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MINISTRY OF SCIENCE AND TECHNOLOGY



MK Yadav Sir

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DTE June 30

MARS (RED PLANET)

(Syllabus: GS Paper 1 – Geography)

Mars under daily fire from space rocks, shows study on new class of quakes on Red Planet

Context: According to new research, Mars experiences frequent impacts from space rocks, creating seismic waves and forming 8-meter-wide craters, revealing a more dynamic activity level than previously understood.

Mars Mission of India

- **Launched**: Mangalyaan (MOM) was launched aboard a Polar Satellite Launch Vehicle (PSLV C25) from Satish Dhawan Space Centre at Sriharikota, Andhra Pradesh.
- **Mission Duration**: The spacecraft spent over 300 days cruising in deep space before successfully entering Mars orbit on September 24, 2014.
- **First Attempt Success**: India achieved Martian orbit insertion on its very first attempt, marking a historic first for any Asian space agency.
- **Global Achievement**: The mission made India the first Asian country and the fourth in the world to reach Mars, after Roscosmos, NASA, and the European Space Agency.
- **International Recognition**: China hailed India's successful Mangalyaan mission as the "Pride of Asia".
- **Payloads**: Mangalyaan carried 850 kg of fuel and five science payloads, including a Mars Color Camera (MCC) for studying the Martian surface and atmosphere post-orbit insertion.

Other Countries Mars Missions

- Mars Express- European Space Agency (2003)
- Curiosity-NASA (2011)
- InSight lander- NASA (2018)
- Hope Mars Mission- United Arab Emirates (2020)
- UAE's Hope Mars Mission (UAE's first-ever interplanetary mission) (2021)

Mars

- **About**: It is the fourth planet from the Sun, derives its name from the Roman God of war and is commonly referred to as the "Red Planet" due to its distinctive reddish appearance.
- **Characteristics and Composition**: The reddish coloration of Mars is attributed to the presence of a significant amount of iron oxide, commonly known as rust, in its surface rocks and soil.
- **Size**: Mars is almost half the size of Earth, with a diameter of 6,791 kilometers, making it the second smallest planet in our solar system after Mercury.
- **Moons**: It is also home to the moons Phobos and Deimos.
- **Temperature**: Due to its considerable distance from the sun, Mars experiences extreme temperatures, with equatorial temperatures reaching 20°C and polar parts dropping as low as -140°C.
- **Volcano**: Olympus Mons, the largest volcano in the solar system, is located on Mars.
- **Similarity to the Earth (Orbit and Rotation):**
    - Mars completes one rotation every 24.6 hours, similar to Earth's 23.9-hour day.
    - The axial tilt of Mars is 25 degrees, comparable to Earth's 23.4 degrees.
    - Mars experiences distinct seasons, which are longer than those on Earth.
    - Martian days are known as sols.

INDIAN EXPRESS

Pg 6/Jun 30

IMD COLOUR CODED WARNINGS

(Syllabus GS Paper 3 – Disaster Management)

Orange alert: Expect heavy rain, says IMD

New Delhi: A day after heavy rainfall hit Delhi, the India Meteorological Department (IMD) predicted moderate to heavy rain for the next three days as well. The city is on an orange alert till July 2, the IMD stated in its advisory, asking people to stay indoors and avoid travel.

The maximum temperature was 32.5 degree Celsius on Friday, five notches below normal and the minimum temperature observed on Saturday was 28 degrees. After June 24, the maximum temperature at the base station of Safdarjung dropped gradually from 40.4 degrees to 39 degrees on June 26 and in a sharp fall, to 35.4 degrees Celsius on June 27.

The sharp drop in temperature brought a huge respite from the heatwave spell. **ENS**

Context: The India Meteorological Department (IMD) has forecasted intensified rains for Mumbai, issuing a yellow alert in its five-day district forecast.

IMD Colour-Coded Warnings

- **Green Alert (No Warning)**
  - The Green alert signifies rainfall less than 64 mm in 24 hours.
  - It indicates that no advisory needs to be issued due to minimal impact from weather conditions.
- **Yellow Alert (Be Updated)**
  - A Yellow alert is issued for expected rainfall between 64.5 mm and 115.5 mm.
  - It warns that current weather conditions could worsen, prompting people to stay updated with the latest information.
- **Orange Alert (Be Prepared)**
  - An Orange alert is issued for extremely severe weather conditions.
  - It impacts transportation systems such as roads, railways, and air travel, urging preparedness measures to mitigate risks.
- **Red Alert (Take Action)**
  - A Red alert is issued when rainfall exceeds 204.5 mm in 24 hours.
  - It signals extremely severe weather conditions that can disrupt transport, power supply, and pose significant risks to life, requiring immediate action and precautionary measures.

India Meteorological Department:

- **About**: It is a principal government agency for meteorology and related matters.
- **Nodal Ministry:** Ministry of Earth Sciences (MoES).
- **Organization Structure**: Director General of Meteorology heads IMD.
  - There are 20 Deputy Directors General of whom 10 are at New Delhi.
- **Headquarters**: New Delhi

PIB June 30

KRISHI KATHA PLATFORM
(Syllabus: GS Paper 3 – Agriculture)

Union Minister Shri Shivraj Singh Chouhan launches web portal for faster bank settlements of interest subvention claims under Agriculture Infrastructure along with Krishi Katha blogsite to amplify the voice of Indian farmers

Context: Union Minister for Agriculture and Farmers' Welfare launched a web portal aimed at expediting bank settlements for interest subsidy claims under the Agriculture Infrastructure Fund (AIF).

Krishi Katha Platform

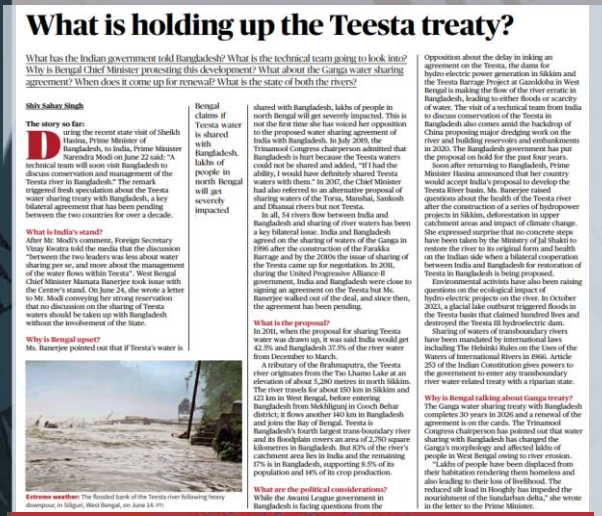
- **About**: It amplifies the experiences, insights, and success stories of Indian farmers.
  - It aims to provide a dedicated space for comprehensive and immersive storytelling, highlighting the narratives of India's agricultural community.
- **Objectives**:
  - Raise awareness about farmers' issues.
  - Facilitate knowledge exchange among farmers.
  - Foster collaboration within the agricultural sector.
  - Empower farmers by highlighting their achievements.

Agriculture Infrastructure Fund Scheme

- **Launch Year**: The Agriculture Infrastructure Fund Scheme was launched in 2020 to bolster agricultural infrastructure in India.
- **Objectives**: It focuses on developing post-harvest management infrastructure to reduce losses, increase farmers' income, promote agricultural innovation, and attract investments in agriculture.
- **Financial Outlay**: The scheme has a total outlay of ₹1 lakh crore, with funding facilitated through banks and financial institutions until 2025-26.
- **Interest Subvention and Support:** Beneficiaries can avail a 3% interest subvention on loans up to ₹2 crore, provided by banks for a maximum period of 7 years. Additionally, banks receive reimbursement for credit guarantee fees paid.

THE HINDU Pg 11/Jun 30

TEESTA TREATY
(Syllabus: GS Paper 2 – IR)



What is holding up the Teesta treaty?

What has the Indian government told Bangladesh? What is the technical team going to look into? Why is Bengal Chief Minister protesting this development? What about the Ganga water sharing agreement? When does it come up for renewal? What is the state of both the rivers?

Shiv Sahay Singh

The story so far:

During the recent state visit of Sheikh Hasina, Prime Minister of Bangladesh, to India, Prime Minister Narendra Modi on June 22 said: "A technical team will soon visit Bangladesh to discuss conservation and management of the Teesta river in Bangladesh." The remark triggered fresh speculation about the Teesta water sharing treaty with Bangladesh, a key bilateral agreement that has been pending between the two countries for over a decade.

What is India's stand?

After Mr. Modi's comment, Foreign Secretary Vinay Kwatra told the media that the discussion "between the two leaders was less about water sharing per se, and more about the management of the water flows within Teesta". West Bengal Chief Minister Mamata Banerjee took issue with the Centre's stand. On June 24, she wrote a letter to Mr. Modi conveying her strong reservation that no discussion on the sharing of Teesta waters should be taken up with Bangladesh without the involvement of the State.

Why is Bengal upset?

Ms. Banerjee pointed out that if Teesta's water is shared with Bangladesh, lakhs of people in north Bengal will get severely impacted. This is not the first time she has voiced her opposition to the proposed water sharing agreement of India with Bangladesh. In July 2019, the Trinamool Congress chairperson admitted that Bangladesh is hurt because the Teesta waters could not be shared and added, "If I had the ability, I would have definitely shared Teesta waters with them." In 2017, the Chief Minister had also referred to an alternative proposal of sharing waters of the Torsa, Manshai, Sankosh and Dhansai rivers but not Teesta.

In all, 54 rivers flow between India and Bangladesh and sharing of river waters has been a key bilateral issue. India and Bangladesh agreed on the sharing of waters of the Ganga in 1996 after the construction of the Farakka Barrage and by the 2000s the issue of sharing of the Teesta came up for negotiation. In 2011, during the United Progressive Alliance-II government, India and Bangladesh were close to signing an agreement on the Teesta but Ms. Banerjee walked out of the deal, and since then, the agreement has been pending.

What is the proposal?

In 2011, when the proposal for sharing Teesta water was drawn up, it was said India would get 42.5% and Bangladesh 37.5% of the river water from December to March.

A tributary of the Brahmaputra, the Teesta river originates from the Tso Lhamo Lake at an elevation of about 5,280 metres in north Sikkim. The river travels for about 150 km in Sikkim and 123 km in West Bengal, before entering Bangladesh from Mekhliganj in Cooch Behar district; it flows another 140 km in Bangladesh and joins the Bay of Bengal. Teesta is Bangladesh's fourth largest trans-boundary river and its floodplain covers an area of 2,750 square kilometres in Bangladesh. But 83% of the river's catchment area lies in India and the remaining 17% is in Bangladesh, supporting 8.5% of its population and 14% of its crop production.

What are the political considerations?

While the Awami League government in Bangladesh is facing questions from the Opposition about the delay in inking an agreement on the Teesta, the dams for hydro-electric power generation in Sikkim and the Teesta Barrage Project at Gazoldoba in West Bengal is making the flow of the river erratic in Bangladesh, leading to either floods or scarcity of water. The visit of a technical team from India to discuss conservation of the Teesta in Bangladesh also comes amid the backdrop of China proposing major dredging work on the river and building reservoirs and embankments in 2020. The Bangladesh government has put the proposal on hold for the past four years.

Soon after returning to Bangladesh, Prime Minister Hasina announced that her country would accept India's proposal to develop the Teesta River basin. Ms. Banerjee raised questions about the health of the Teesta river after the construction of a series of hydropower projects in Sikkim, deforestation in upper catchment areas and impact of climate change. She expressed surprise that no concrete steps have been taken by the Ministry of Jal Shakti to restore the river to its original form and health on the Indian side when a bilateral cooperation between India and Bangladesh for restoration of Teesta in Bangladesh is being proposed.

Environmental activists have also been raising questions on the ecological impact of hydro-electric projects on the river. In October 2023, a glacial lake outburst triggered floods in the Teesta basin that claimed hundred lives and destroyed the Teesta III hydroelectric dam.

Sharing of waters of transboundary rivers have been mandated by international laws including The Helsinki Rules on the Uses of the Waters of International Rivers in 1966. Article 253 of the Indian Constitution gives powers to the government to enter any transboundary river water-related treaty with a riparian state.

Why is Bengal talking about Ganga treaty?

The Ganga water sharing treaty with Bangladesh completes 30 years in 2026 and a renewal of the agreement is on the cards. The Trinamool Congress chairperson has pointed out that water sharing with Bangladesh has changed the Ganga's morphology and affected lakhs of people in West Bengal owing to river erosion.

"Lakhs of people have been displaced from their habitation rendering them homeless and also leading to their loss of livelihood. The reduced silt load in Hooghly has impeded the nourishment of the Sundarban delta," she wrote in the letter to the Prime Minister.



What is the Teesta

- Teesta originates in Sikkim from the Khangse and Zemu glaciers
- Its major tributary – Rangeet – joins it at Darjeeling's Teesta Bazaar
- At Mekhligunj in north Bengal's Cooch Behar, it enters Bangladesh, joins Brahmaputra
- Teesta is Bangladesh's fourth largest transboundary river for irrigation and fishing
- Teesta floodplain covers 2,750sq.km in Bangladesh
- Of Teesta's catchment, 83% in India; 17% in Bangladesh
- Its catchment supports about 10m people – and 14% of crop
- Nearly 1 lakh hectares across 5 districts impacted by upstream drawals from the Teesta in India

Context: During the recent state visit of the Prime Minister of Bangladesh to India, the Prime Minister of India announced that a technical team would soon visit Bangladesh to discuss conservation and management of the Teesta river.

Teesta Treaty

- **Background of Dispute**: The Teesta River disputes trace back to the 1947 Boundary Commission report by Sir Cyril Radcliffe, delineating boundaries between West Bengal (India) and East Bengal (Pakistan, later Bangladesh).
    - During East Bengal's period as part of Pakistan, there was minimal dialogue on water issues between India and East Pakistan.
- **Geographical Context:** The Teesta River originates in Sikkim and flows through West Bengal and Bangladesh. India claims 55% of its water.
- **Interim Water-Sharing Arrangement (1983)**: An interim agreement allocated 36% of Teesta's waters to Bangladesh, 39% to India, with 25% remaining unallocated.
- **Recent Developments**: Post the Ganga Water Treaty, a Joint Committee of Experts prioritized the Teesta. In 2010, a draft agreement presented by Bangladesh was accepted by both countries.

Proposal for Teesta River Water Sharing

- **Origin and Flow**: The Teesta river originates from Tso Lhamo Lake in north Sikkim at an elevation of 5,280 meters. It flows approximately 150 km in Sikkim and 123 km in West Bengal before entering Bangladesh.
- **Geographical Coverage**: In Bangladesh, the Teesta river travels 140 km and finally empties into the Bay of Bengal. Its floodplain in Bangladesh spans 2,750 square kilometers.
- **Catchment Area Distribution**: The river's catchment area is primarily in India, covering 83%, with the remaining 17% in Bangladesh. Despite this, it significantly supports Bangladesh's agriculture and population.
- **Water Sharing Agreement**: In 2011, a proposed agreement suggested India would receive 42.5% and Bangladesh 37.5% of the Teesta river's waters from December to March annually.
- **Current Status**: Since 2011, the Teesta water-sharing agreement remains pending, affecting bilateral relations between India and Bangladesh and impacting water management strategies in both countries.

THE HINDU

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DECENTRALIZING EDUCATION

(Syllabus: GS Paper 2 – Polity/Education)

Should education be brought back to the State list?

When was the subject added to the concurrent list? How do other countries govern education?

Rangarajan. R

The story so far:

The NEET-UG exam has been embroiled in controversies over the award of grace marks, allegation of paper leaks and other irregularities. The government also cancelled the UGC-NET exam after it was held, while the CSIR-NET and NEET-PG exams have been postponed.

What is the historical background?

The Government of India Act, 1935 during the British rule created a federal structure for the first time in our polity. The legislative subjects were distributed between the federal legislature (present day Union) and provinces (present day States). Education which is an important public good was kept under the provincial list. After independence, this continued and education was part of the 'State list' under the distribution of powers.

However, during the Emergency, the

Singh Committee to provide recommendations for amendments to the Constitution. One of the recommendations of this committee was to place 'education' in the concurrent list in order to evolve all-India policies on the subject. This was implemented through the 42nd constitutional amendment (1976) by shifting 'education' from the State list to the concurrent list. There was no detailed rationale that was provided for this switch and the amendment was ratified by various States without adequate debate.

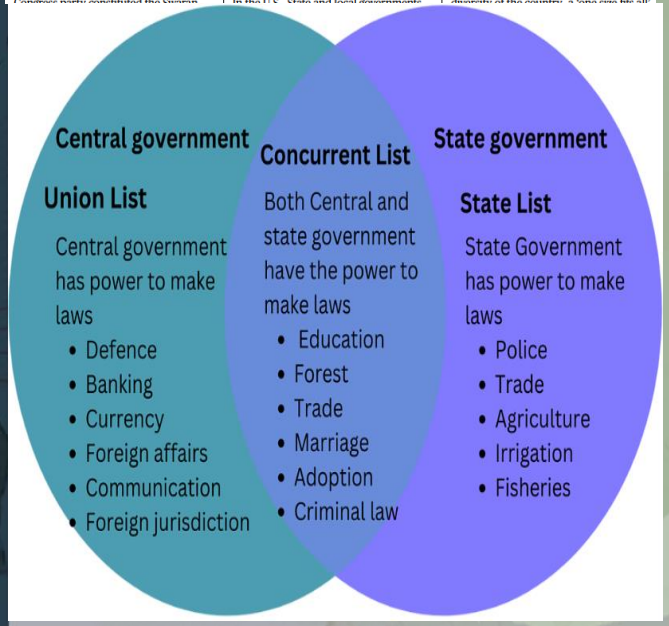
The Janata Party government led by Morarji Desai that came to power after Emergency passed the 44th constitutional amendment (1978) to reverse many of the controversial changes made through the 42nd amendment. One of these amendments that was passed in the Lok Sabha but not in the Rajya Sabha was to bring back 'education' to the State list.

What are international practices?

set the overall educational standards, mandate standardised tests and supervise colleges and universities. The federal education department's functions primarily include policies for financial aid, focussing on key educational issues and ensuring equal access. In Canada, education is completely managed by the provinces. In Germany, the constitution vests legislative powers for education with landers (equivalent of States). In South Africa, on the other hand, education is governed by two national departments for school and higher education. The provinces of the country have their own education departments for implementing policies of the national departments and dealing with local issues.

What can be the way forward?

The arguments in favour of 'education' in the concurrent list include a uniform education policy, improvement in standards and synergy between Centre and States. However, considering the vast



Context: The NEET-UG exam has faced controversies over grace marks, allegations of paper leaks, and other irregularities. Additionally, the government cancelled the UGC-NET exam post-conduct, and postponed the CSIR-NET and NEET-PG exams.

Historical Background of Education

- **Federal Structure**: The Government of India Act, 1935, created a federal structure, distributing legislative subjects between the federal legislature and provinces.
- **Education in the Provincial List**: Education, an important public good, was placed under the provincial list during the British rule and continued in the State list post-independence.
- **Emergency and the Swaran Singh Committee**: During the Emergency, the Swaran Singh Committee recommended placing 'education' in the concurrent list to evolve all-India policies on the subject.
- **42nd Constitutional Amendment**: The 42nd CAA 1976 implemented this recommendation, shifting 'education' from the State list to the concurrent list without detailed rationale or adequate state debate.
- **44th Constitutional Amendment Attempt**: The Former government attempted to reverse this through the 44th amendment (1978), but the proposal to bring 'education' back to the State list passed in the Lok Sabha but not in the Rajya Sabha.

International Practices

- **United States**: State and local governments set educational standards, mandate tests, and supervise institutions, with the federal department focusing on financial aid, key issues, and equal access.
- **Canada**: Education is completely managed by provinces.
- **Germany:** The constitution vests legislative powers for education with landers (States).
- **South Africa**: Governed by two national departments for school and higher education, with provincial departments implementing policies and addressing local issues.

DECCAN HERALD June 28

MENINGOENCEPHALITIS
(Syllabus: GS Paper 3 – Sci and Tech)

Kerala health department on toes as amoebic meningitis deaths spark fear

Context: Unhygienic and stagnant water resources, coupled with high temperatures, are likely contributing factors to the recent increase in rare but fatal cases of primary amoebic meningoencephalitis in Kerala.

Meningoencephalitis

- **Definition**: This is a rare and life-threatening condition characterized by simultaneous inflammation of the meninges (protective membranes around the brain and spinal cord) and brain tissue (encephalitis).
- **Also known as**: Encephalomeningitis.
- **Types of meningoencephalitis**
  - Bacterial meningoencephalitis
  - Cryptococcal meningoencephalitis
  - Herpetic meningoencephalitis (HME)
  - Primary amebic meningoencephalitis (PAM)
- **Symptoms:** Common symptoms include headache, stiff neck or neck pain, fever, fatigue, nausea and vomiting, muscle weakness, and speech issues.
- **Infectious Agents**: Mainly caused by infectious agents including viruses, bacteria, fungi, and the amoeba Naegleria fowleri.
- **Modes of Transmission**: These infections can spread through air, water, food, or close contact with infected individuals.
- **Risk Factors**: Children under 5 years old and individuals over 65 are particularly vulnerable due to weaker immune systems.
  - **Specific Conditions:** People with conditions like HIV, which weaken the immune system, are at higher risk. For instance, cryptococcal meningoencephalitis is common among those with advanced HIV disease.
- **Treatment**: Cryptococcal meningoencephalitis, for example, requires antifungal medication. Providers use antiviral medications (like acyclovir) for herpetic meningoencephalitis.

BUSINESS STANDARD Page 1

NET ZERO TARGET

(Syllabus: GS Paper 3 – Environment)



India takes first steps to meet 2070 net-zero goal

NITI Aayog forms six panels to prepare transition plan

SHREYA JAI
New Delhi, 30 June

Three years after India declared its goal to become a net-zero economy by 2070, the policy design for achieving the target has begun, with the NITI Aayog forming dedicated multi-sectoral committees to prepare a transition plan.

In 2021, India joined a select group of nations that set a target year for becoming net-zero carbon economy. At COP26 in Glasgow, Prime Minister Narendra Modi outlined a five-pronged 'Panchamitra' climate action target for India and committed to a net-zero target by 2070, joining nations like the US, the UK, and China.

A memorandum by the NITI Aayog in April noted: "Keeping in view India's commitments on climate change at the United Nations Framework Convention on Climate Change, its development needs, and the goal of becoming a developed nation by 2047, the following working groups have been created to identify issues, develop pathways, and suggest policy action on various aspects of climate change." Turn to Page 6

INDIA'S CLIMATE PANCHAMITRA

- 50% of India's installed electric power capacity will come through non-fossil sources by 2030
- Reduce carbon intensity of GDP by 45% by 2030, (from 2005 levels)
- Create an additional sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent through more forest and tree cover by 2030
- Mass movement called LiFE – Lifestyle for Environment
- Long-term goal of reaching net zero by 2070

Six net-zero working groups

- Macroeconomic implications of transition
- Sectoral analysis for transport, industry, buildings, agriculture, power sector
- Climate finance
- Critical minerals, research & development, domestic manufacturing, supply chain
- Social aspects of energy transition
- Policy synthesis

Context: Three years after India declared its goal to become a net-zero economy by 2070, the policy design for achieving the target has begun, with the NITI Aayog forming dedicated multi-sectoral committees to prepare a transition plan.

Net-Zero Target

- **About**: It refers to achieving carbon neutrality, where a country's greenhouse gas emissions are balanced by absorption and removal from the atmosphere.
- **Carbon Neutrality Clarification**: Net-zero does not mean complete elimination of emissions but rather achieving a balance with offsetting measures.
- **Methods of Achieving Net Zero**: Increasing carbon sinks like forests to enhance natural absorption.
    - Developing advanced technologies like carbon capture and storage for direct removal of greenhouse gases.
- **Global Commitments**: Over 70 countries have pledged to reach net-zero emissions by 2050 to combat climate change.
    - **Early Adopters**: Countries like the UK, Germany, France, Sweden, and New Zealand have committed to ambitious net-zero targets aligned with the Paris Agreement.
    - **Global Examples**: Bhutan and Suriname are already carbon-negative due to their significant carbon absorption capabilities from forests and natural ecosystems.
- **India's Target:** India aims to achieve net-zero emissions by 2070, as announced at the COP-26 summit.
- **Scope:** Targets can refer to overall greenhouse gases or specifically to CO2 emissions, depending on national strategies and agreements like the UK Climate Change Act.

Negative Emissions

- **Nature-Based Solutions**: Natural methods include reforestation and afforestation to increase CO2 absorption through plant growth.
- **Technological Solutions**: Advanced technologies such as bioenergy with carbon capture and storage (BECCS) and direct air capture are engineered to remove CO2 from the atmosphere.

PIB June 30

EUROPEAN COUNCIL
(Syllabus: GS Paper 2 – IR)

Prime Minister congratulates H.E António Costa on being elected as President of the European Council

Context: The Prime Minister of India extended congratulations to H.E. António Costa on his election as the next President of the European Council.

European Council

- **About**: It is a collegiate body (directorial system) that defines the overall political direction and priorities of the European Union. The European Council is part of the executive of the European Union (EU), beside the European Commission.
  - It ensures strategic coherence among member states in EU policies.
- **Composition:** The European Council consists of the heads of state or government of the member states, alongside its own President and the Commission President (both non-voting).
  - The High Representative of the Union for Foreign Affairs and Security Policy also participates in its meetings.
- **Evolution**: Originating as an informal summit in 1975, it gained institutional status with the Treaty of Lisbon in 2009.
- **Decision-Making**: Chaired by its president at least biannually in Brussels.
- Decisions are made by consensus among member states, except where specified otherwise by treaties.
- **Powers and Responsibilities**
  - Defined as an official EU institution under the Lisbon Treaty, tasked with advancing EU development.
  - Influential in shaping EU policy, especially in high-profile areas like foreign policy.
  - Exercises powers such as appointing key EU officials and proposing the President of the European Commission to the European Parliament.
  - The European Council provides strategic guidance and crisis management for the EU.
  - Legislative initiatives are proposed solely by the European Commission.

LIVEMINT Page 11

FAUNA OF INDIA CHECKLIST PORTAL

(Syllabus: GS Paper 3 – Env and Eco)

India becomes first to prepare fauna list

India has prepared a checklist of its entire fauna, covering 104,561 species, becoming the first country in the world to do so.

Launching the "Fauna of India Checklist Portal" on the occasion of the 109th foundation day of the Zoological Survey of India (ZSI) in Kolkata on Sunday, Union environment minister Bhupender Yadav said the first comprehensive document on the faunal species in India will position the country as a global leader in biodiversity documentation.

The environment minister said the faunal checklist will be an invaluable reference for taxonomists, researchers, academicians, conservation managers and policymakers.

The document comprises 121 checklists of all known taxa, covering 36 phyla. Endemic, threatened and scheduled species have also been included in the list. PTI

Context: India has compiled a comprehensive checklist of its entire fauna, encompassing 104,561 species, marking a global first in this achievement.

Fauna of India Checklist Portal

- **About**: The portal is the first extensive record of faunal species reported from India.
- **Launched by**: Zoological Survey of India (ZSI)
- **Objective**: It serves as a crucial resource for taxonomists, researchers, academicians, conservation managers, and policymakers.
- **Taxonomic Coverage**: Includes 121 checklists encompassing all known taxa across 36 phyla.
- **Inclusion Criteria:** Highlights endemic, threatened, and scheduled species within its comprehensive list.
- **Mammalian Diversity in India**
  - **Regional Distribution:** Meghalaya, West Bengal, Arunachal Pradesh, Tamil Nadu, Assam, Sikkim, and Kerala boast the highest number of mammalian species.
  - **Union Territories:** Andaman & Nicobar Islands, Ladakh, and Delhi exhibit notable mammalian diversity among Union Territories.
  - **Endemic Species:** Tamil Nadu, Karnataka, and Kerala house a significant portion of India's endemic mammal species.
- **Endemism in Specific Regions**
  - **Western Ghats**: Noteworthy for high endemism in hill streams across Tamil Nadu, Kerala, and Karnataka.
  - **Andaman & Nicobar Islands**: Also recognized for significant endemic species presence.
- **Unique Genera and Species**
  - **Monotypic Genera**: India hosts unique genera such as Anathana, Latidens, and Nilgiritragus, each found exclusively within its borders.
  - **Latidens salimalii**: Salim Ali's fruit bat, a rare megabat species, is an example of the unique fauna found in India.
  - **Anathana**: The Madras Treeshrew belongs to this monotypic genus, showcasing India's distinctive biodiversity.
- **Avian Diversity in India**
  - **Total Species**: India is home to 1,358 bird species.
  - **Endemic Birds:** 79 species are endemic, with the Western Ghats and Andaman & Nicobar Islands as significant areas of endemism.

INDIAN EXPRESS Pg 6/Jun 30

MINIATURE PAINTINGS IN INDIA

(Syllabus: GS Paper 1 – Art and Culture)

100-year-old miniature paintings damaged as water enters museum in Siri Fort area

VANDANA KALRA
NEW DELHI, JUNE 29

IN THE early hours of Saturday morning — a day after Delhi was battered by heavy downpour — artist Arpana Caur was wading through stagnant water, assessing the damage, and supervising the unscrewing of centuries-old miniature paintings and folk art paintings that are part of the museum housed in the basement of the Academy of Fine Arts and Literature at Siri Fort Institutional Area.

The museum features works from her collection built over decades. "By 5.30 am on Friday, the water level in the museum galleries was about five-feet high. Over 30 miniatures and over 70 folk paintings have been damaged. Some of these miniatures are 150-200 years old and are registered with the Archeological Survey of India (ASI)... The folk paintings include rare Dhaka paintings and thangkas, and works by acclaimed artists such as Jangarh Singh Shyam and Durga Bai," says Caur.

The artist notes that the influx of water came from the adjacent drain. "Anticipating that this would happen, my mother (author Ajeet Caur) had written a letter to the MCD (Municipal Corporation of Delhi) on June 19. She had stated that the drains were full of rubbish and needed immediate cleaning, but no action was taken," says Caur.

MCD did not respond to request for a comment.

In 2013, when a similar instance had occurred at her basement museum, Caur had moved the Delhi High Court. "The MCD and PWD were ordered to make sure the nullah is regularly cleaned. But the order seems to have been forgotten," states Caur.

Recalling her ordeal on Friday, she notes, "We started calling the MCD and fire department early in the morning... Finally, we managed to receive help from the fire department around 3.30 pm. They worked till midnight, and managed to bring the water level down to two-and-a-half feet, and our carpenter was able to enter and unscrew some paintings. We are still in the midst of removing all of them, and several of these will require restoration."



(L) A flooded museum; (above) artist Arpana Caur



Context: Delhi endured heavy rainfall, with artist Arpana Caur overseeing the assessment and preservation of centuries-old miniature and folk art paintings in the museum located at the Academy of Fine Arts and Literature in Siri Fort Institutional Area, amidst the flooding.

Miniature Paintings in India

- **Origin**: The term "miniature" derives from the Latin "minimum," meaning red lead paint, reflecting its early association with small-scale painting.
- **Emergence in India**: Indian miniature paintings have a rich history on the subcontinent, with distinct regional schools developing diverse styles and compositions.
- **Regional Development**: The Western Himalayas saw the emergence of Indian miniature paintings around the 17th century, influenced by earlier mural traditions.
- **Patronage and Influence:** Throughout the Mughal era, Indian miniature paintings flourished with support from Deccan Muslim rulers, Malwa kings, and Hindu Rajas of Rajasthan, blending Persian artistic traditions with indigenous styles.
- **There are two renowned institutions of higher learning**.
    - **Pala School of Art:** Flourished from 750 to 1150 AD, known for paintings on vellum paper or palm leaf manuscripts.
    - **Apabhramsa School of Art**: Originated in Gujarat and Mewar, dominated western Indian art from the 11th to 15th centuries, later integrating Vaishnava and Jain motifs.
- **Features:**
    - **Artistic Craftsmanship**: Miniature paintings are meticulously handcrafted, renowned for intricate details and vibrant colors despite their small size.
    - **Brushwork**: Indian miniatures are characterized by delicate brushwork that defines their unique style and aesthetic appeal.
    - **Traditional Materials**: These paintings use hand-mixed paints sourced from natural elements like gold, silver, minerals, plants, and precious stones.
    - **Technical Requirements**: Miniature paintings are limited to 25 square inches and depict subjects at no more than 1/6th of actual size, adhering to specific guidelines.
    - **Stylistic Characteristics:** Common features include side-profile human figures with distinctive traits like bulging eyes, sharp noses, and thin waists, varying by regional school.
- **Examples:** The portrait of Jahangir. This miniature is in the collection of the National Museum, New Delhi.

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