave: Normal deviation is 4°C to 5°C
- Severe Heat Wave: Normal deviation is 6°C or more
  Heat waves should be officially declared when the actual maximum temperature reaches 45°C or higher, regardless of the usual maximum temperature.

Report on Water for Shared Prosperity

Why is it in the news?

- The Water for Shared Prosperity report was unveiled by The World Bank during the 10th World Water Forum held in Bali, Indonesia.

About the report:

- The report sheds light on the disparities in global water accessibility and proposes inclusive measures to enhance water security and promote equitable prosperity.

- It underscores the growing gap in the availability of water resources and services, impacting both human and economic progress on a global scale.

Key Findings from the Report:

- **Water's Role in Prosperity:** Water influences prosperity through three main avenues: as safe drinking water, as a vital resource for various economic sectors, and as crucial support for ecosystems.
- **Access to Safe Water:** In 2022, around 2.2 billion individuals lacked access to safely managed potable water services, with an additional 3.5 billion lacking access to adequate sanitation. Particularly, low-income countries have witnessed a decline in safe drinking water access, with 197 million more people lacking access since 2000.
- **Rural-Urban Disparity:** Eight out of ten individuals without access to basic drinking water and sanitation reside in rural areas, and limited progress has been made in bridging this gap in low-income countries over the past two decades.
- **Most Water Stressed Areas:** The Sahel, Southeastern Africa, and South and Central Asia face significant water stress.
- The Democratic Republic of the Congo holds over half of Africa's total water resources.
- **Impact of Climate Change:** Climate change is escalating water-related risks, with developing nations experiencing harsher droughts and prolonged floods between 2000 and 2021, impacting aspects like nutrition, education, and economic well-being.
- **Drought Risk:** Globally, over 800 million individuals face substantial drought risks, with double that number residing in flood-prone regions.
- **Employment:** Water-intensive sectors contribute to 56% of jobs in low-income countries but only 20% in high-income nations. In Sub-Saharan Africa, where water-dependent jobs account for 62% of total employment, inadequate rainfall often leads to significant negative GDP growth.
- **Water, Sanitation, and Hygiene (WASH) Challenges:** Globally, poor WASH conditions contributed to between 1.4 and 4.2 million deaths in 2019 alone. Insufficient access to WASH impacts cognitive development, educational attainment, labor productivity, and income.

Recommendations:

- **Enhancing Resilience:** Address extreme hydro-climatic risks for the most vulnerable by
  - Establishing robust and inclusive early-warning systems.
  - Implementing insurance programs for weather risks.
  - Expanding social protection schemes to aid communities affected by floods, droughts, or both.
- **Improving Water Resource Management:** Enhance development, management, and allocation through
  - Increasing nature-based solutions using innovative financing mechanisms and evidence-based approaches.
  - Facilitating coordination and cooperation for water allocation through information exchange and financial incentives.
  - Adopting water accounting to guide allocation decisions.
- **Promoting Equitable Service Delivery:** Enhance inclusivity and equity in service provision by
  - Scaling up financing through institutional and tariff reforms.
  - Establishing a supportive regulatory and policy environment to encourage innovations.
  - Improving coordination among entities responsible for water, health, education, and urban planning.

Conclusion:

- Effective and equitable water resource management can foster community trust, inclusiveness, and collaboration, ultimately promoting peace.
- Mismanagement of water resources can act as a catalyst for conflict escalation, aggravating existing tensions or sparking new disputes.

Train Mishaps in India

Why is it in the news?

- India has witnessed multiple train mishaps in the past decade, attributed to factors like mechanical faults and human error.

India's Train Disasters

- **2024:** The tragic Kanchanjunga Express train accident took place near Rangapani station in the Katihar Railway Division, before reaching New Jalpaiguri Junction.
- **2023:** A devastating triple train crash occurred in Balasore when the Coromandel Express collided with a goods train after hitting the Bengaluru-Howrah Superfast Express. The incident claimed the lives of over 300 people and left more than 1,000 injured.
- **2016:** A derailment of the Indore-Patna Express in Uttar Pradesh on 20 November resulted in at least 146 fatalities, as carriages crashed into each other.
- **2010:** A heartbreaking incident occurred 83 miles west of Kolkata in Bengal when a train derailed and collided with a freight train, causing 146 deaths and over 200 injuries.
- **2002:** The luxury Rajdhani Express traveling from Calcutta to New Delhi tragically plunged into the swollen Dhabi river, claiming the lives of at least 120 individuals.
- **1999:** On 2 August, a collision between two trains in Gaisal, West Bengal, led to the deaths of 285 people and left 312 injured.

- **1998:** The collision between the Sealdah Express and a derailed train in Punjab resulted in the tragic loss of at least 210 lives.
- **1995:** A collision between two trains near Agra, at Firozabad, claimed the lives of over 300 individuals and left 344 injured on 20 August.
- **1981:** India experienced its deadliest rail accident on 6 June, with over 800 people losing their lives when a train derailed in Bihar and fell into the river below.
- **1954:** On 28 September, a train traveling between Madras and New Delhi derailed after a bridge collapse, leading to the deaths of at least 137 people and injuring 100.

An Overview :

- With over 67,000 kilometers of tracks, the Indian Railways forms one of the most extensive rail networks globally, connecting every corner of the nation and serving as a critical mode of transportation for millions.
- From FY18 to FY23, there has been an average of 44 consequential train mishaps per year in India.
- A train mishap is any event occurring in the railway's operation that imperils the safety of the Railway, its equipment, tracks, passengers, workers, or others, potentially leading to train delays or financial losses.
- Despite technological and infrastructural advancements, such incidents persist, impacting passengers, infrastructure, and the economy at large.

Categories

- **Derailments:** The most common mishap where a train veers off the tracks due to reasons like track defects, equipment malfunction, human mistakes, or deliberate sabotage.
- **Collisions:** It happens when two or more trains collide, often due to signaling errors or communication lapses among railway staff.
- **Level Crossing Accidents:** It involves train collisions with vehicles or pedestrians at rail crossings, emphasizing the need for enhanced safety measures at these points.

Impacts

- **Human Loss and Operational Disruptions:** The aftermath of train mishaps extends beyond casualties and injuries, causing disruptions in railway

operations, leading to delays, cancellations, and financial setbacks.

- **Trust Erosion:** These incidents undermine public trust in train safety, impacting passenger confidence and ridership.
- **Economic Consequences:** The costs of infrastructure damage, compensations, and safety upgrades are considerable, affecting industries relying on efficient freight transport and disrupting supply chains.

Challenges

- The vast railway network faces significant safety challenges, with mishaps being a prevalent issue.
- Monitoring and maintaining every segment of track effectively is a daunting task due to the network's sheer size.
- Overcrowded trains, inadequate maintenance, and human errors persist as ongoing threats to safety.

Safety Measures

- Indian Railways has taken proactive steps to enhance safety, such as regular track inspections, modern signaling systems, and employing technology-driven solutions like TCAS.
- Following a tragic train collision in Odisha's Balasore district, the Supreme Court mandated preventive measures like the 'Kavach' train protection system to bolster railway safety and prevent future catastrophes.

About KAVACH system

- KAVACH is an Automatic Train Protection (ATP) system developed locally by the Research Design and Standards Organisation (RDSO) in partnership with Indian industry, with trial support from South Central Railway.
- The primary goal of KAVACH is to enhance safety in train operations throughout Indian Railways through its advanced electronic system designed to ensure Safety Integrity Level - 4 standards.
- This system is engineered to prevent trains from passing a Red signal and to avoid potential collisions, thus promoting railway safety.
- KAVACH automatically triggers the train braking mechanism if the driver fails to adhere to speed restrictions, reducing the risk of accidents.

- Moreover, it effectively prevents collisions between two Locomotives equipped with the functional KAVACH system.

Suggestions and Way Forward :

- **Infrastructural Upgrades:** Continued investment in track modernization, signaling systems, and rolling stock is crucial in lowering accident risks.
- **Enhanced Safety Protocols:** Strengthening safety through staff training, operating procedure compliance, and real-time monitoring using technology can avert mishaps.
- **Public Awareness:** Increasing awareness among the public regarding railway safety regulations, level crossing rules, and onboard safety practices can prevent accidents.
- **Stakeholder Collaboration:** Improved coordination among government bodies, railway authorities, and the public ensures accountability and swift responses to safety concerns.
- **Innovative Safety Research:** Encouraging research into cutting-edge safety technologies tailored to Indian conditions can lead to breakthroughs in accident prevention.
- To sustain the demand for safe and reliable rail transport in India, continual evolution of safety measures is vital to safeguard passengers and ensure the railway system's enduring viability.

Indian cities are 'heat traps' that make summers worse

Why is it in the news?

- As India grapples with intensifying heatwaves, its urban areas, including the capital Delhi, have transformed into perilous "heat traps."
- In the urban context, a "heat trap" refers to elements within cities that contribute to heat retention and amplification, primarily driven by the Urban Heat Island (UHI) effect.
- Urban areas with limited green spaces, such as Delhi, experience higher temperatures compared to greener regions. For instance, areas near Delhi's Ridge and Lutyens' Delhi, known for their foliage, consistently maintain lower temperatures than densely built urban zones.

More about the news

- The India Meteorological Department (IMD) has predicted above-average temperatures for June in the northwest and central regions of the country, with Delhi facing one of its lengthiest heatwave spells on record.

- The city is currently grappling with unprecedented high temperatures, both during the day and at night, magnifying health risks and demonstrating the severe impacts of climate change and urbanization.

- In June, Delhi marked its highest minimum temperature since 1969 at 35.2 degrees Celsius, highlighting the city's struggle with extreme heat events.

Heatwaves

- Heatwaves are extended periods of exceedingly hot weather that can have significant effects on human health, the environment, and the economy.

- The IMD classifies heatwaves based on specific criteria, including temperature thresholds, deviation from normal temperatures, and absolute temperature measurements. These classifications assist in identifying and declaring heatwaves based on established thresholds.

- Since May 12, Delhi has consistently recorded daily temperatures above 40 degrees Celsius, with no significant relief expected until June 26. The prolonged heatwave has been attributed in part to climate change and rapid urbanization, which have diminished natural cooling elements like wetlands and porous surfaces.

- A concerning trend is the rising nighttime temperatures. This June, Delhi encountered its highest minimum temperature since 1969, with nighttime temperatures peaking at 35.2 degrees Celsius. Elevated nighttime temperatures pose health risks and reveal deviations from typical temperature patterns, indicating the severity of the heatwave in the region.

- Further, continuous high temperatures, especially during the night, pose substantial health risks, leading to an increased incidence of heat-related illnesses.

Inadequate cooling at night exacerbates heat stress, creating challenging living conditions both indoors and outdoors for residents.

- To address escalating temperatures, several Indian states have implemented heat action plans focusing on essential provisions like access to water and medical facilities. Long-term strategies are crucial for sustainable urban living, emphasizing the need for comprehensive initiatives such as better heat insulation in buildings, shelters for vulnerable populations, and enhancing cooling water bodies. Adequate financial support is essential to implement these strategies effectively.

Conclusion

- As Indian cities expand, striking a balance between development and sustainable practices is essential to foster liveable environments resilient to climate change.

- Immediate and long-term strategies, supported by sufficient financial resources, are vital in alleviating the impact of extreme heat and safeguarding the health and well.

9 CULTURE AND HISTORY

124th Death Anniversary of Birsa Munda

Why is it in the news?

- Jharkhand CM marked the 124th death anniversary of revolutionary tribal leader Birsa Munda by paying his tributes.

About Birsa Munda (1875-1900)

- Born on November 15, 1875, in the Chotanagpur region of present-day Jharkhand.
- Spent early years traveling with his parents and received primary education under Jaipal Nag.
- Inspired by the peaceful Sardari agitation against British rule, he became a prominent leader advocating for tribal rights.

Causes of the Rebellion

1) **Impact of Colonial Policies:** The Permanent Settlement Act (1793) disrupted traditional land ownership, leading to displacement and exploitation of indigenous communities.

2) **Erosion of Khuntkattidar System:** The Mundas' traditional land rights system (khuntkatti) was eroded by jagirdars and thikadars, causing land alienation.

3) **Land Alienation and Exploitation:** Non-tribal migration into tribal regions under British rule led to exploitation through high-interest money lending and forced labor.

4) **Missionary Activity:** Spread of education through missionary activities increased awareness among tribals, deepening social cleavages but also inspiring movements for tribal reconstruction.

Major Activities

1) **New Faith 'Birsait' Against Religious Conversion:**
   - Birsa started the faith of 'Birsait' to counter British missionary efforts to convert tribals to Christianity.
   - Members of the Munda and Oraon communities joined the Birsait sect, challenging British conversion activities.
   - The Mundas called him Dharati Aaba, the father of earth.

2) **The Birsa Movement: Ulgulan:**
   - The Munda Rebellion, led by Birsa Munda, took place in the region south of Ranchi in 1899-1900.
   - Concentrated in the Munda belt of Khunti, Tamar, Sarwada, and Bandgaon.
   - The revolt sought to establish Munda Raj and independence, known as Ulgulan or 'Great Tumult' by Munda tribals.
   - The rebellion ended with suppression by British forces and Birsa Munda's death.

Significant Outcomes

- Birsa Munda's mobilization of tribal communities prompted government reforms such as the repeal of the Begar system and the enactment of the Tenancy Act (1903). However, the movement was violently suppressed and Birsa Munda died in jail on June 9, 1900.

131 years of Gandhiji's Natal Satyagraha

Why is it in the news?

- On June 7, 1893 Mahatma Gandhi faced racial discrimination, being forced off a first-class train compartment at Pietermaritzburg railway station, South Africa.

- This event sparked Gandhi's commitment to resisting racial discrimination, leading to his first non-violent protest in the Natal Satyagraha.

History of 'Satyagraha'

- The term originated in a competition in the news-sheet Indian Opinion in South Africa in 1906.

- Mr. Maganlal Gandh coined the term "Sadagraha," which was later modified by Mahatma Gandhi to "Satyagraha" for clarity.

Pietermaritzburg Incident

- Gandhi's forced removal from the train compartment served as a catalyst for his commitment to resisting racial discrimination.

- It inspired him to pursue nonviolent resistance, laying the foundation for his philosophy of Satyagraha.

It's Aftermath and Impact
Formation of Natal Indian Congress and Advocacy

- Gandhi organized the Indian community and founded the Natal Indian Congress (NIC) in 1894 at Durban to advocate for their rights.

- He initiated various campaigns, including petitions and boycotts, challenging discriminatory laws and policies in South Africa.

Natal Satyagraha

- **Asiatic Registration Act:** The passage of this act in 1906 sparked the Natal Satyagraha, protesting against discriminatory laws.

- Gandhi emerged as the leader, advocating for nonviolent resistance and civil disobedience.

- Emphasized confronting oppression with moral courage and integrity without resorting to violence.

Gandhiji's South Africa Settlements

- **Phoenix Settlement in Natal:** Founded in 1904, it served as a communal living space and centre for social and political activism against racial discrimination.

- **Tolstoy Farm outside Johannesburg:** Established in 1910, it served as a refuge for Indian immigrants and a base for organizing resistance against discriminatory laws.

Characteristics and Impact of Natal Satyagraha :

- **Mass Participation:** Garnered widespread support from the Indian community, involving thousands in nonviolent protests.

- **Arrests and Imprisonment:** Gandhi and others faced arrests and imprisonment for civil disobedience acts.

- **International Attention:** Attracted global attention and led to negotiations, resulting in the Indian Relief Act in 1914.

Kanyakumari's Vivekananda Rock

Why is it in the news?

- Prime Minister Narendra Modi's upcoming visit to meditate at the Vivekananda Rock Memorial in Kanyakumari, Tamil Nadu, is significant as it signifies the conclusion of the Lok Sabha election campaign.

Vivekananda Rock Memorial

- Nestled on Vavathurai beach, Kanyakumari, Tamil Nadu, at the southernmost tip of the Indian Peninsula.

- Comprises the Vivekananda Mandapam and the Shripada Mandapam.

- Notably, Swami Vivekananda meditated on this rock for two days in December 1892 during his journey across India after returning from the West.

Key Milestones :

- The concept of the memorial was proposed by Eknath Ranade, the founder of the Vivekananda Rock Memorial Committee.

- It was laid by then-President of India, Sarvepalli Radhakrishnan, on September 1, 1964.
- The memorial was inaugurated on September 2, 1970, by then-President of India, V. V. Giri.

Swami Vivekananda

- **Life:** Born Narendranath Datta (1862-1902).
- **Teachings:** Emphasized the propagation of Ramakrishna's message, blending it with contemporary Indian society, and advocated neo-Hinduism.
- **Spiritual Foundation:** Rooted in the experiences of Ramakrishna, the teachings of Upanishads and Gita, and the examples of Buddha and Jesus.
- **Philosophical Stand:** Professed Vedanta, advocated the amalgamation of Hinduism and Islam, and believed in the fundamental unity of God.
- **Social Advocacy:** Stressed the importance of social action, condemned religion's sanction of the oppression of the poor, and emphasized secular and spiritual knowledge for societal upliftment.
- **Balancing Spiritualism and Materialism:** Advocated for a harmonious balance between spiritual and material pursuits, advocating for a synthesis of Western materialism and Eastern spiritualism for global well-being.
- **Establishment of Ramakrishna Mission:** Established in 1897, focused on humanitarian relief and social reform, and promoted the idea of service as worship.
- **Philosophy of Ramakrishna Mission:** Emphasized the use of technology and modern science for serving humanity, recognized the value of image worship, and underscored Vedanta philosophy as a unifying force across religions, welcoming individuals irrespective of caste or creed.
- **Physical Establishment:** Secured land at Belur in 1898, relocating Ramakrishna Math to the site.

Project UDBHAV

Why is it in the news?
- Recently, the Indian Army announced its exploration of India's military legacy within the framework of 'Project UDBHAV'.

More about the news:
- Project UDBHAV (meaning 'origin' or 'genesis') represents a collaboration between the Indian Army and the United Service Institution of India (USI). It is dedicated to delving into the foundational principles of India's ancient military philosophies.

Goals:
- To amalgamate traditional wisdom with contemporary military methodologies;
- Developing a comprehensive approach to tackling present security challenges;
- Merging ancient knowledge with current military teachings through interdisciplinary studies, workshops, and leadership sessions;
- Fostering a profound understanding of our ancient knowledge systems and philosophies;

Exploring Ancient Texts and Narratives:
- Project Udbhav has delved into ancient texts dating from the 4th century BCE to the 8th century CE, with specific attention to Kautilya, Kamandaka, and the Kural.
- **The Arthashastra by Chanakya:** This highlights the significance of strategic partnerships, alliances, and diplomacy, aligning with contemporary military strategies such as international collaboration and soft power projection.
- **Thirukkural by Thiruvalluvar:** It promotes ethical conduct in all endeavors, including warfare, echoing modern military codes of ethics governing just war and the principles outlined in the Geneva Convention.
- The Naval Battle of Saraighat in 1671, under the leadership of Lachit Borphukan, serves as a remarkable illustration of employing strategic diplomatic negotiations, psychological warfare, emphasis on military intelligence, and exploiting the strategic vulnerabilities of the opposition.

10 MISCELLANEOUS

A. DEFENCE

RudraM-II air-to-surface missile

Why is it in the news?

- Recently, the RudraM-II air-to-surface missile underwent a successful flight test conducted by the Defence Research & Development Organisation (DRDO).

More about the news :

- The RudraM-II air-to-surface missile accomplished a successful flight test under the auspices of the Defence Research & Development Organisation (DRDO).
- The test was conducted utilizing a Su-30 MK-I platform from the Indian Air Force (IAF) over Odisha's coastline.
- The flight trial effectively achieved all its objectives, thereby validating the propulsion system and control & guidance algorithm.

DRDO SUCCESSFULLY TEST FIRES 'RUDRAM-II' MISSILE

About the RudraM-II Air-to-Surface Missile

- RudraM-II represents an indigenously developed solid-propelled air-launched missile system.

- It is specifically engineered for air-to-surface combat and is deployable from aircraft.
- This missile system incorporates a range of state-of-the-art technologies fostered by various DRDO laboratories in India.

JIMEX - 24

Why is it in the news?

- The Japan - India Maritime Exercise 2024 (JIMEX 24) has commenced in Yokosuka, Japan.
- This marks the eighth occasion of JIMEX since its establishment in 2012.

More about the news:

- Representing the Indian Navy (IN) is INS Shivalik, while the Japan Maritime Self-Defense Force (JMSDF) is represented by Guided Missile Destroyer JS Yugiri.
- The exercise offers a platform to exchange best practices and enhance operational cooperation between India and Japan.
- It underscores their joint dedication to maritime security in the Indo-Pacific region.

Other India-Japan Exercises:

- **Dharma Guardian:** Bilateral drill involving the Indian Army (IA) and the Japan Ground Self Defence Force (JGSDF).
- **Veer Guardian:** Bilateral training featuring the Indian Air Force (IAF) and the Japan Air Self Defence Force (JASDF).
- **Malabar Exercise:** Multinational naval exercise involving India, Japan, the USA, and Australia.

Iskander-M missile system

Why is it in the news?

- Russia recently stated that it utilized the nuclear-capable Iskander-M missile system to strike the Ukrainian military airbase in Mirgorod.

About Iskander-M

- The Iskander (known as SS-26 Stone in Western reporting) is a road-mobile short-range ballistic missile system developed by Russia.

- It was introduced into Russian military service in 2006. The system is specifically designed for carrying out tactical strikes on small, high-value land targets.

Key Features:

- The missile measures 7.3 meters in length, 0.92 meters in diameter, and weighs 3,750 kilo-grams at launch. It has a range of 400-500 km and utilizes both inertial and optical guidance systems.

- The missile is capable of carrying conventional and nuclear warheads weighing up to 700 kg.

- Missiles can travel at speeds of up to seven times the speed of sound (Mach 7) and can reach altitudes exceeding 30 miles.

- The system incorporates a maneuverable re-entry vehicle (MaRV) and decoys to counter theater missile defense systems.

- Equipped with various in-flight correction and self-targeting systems, it enables the missile to evade missile defense mechanisms.

- It includes several variants such as Iskander-E and Iskander-K.

India to host its first multinational air exercise

Why is it in the news?

- The Indian Air Force (IAF) to host its inaugural multinational air exercise Tarang Shakti-2024 in August, with participation from ten countries and a few observers.

More about the news

- The exercise will be held in two phases, with the first in southern India in early August and the second in the western sector from late August to mid-September.

- Participating countries include Australia, France, Germany, Japan, Spain, UAE, UK, and USA.

B. Awards

Nelson Mandela Award for Health Promotion 2024

Why is it in the news?

- The National Institute of Mental Health and Neuro Sciences (NIMHANS) has been honored with the Nelson Mandela Award for Health Promotion in 2024.

About the Award

- The Nelson Mandela Award for Health Promotion was established by the World Health Organization (WHO) in 2019.

- This award acknowledges individuals, institutions, and governmental or non-governmental organizations for their remarkable contributions to health promotion.

UN's WSIS 2024 'Champion' Award by the United Nations

Why is it in the news?

- Recently, the Centre for Development of Telematics (C-DOT) was bestowed with the prestigious UN's WSIS 2024 'Champion' Award for their groundbreaking work in Mobile-Enabled Disaster Resilience focusing on Cell Broadcast Emergency Alerting.

More about the news

- The award was presented at the World Summit on the Information Society (WSIS)+20 Forum 2024, held in Geneva, Switzerland, and organized in collaboration with UNESCO, UNDP, and UNCTAD.

- This accolade highlights C-DOT's dedication to utilizing technology for positive societal transformation.
- C-DOT demonstrated innovative telecom solutions that include an ITU-CAP-based early warning alert system and AI-driven fraud detection capabilities.

About Centre for Development of Telematics (C-DOT)

- Established in 1984 as an independent Telecom R&D center under the Department of Telecommunication.
- Recognized as a registered society under the Societies Registration Act, 1860, and identified as a 'public funded research institution' by the Department of Scientific and Industrial Research (DSIR), Ministry of Science & Technology.

Cell Broadcast Emergency Alerting Platform developed by C-DOT

- **Real-Time Alerts:** Providing crucial emergency information swiftly to mobile devices through cellular networks.
- **Location-Specific Multi-Hazard Alerts:** Offering alerts tailored to specific locations, aiding in quick responses during emergencies.
- **Multi-Language Capabilities:** Ensuring alerts are accessible in various languages.
- **Efficient and Affordable:** A homegrown solution that enhances disaster risk management.

Alignment with Global Agendas

- **Early W arnings for All (EW4All):** Enhancing global early warning systems.
- **ITU's Common Alerting Protocol (CAP):** Setting standards for alert messaging.
- **Sustainable Development Goals (SDGs):** Advocating for disaster resilience.

2023 Award for Military Gender Advocacy

Why is it in the news?

- Major Radhika Sen of the Indian Army has been honored with the 2023 Award for Military Gender Advocacy.

Background

- The United Nations established the "Military Gender Advocate of the Year Award" in 2016.
- This award acknowledges the dedicated work of military peacekeepers in advancing the principles outlined in the 2000 Security Council resolution, which focuses on safeguarding women and girls from sexual violence during conflicts and assigns gender-related responsibilities for the UN.

Previous Awardees:

- India, with 124 women military peacekeepers presently in service, stands as the eleventh largest contributor of female peacekeepers to the UN.
- Major Sen becomes the second Indian peacekeeper to receive this prestigious award, following in the footsteps of Major Suman Gawani, who was a co-recipient in 2019.

Observance of International Day of UN Peacekeepers

- On May 29, the International Day of United Nations Peacekeepers, as designated by the United Nations General Assembly under resolution 57/129 commemorates the inception of the first UN peacekeeping mission, the "United Nations Truce Supervision Organization," in Palestine in 1948.

C. Others

Oldest Known Human Viruses discovered in 50,000-Year-Old Neanderthal Bones

Why is it in the news?

- Researchers found traces of modern viruses in Neanderthal bones from Russia's Chagyrskaya cave, dating back 50,000 years.
- Detected viruses include adenovirus (common colds), herpesvirus (cold sores), and papillomavirus (genital warts), shedding new light on Neanderthal health and extinction.

Health Impacts Inherited by Modern Humans

- Modern humans inherit various health conditions from Neanderthals, including skin conditions, allergies, metabolism, nicotine addiction, mood disorders, sleep patterns, blood clotting, sense of smell, and UV radiation response.
- This suggests a genetic legacy from Neanderthals that continues to influence human health today.

About Neanderthals

- Distinct species of hominins that lived in Europe and parts of Asia from around 400,000 to 40,000 years ago.
- First discovered in 1856 in the Neander Valley in present-day Germany.
- Robustly built with a stocky frame adapted to cold climates, possessing large brains indicating advanced cognitive abilities.

Physical Features:

- Distinctive features included a prominent brow ridge, large nose, and a receding chin.
- Adapted to cold environments with a robust build.

Social Life:

- Skilled hunters and gatherers, utilizing tools such as stone flakes, scrapers, and spears.
- Evidence of fire usage for cooking, warmth, and protection.
- Engaged in complex social structures, rituals, and symbolic behaviours, including burial practices.

Habitat and Distribution:

- Inhabited diverse environments from grasslands to tundra regions.
- Range extended from Western Europe to Central Asia, with populations found in Spain, France, Germany, Croatia, and the Middle East.

Interactions with Modern Humans:

- Coexisted with early modern humans (Homo sapiens) for thousands of years.
- Evidence of interbreeding, with genetic studies indicating Neanderthal DNA in non-African human populations.

QS World University Ranking 2025

Why is it in the news?

- The recent release of the QS World University Ranking 2025 evaluated higher education institutions worldwide.

Performance of Indian Universities

- In the QS World University Ranking 2025, seven out of the top 10 spots in India are held by IITs (IIT Bombay, Delhi, Kharagpur, Madras, Kanpur, Kharagpur, and Guwahati).
- IIT Bombay climbs from 149th in 2024 to 118th in the 2025 rankings.

- The University of Delhi (DU) advances 79 positions from 407th in 2024 to 328th in 2025, securing the seventh position among Indian institutions.

Leading Global Institutions

- Massachusetts Institute of Technology retains its position as the best global institute for the 13th consecutive year.
- The second rank is now held by Imperial College London from the UK, up from sixth place last year.
- Harvard University and the University of Oxford share the third spot.

New Dinosaur Species found at Lake Kariba in Zimbabwe

Why is it in the news?

- Scientists have unearthed fossils along the shores of Lake Kariba in Zimbabwe, revealing a brand-new dinosaur species.

About Musankwa Sanyatiensis

- Musankwa sanyatiensis, a newly discovered dinosaur species, was identified from fossils found at Lake Kariba in Zimbabwe.
- This marks the first dinosaur species named from the Mid-Zambezi Basin in northern Zimbabwe in over half a century and only the fourth dinosaur to have ever been named from Zimbabwe.
- The name "Musankwa" pays tribute to the houseboat utilized by the scientists during their research expeditions, while "Sanyatiensis" is in reference to the Sanyati River flowing into Lake Kariba.
- Musankwa sanyatiensis was a herbivore that predominantly inhabited marshy areas.
- The other three dinosaur species identified in Zimbabwe are "Syntarsus" rhodesiensis (1969), Vulcanodon karibaensis (1972), and Mbiresaurus

raathi (2022). The rocks containing the remains of Musankwa sanyatiensis date back to the Late Triassic period, approximately 210 million years ago.

Details of Fossil Findings

- The dinosaur is represented by a single hind leg, comprising the thigh, shin, and ankle bones. Weighing approximately 390 kg, Musankwa sanyatiensis was among the larger dinosaurs of its era.

Significance in Evolutionary History

- Belonging to the Sauropodomorpha group, known for bipedalism and elongated necks, it aligns with the Late Triassic era's common traits.
- It shares close evolutionary ties with similar dinosaurs discovered in South Africa and Argentina.

ZiG: Zimbabwe's New Gold-Backed Currency

Why is it in the news?

- Zimbabwe has recently rolled out the ZiG (Zimbabwe Gold), a gold-backed currency amidst a turbulent economic period characterized by hyperinflation and currency instabilities.

Key Points about ZiG:

- The introduction of ZiG marks Zimbabwe's sixth attempt at a national currency within a span of 15 years.
- This move follows the notorious 2009 collapse of the Zimbabwe dollar, driven by hyperinflation peaking at an unprecedented 5 billion per cent ranking as the world's most severe currency devaluation event.
- Unlike its predecessors, ZiG stands out as a currency supported by physical gold reserves to bolster its intrinsic value. This ensures that the currency's value is substantiated by the tangible gold assets held by the government.
- ZiG notes and coins are available in different values: 1ZiG, 2ZiG, 5ZiG, 10ZiG, 20ZiG, 50ZiG, 100ZiG, and 200ZiG.

Challenges and Community Response:

- Despite the move, many Zimbabweans remain wary due to past currency crises, and there is still a high demand for U.S. dollars which have served as a widely adopted alternative.
- While the official market has seen ZiG retain its value, it has experienced volatility in informal markets. Exchange rates in these sectors can soar to 17 ZiGs per U.S. dollar.

Artificial Ripening of Fruits

Why is it in the news?

- The Food Safety and Standards Authority of India (FSSAI) has issued a caution to traders, fruit handlers, and Food Business Operators (FBOs) overseeing ripening chambers to strictly adhere to the ban on using calcium carbide for artificial fruit ripening, particularly during the mango season.

More about the news:

- Calcium carbide, a substance commonly employed for ripening fruits such as mangoes, releases acetylene gas that contains harmful traces of arsenic and phosphorus.

- These substances, also referred to as 'Masala', can lead to severe health issues like dizziness, frequent thirst, irritation, weakness, difficulty in swallowing, vomiting, and skin ulcers.
- Moreover, handling acetylene gas can pose equal hazards.
- Due to the associated risks, the utilization of calcium carbide for fruit ripening has been prohibited under the Food Safety and Standards (Prohibition and Restrictions on Sales) Regulations, 2011.
- FSSAI has authorized the use of ethylene gas as a safer substitute for fruit ripening in India.
  1) Ethylene gas can be applied at concentrations up to 100 ppm (100 µl/L), depending on the crop, variety, and maturity.
  2) This naturally occurring hormone in fruits, ethylene, regulates the ripening process by initiating and overseeing a series of chemical and biochemical activities.
  3) The application of ethylene gas to unripe fruits initiates the natural ripening process until the fruit begins producing ethylene on its own in substantial amounts.

PM inaugurates Nalanda University Campus in Bihar

Why is it in the news?

- Nalanda University campus was inaugurated by Prime Minister Narendra Modi at Rajgir, located 100 km from Patna and near the ruins of the ancient Nalanda Buddhist monastery.

More about the news

- The idea of reviving Nalanda was proposed by President APJ Abdul Kalam in 2006, aiming to establish an international institute of learning in partnership with select Asian countries.
- The proposal to reestablish Nalanda was endorsed at the East Asia Summit in 2007 and reiterated in 2009, with 17 countries supporting the initiative.
- The Bihar Assembly passed the Nalanda University Bill in 2010, declaring the university of "national importance" and outlining its governance structure.

Evolution into a Center of Learning

- Nalanda University welcomed its first batch of students in 2014, offering programs in Historical Studies, Ecology, and Environmental Studies.
- Nobel Laureate Amartya Sen became the first Chancellor, with the university expanding to include five schools covering various disciplines.
- By 2022, 90% of the campus construction was completed, accommodating 800 students, with plans for up to 7,500 students and teachers in the future.

About the Campus

- The campus blends modern amenities with traditional architectural elements reminiscent of the ancient university.
- With only 8% of the area built upon, the campus features water bodies, green spaces, a library, auditorium, and sports complex, promoting a sustainable and serene environment.
- The campus design mirrors the architectural style of the original Nalanda ruins, with natural cooling methods and eco-friendly initiatives like water recycling plants.

Nalanda Mahavira - Legacy of the Ancient Site

- Nalanda Mahavira, active from the 5th to 13th century CE, was a renowned center of learning attracting scholars from various disciplines.

- Seventh-century accounts by Chinese traveler Hsuan Tsang describe Nalanda as a vast institution with a large student and teacher population.
- The ancient Nalanda monastery was not limited to Buddhist teachings but also offered education in Hindu philosophy, grammar, medicine, and other subjects, reflecting its diverse academic environment.
- The ancient Nalanda University ruins were recognized as a UNESCO World Cultural Heritage in 2016.

Hooch

Why is it in the news?

- At least 34 people have died, and around 100 others have been hospitalised after consuming hooch, or spurious liquor, in Tamil Nadu's Kallakurichi.

About Spurious Liquor

- Spurious liquor, commonly referred to as hooch, is a term used to describe low-quality alcohol that can be extremely dangerous when consumed.
- Unlike regulated and quality-controlled branded liquor, hooch is typically produced in crude, makeshift settings with minimal oversight.
- Hooch is primarily crafted to induce intoxication, but due to its unregulated production methods, it can be deadly if not prepared correctly. Unfortunately, determining the safety of hooch without consumption is challenging.

Manufacture:

- Spurious liquor is created through two fundamental processes - fermentation and distillation.
- **Fermentation:** In this process, yeast interacts with sugars derived from various sources like grains or fruits to ferment and produce an alcohol-infused mixture. Fermentation, a traditional method used in producing beverages such as beer and wine, has a limitation as yeast becomes toxic in high alcohol levels. To boost alcohol concentration beyond a certain level, distillation is necessary.
- **Distillation:** This involves separating alcohol from the fermented mixture by evaporation and condensation, exploiting the differing boiling points of various components. Distilled beverages are much stronger than fermented ones.

- Spurious liquor is produced by distilling a fermented mixture composed of local yeast, sugar, or fruit, mainly in rudimentary setups a large vessel for boiling the mix, a pipe for fume transfer, and a pot for alcohol condensation. Multiple distillation rounds are conducted to increase alcohol potency.

Hazardous:

- The crude production techniques of spurious liquor pose inherent risks, especially concerning the presence of methanol, a highly toxic industrial alcohol, alongside consumable ethanol in the distilled mixture. Unlike non-distilled beverages containing trace methanol, distillation concentrates both methanol and ethanol. Incorrect distillation can produce a final product with high methanol levels, endangering consumers.

- Temperature control during distillation is crucial, as toxic methanol evaporates at a lower temperature than ethanol. Commercial distilleries maintain precise temperatures to discard toxic methanol; however, hooch production lacks this accuracy, making the process unsafe.

Treatment:

- Consumption of methanol in spurious liquor can result in vision impairment, high toxicity, and metabolic acidosis, where the body accumulates excess acid that cannot be eliminated naturally.

- Treatment involves intravenous administration of Fomepizole and ethanol, though availability issues may limit access to Fomepizole in some regions of India. Alternative treatment includes a 1:1 mixture of ethanol and water, hindering methanol's conversion into toxins and aiding its elimination from the body through natural processes or dialysis.

Messi apologises to PSG for Saudi trip

Why is it in the news?

- Messi apologized to Paris St Germain and teammates for his unsanctioned trip to Saudi Arabia, resulting in a two-week suspension.

More about the news

- French media reported Messi's suspension following the trip, which led to him missing a training session.

- The incident occurred after PSG's 3-1 defeat to Lorient, with Messi explaining that he thought he had the day off.

- Lionel Messi expressed remorse in an Instagram video, stating that he awaits the club's decision regarding his actions.

- PSG coach Christophe Galtier confirmed he was not involved in Messi's suspension and mentioned there will be discussions upon Messi's return.

- With a lead in Ligue 1, PSG aims to maintain their position in the league standings.

AMIGOS IAS JULY 2024 Magazine (PYQs)

PRELIMS

1) Consider the following statements: **(2019)**

1) Agricultural soils release nitrogen oxides into the environment.

2) Cattle release ammonia into the environment.

3) Poultry industry releases reactive nitrogen compounds into environment.

Which of the statements given above is/are correct?

a) 1 and 3 only   b) 2 and 3 only

c) 2 only   d) 1, 2 and 3

Ans (d)

2) With reference to the British colonial rule in India, consider the following statements:

1) Mahatma Gandhi was instrumental in the abolition of the system of 'indentured labour'.

2) In Lord Chelmsford's 'War Conference', Mahatma Gandhi did not support the resolution on recruiting Indians for World War.

3) Consequent upon the breaking of Salt Law by Indian people, the Indian National Congress was declared illegal by the colonial rulers.

Which of the statements given above are correct?

a) 1 and 2 only   b) 1 and 3 only

c) 2 and 3 only   d) 1, 2 and 3

Ans (b)

3) The word 'Denisovan' is sometimes mentioned in media in reference to **(2019)**

a) Fossils of a kind of dinosaurs

b) An early human species

c) A cave system found in North-East India

d) A geological period in the history of Indian subcontinent

Ans (b)

4) With reference to the history of India, "Ulgulan" or the Great Tumult is the description of which of the following events? **(2020)**

a) The Revolt of 1857

b) The Mappila Rebellion of 1921

c) The Indigo Revolt of 1859-60

d) Birsa Munda's Revolt of 1899-1900

Answer (d)

5) Consider the following statements

1) Under Ramsar Convention, it is mandatory on the part of the Government of India to protect and conserve all the wetlands in the territory of India.

2) The Wetlands (Conservation and Management) Rules, 2010 were framed by the Government of India based on the recommendations of the Ramsar Convention.

3) The Wetlands (Conservation and Management) Rules, 2010 also encompass the drainage area or catchment regions of the wetlands as determined by the authority.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 and 3 only

c) 3 only   d) 1, 2 and 3

Ans (c)

6) Aspartame is an artificial sweetener sold in the market. It consists of amino acids and provides calories like other amino acids. Yet, it is used as a low-calorie sweetening agent in food items. What is the basis of this use?

1) Aspartame is as sweet as table sugar, but unlike table sugar, it is not readily oxidized in human body due to the lack of requisite enzymes.

2) When aspartame is used in food processing, the sweet taste remains, but it becomes resistant to oxidation.

3) Aspartame is as sweet as sugar, but after ingestion into the body, it is converted into metabolites that yield no calories.

4) Aspartame is several times sweeter than table sugar, hence food items made with small quantities of aspartame yield fewer calories on oxidation.

Ans (d)

7) Consider the following statements: **(2011)**

1) The Food Safety and Standards Act, 2006 replaced the Prevention of Food Adulteration Act, 1954.

2) The Food Safety and Standards Authority of India (FSSAI) is under the charge of Director General of Health Services in the Union Ministry of Health and Family Welfare.

Which of the statements given above is/are correct?

a) 1 only 　　　　 b) 2 only

c) Both 1 and 2 　 d) Neither 1 nor 2

Ans (a)

8) **In the context of the Indian economy, 'Open Market Operations' refers to:**

a) borrowing by scheduled banks from the RBI

b) lending by commercial banks to industry and trade

c) purchase and sale of government securities by the RBI

d) None of the above

Ans (c)

9) **Belt and Road Initiative' is sometimes mentioned in the news in the context of the affairs of (2016)**

(a) African Union 　　 (b) Brazil

(c) European Union 　 (d) China

Ans: (d)

10) **In the cities of our country, which among the following atmospheric gases are normally considered in calculating the value of Air Quality Index? (2016)**

1) Carbon dioxide 　 2) Carbon monoxide

3) Nitrogen dioxide 　 4) Sulfur dioxide

5) Methane

Select the correct answer using the code given below:

a) 1, 2 and 3 only 　　 b) 2, 3 and 4 only

c) 1, 4 and 5 only 　　 d) 1, 2, 3, 4 and 5

Ans: (b)

11) **Consider the following statements: (2023)**

1) The Government of India provides Minimum Support Price for niger (Guizotia abyssinica) seeds.

2) Niger is cultivated as a Kharif crop.

3) Some tribal people in India use niger seed oil for cooking.

How many of the above statements are correct?

a) Only one 　　 b) Only two

c) All three 　　 d) None

Ans (c)

12) **What is/are the advantage/advantages of zero tillage in agriculture? (2020)**

1) Sowing of wheat is possible without burning the residue of the previous crops.

2) Without the need for a nursery of rice saplings, direct planting of paddy seeds in the wet soil is possible.

3) Carbon sequestration in the soil is possible.

Select the correct answer using the code given below:

a) 1 and 2 only 　　 b) 2 and 3 only

c) 3 only 　　　　　 d) 1, 2 and 3

Ans: (d)

13) **Which one of the following is the context in which the term "qubit" is mentioned? (UPSC 2022)**

a) Cloud Services

b) Quantum Computing

c) Visible Light Communication Technologies

d) Wireless Communication Technologies

Ans (b

14) **Consider the following statements: (2018)**

1) The definition of "Critical Wildlife Habitat" is incorporated in the Forest Rights Act, 2006.

2) For the first time in India, Baigas have been given Habitat Rights.

3) Union Ministry of Environment, Forest and Climate Change officially decides and declares Habitat Rights for Primitive and Vulnerable Tribal Groups in any part of India.

Which of the statements given above is/are correct?

a) 1 and 2 only 　　 b) 2 and 3 only

c) 3 only 　　　　　 d) 1, 2 and 3

Ans: (a)

15) **In the Constitution of India, promotion of international peace and security is included in the (2014)**

a) Preamble to the Constitution

b) Directive Principles of State Policy

c) Fundamental Duties

d) Ninth Schedule

Ans: (b)

16) **Which of the following gives 'Global Gender Gap Index' ranking to the countries of the world?(2017)**

a) World Economic Forum

b) UN Human Rights Council

c) UN Women

d) World Health Organization

Ans: (a)

17) Consider the following: **(2012)**

1) Black-necked crane   2) Cheetah

3) Flying squirrel   4) Snow leopard

Which of the above are naturally found in India?

a) 1, 2 and 3 only   b) 1, 3 and 4 only

c) 2 and 4 only   d) 1, 2, 3 and 4

Ans: (b)

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

1) Appropriate alternate technologies are not sufficiently available.

2) India cannot invest huge funds in research and development.

3) Many developed countries have already set up their polluting industries in India.

Which of the statements given above is/are correct?

a) 1 and 2 only   b) 2 only

c) 1 and 3 only   d) 1, 2 and 3

Ans: (a)

19) As per the Solid Waste Management Rules, 2016 in India, which one of the following statements is correct?   **(2019)**

a) Waste generator has to segregate waste into five categories.

b) The Rules are applicable to notified urban local bodies, notified towns and all industrial townships only.

c) The Rules provide for exact and elaborate criteria for the identification of sites for landfills and waste processing facilities.

d) It is mandatory on the part of the waste generator that the waste generated in one district cannot be moved to another district.

Ans: (c)

20) With reference to 'Indian Ocean Dipole (IOD)' sometimes mentioned in the news while forecasting Indian monsoon, which of the following statements is/are correct?   **(2017)**

1) IOD phenomenon is characterised by a difference in sea surface temperature between tropical Western Indian Ocean and tropical Eastern Pacific Ocean.

2) An IOD phenomenon can influence an El Nino's impact on the monsoon.

Select the correct answer using the code given below:

a) 1 only   b) 2 only

c) Both 1 and 2   d) Neither 1 nor 2

Ans: (b)

Mains PYQs

1) Public health system has limitation in providing universal health coverage. Do you think that private sector can help in bridging the gap? What other viable alternatives do you suggest?   (2015)

2) What are the continued challenges for Women in India against time and space?   (2019)

3) The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government". Discuss.   (2020)

4) WTO is an important international institution where decisions taken affect countries in a profound manner. What is the mandate of WTO and how binding are their decisions? Critically analyze India's stand on the latest round of talks on Food security.   (2014)

5) Initially Civil Services in India were designed to achieve the goals of neutrality and effectiveness, which seems to be lacking in the present context. Do you agree with the view that drastic reforms are required in Civil Services. Comment   (2017)

6) "Besides being a moral imperative of a Welfare State, primary health structure is a necessary precondition for sustainable development." Analyze.   (2021)

7) What does each of the following quotations mean to you?

a) Every work has got to pass through hundreds of difficulties before succeeding. Those that persevere will see the light, sooner or later. (Swami Vivekananda)

b) **Condemn none:** if you can stretch out a helping hand, do so. If not, fold your hands, bless your brothers, and let them go their own way. (Swami Vivekananda)

8) Discuss how emerging technologies and globalisation contribute to money laundering. Elaborate measures to tackle the problem of money laundering both at national and international levels.

(2021)

9) Whether National Commission for Scheduled Castes (NCSC) can enforce the implementation of constitutional reservation for the Scheduled Castes in the religious minority institutions? Examine.(2018)

10) The China-Pakistan Economic Corridor (CPEC) is viewed as a cardinal subset of China's larger 'One Belt One Road' initiative. Give a brief description of CPEC and enumerate the reasons why India has distanced itself from the same. (2018)