NEXT IAS

DAILY CURRENT AFFAIRS (DCA)

Time: 45 Min

Date: 11-06-2024

Table of Content

HEAT AND GLOBAL WARMING

Context

- Today, global warming is forcing us to deliberate on the roles heat plays in our lives.

Understanding Heat

- Heat is a **form of energy** that plays a pivotal role in thermodynamics, influencing the **transfer and transformation of energy** within and between systems.
    - In the microscope scheme, an object's temperature is the average kinetic energy of its constituent particles.
- Heat is energy in transit; it is **not stored as an internal property** of an object.
- It is the **thermal energy** transfer between systems or bodies due to a temperature difference and it occurs spontaneously from a hotter body to a colder one.

Unit of Heat

- The standard unit of heat in the **International System of Units (SI)** is the **Joule (J)**.
- Another unit is the **Calorie (cal)**, with 1 calorie being the amount of heat required to raise the temperature of 1 gram of water by 1 degree Celsius at atmospheric pressure.

Heat and Engines

- Engineers have developed ways to convert heat into mechanical energy, paving the way for machines like the **internal combustion engine (ICE).**
- ICE converts **heat to (mechanical) work**, and in this sense is a practical application of a theoretical entity called the **Carnot Cycle**.
    - **Carnot Cycle** describes the **maximum thermodynamic efficiency** an engine converting heat to work can have.

Internal Combustion Engine (ICE)

- In an ICE, heat moves from the hot reservoir — generated by the combustion of petrol — to the ideal gas.
- The gas particles are heated up and the gas expands, pushing on the piston.
- This process of **converting heat into mechanical energy** is fundamental to the **operation of many modern technologies**, including cars, power plants, and industrial machinery.

Heat and Global Warming

- Global warming is a phenomenon where **gases produced by the burning of fossil fuels** prevent the heat from leaving the atmosphere.
- These greenhouse gases are **carbon dioxide, chlorofluorocarbons, water vapour, methane, and nitrous oxide.**
- The **excess heat** in the atmosphere has caused the average global temperature to rise over time, otherwise known as global warming.
- As greenhouse gas emissions **blanket the Earth**, they **trap the sun's heat** that leads to **global warming and climate change**.
- It is important to note that the world is now warming faster than at any point in recorded history.
- Warmer temperatures over time are **changing weather patterns** and **disrupting the usual balance of nature.**

Science Behind Global Warming

- The Earth's climate system is powered by **solar energy, i.e. insolation.** Approximately one-third of the solar energy that reaches the Earth is reflected back into space, and the rest is **absorbed by the Earth's surface, warming it.**
    - It is then **radiated back into the atmosphere**.
- Some of this **outgoing heat is trapped by greenhouse gases** in the atmosphere, keeping the Earth warm enough to sustain life.
    - It is known as the greenhouse effect.
- However, **human activities**, particularly since the **Industrial Revolution**, have increased the concentration of these greenhouse gases in the atmosphere. Its **enhanced greenhouse effect** is causing the Earth's average **temperature to rise**, a phenomenon known as global warming.

Impact of Global Warming

- The consequences of global warming are far-reaching and potentially catastrophic. Rising temperatures are causing polar ice to melt, leading to a rise in sea levels.
- It could result in the submersion of coastal cities and islands, displacing millions of people.
- **Heatwaves** are becoming more frequent and severe, leading to increased mortality, particularly among vulnerable populations.

- **Changes in temperature and precipitation patterns** are disrupting agricultural practices, threatening food security.

- Global warming is also causing a **loss of biodiversity**, as species unable to adapt to rapidly changing conditions face **extinction**.

Conclusion and Way Forward

- Understanding heat is fundamental to our understanding of the world around us. From powering engines to contributing to global warming, heat plays a crucial role in our daily lives and the broader environment.

- Addressing global warming requires urgent and concerted action at all levels - **individual, national, and international.**

  ◆ Countries need to transition to renewable sources of energy, improve energy efficiency, and protect and restore forests.

  ◆ Individuals can contribute by reducing their carbon footprint through actions like using public transportation, reducing energy consumption, and eating less meat.

Source: TH

INDIAN OCEAN

Context

- The Indian Ocean, the smallest of the three major oceans, has been gaining significant attention recently due to its rapid warming because of increasing greenhouse gases and global warming.

About the Indian Ocean

- **Geographical Location:** India is a vast country lying entirely in the **Northern hemisphere**.

  ◆ The southernmost point of India is **'Indira Point'** which got submerged under the sea water in 2004 during the Tsunami.

  ◆ The **Indian landmass** has a central location between East and West Asia.

  ◆ The **Deccan Peninsula** protrudes into the Indian Ocean, thus helping India to establish close contact with West Asia, Africa and Europe from the western coast and with Southeast and East Asia from the eastern coast.

Unique Configuration

- The **northern boundary of the Indian Ocean** is closed off by the Asian landmass, with **small connections to the Persian Gulf and the Red Sea**.

- It's bounded by Asia to the north, Africa to the west, and Australia to the east.

Major Islands

- To the southeast and southwest of the mainland lie the **Andaman and Nicobar islands** and the **Lakshadweep islands** in the Bay of Bengal and Arabian Sea respectively.

- **Major islands** in the Indian Ocean are Madagascar, Sri Lanka, Maldives, Seychelles, Mauritius, Comoros, Grande Terre (primary and largest island of New Caledonia), Reunion, Zanzibar, and Socotra etc.

Importance of Indian Ocean

- **Strategic Position:** The trans Indian Ocean routes, which connect the countries of Europe in the West and the countries of East Asia, provide a strategic central location to India.

  ◆ It is India's eminent position in the Indian Ocean, which justifies the naming of an Ocean after it.

- **Maritime Safety and Security:** The Information Fusion Centre – Indian Ocean Region (IFC-IOR) is a nodal centre of excellence for promoting collaborative Maritime Safety and Security towards a peaceful, stable and prosperous Indian Ocean Region.

- **Major Trade Routes:** Four critically important access waterways are the Suez Canal (Egypt), Bab el Mandeb (Djibouti-Yemen), Strait of Hormuz (Iran-Oman), and Strait of Malacca (Indonesia-Malaysia).

- **Monsoon Winds and Rain:** The Indian Ocean is famous for its dramatic monsoon winds and the bountiful rain it brings on the Indian subcontinent.

- **Fisheries and Tourism:** The warm ocean supports fisheries, big and small, and fish such as anchovies, mackerel, sardines, and tuna.

  - Dolphins are a tourist attraction; some whales have also been sighted in the Arabian Sea.

Concerns Related To Indian Ocean

- **Rapid Warming:** The Indian Ocean has been getting a lot of attention recently for its rapid warming and the outsized influence it continues to have on its peers.

- **Climate Change:** The Indian Ocean is critical today to understand the earth's overall ocean response to increasing greenhouse gases and global warming.

- **Cyclones:** The North Indian Ocean doesn't generate as many cyclones as the Pacific or the Atlantic Oceans, but the numbers and their rapid intensification have been growing ominously.

Source: TH

ACCREDITATION: EMPOWERING AND SHAPING THE FUTURE OF INDIA

Context

- Recently, the Quality Council of India (QCI) celebrated 'World Accreditation Day' across more than 20 cities in the country.

About the Accreditation

- It is the **third party attestation** related to a **Conformity Assessment Body (CAB)** conveying the formal demonstration of its competence to carry out specific conformity assessment tasks.

  - **CAB** is a body which includes Testing including medical Laboratory, Calibration Laboratory, Proficiency Testing Provider, Certified Reference Material Producer.

- It assists the institutions to understand their strengths and weaknesses through an informed review process, thus facilitating identification of internal areas of planning and resource allocation.

- It enhances customer confidence in accepting testing / calibration reports issued by accredited laboratories.

- In India, accreditation is important as it helps determine if an institution meets or exceeds minimum standards of quality.

Benefits of Accreditation

- **Facilitating Global Trade and Access to Global Market:** Multilateral arrangements help in providing confidence and in development of robust frameworks on which to further develop and enhance **Government-to-Government (G2G) bilateral** and **multilateral** international trade agreements.

- **Regulators and Government Organisations:** Since accreditation assures technical competence, Regulators can rely on accreditation and prescribe Third-party NABCB accredited conformity assessment.

  - Accreditation often helps **to improve harmonisation within national regulatory and legislative structures** across the country.

  - **Harmonisation** of processes to bridge standards and conformity assessment. It helps in **continual improvements.**

- **Competitive Edge:** NABCB accreditation demonstrates credible evidence of conformance with national and international standards and regulations which supports the accredited organisation to differentiate business from its competitors.

- **Risk Management and Higher level of Quality Assurance:** Conformity assessment bodies are assessed according to international standards having requirements for carrying out Risk Analysis.

  - It ensures the delivery of quality services by accredited bodies.

- **Confidence and Trust:** Government, Industry and Consumers recognize the credibility & reliability in use of NABCB accredited conformity assessment services as it provides level of trust, assurance to the product/processes.

- **Other benefits** include Enhanced customer confidence and satisfaction; Robust Quality Management System; Better operational control; Cost Reduction; and Prevent loss due to defects etc

Quality Council of India (QCI)

- It was established, in 1997, as a **National body for Accreditation** on recommendations of the **Expert Mission of the EU**.

- It was set up through a **PPP model, non-profit, independent, autonomous organisation** with the **support of Government of India and the Indian Industry** represented by:
    - Associated Chambers of Commerce and Industry of India (ASSOCHAM);
    - Confederation of Indian Industry (CII);
    - Federation of Indian Chambers of Commerce and Industry (FICCI).

- The **Department of Industrial Policy and Promotion (DIPP)**, Ministry of Commerce and Industry was designated as the nodal point for all matters connected with quality and QCI.

- It is responsible for establishing and operating the third-party national accreditation system, improving quality across sectors and advising the government and other stakeholders on all matters concerning quality.

National Accreditation Board for Testing and Calibration Laboratories (NABL)

- It is a **Constituent Board of Quality Council of India**, aims to strengthen the accreditation system accepted across the globe by providing high quality, value driven services.

National Accreditation Board for Certification Bodies (NABCB)

- It is also a **Constituent Board of Quality Council of India** that provides accreditation to Inspection, Certification and Validation & Verification Bodies based on assessment of their competence as per the Boards criteria and in accordance with International Standards and Guidelines.

- NABCB is a **member** of International Accreditation Forum (IAF), International Laboratory Accreditation Cooperation (ILAC), and Asia Pacific Accreditation Cooperation (APAC) as well as signatory to their **Mutual Recognition Arrangement (MRAs) / Multilateral Recognition Arrangements (MLAs).**

National Accreditation Board for Hospitals & Healthcare Providers (NABH)

- It is a **constituent board of QCI**, set up to establish and operate an accreditation program for healthcare organisations.
    - Formed in 2005, it is the principal accreditation for hospitals in India.
    - NABH performs **three main functions:** Accreditation, Certification, and Empanelment.

National Assessment and Accreditation Council (NAAC)

- It is planning to align the assessment and accreditation process in higher education with the **National Education Policy (NEP) 2020.**

- The NAAC has proposed a robust system of accreditation based on the principles of transparency, self-disclosure, handholding, mentoring, incubation, and ongoing quality improvement.

- The focus of assessment and accreditation will be based on learning outcomes.

Sector-wise Accreditation in India

- **IT Sector:** The **Information Technology Act, 2000** defines the role and responsibilities of certifying authorities, which issue Digital Signature Certificates.
    - It ensures that these certifying authorities operate under **strict standards and guidelines**, thereby ensuring the security and authenticity of **digital signatures and electronic records.**

- **Archival Management:** The **National Archives of India**, as the custodian of archival records, operates under strict standards and guidelines to ensure the preservation and accessibility of these valuable resources for future generations.

- **Legal Framework:** The **India Code**, maintained by the **Ministry of Law and Justice**, is an accredited repository of all central and state Acts, rules, regulations, notifications, orders, circulars, and statutes.

- **Education:** India, with its diverse and vast educational system, is actively shaping the future through accreditation.
    - A target of **50% Gross Enrollment Ratio (GER) in higher education by 2037** is set, along with enhancing the quality of education which is of paramount importance to the nation.

◆ The Indian higher education system is transforming rapidly through the implementation of National Education Policy (NEP 2020).

How is NABL Accreditation different from ISO 9000 Certification?

• **ISO 9000 Certification:** It primarily pertains to **quality management systems**.

  ◆ It is a set of international standards on quality management and quality assurance developed to help companies effectively document the quality system elements needed to maintain an efficient quality system.

  ◆ It is **not specific to any one industry** and can be applied to organisations of any size.

• **National Accreditation Board for Testing and Calibration Laboratories (NABL) Accreditation:** It is **specific to** technical **competence and impartiality of laboratories.**

  ◆ Accreditation provides a **greater level of assurance** than mere ISO certification.

Major Challenges Related to Accreditation in India

• **Standardisation and Implementation of Guidelines:** One of the major challenges is the lack of standardisation across different sectors.

  ◆ The standards and guidelines for certifying authorities, which issue **Digital Signature Certificates** (in the IT sector, as per the Information Technology Act, 2000), may **vary, leading to inconsistencies.**

• **Resource Management:** For example, the National Archives of India, which is the custodian of the records of enduring value of the Government of India, has a vast corpus of records.

  ◆ Managing these records, ensuring their preservation, and making them accessible for future generations is a significant challenge.

• **Low Participation:** Many institutions are reluctant to participate in the accreditation process. This low level of willingness continues to be a cause of concern.

• **Complex Process:** The process for collection of information by accreditation agencies is long and cumbersome. There are concerns about the subjectivity in the processes, and inconsistencies between assessments by different agencies.

• **Multiplicity of Agencies:** Currently, multiple agencies within the Union Government of India have been mandated for periodic approvals, assessment, accreditation, and ranking of Higher Education Institutions (HEIs).

• **Quality of Education:** Achieving higher levels of quality is dependent upon processes such as teaching-learning, research & innovation, enhancing employability skills, equity and societal integration, academic ambiance, commitment to sustainability rather than mere infrastructure and inputs.

Major Reforms in Accreditation

• The Ministry of Education has set up a **high-level panel, headed by Dr K Radhakrishnan,** to strengthen the assessment and accreditation of higher educational institutions.

  ◆ It proposed a set of transformative reforms to strengthen the periodic approval, assessment & accreditation, and ranking of 'All HEIs' of India.

  ◆ These reforms include **Binary Accreditation (Either accredited or not accredited) rather than grades**.

  ◆ It proposed a **Maturity-Based Graded Accreditation (Level 1 to 5)** to encourage accredited Institutions to raise their bar, continuously improve, evolve in-depth or in-breadth in disciplines.

• Both **NABL and NABCB** constitute the accreditation infrastructure in India and are signatories to the **Multilateral Recognition Arrangements of the International Accreditation Forum (IAF)** and the International Laboratory Accreditation Cooperation (ILAC).

  ◆ NABL has over 8000 accredited labs and NABCB has over 260 accredited CABs.

Conclusion

• Accreditation in India is empowering and shaping the future by ensuring quality education, fostering innovation, and promoting excellence. It is a strategic move towards building a better future for all.

• The globalisation of the Indian economy and the liberalisation policies initiated by the Government in reducing trade barriers and providing greater thrust to exports makes it imperative for Accredited Laboratories to be at international level of competence.

Source: PIB

CO-OP SOCIETIES NOT BOUND BY RTI ACT : MADRAS HIGH COURT

In News

The Madras High Court has held that the cooperative societies in the state are not bound by the Right to Information (RTI) Act, 2005 to provide information to the citizens on their functions as they are not falling under public authority.

Key Points of Judgement

- The Madras High Court has set aside an order passed by Tamil Nadu Information Commission (TNIC) directing a cooperative society to disclose details regarding the loans extended by it.
- The court ruled that Cooperative societies registered under the Tamil Nadu Cooperative Societies Act of 1983 in the State would not fall under the definition of the term '**public authority**' as it had been defined under Section 2(h) of the RTI Act of 2005.

Do you know

- Right to Information Act 2005 mandates timely response to citizen requests for government information.
- It is an initiative taken by the Department of Personnel and Training, Ministry of Personnel, Public Grievances and Pensions.
- It allows any citizen to make requests for access to data, documents, and other information in the government's possession.

About Cooperative society

- It is a voluntary association of individuals having common needs who join hands for the achievement of common economic, social and cultural interest.
- India's cooperative movement originated in the agriculture and related sectors as a means for farmers to pool their resources to prevent exploitation by money lenders.
- India's cooperative movement was formalised at the end of the 19th century, inspired by the German model of agricultural credit banks
- Cooperatives in India range from those providing credit to those producing, procuring, or marketing products like fertilisers, milk, sugar, and fish.

Constitutional provisions

- 'Cooperative Societies' is a State Subject.

- The **97th constitutional amendment**, Part IXB (The Co-Operative Societies) was inserted into the Constitution.
    - The right to form cooperative societies was included as Right to Freedom under article 19 (1), Part-3 of the Constitution.
- In addition to this, **Article 43-B** (Promotion of Cooperation societies) was also inserted as one of the Directive Principles of State Policy under Part 4 of the Constitution of India.
    - Article 43B says that "states shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of cooperative societies".

Issues

- Government and legislative control of cooperatives increased over the years, there were increasing reports of mismanagement and corruption
- State governments, "in the name of public interest," directly intervene in the working of cooperatives .
- Cooperative societies have struggled to be successful and financially viable and the cooperative movement remains unevenly spread in the country.
- Many cooperative societies do not hold elections regularly, while some are superseded frequently.

Related Steps

- Multi-State Cooperative Societies (MSCS) were formed to ease the operation of collectives throughout the country.
- The **Multi-State Cooperative Societies (MSCS) (Amendment) Act & Rules, 2023** have been notified to strengthen governance, enhance transparency, increase accountability and reform electoral processes, etc.
- **Ministry of Cooperation** was created by transferring the existing entries related to cooperation and cooperative in the business of the erstwhile Ministry of Agriculture, Cooperation and Farmers Welfare vide Cabinet Secretariat's Gazette Notification dated 6th July, 2021
    - The principal activities of the Ministry include streamlining processes for 'Ease of doing business' for co-operatives and enabling development of Multi-State Co-operative Societies

Conclusion and Way Forward

- Cooperatives have made significant contributions in poverty alleviation, food security, management of natural resources and the environment.

- Therefore ,The independent and autonomous character of cooperative societies was crucial to their functioning.

- The cooperative movement certainly needs reform and revitalisation.

Source: IE

BRICS GROUPING AND ITS EXPANSION

In News

The BRICS Ministers of Foreign Affairs/International Relations met in the Russian Federation.

- Russia took over the chairmanship of BRICS on January 1, 2024.

About

- The meeting was the first ministerial meeting following BRICS expansion in 2023 when Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE joined Brazil, Russia, India, China, and South Africa as full-fledged BRICS members.

- The BRICS ministers held a plethora of discussions, including an important one on the enhanced use of local currencies in trade and financial transactions between the BRICS countries.

About BRICS

- The leaders of BRIC (Brazil, Russia, India, and China) countries met for the first time in St. Petersburg, Russia, on the margins of the G8 Outreach Summit in July 2006.

- The BRICS group was renamed as BRICS (Brazil, Russia, India, China, South Africa) after South Africa was accepted as a full member at the BRIC Foreign Ministers' meeting in New York in September 2010.

- BRICS is an important grouping bringing together the major emerging economies from the world.

Main Pillars of BRICS

- **Political and Security:** Enhancing cooperation on global and regional security matters and reforming the multilateral system to make it more relevant for the 21st century.

  - Counter-terrorism and its financing remain crucial elements within this domain

- **Economic and Financial:** Promoting economic growth and development for mutual prosperity through intra-BRICS cooperation in trade, agriculture, infrastructure, SMEs, energy, finance, and banking.

  - This cooperation aims to promote collaborative approaches for the attainment of Sustainable Development Goals.

- **Cultural and People-to-People Exchange**s: Enriching intra-BRICS contacts through cultural, academic, youth, sports, and business exchanges.

  - Regular interactions among parliamentarians and young scientists are part of this effort to build stronger intra-BRICS relationships

Importance

- BRICS is a testament to the power of collective action and shared vision.

- The recent expansion promises enhanced economic cooperation, increased geopolitical influence, diversified perspectives, and renewed dynamism within the BRICS framework.

- The BRICS expansion facilitates market growth by providing access to new markets and trade and investment opportunities.

- This potential surge in economic activity can enhance economic growth and stability within the group. Diversifying economic interests is critical in mitigating risks and creating a more resilient financial ecosystem.

- Moreover, including these new members brings fresh perspectives and experiences to the table.

Emerging challenges

- The BRICS countries still fall short in showing a coherence of purpose, and are still mired by inner contradictions.

- Continued conflicts in the Middle East and North Africa (MENA) region .

- Climate change, pandemics, terrorism, and regional conflicts

- The journey towards a common currency within BRICS faces challenges due to economic disparities, monetary policy complexities, and divergent national priorities.

- China's economic dominance might spark concerns regarding fair benefit distribution and currency influence

Conclusion and Way Forward

- BRICS continues to advocate for a more equitable world order, emphasizing equality, mutual respect, and trust.

- It has evolved from a mere dialogue forum to a significant player on the world stage.

- Its journey underscores the potential of strategic partnerships in addressing the multifaceted challenges of our times.

- Challenges undoubtedly exist, but the collective strength and shared objectives make BRICS a platform of immense potential.

- As it moves forward, BRICS remains committed to playing a pivotal role in global governance, advocating for a balanced and fair international order.

- The Indian Prime Minister expressed support for BRICS expansion, underlining that India has always advocated for it, believing that including new members will enhance BRICS as an organisation.

Source:TH

NEWS IN SHORT

EAST ASIA SUMMIT

In News

- A Senior Officials' Meeting was held in Vientiane, Lao PDR.

About East Asia Summit

- The East Asia Summit (EAS) is a leaders-led forum established in 2005 in Kuala Lumpur, Malaysia.

- **Aim:** It serves as a platform for dialogue and cooperation on broad strategic, political, and economic issues of common interest and concern in the East Asian region. The EAS aims to promote peace, stability, and economic prosperity in East Asia.

- **Membership:** 18 members, comprising the 10 ASEAN member states along with Australia, China, India, Japan, New Zealand, Republic of Korea, Russia, and the United States.

- **Priority areas of cooperation:** Environment and energy, education, finance, global health

issues and pandemic diseases, natural disaster management, and ASEAN connectivity.

Source: Print

SUBANSIRI RIVER

In News

- The Department of Fisheries (Arunachal Pradesh) and NHPC Ltd. have formally agreed to implement a fisheries management plan at the 2000 MW Subansiri Lower Hydro Electric Project (SLP) in Assam through a Memorandum of Agreement (MoA).

About

- **Subansiri Lower Hydro Electric Project (SLHEP):** It is an under-construction gravity dam on the Subansiri River.

- The Subansiri River, also known as the Gold River, is a major tributary of the Brahmaputra River that flows through Tibet, Arunachal Pradesh, and Assam in India.

- It flows through the eastern Himalayas, entering India through the Miri hills in Arunachal Pradesh.

- Its major tributaries include Laro, Nye, Yume, Tsari, and Kamla.

- The river is known for its gold deposits, hence the name "Gold River."
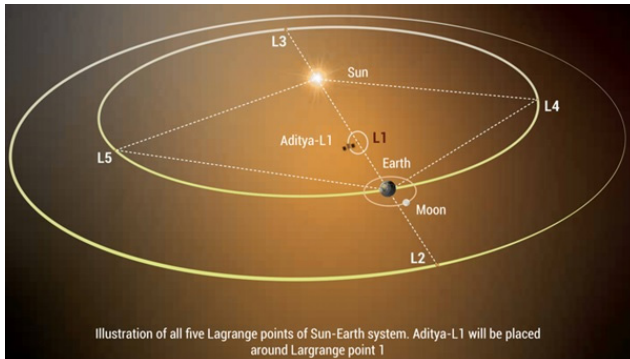
Source: TH

IMAGES OF SUN CAPTURED BY ADITYA-L1

News

- The Indian Space Research Organisation (ISRO) has released images of the Sun captured by the **Aditya L1 satellite** during a major geomagnetic storm in May.

About

- The two remote sensing payloads, namely the Solar UltraViolet Imaging Telescope (SUIT) and the Visible Emission Line Coronagraph (VELC), along with other payloads, captured images from the **Lagrange point in space**.

- The images clearly show magnetically active regions with large solar flares on the Sun's surface

- The solar emissions depict the relative brightness of sunspots, umbra, penumbra, and plages.

Illustration of all five Lagrange points of Sun-Earth system. Aditya-L1 will be placed around Largrange point 1

About Aditya-L1

• The Aditya-L1 mission is an Indian solar observatory at **Lagrangian poin**t L1 for "Observing and understanding the chromospheric and coronal dynamics of the Sun" in a continuous manner.

• Placing the Aditya-L1 in a halo orbit around L1 point has advantages as compared to placing in a Low Earth Orbit (LEO):

  ◆ It provides a smooth Sun-spacecraft velocity change throughout the orbit, appropriate for helioseismology.

  ◆ It is outside of the magnetosphere of Earth, thus suitable for the "in situ" sampling of the solar wind and particles.

  ◆ It allows unobstructed, continuous observation of the Sun, and view of earth for enabling continuous communication to ground stations.

• Aditya L1 shall be the first space based Indian mission to study the Sun.

> **Do you know ?**
> • **L1 is a location** in space where the gravitational forces of two celestial bodies, such as the Sun and Earth, are in **equilibrium**. This allows an object placed there to remain relatively stable with respect to both celestial bodies.

Source: Air

FACIAL AUTHENTICATION TECHNOLOGY

Context

• Recent data released by the **Union Ministry of Labour and Employment** showed that more than 6.6 lakh pensioners made use of the **'Facial Authentication Technology'** in 2023-24, a rise of over 200% from 2.1 lakh in 2022-23.

About the Facial Authentication Technology

• It is a **biometrics-based technology** that uses the unique characteristics of a person's face to confirm their identity.

• It works by matching a scan of the user's face to a stored digital template of their faceprint.

• If the live capture and faceprint align, access is granted. If not, access is denied.

• Sophisticated sensors, computer vision capabilities, artificial intelligence algorithms, and biometrics modelling enable robust facial authentication functionality.

• The end-to-end process comprises **four core phases like** Face Detection; Analysis and Mapping; Encrypted Faceprint Creation; and Biometric Authentication.

> **Do You Know?**
> • Facial authentication is **different from general facial recognition**, which attempts to identify an unknown person by comparing their face to a database of faces.
> • It is a **1:1 verification** using biometrics, while facial recognition is a **1:n identification technology.**

Applications

• **Enterprise:** Businesses implement facial authentication for secure access to corporate systems.

• **Data Centers:** Data centres utilise facial authentication to bolster security protocols.

• **Healthcare:** In healthcare, facial authentication is employed for safeguarding access to narcotics.

• **Financial Services:** Banks and financial institutions leverage facial authentication for customer identification.

• **Education:** Educational institutions adopt facial authentication for secure access to campus facilities.

• **Utilities:** Utility companies integrate facial authentication to secure access to critical infrastructure.

Source: IE

CATLA (LABEO CATLA)

In News

• According to a new report released by the United Nations ,Catla was one of the top 10 species of aquatic animals harvested by humans in 2022.

About Catla (Labeo catla)

- It is a **non-predatory fish** and its feeding is restricted to the surface and mid-waters.

- The natural distribution of catla seems to be governed by temperature dependency rather than latitude and longitude.

  - It is a **eurythermal species** that grows best at water temperatures between 25-32 °C.

- It is **"endemic to the riverine system in northern India**, Indus plain and adjoining hills of Pakistan, Bangladesh, Nepal and Myanmar, and has been introduced later into almost all riverine systems, reservoirs and tanks all over India.

- **Utility :** Catla used to be traditionally farmed in the ponds of eastern Indian states from where it spread across the country during the second half of the 20th century.

  - Catla as well as two other important Indian carps – Rohu (Labeo rohita), and Mrigal (Cirrhinus mrigala) – are three of the most farmed fish in India's inland fisheries.

- **IUCN Red List status :** Least Concern.

Source: DTE

PRZEWALSKI'S HORSES

Context

- Recently, Przewalski horses, a wild horse species, returned to Kazakh steppes — the native habitat of this endangered species.

About the Przewalski's Horses (aka Takhi)

- These are a unique equine breed that has **never been domesticated.**

- They are the last truly wild horses **native to the steppes of Kazakhstan, Mongolia, and China.**

- These horses are named after the Russian explorer **Nikolai Przhevalsky.**

Conservation Efforts

- In the 1990s, ecologists began reintroducing Przewalski's horses to their native habitats.

- Today, more than 500 Przewalski's horses are free-ranging in **Mongolia,** with additional populations in **China and Kazakhstan.**

- Their successful reintroduction led to the **IUCN** changing the status of Przewalski's horses from **'Extinct in the Wild' to 'Endangered' in 2011.**

Source: TH

NITI AAYOG'S INITIATIVES TO FOSTER INNOVATION

Context

NITI Aayog under its flagship initiative **Atal Innovation Mission (AIM)** has launched the **'AIM - ICDK Water Challenge 4.0'** and the fifth edition of '**Innovations for You' handbook.**

AIM - ICDK Water Challenge 4.0

- The India-Denmark Water Challenge (IDWC) 4.0 is an open innovation platform aimed at addressing **critical water challenges** in India through innovative solutions.

- The initiative is a cornerstone of the **Indo-Danish bilateral green strategic partnership.**

- The program encourages the exploration of s**ustainability, digital solutions, inclusion, and universal design principles.**

- The challenge invites entries under **two tracks**: One for the students and the other for the young entrepreneurs both under the age of 35.

- The selected teams will form the Indian cohort which will participate in the global **Next Generation Digital Action** program and engage with young talents from leading universities and innovation hubs of 9 countries (India, Denmark, Ghana, Kenya, Korea, Tanzania, South Africa, Ghana, Colombia and Mexico).

5th edition of 'Innovations for You' handbook

- It is a coffee table book series spotlighting the endeavors of SDG Entrepreneurs in India.

- This edition features 60 entrepreneurs from diverse corners of India, each contributing to societal betterment through sustainable innovations.

Source: PIB

■■■■