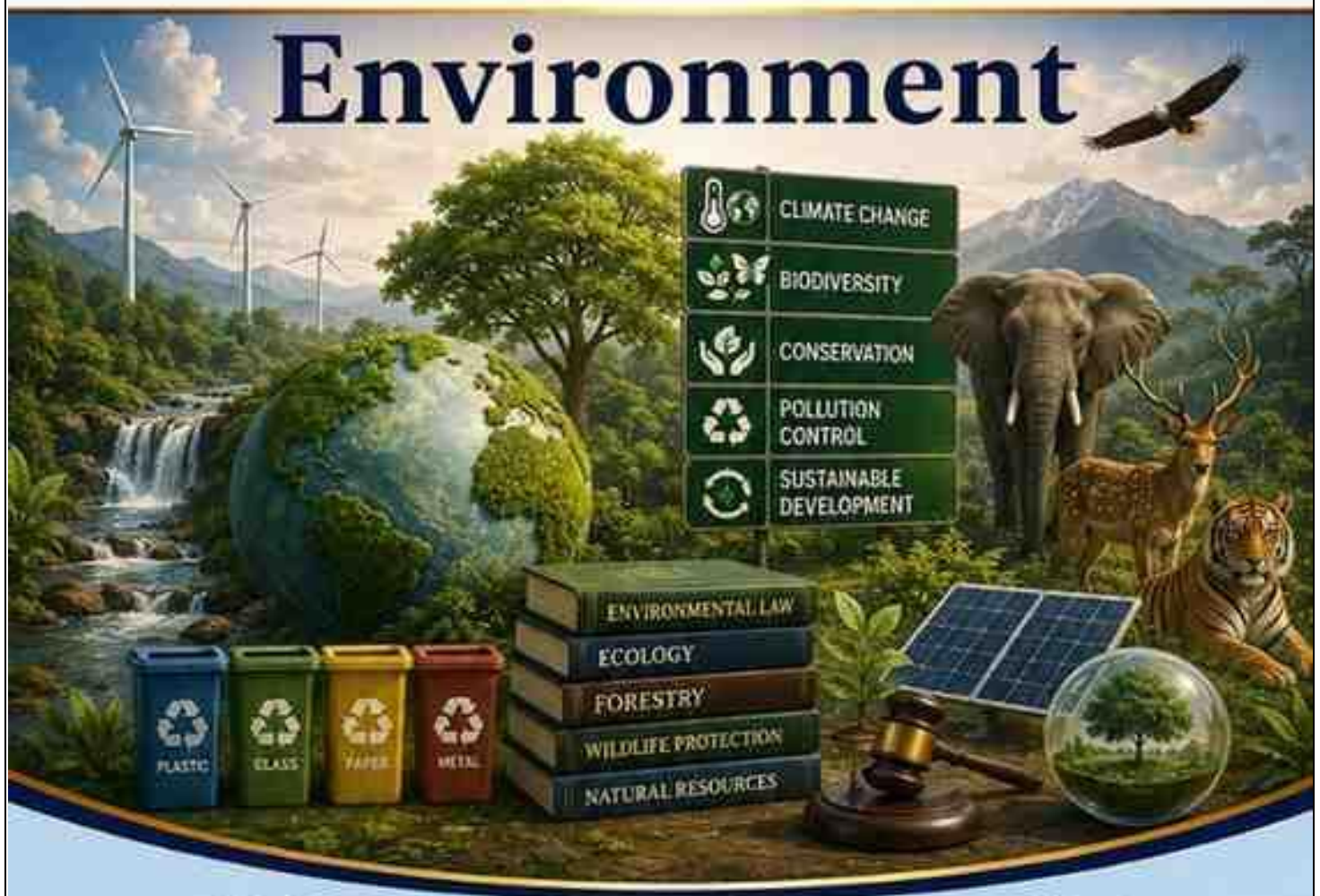




P.L. RAJ IAS & IPS ACADEMY

Civil Services Study Material

Environment



UPSC Prelims Current Affairs

(July 2026)

MONTHLY COMPILATION



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1. Himalayan Ray-Finned Fish

Prelims:

Environment & Ecology, Biodiversity & Conservation

Mains:

GS Paper I-Indian Society, GS Paper II-Governance, GS Paper III-Environment & Biodiversity

Current relevance:

The **Sangno clan** of East Kameng district, **Arunachal Pradesh**, has launched a community-led initiative to conserve the **endangered Himalayan ray-finned fish** (*Schizothorax pelzami*).



Highlights:

Himalayan ray-finned fish (*Schizothorax pelzami*):

1. Native to the **Himalayan and Trans- Himalayan River systems**.
2. Distributed across parts of **Arunachal Pradesh** and other Himalayan regions.

3. It inhabits **oxygen-rich freshwater streams and rivers** and serves as an important **indicator of healthy freshwater ecosystems**.
4. IUCN Red List Status: **Least Concern (LC)**

Community-Led Conservation Initiative:

1. **Translocation:** The fingerlings were released into a **Richaso stream** to safeguard them from **predatory mahseer**.
2. **Aim:** To revive and **sustain the traditional practice of community fishing** while ensuring long-term conservation of the species.
3. To facilitate natural population growth, the village has proposed a **five-year ban on fishing in the Richaso stream**.
4. The community plans to promote **eco-angling, stream-trail trekking**, and other **eco-tourism activities** alongside biodiversity conservation.

Source: THE HINDU <https://www.thehindu.com/news/national/arunachal-pradesh/arunachal-clan-launches-drive-to-protect-endangered-ray-finned-fish-sustain-tradition/article71170268.ece>

2. Wild Rice (*Oryza rufipogon*)

Prelims:

Environment & Ecology, Agriculture

Mains:

GS Paper II-Governance, GS Paper III- Agriculture, Environment

Current relevance:

The **Borjuli site** in Sonitpur district, **Assam**, has been notified as a **Biodiversity Heritage Site (BHS)** under the **NRAA-funded Wild Rice Conservation Project**.

Highlights:

Background:

1. The **National Rainfed Area Authority (NRAA)** has funded the project "**In-situ Conservation and Management of Wild Rice in Sonitpur District of Assam.**"The project has been implemented since **2022** by **ICAR–National Bureau of Plant Genetic Resources (ICAR–NBPGR)** in collaboration with the Assam State Biodiversity Board.
2. The **Borjuli site** has been notified as a **Biodiversity Heritage Site (BHS)** by the National Biodiversity Authority (NBA).

About Wild Rice (*Oryza rufipogon*):

1. *Oryza rufipogon* is the **wild ancestor of cultivated Asian rice.**
2. Native to **South and Southeast Asia**, including **India.**
3. Grows **naturally in wetlands, marshes, swamps**, floodplains, ponds, and seasonally flooded areas.

BORJULI SITE
Sonitpur District, Assam
NOTIFIED AS
BIODIVERSITY HERITAGE SITE (BHS)
under the
NRAA-FUNDED WILD RICE CONSERVATION PROJECT

WILD RICE
(*Oryza rufipogon*)

Conserving wild rice diversity for a resilient and food-secure future

	Location Borjuli, Sonitpur District, Assam
	Significance Home to wild rice (<i>Oryza rufipogon</i>) – a valuable genetic resource for climate-resilient agriculture
	Project In-situ Conservation and Management of Wild Rice in Sonitpur District
	Implemented by ICAR–NBPGR, New Delhi in collaboration with Assam State Biodiversity Board
	Funded by National Rainfed Area Authority (NRAA)

Significance:

1. Provides valuable genes for **climate resilience**, disease and pest resistance, and stress tolerance.

2. Contributes to the development of **high-yielding** and **nutritionally superior** rice varieties.
3. Promotes sustainable food production and **nutritional security**.

Source: PIB-

<https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2280202®=48&lang=1>

3. Nameri tiger reserve

Prelims:

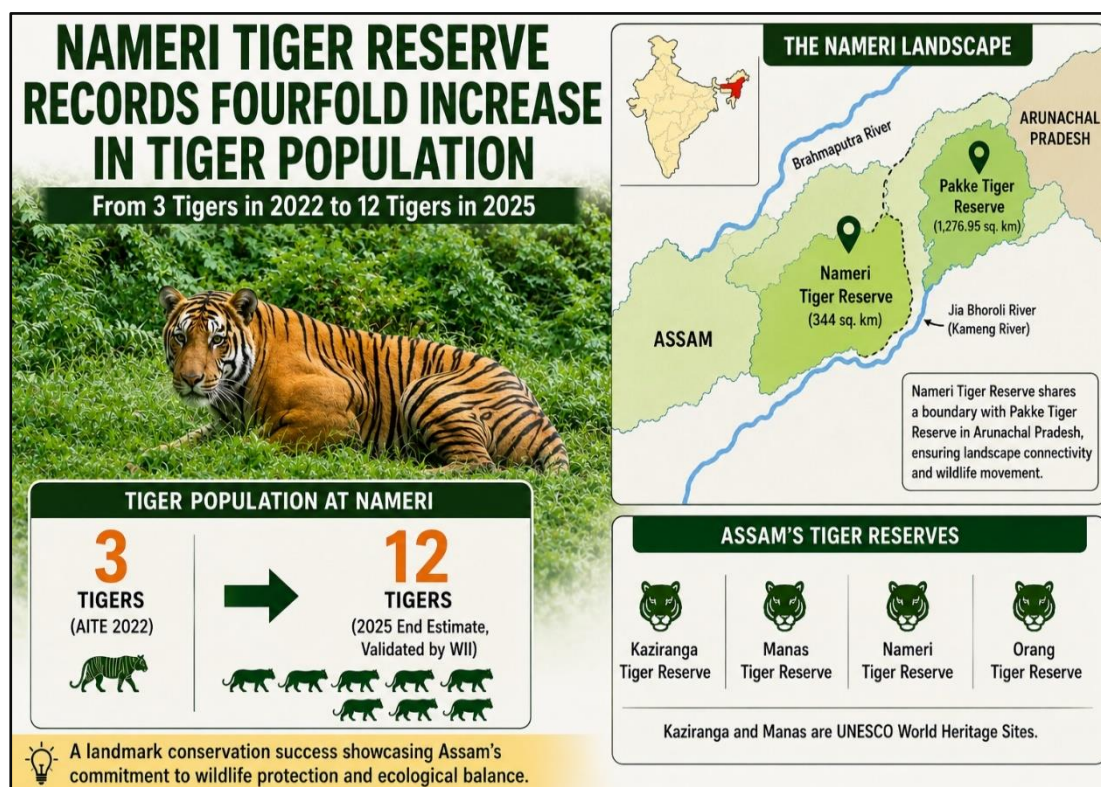
Environment & Ecology

Mains:

GS Paper III-Environment

Current relevance:

The **Wildlife Institute of India (WII)** validated the Assam Forest Department's estimate of **12 tigers in Nameri Tiger Reserve** by the end of 2025, marking a fourfold increase in tiger population.



Highlights:

About Nameri Tiger Reserve:

1. It is located in **Sonitpur district of Assam**, in the foothills of the **Eastern Himalayas**.
2. It shares an international ecological landscape with the **Pakke Tiger Reserve** in **Arunachal Pradesh**, facilitating wildlife movement.
3. The **Jia Bhoroli River** (known as the **Kameng River** in Arunachal Pradesh) flows through the reserve, supporting its rich aquatic and terrestrial biodiversity.
4. **Vegetation:** Comprises **tropical evergreen, semi-evergreen, moist deciduous forests**, along with extensive grasslands.
5. **Fauna:** Home to the **Royal Bengal Tiger, Asian Elephant, Clouded Leopard, Leopard, Gaur, Sambar, Wild Boar**, and several species of hornbills.

Reasons for Conservation Success:

1. **Continuous habitat protection and restoration** have created a favourable environment for tiger conservation.
2. **Scientific monitoring and regular wildlife surveys** have enabled effective population assessment and management.
3. Strengthened **anti-poaching measures** and improved conservation management have enhanced tiger protection.
4. **Landscape-level conservation** efforts have improved habitat connectivity and supported the recovery of tiger populations.

Source: THE HINDU-

<https://www.pressreader.com/foryou?popupArticleId=281668261713338>

4. Ethanol Blended Petrol (EBP) Programme

Prelims:

Environment & Ecology, Economy, Science & Technology

Mains:

Current relevance:

The Government of India released a comprehensive note on the **Ethanol Blended Petrol (EBP) Programme**, highlighting its policy evolution, achievements, and scientific evidence supporting **E20 fuel**.

**At a glance:**

1. The **EBP Programme** promotes blending **ethanol with petrol** to reduce dependence on imported fossil fuels and encourage the use of **domestically produced renewable biofuels**.
2. It forms a key pillar of **India's energy transition** and biofuel strategy.
3. **Objective:** To strengthen **energy security** by reducing crude oil imports, lower greenhouse gas emissions, **enhance farmers' income** through additional markets for agricultural produce, and promote a cleaner, self-reliant transport fuel ecosystem.
4. **Sources of Ethanol Production:**

- i. Sugarcane juice
- ii. Sugarcane molasses
- iii. Maize
- iv. Surplus rice approved by the Government
- v. Other approved agricultural feedstocks under the National Policy on Biofuels

5. Features of E20 Fuel:

- i. E20 contains **20% ethanol** and 80% petrol.
- ii. Ethanol is a **high-octane fuel**, improving combustion efficiency.
- iii. Extensive testing by **SIAM, ARAI, IOCL, and automobile manufacturers** has confirmed that E20 is safe for compatible vehicles.
- iv. E20 complies with BIS specifications and **BS-VI emission norms**.

6. Global Adoption of Ethanol Blending:

- i. **Brazil** mandates around **E27** and is moving towards E35.
- ii. **United States** widely uses **E10**, with increasing adoption of E15 and E85 for flex-fuel vehicles.
- iii. **Japan, Canada, Thailand**, and several European countries have also adopted ethanol blending as part of their clean fuel strategies.

Source: PIB-

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2281287®=3&lang=1>

5. Assam Releases Booklet Showcasing Butterfly Diversity of the Bodoland Forest Landscape

Prelims:

Environment & Ecology, Geography

Mains:

GS Paper I-Indian Culture, GS Paper III-Environment, Geography

Current relevance:

The **Assam Forest Department** released a special booklet documenting the **rich butterfly diversity** of the **Bodoland Territorial Region (BTR)**.



Highlights:

1. Booklet released by the **Assam Forest Department** to document the butterfly diversity of the **Bodoland Territorial Region (BTR)**.
2. Reinforces the ecological importance of one of **Northeast India's richest butterfly habitats**.
3. **Bodoland forest landscape:**
 - i. Comprises tropical evergreen, semi-evergreen, moist mixed deciduous forests, and alluvial grasslands.
 - ii. Lies at the confluence of the **Indo-Malayan** and **Indo-Gangetic** biogeographic zones.
4. **Butterfly Diversity:**
Numerous rare, endemic, and threatened butterfly species, making it one of the **richest butterfly habitats** in Northeast India.

5. Unique Ecological Significance

The **only ecological corridor in Northeast India** where butterfly species from the **Eastern Himalayas, Indo-Malayan region, and Indo-Gangetic plains** occur together.

6. Cultural Significance:

- i. Butterflies inspire the **Bagurumba**, the traditional **Butterfly Dance** of the **Bodo community**.
- ii. The dance is believed to be inspired by colourful butterfly congregations observed during the monsoon.

Source: THE HINDU –

<https://www.pressreader.com/foryou?popupArticleId=281767045962882>

6. National Action Plan for Prevention and Control of Zoonoses (Zoonotic Diseases)

Prelims:

Environment & Ecology, Science & Technology, Public Health, Government Policies

Mains:

GS Paper II-Health, GS Paper III-Science & Technology, Environment

Current relevance:

On the occasion of **World Zoonoses Day (6 July 2026)**, the **Ministry of Health & Family Welfare** organized a National Multistakeholder Consultation on the **National Action Plan for Prevention and Control of Zoonoses: A Strategic Framework with One Health Approach**.

NATIONAL ACTION PLAN FOR PREVENTION AND CONTROL OF ZONNOSES (ZONOTIC DISEASES)

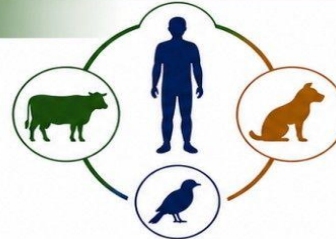
A One Health Approach for Human, Animal,
and Environmental Health



WHAT ARE ZONNOSES?

Zoonoses are diseases that are naturally transmitted between animals and humans.

Examples: Rabies, Brucellosis, Leptospirosis, Avian Influenza, Tuberculosis, Nipah, etc.



ONE HEALTH APPROACH

HUMAN HEALTH



Protecting people from zoonotic diseases through surveillance, vaccination, treatment and awareness.



ANIMAL HEALTH



Ensuring animal health through vaccination, disease control and responsible practices.

ENVIRONMENTAL HEALTH



Maintaining a healthy environment and ecosystems to reduce disease emergence.



A proactive and coordinated effort to build a healthier, safer and disease-resilient India through the One Health Approach.



Highlights:

1. The consultation brought together stakeholders from the **human health, animal health, wildlife, environment, academic and development sectors**
2. **Aim:** To strengthen India's **preparedness and response to zoonotic diseases** (diseases transmitted naturally between animals and humans).
3. The consultation emphasized the **need for sustained multisectoral coordination** to operationalize the **One Health Approach**, integrating efforts across the human health, animal health, wildlife and environmental sectors.
4. During the event, the Government launched **two technical resources** under the National One Health Programme for Prevention and Control of Zoonoses:
 - i. Learning Resource Package on 10 Priority Zoonotic Diseases.
 - ii. Comprehensive **E-Learning Modules** for healthcare professionals, veterinarians, public health officials and other frontline workers.

5. The consultation **reviewed the draft National Action Plan** through thematic sessions covering:

Governance and institutional mechanism, Surveillance and early warning systems, Laboratory strengthening, Prevention and preparedness, Outbreak response, Research and innovation, Risk communication, Workforce development, Financing, Monitoring, evaluation and implementation strategies.

6. The discussions highlighted the need to:

- i. Expand sentinel surveillance sites.
- ii. Strengthen laboratory networks.
- iii. Promote timely data sharing through IHIP 2.0.
- iv. Build capacity of frontline professionals.
- v. Leverage digital technologies and Artificial Intelligence (AI) for disease intelligence, early warning, outbreak prediction and rapid response.

7. The above recommendations from the consultation will be incorporated into the **National Action Plan for Prevention and Control of Zoonoses**, which will serve as India's national strategic framework for **coordinated multisectoral action** and guide States/UTs in developing State Action Plans based on the One Health Approach.

Source: PIB –

<https://www.pib.gov.in/PressReleaselframePage.aspx?PRID=2281860&RegID=6&LID=1®=48&lang=2>

7. Natural History Museum (NHM) at Mizoram University

Prelims:

Environment & Ecology, Biodiversity

Mains:

GS Paper II–Governance, GS Paper III–Environment

Current relevance:

The Ministry of Environment, Forest and Climate Change (MoEFCC) has officially designated the **Natural History Museum (NHM) at Mizoram University, Aizawl**, as a **Designated Repository** under Section 39 of the **Biological Diversity Act, 2002**.



Highlights:

1. The designation was made based on the recommendation of the **National Biodiversity Authority (NBA)**. The museum is located in the **Indo-Burma Biodiversity Hotspot**, one of the world's richest regions for biodiversity.
2. **Designated Repository:**
 - i. It is an institution officially recognized by the Central Government under Section 39 of the **Biological Diversity Act, 2002** to **preserve authenticated biological specimens collected** under the provisions of the Act.
 - ii. These repositories function as **permanent scientific reference centres** where biological specimens are securely preserved for research, identification, verification, conservation, and future scientific studies.
3. **Natural History Museum:**

- i. It will preserve **authenticated specimens** from both plant and animal groups.
- ii. Preserve flora such as pteridophytes and macrofungi, and fauna including reptiles, amphibians, fishes, moths, beetles, and butterflies.
- iii. It will also maintain type specimens of newly discovered species from the region for scientific documentation and long-term conservation.

4. Indo-Burma Biodiversity Hotspot:

- i. The **Natural History Museum** is strategically located in the Indo-Burma Biodiversity Hotspot.
- ii. Indo-Burma Biodiversity Hotspot is one of the **world's recognized biodiversity hotspots**.
- iii. It extends across northeastern India, Myanmar, Thailand, Laos, Cambodia, Vietnam, and parts of southern China.

Source: PIB-

<https://www.pib.gov.in/newsite/pmreleases.aspx?mincode=30®=48&lang=2>

8. Parrot Bornavirus-4 (PaBV-4)

Prelims:

Environment & Ecology, Science & Technology

Mains:

GS Paper III-Environment, Science & Technology

Current relevance:

Scientists from the **Assam Veterinary and Fishery University (AVFU)** have identified and genetically characterised **Parrot Bornavirus-4 (PaBV-4)** for the **first time in India**.



Highlights:

1. Researchers have **identified and genetically characterised Parrot Bornavirus-4 (PaBV-4)** in captive psittacine birds, marking its **first confirmed detection in India**.
2. **Parrot Bornavirus-4 (PaBV-4):**
 - It is a highly **pathogenic virus** belonging to the species *Orthobornavirus alphapsittaciforme*.
 - It primarily infects **psittacine birds (parrots and related species)** and is one of the major causes of **Proventricular Dilatation Disease (PDD)**.
3. **Proventricular Dilatation Disease (PDD):**
 - It is a largely **fatal viral disease** affecting the **digestive and nervous systems** of birds.
 - Common symptoms include **weight loss, regurgitation, neurological disorders, digestive dysfunction, and sudden death**.
4. **Significance:**

The discovery highlights the importance of **early disease surveillance, biosecurity measures**, screening of imported birds, and **monitoring wildlife diseases** to protect both captive and endangered bird populations.

Source: THE HINDU- <https://www.thehindu.com/sci-tech/energy-and-environment/deadly-bird-virus-pabv-4-identified-for-first-time-in-india/article71201191.ece>

9. Manas Tiger Reserve

Prelims:

Environment & Ecology

Mains:

GS Paper III-Environment

Current relevance:

A recent assessment has revealed that **14 invasive plant species** have contributed significantly to the **loss of over 43% of grassland cover** in **Manas Tiger Reserve, Assam**.



Highlights:

- The grassland cover in **Manas Tiger Reserve** declined from **53.61% in 1990** to **30.24% in 2019**, representing a 43.59% relative loss over three decades.

2. The shrinking grasslands **threaten several grassland-dependent species**, including: **Indian Rhinoceros, Pygmy Hog, Hispid Hare, Tiger** and other associated wildlife.

3. **Invasive Alien Species:**

Non-native organisms introduced outside their natural range that spread rapidly and negatively affect **native biodiversity, ecosystems, and ecological balance**.

4. **About Manas Tiger Reserve:**

- Located in **Assam**, Manas Tiger Reserve is one of **India's first Tiger Reserves**, established under **Project Tiger in 1973**.
- **UNESCO World Heritage Site:** Inscribed in **1985** for its outstanding biodiversity.
- It was declared as **National Park** in **1990**, strengthening its protection as one of India's most important biodiversity conservation areas.
- Recognised as a **Biosphere Reserve** under India's Biosphere Reserve Programme.
- Designated as **an Elephant Reserve**, providing protected habitat for the conservation of the Asian Elephant.

Source: THE HINDU – <https://www.thehindu.com/news/national/assam/14-invasive-plants-behind-grassland-loss-in-one-of-indias-first-tiger-reserves/article71209522.ece>

10. New Species of Rare Jumping Spiders

Prelims:

Environment & Ecology

Mains:

GS Paper III–Environment, Science & Technology

Current relevance:

A team of researchers from **India and Sri Lanka** has discovered **three new species of the rare jumping spider genus *Onomastus***, with two species found in **Kerala** and one in **Sri Lanka**.



At a glance:

1. The three new *Onomastus* species were discovered in the **Brahmagiri Hills (Wayanad)** and **Silent Valley National Park (Palakkad)** in **Kerala**, as well as in the **mountain forests** of **Sri Lanka**.
2. **Onomastus (genus of jumping spiders)**
 - These spiders are **small, agile predators** known for their **excellent vision** and **jumping ability**.
 - It is **diurnal (active during the day)** and rely on their eyesight rather than webs to hunt prey.
 - They are mainly found on **leaves, shrubs, and forest vegetation** in tropical forests.
 - These spiders are native to **South and Southeast Asia**, in **India** it is distributed across **western ghats** (Kerala and Tamil Nadu)

- These spiders are **beneficial predators**, feeding mainly on small insects and helping maintain ecological balance.

3. Silent Valley National Park:

- It is located in Palakkad district of **Kerala**; forms part of the **Nilgiri Biosphere Reserve** lies within the Western Ghats.
- It is a **UNESCO World Heritage Site**, and is renowned for its **tropical evergreen forests** and high level of endemism.

4. Brahmagiri Hills:

Located along the **Kerala–Karnataka border** in the **Western Ghats** and are known for their rich endemic flora and fauna, forming an important wildlife habitat connected to protected forest landscapes.

Source: THE HINDU – <https://www.thehindu.com/news/national/kerala/researchers-discover-three-new-species-of-rare-jumping-spiders/article71210387.ece>

11. Guinness World Record for Miyawaki Plantation Drive

Prelims:

Environment & Ecology

Mains:

GS Paper III–Environment

Current relevance:

The **Gandhinagar Lok Sabha constituency in Gujarat** created a **Guinness World Record** by planting **over 3.61 lakh saplings in one hour** using the **Miyawaki method** under the nationwide '**Ek Ped Maa Ke Naam**' (**Plant4Mother**) campaign.



At a glance:

1. The Gandhinagar, Gujarat created a **Guinness World Record** by planting over **3.61 lakh saplings** in **one hour** using the **Miyawaki method**.
2. The achievement was accomplished through the collective efforts of the **Ahmedabad Municipal Corporation**, over 25,000 volunteers, government departments, **voluntary organisations and citizens**.
3. The initiative forms part of the nationwide '**Ek Ped Maa Ke Naam**' ("**Plant4Mother**") **campaign**, which seeks to transform environmental conservation into a people's movement through **mass public participation**.
4. The campaign highlighted the importance of **public participation, meticulous planning and community commitment towards environmental conservation**.
5. The initiative supports the vision of "**Progress with Nature**" through activities such as **large-scale tree plantation, development of oxygen parks, restoration of ponds**, and other environmental conservation initiatives.
6. The campaign also emphasises that plantation must be followed by **protection and nurturing of saplings** to ensure long-term ecological benefits.

7. Significance:

The initiative demonstrates a **community-driven model** of environmental conservation and reinforces the role of the '**Ek Ped Maa Ke Naam**' campaign in promoting **green development, sustainable practices and ecological balance** as part of the vision for Viksit Bharat.

Source: PIB-

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2283926®=48&lang=1>

12.Compressed Biogas (CBG)

Prelims:

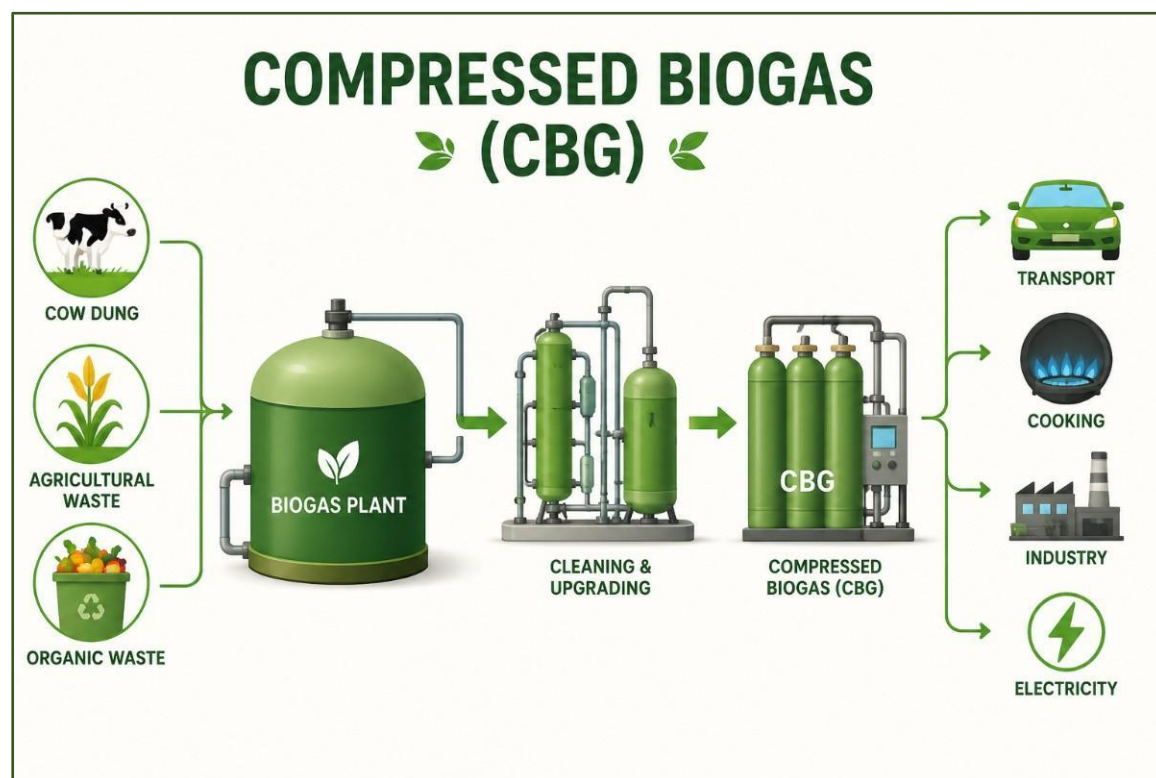
Environment & Ecology, Science & Technology

Mains:

GS Paper III-Energy, Environment, Economy

Current relevance:

Amid **global energy supply concerns** due to tensions in **West Asia**, attention has shifted to **Compressed Biogas (CBG)** as a renewable alternative to reduce India's dependence on imported fossil fuels and strengthen energy security.



Highlights:

Current status:

1. **India imports** nearly **85%** of its **crude oil requirement**, making its energy security highly vulnerable to global geopolitical developments.
2. India is trying to diversify crude oil suppliers, yet around **90%** of its **LPG imports transit through the Strait of Hormuz**, exposing the country to supply disruptions during **conflicts in West Asia**.

Compressed Biogas (CBG):

1. It is produced by compressing purified biogas generated through the **anaerobic digestion of organic waste**.
2. It is chemically similar to **Compressed Natural Gas (CNG)** and serves as a renewable, carbon-neutral fuel.
3. Can be used for **transport, cooking, electricity generation, and industrial applications**.

Government Initiatives:

1. SATAT Initiative:

- i. **The Sustainable Alternative Towards Affordable Transportation (SATAT)** initiative promotes the production and use of **Compressed Biogas (CBG)** to provide clean, affordable fuel while reducing crude oil imports.
- ii. It also aims to increase farmers' income, support crop residue management, and establish **5,000 CBG plants** across the country.

2. GOBARdhan Scheme:

- i. Promotes **waste-to-wealth** by supporting community biogas plants and strengthening biomass collection and pipeline infrastructure.

3. Mandatory CBG Blending:

- i. The **National Biofuels Coordination Committee (2023)** approved mandatory blending of **CBG with natural gas**.
- ii. Blending will begin at **1% in FY26** and gradually increase to **5% by FY29**.

Source: THE HINDU - <https://www.thehindu.com/business/Economy/can-biogas-aid-indias-energy-security/article71218703.ece>

13.New bee species

Prelims:

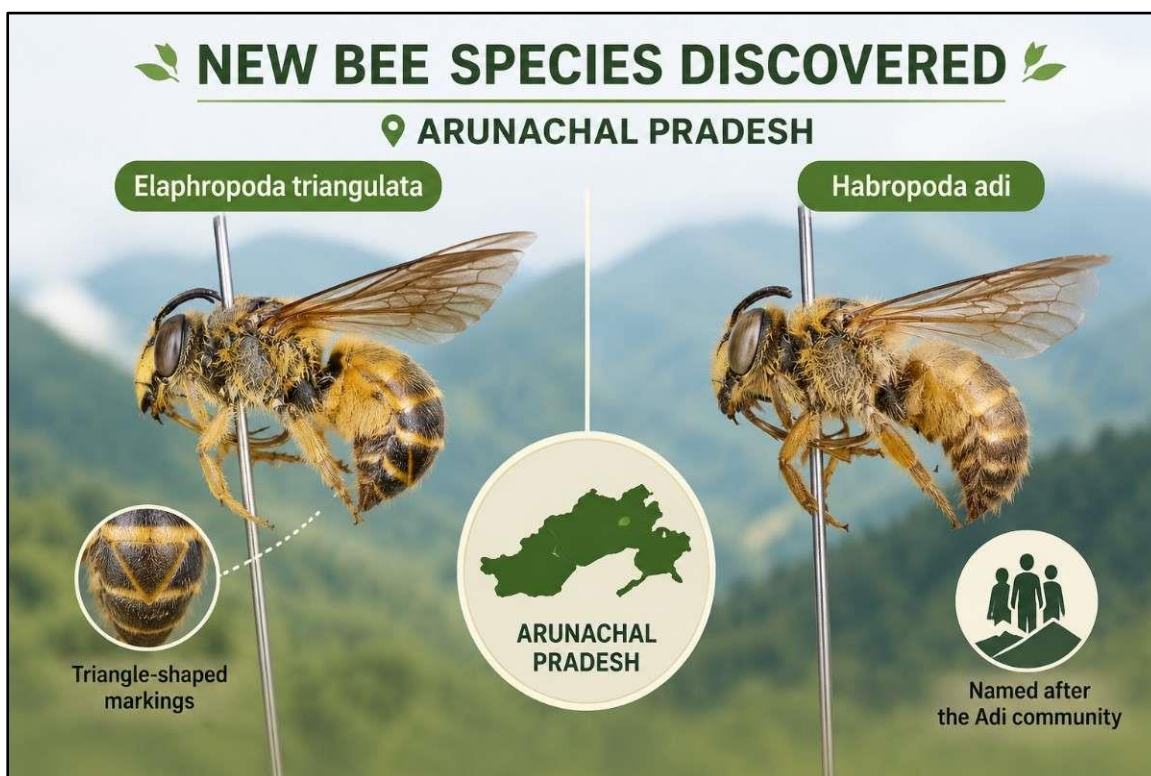
Environment & Ecology, Biodiversity

Mains:

GS Paper III- Environment, Science & Technology

Current relevance:

Researchers from the **Ashoka Trust for Research in Ecology and the Environment (ATREE)** discovered **two new species** of solitary bees in **Arunachal Pradesh**.



Highlights:

1. Researchers from **Ashoka Trust for Research in Ecology and the Environment (ATREE)** discovered **two new solitary bee species** in **Arunachal Pradesh**:

- i. **Elaphropoda triangulata** – named after the triangle-shaped abdominal markings.
- ii. **Habropoda adi** – named in honour of the Adi indigenous community.

About Solitary bee:

1. Both species are **solitary bees** that mainly build their **nests in the ground**.
2. They are important **pollinators**, playing a crucial role in maintaining **biodiversity** and supporting **agricultural productivity**.
3. These bees **do not live-in colonies** like honeybees.
4. Each female solitary bee builds, provisions, and maintains its **own nest independently**.
5. They are **non-aggressive** and rarely sting.

About ATREE:

1. An **environmental research organisation** based in Bengaluru, Karnataka.
2. Focuses on **biodiversity conservation, climate change, sustainable development, and ecological research**.

Source: THE HINDU – <https://www.thehindu.com/news/national/karnataka/atree-researchers-discover-two-new-bee-species-in-arunachal-pradesh/article71221452.ece>

14. Indian Grey Hornbill

Prelims:

Environment & Ecology

Mains:

GS Paper III–Environment & Ecology

Current relevance:

Researchers have reported **four consecutive years** of successful breeding of **the Indian Grey Hornbill** in **Gir Forest, Gujarat**, following its reintroduction in **2021**.



Highlights:

Background:

1. The Indian Grey Hornbill disappeared from **Gir Forest** during the **1950s–1960s**.
2. To restore the species, the **Gujarat Forest Department** initiated a reintroduction programme in **2021**.

Key Findings:

1. The species has recorded **four consecutive years** of **successful breeding**.
2. The restored population has begun establishing **self-sustaining territories** in Gir.

About Indian Grey Hornbill:

1. **The Indian Grey Hornbill (*Ocyrceros birostris*)** is a **medium-sized** with a long-curved bill, grey plumage, and a long tail with a white tip.
2. Primarily **frugivorous** (fruits) bird, also **feeds on insects, small reptiles**, and other invertebrates.
3. Native to the **Indian subcontinent** (India, Nepal, and parts of Pakistan).
4. It inhabits **dry deciduous forests**, open woodlands, **riverine forests**, agricultural landscapes, and urban green spaces.
5. The species is an important **long-distance seed disperser**, aiding natural forest regeneration.

6. The bird nests in **tree cavities**, where the female seals herself inside during incubation, leaving only a narrow slit for feeding.

7. IUCN Red List Status: **Least Concern (LC)**

Source: THE HINDU - <https://www.thehindu.com/sci-tech/energy-and-environment/60-years-after-disappearing-from-gir-indian-grey-hornbills-breed-for-fourth-consecutive-year/article71220419.ece>

15. Manasbal Lake

Prelims:

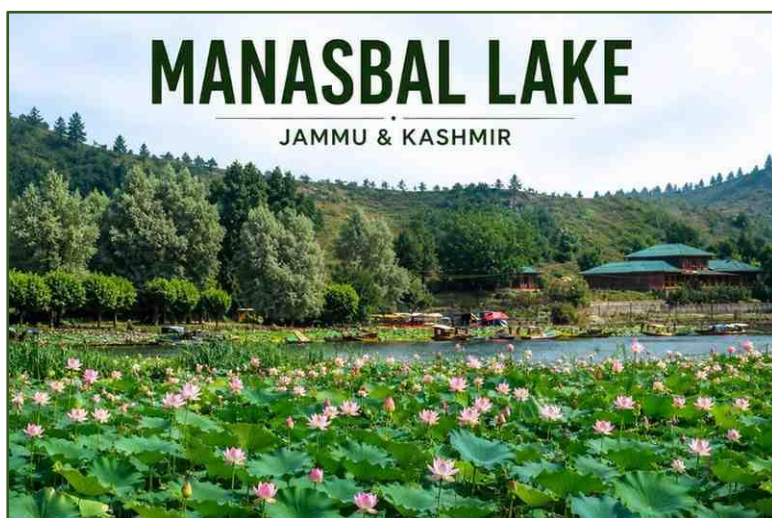
Environment & Ecology, Geography

Mains:

GS Paper I-Geography, GS Paper III-Environment

Current relevance:

Manasbal Lake in **Jammu & Kashmir** is witnessing an ecological revival, marked by the return of migratory birds following **sustained conservation measures**.



Highlights:

About Manasbal Lake:

1. It is the **deepest freshwater lake** in India, located in Ganderbal district of **Jammu & Kashmir**.

2. The lake is fed primarily by underground springs and seasonal runoff, and drains into the **Jhelum River** through the **Jhelum–Manasbal channel**.
3. It is known for its **abundant lotus blooms** and diverse aquatic flora and fauna.
4. It serves as an important **wintering habitat** for numerous resident and **migratory bird species** along the **Central Asian Flyway**.
5. It is managed by the **Wullar–Manasbal Development Authority (WMDA)**, which undertakes restoration and conservation measures.

Key Conservation Measures:

1. **De-weeding Operations:**

More than 7,200 cubic metres of excessive aquatic vegetation were cleared to **restore ecological balance** and improve water quality.

2. **Dredging:**

Around 70,000 square feet of the lake was **dredged to restore its depth**, clear water channels, and improve ecological health.

3. **Water Budgeting:**

The **J&K Water Resources Regulatory Authority** will conduct water budgeting to assess the lake's carrying capacity, water usage, and ecological water needs.

4. **Waste Management:**

A **Sewerage Treatment Plant (STP)** and an **Integrated Solid Waste Management Plant** are being developed to ensure that untreated waste does not enter the lake.

Future Course of Action:

1. Adopt an integrated conservation approach by **strengthening ecological restoration**, implementing **scientific water resource management**, controlling pollution, and promoting **community-led stewardship** to ensure the lake's long-term ecological sustainability.

Source: THE HINDU - <https://www.thehindu.com/news/national/jammu-and-kashmir/jksmansballake-starts-hosting-migratory-birds-again/article71233500.ece#:~:text=Manasbal%20Lake%2C%20the%20country's%20deepest,km%20and%201.5%20km%2C%20respectively.>

16. Catch the Rain

Prelims:

Environment & Ecology, Geography, Agriculture

Mains:

GS Paper II-Government Policies and Interventions, GS Paper III- Environment, Agriculture, Disaster and Disaster Management

Current relevance:

Prime Minister's appeal during the **135th episode of Mann Ki Baat** (28 June 2026), the Government launched a nationwide "**Catch the Rain**" campaign from 4 July to 4 August 2026.



Highlights:

1. **Catch the Rain (CTR)** is the flagship water conservation campaign of the **Ministry of Jal Shakti** aimed at promoting rainwater harvesting, groundwater recharge, and sustainable water management. The campaign encourages every citizen and institution to **convert rainfall into a valuable water resource** through local, low-cost, and community-driven interventions.
2. **Major Activities under the Campaign:**
 - i. Promote **rainwater harvesting systems** in homes, institutions, and workplaces.
 - ii. Install **recharge pits and recharge shafts** to replenish groundwater.
 - iii. Restore **baolis, wells, ponds**, and other **traditional water bodies**.
 - iv. Remove silt from **ponds and reservoirs** to enhance water storage capacity.
 - v. Increase **tree plantation in water retention areas** to improve groundwater recharge and ecological sustainability.
3. **Background:**
 - i. **Jal Sanchay Jan Bhagidari (JSJB)** is a community-based water conservation initiative launched by the **Ministry of Jal Shakti** to transform water conservation into a **Jan Andolan (people's movement)**.
 - ii. The programme focuses on creating groundwater recharge structures through **active participation of citizens, local bodies, CSR initiatives**, and convergence with government schemes.
 - iii. The initiative follows a **Whole-of-Government** and **Whole-of-Society** approach, encouraging scientifically designed, locally appropriate, and low-cost solutions for water security.
4. **Jal Sanchay Jan Bhagidari (JSJB) 1.0(2024)**
 - i. It was based on the **3Cs—Community, CSR, and Cost-effective interventions** to promote groundwater recharge and revive defunct borewells through public participation.

- ii. The initiative **exceeded its target** by creating over **27 lakh artificial recharge structures** against the target of 10 lakh across the country.
- iii. Outstanding performers of **JSJB 1.0** were honoured during the **6th National Water Awards (2025)**.

5. **Jal Sanchay Jan Bhagidari (JSJB) 2.0(2025)**

- i. Focused on accelerating groundwater recharge in **Over-Exploited and Critical districts** through low-cost, hyper-local interventions.
- ii. The initiative reported over **1.5 crore groundwater recharge structures** against the target of one crore.

6. **Jal Sanchay Jan Bhagidari: Catch the Rain**

- i. In 2026, it launched by integrating **JSJB** with the **Jal Shakti Abhiyan: Catch the Rain (JSA: CTR) campaign**.
- ii. Implemented through convergence with major Central and State Government schemes to strengthen **climate resilience and water security**.
- iii. Driven by **Jan Bhagidari**, involving **Panchayati Raj Institutions, Urban Local Bodies, women's groups, youth, educational institutions, civil society organisations, and local communities** in water conservation efforts.

7. **Jal Shakti Abhiyan: Catch the Rain**

- i. It was launched by Hon'ble Prime Minister on **World Water Day (22 March 2021)** with the theme **"Catch the Rain, where it falls, when it falls."**
- ii. It builds upon the success of the **Jal Shakti Abhiyan 2019**, which focused on water-stressed regions through a **Jan Andolan approach**.

- 8. **Jal Shakti Kendras (JSKs)** are **district-level knowledge** and facilitation centres established under the **Jal Shakti Abhiyan**. They serve as local resource centres for planning, technical guidance, awareness generation, and coordination of water conservation activities.

9. **"Catch the Rain – Through this mission, we have to collectively save every drop of rainwater. My special appeal to save every single drop of rainwater collectively."** ~ Hon'ble PM. Shri. Narendra Modi

Source: PIB –

[https://www.pib.gov.in/FeaturesDeatils.aspx?NotelId=159260&ModuleId=2®=48&lang=1#:~:text=\(JSA%3A%20CTR\)-,Jal%20Shakti%20Abhiyan%3A%20Catch%20the%20Rain%20\(JSA%3A%20CTR\),falls%2C%20when%20it%20falls.%E2%80%9D](https://www.pib.gov.in/FeaturesDeatils.aspx?NotelId=159260&ModuleId=2®=48&lang=1#:~:text=(JSA%3A%20CTR)-,Jal%20Shakti%20Abhiyan%3A%20Catch%20the%20Rain%20(JSA%3A%20CTR),falls%2C%20when%20it%20falls.%E2%80%9D)

17.Five New Allographa Species

Prelims:

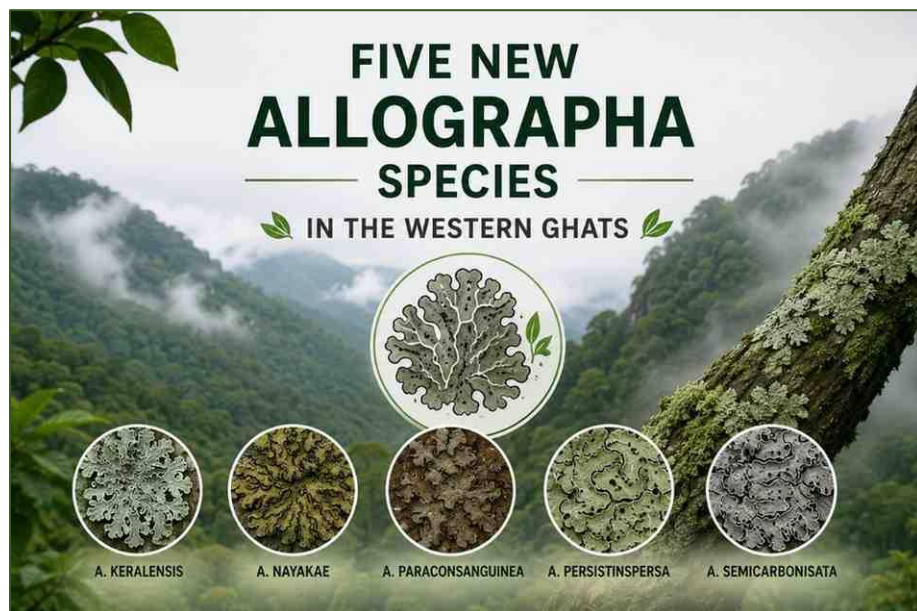
Environment and Ecology

Mains:

GS Paper III–Environment and Ecology

Current relevance:

Researchers from the **MACS Agharkar Research Institute, Pune**, have discovered five new species of **lichen-forming fungi** belonging to the genus ***Allographa*** from the Western Ghats.



Highlights:

1. About Allographa:

- i. Allographa is a **genus of script lichens** (lichen-forming fungi) belonging to the family Graphidaceae.
- ii. It consists of more than **200 species** and is characterised by **elongated fruiting bodies**.
- iii. It is formed through a **symbiotic association** between a **fungus and algae or cyanobacteria**.

2. Lichens:

- i. Lichens are important **indicators of forest health** and **environmental quality** due to their sensitivity to pollution and habitat changes.
- ii. They help identify **ecologically sensitive areas** and support **long-term environmental monitoring**.
- iii. They contribute to **evidence-based conservation policies** and the sustainable management of forest ecosystems.

3. Key findings:

- i. New Species of lichen-forming fungi discovered, they are A.keralensis, A.nayakae, A.paraconsanguinea, A.persistinspersa , A.semicarbonisata.
- ii. Revealed that **morphologically similar species** are **not** necessarily **closely related** evolutionarily.
- iii. Improved the understanding of **species boundaries**, evolutionary relationships, and **lichen symbiosis**.

Source: PIB –

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2287004®=48&lang=1>

18. Endangered Kutki Herb

Prelims:

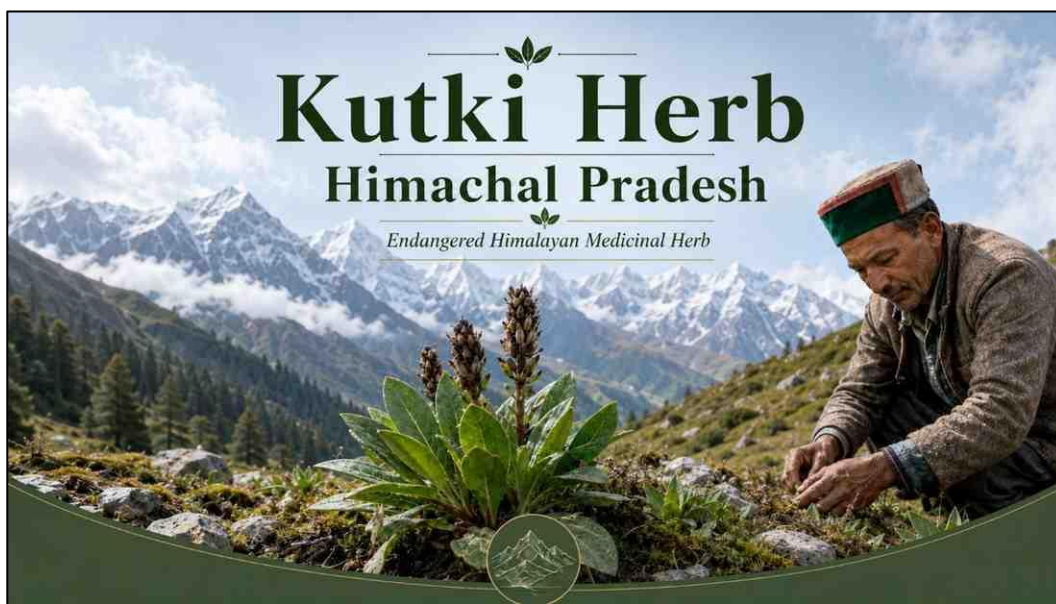
Environment and Ecology, International Environmental Conventions, Geography

Mains:

General Studies Paper II–Government Policies and Interventions, Environment and Biodiversity

Current relevance:

Farmers in the **Mandi district of Himachal Pradesh** have adopted a **sustainable cultivation** and harvesting model for **Kutki (Picrorhiza kurroa)**, an **endangered** Himalayan medicinal herb.



Highlights:

1. Kutki is native to the **alpine and sub-alpine regions** of the Himalayas.
2. It is widely used in traditional and modern medicine, with its **stolon, node-bearing stem that grows along the soil surface serving as the medicinally valuable part**.
3. It has been categorised as an **endangered species on the IUCN Red List**, one of the most threatened medicinal plants in the Himalayan region.
4. It is included in **Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.

Benefits of the Initiative:

1. **Conservation of an Endangered Species**

Cultivating on private farmland helps reduce harvesting pressure on wild populations and **contributes to its ex-situ conservation.**

2. **Sustainable Rural Livelihoods**

Kutki cultivation offers an **additional source of income** to farmers living in remote Himalayan areas.

3. **Reduction in Illegal and Destructive Collection**

A steady supply of farm-grown Kutki can lessen dependence on illegal and unsustainable collection from natural habitats.

4. **Scientific Agriculture**

The initiative promotes the adoption of scientifically developed cultivation and sustainable harvesting techniques among farmers.

5. **Medicinal Plant Economy**

Organised production of Kutki can support stable supply chains for **pharmaceutical companies and traditional medicine systems.**

6. **Climate-resilient Mountain Agriculture**

The cultivation of **high-value medicinal plants** can diversify farmers' incomes in mountain regions where conventional agriculture is constrained by difficult terrain and climatic conditions.

Source: THE HINDU – <https://www.thehindu.com/news/national/himachal-pradesh/himachal-farmers-pioneer-sustainable-cultivation-of-endangered-himalayan-herb-kutki/article71257294.ece>

19. Building Climate Resilience for Older Persons

Prelims:

Environment & Ecology, Social Issues

Mains:

GS Paper I–Social empowerment, GS Paper II–Welfare schemes for vulnerable sections, GS Paper III–Disaster management.

Current relevance:

A recent **study by HelpAge India** highlights that **senior citizen are among the most vulnerable groups to climate change.**



Highlights:

1. Elderly is disproportionately affected by climate change due to age-related **health limitations, financial dependence, and social vulnerabilities.**
2. India's elderly population is projected to increase from **149 million (2022)** to about **347 million by 2050**, making climate resilience increasingly important.
3. **Climate Stressors Affecting Older Persons:**
 - i. **Rising Temperatures:** Rising temperatures increase the risk of **heat stress, dehydration, and heat-related illnesses** among older persons due to reduced physiological tolerance.
 - ii. **Poor Ventilation and Indoor Heat** expose older adults to prolonged heat stress, aggravating chronic illnesses and reducing overall well-being.
 - iii. **Environmental degradation** contributes to **poor air quality**, declining living conditions, and **increased respiratory and physical health problems.**

- iv. Some other factors are erratic rainfall, droughts, floods, coastal Erosion, water Scarcity.
4. The report recommends **strengthening community resilience** through family support, **neighbourhood check-ins**, volunteer networks, community shelters, relocation assistance, **age-inclusive early warning systems**, and robust local care networks to protect older persons during climate-related emergencies.
5. **Best Practice:**
- Odisha's cyclone preparedness model**, involving **early warning systems** and timely evacuation of older persons to community shelters, is cited as a successful example of age-inclusive disaster management.

Source: THE HINDU – <https://www.thehindu.com/sci-tech/health/no-country-for-old-people-building-resilience-to-protect-elderly-from-climate-stressors/article71254834.ece>

20. Global Aerosol Diversity

Prelims:

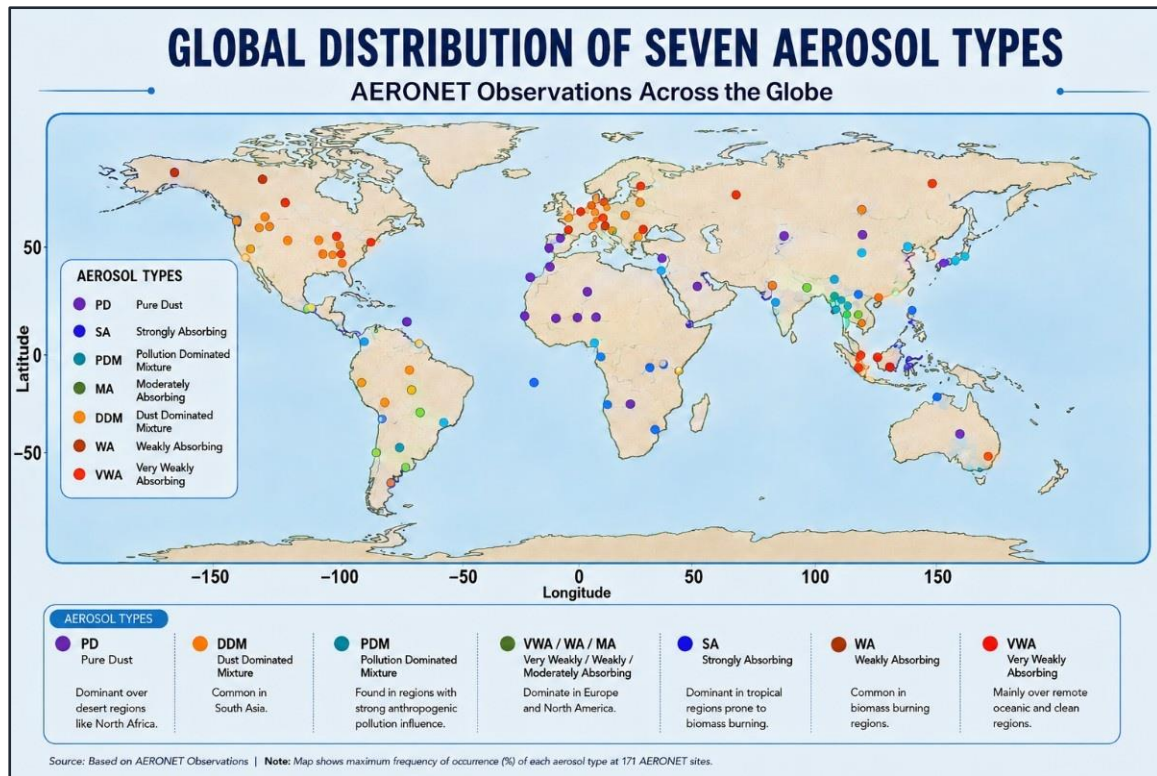
Environment & Ecology, Science & Technology

Mains:

GS Paper III– Conservation and Environmental Pollution

Current relevance:

A recent study by researchers from the **Indian Institute of Astrophysics (IIA)**, **ARIES**, **ISRO**, **NASA**, and other international institutions, published in the Atmospheric Environment Journal, has identified **seven major aerosol types** and mapped their global distribution.



Highlights:

1. **Aerosols** are tiny particles suspended in the atmosphere that influence Earth's climate by scattering, absorbing, and interacting with sunlight, thereby affecting the planet's energy balance, clouds, weather, and rainfall.
2. **Objective:**
The study provides a long-term global assessment of aerosol diversity and their radiative effects to improve climate models and enhance the accuracy of climate predictions.
3. The study classified aerosols into **seven major types**:
 - i. Pure Dust (PD)
 - ii. Dust-Dominated Mixtures (DDM)
 - iii. Pollution-Dominated Mixtures (PDM)
 - iv. Very Weakly Absorbing (VWA)
 - v. Weakly Absorbing (WA)
 - vi. Moderately Absorbing (MA)
 - vii. Strongly Absorbing (SA)

4. **South Asia** experiences the **highest Aerosol Radiative Forcing and atmospheric heating** because of the predominance of **dust mixed with pollution (Dust-Dominated Mixtures)**.
5. **Climate Implications:**
 - i. **Strongly absorbing aerosols**, particularly those rich in black carbon, absorb large amounts of solar radiation, causing significant atmospheric heating and influencing **regional weather patterns and cloud formation**.
 - ii. **Very weakly absorbing aerosols** primarily scatter and reflect incoming sunlight back into space, producing a **cooling effect on the Earth's surface**.
 - iii. The varying radiative properties of different aerosol types significantly influence **the Earth's energy balance**, making accurate aerosol characterization essential for understanding and predicting climate change.
6. **Applications:**
 - i. Climate models
 - ii. Satellite-based remote sensing
 - iii. Air quality monitoring
 - iv. More accurate aerosol retrieval algorithms
 - v. Support the assessment of air pollution impacts

Source: PIB –

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2288312®=48&lang=2>

21. Mangrove Encroachments Threaten the Indian Sundarbans

Prelims:

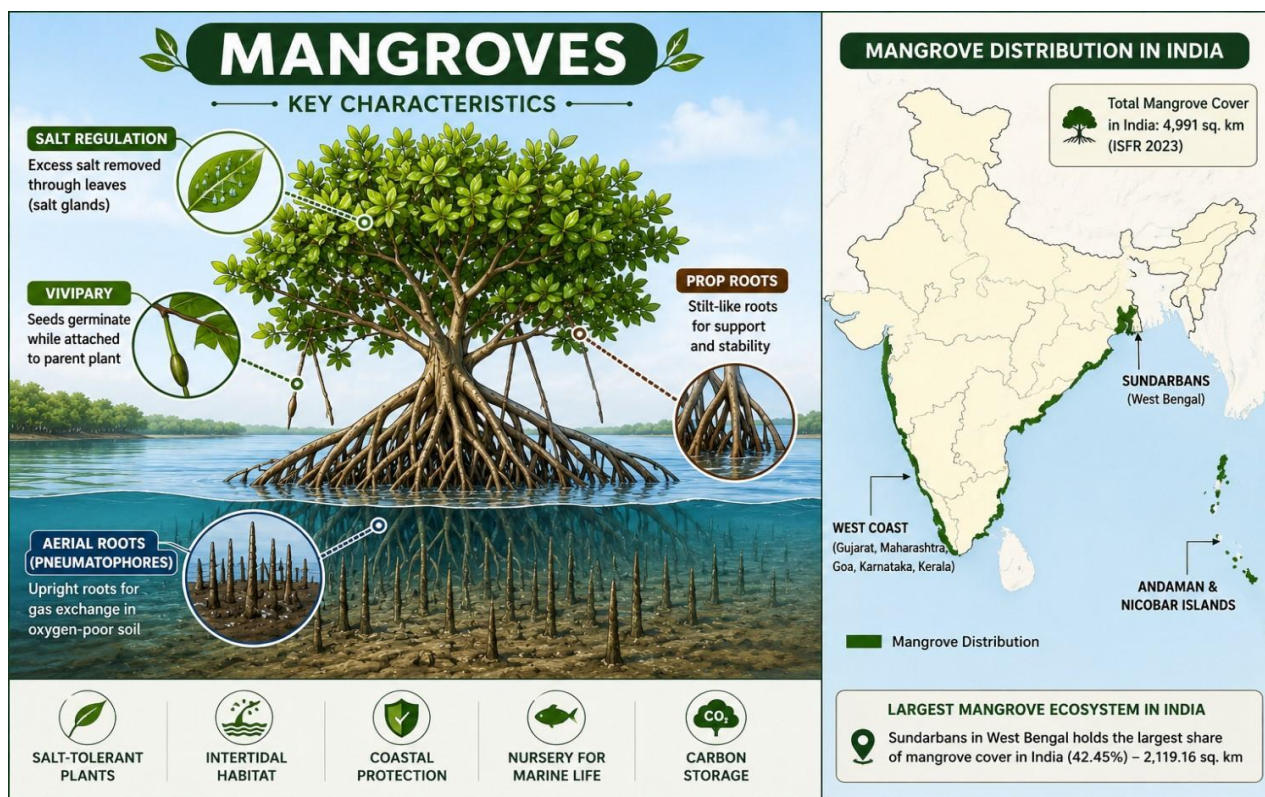
Environment & Ecology

Mains:

GS Paper III- Biodiversity and Environmental Protection

Current relevance:

The **West Bengal Environment and Forest Minister** highlighted large-scale **encroachment of mangrove forests in the Sundarbans** for the construction of shallow fishponds and announced that the affected areas would be restored.



Highlights:

1. Hundreds of acres of **mangrove forests in the Sundarbans** have been encroached upon, primarily for the construction of **bheries (shallow fishponds)**, resulting in significant loss of mangrove cover.
2. The issue was discussed at a workshop titled "**Strengthening Mangrove Governance in the Indian Sundarbans through Technology Driven Innovation, Knowledge Partnership and Co-management**", organised by the **Nature Environment and Wildlife Society (NEWS)** in collaboration with the **State Forest Department**.

Nature Environment and Wildlife Society (NEWS):

1. A report prepared by **NEWS** identified **over 600 hectares of mangrove forests** encroached for the construction of **berries** at **10 locations**, while indicating that the actual extent of encroachment could be much higher.

2. It recommended the establishment of a **Mangrove Management and Conservation Authority** in West Bengal to strengthen mangrove conservation and governance.

About mangroves:

1. **West Bengal**, particularly the **Sundarbans**, contains the **largest share of India's mangrove cover**, accounting for **42.45%** of the national total cover.
2. They are **salt-tolerant (halophytic) trees and shrubs** that grow in the intertidal zones of tropical and subtropical coastal regions.
3. Found along **estuaries, river deltas, lagoons, mudflats, and sheltered coastal areas** where freshwater and seawater converge.
4. Possess **aerial roots (pneumatophores)**, prop roots, or stilt roots for respiration and anchorage in waterlogged soils.
5. **Remove excess salt** through specialized glands or store salt in leaves, which are later shed.
6. **Vivipary**: Seeds germinate on the parent plant before detachment, enhancing their survival and successful establishment in tidal environments.
7. **Low-Oxygen Adaptation**: Specialized roots enable gas exchange in oxygen-deficient (anaerobic) soils.

Source: THE HINDU - <https://www.thehindu.com/news/cities/kolkata/west-bengal-minister-vows-to-restore-mangroves-lost-to-encroachments-in-sundarbans/article71262808.ece>

22. India's Rice Fields Among the World's Largest Methane Emission Sources

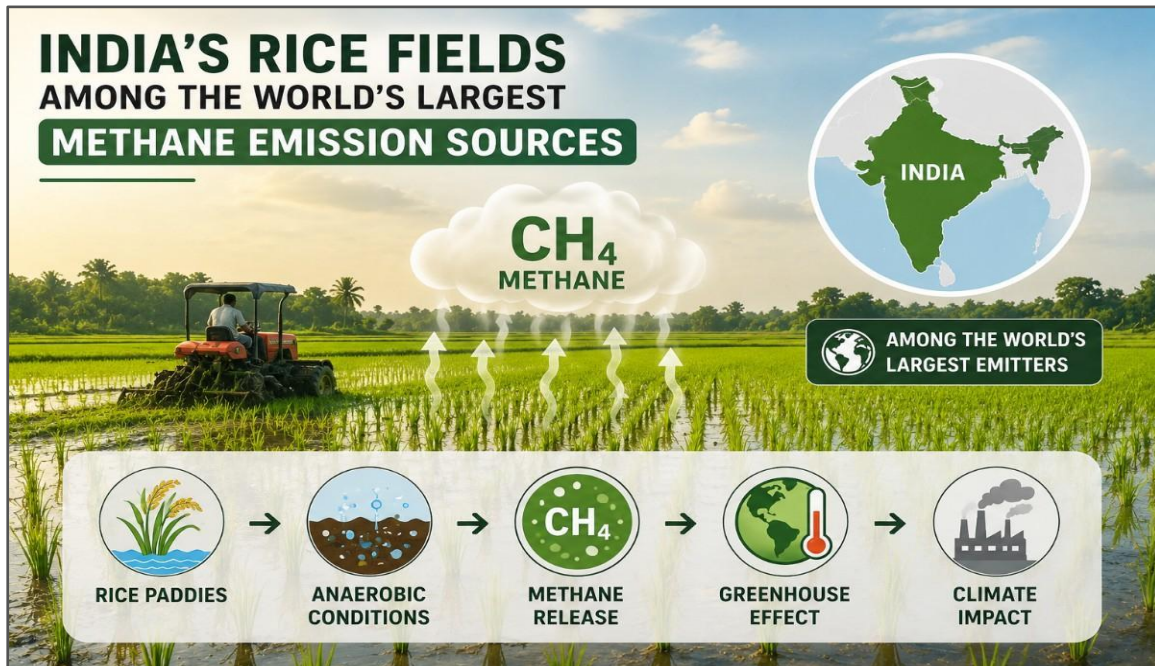
Prelims:

Environment & Ecology, Agriculture

Mains:

Current relevance:

A study published in **Nature Food** has found that **greenhouse gas (GHG) emissions** from paddy fields have doubled since the 1960s, with India's rice fields, particularly in eastern India, ranking among the **world's major methane emission hotspots**.

**Highlights:**

1. The study found that **greenhouse gas emissions** from global paddy fields nearly **doubled between 1961–1980 and 2011–2020**, with annual emissions reaching around **1.1 billion tonnes of CO₂ equivalent (CO₂-e)**.
2. The rise in methane emissions is driven by the **depletion of soil organic carbon**, **methane generation** under **flooded paddy conditions**, continuous irrigation, incorporation of **crop residues** into the soil, and increased application of nitrogen fertilizers.
3. **Paddy fields in eastern India** are identified among the **global methane hotspots**, while irrigated paddy fields in India emit around **3.9 million tonnes of methane annually**.
4. **Emission Reduction Measures:**

- i. **Optimised Irrigation:** Adopt **alternate wetting and drying (AWD)** to reduce the duration of continuous flooding in rice fields to lower methane emissions.
- ii. **Improved Crop Residue Management:** Adopt practices such as **composting, mulching, biochar production, or removal of crop residues from flooded rice fields** instead of incorporating them into the soil.
- iii. Promote the balanced and efficient use of nitrogen fertilizers through practices such as **neem-coated urea, split application of fertilizers, and soil test-based nutrient management** to minimise greenhouse gas emissions.
- iv. **Climate-Resilient Farming:**
 The **National Innovations in Climate Resilient Agriculture (NICRA)** promotes the **System of Rice Intensification (SRI)**, which involves transplanting young seedlings and avoiding continuous flooding to reduce methane emissions.
- v. Collectively, these measures can **reduce global greenhouse gas emissions** from rice cultivation by around **10%** by the middle of the century, even under a warming climate.

Source: THE HINDU - https://www.pressreader.com/india/the-hindu-international-9bn2/20260726/281968909472157?srsIid=AfmBOOpJZF4QgQsQms9VEzzzj2DD5uBKSF2V7WH6vsbIVIQsBw_0vnNJ

23. Zoo pharmacognosy

Prelims:

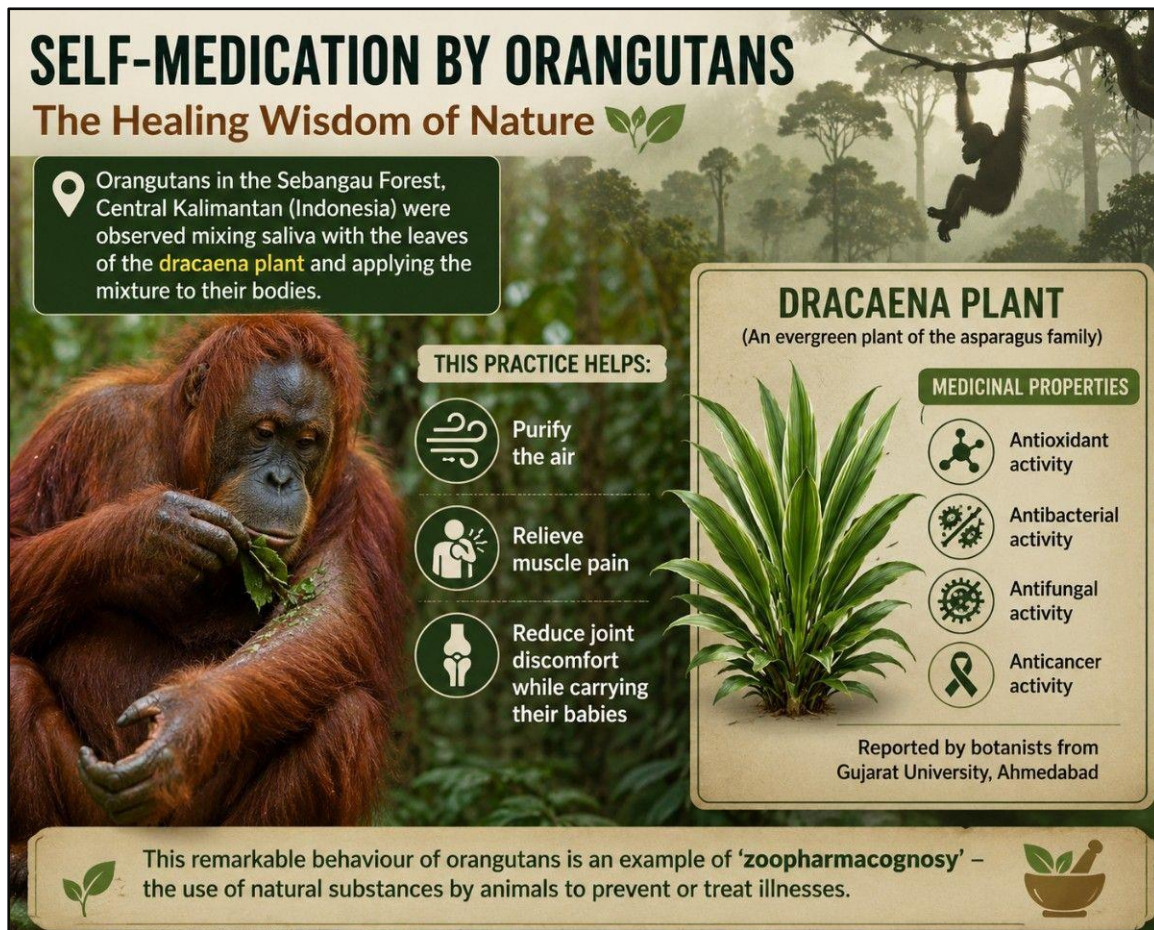
Environment & Ecology, Science & Technology

Mains:

GS Paper III-Environmental and Biodiversity

Current relevance:

A review by G. Allen et al., published in **Scientific Reports (2026)**, highlighted how **orangutans in Indonesia** use medicinal plants for self-treatment, demonstrating the phenomenon of **zoopharmacognosy**.



Highlights:

1. Zoopharmacognosy:

It refers to the behaviour of animals using **plants, roots, fruits, soil, or other natural substances** to prevent or treat illnesses.

2. Self-Medication by Orangutans:

- Orangutans in the Sebangau Forest, Central Kalimantan (Indonesia) were observed preparing a **mixture of saliva and dracaena leaves** and applying it to their bodies.
- This self-treatment is believed to **purify the air, relieve muscle pain, and reduce joint discomfort** while carrying their babies.

3. Dracaena plant:

It is an **evergreen plant belonging to the asparagus family** and has been reported to possess **antioxidant, antibacterial, antifungal, and anticancer properties**, making it a plant of medicinal significance.

4. Examples of Self-Medication in Animals:

- i. **Chimpanzees** in Nigeria swallow the **leaves of Desmodium gangeticum (Shalaparni)** to eliminate parasites affecting their skin.
- ii. **Elephants** chew **oregano leaves** to obtain relief from phlegm.
- iii. **Monkeys, sheep, dogs, and cats** consume **grass** to eliminate parasites such as worms and amoeba. They also ingest **clay or soil particles** for pain relief, a behaviour known as **geophagy**.
- iv. **Birds** use **herbs** to protect their nests from invaders.

Source: PIB – <https://www.thehindu.com/sci-tech/science/zoopharmacognosy-when-animals-medicate-themselves/article71248990.ece>

24. Madanapalle's Journey Towards a Zero Waste City

Prelims:

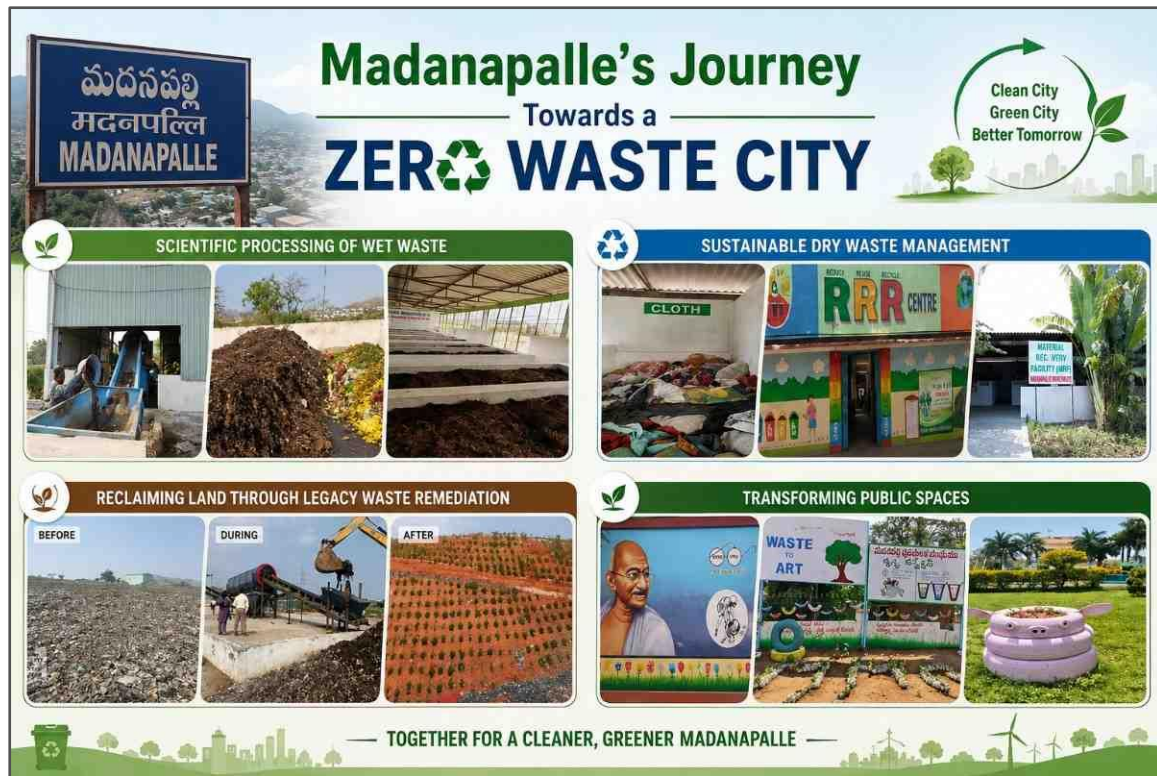
Environment & Ecology, Government Schemes

Mains:

GS Paper II–Government Policies and Interventions, GS Paper III–Environmental Conservation

Current relevance:

Madanapalle Municipality in **Andhra Pradesh** is implementing an integrated scientific waste management system under **Swachh Bharat Mission–Urban (SBM-U) 2.0** to transform the city into a **Zero Waste City**.



Highlights:

1. **Zero Waste City Initiative:** Driven by the **vision of Swachh Bharat Mission–Urban 2.0**, Madanapalle Municipality has adopted an integrated system of **scientific waste management, source segregation, and resource recovery** to transform the city into a **Zero Waste City**.
2. **Source Segregation:**
 - A systematic source segregation mechanism has been implemented across the municipality.
 - Waste is segregated into **biodegradable waste, non-biodegradable waste, upcycling waste**.
3. **Wet Waste Management:**
 - i. **Bulk Waste Generators** are encouraged to establish **on-site composting systems**, while citizens are adopting **home composting** and **terrace gardening** to manage wet waste at the source.
 - ii. Wet waste is scientifically processed through **windrow composting** to produce **compost for parks, plantations, and gardening** activities across the town.

- iii. It also processes wet waste through **vermi composting**, producing **nutrient-rich compost** that reduces landfill burden and promotes sustainable waste utilization.

4. **Dry Waste Management:**

- i. Dry waste is segregated at the doorstep into **recyclable** and **non-recyclable** categories to facilitate efficient waste management.
- ii. Recyclable waste is processed through the **Material Recovery Facility (MRF)** for resource recovery and recycling.
- iii. Non-recyclable waste is sent to **cement factories for co-processing**, enhancing waste utilization while generating additional revenue for the municipality.

5. **Reduce, Reuse and Recycle (RRR) Centre:**

- i. Through **door-to-door collection drives** and the **RRR Centre**, the municipality collects E-waste, old clothes, toys, books, footwear.
- ii. These items are repaired, reused, or redistributed among **slum communities, homeless individuals, and old age homes.**

6. **Waste-to-Art Initiative**

- i. Discarded **tyre waste** is creatively repurposed into artistic installations in parks and public spaces, promoting environmental awareness and supporting the vision of **zero dumping.**
- ii. The **Waste-to-Art Park at NVR Layout** showcases the innovative reuse of discarded materials as functional and aesthetic public installations.

7. **Integrated Waste Management Model**

- i. **Madanapalle's** integrated approach includes source segregation, composting, recycling, upcycling, waste-to-Art, Bio-mining, legacy waste remediation, citizen engagement.
- ii. The municipality is progressing towards becoming a **Zero Dump and Zero Littering City.**

Source: PIB –

<https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2289853®=48&lang=1>

25. India Leads the World in Tiger Conservation

Prelims:

Environment & Ecology, International Organisations

Mains:

GS Paper III– Conservation

Current relevance:

On the occasion of **International Tiger Day (29 July)**, the Government highlighted India's remarkable achievements in **science-based tiger conservation**, showcasing the country's leadership in protecting wild tigers and their habitats.



Highlights:

1. India has emerged as a **global leader** in tiger conservation through **science-based policies, strong institutional support, technology-driven monitoring**, and **community participation**, and is now home to nearly **70% of the world's wild tigers**.
2. **Ecological Importance of Tigers:**

- i. Tigers are **apex predators and umbrella species** that help maintain healthy forest ecosystems.
- ii. Conserving tiger habitats also protects **forests, rivers, biodiversity, and ecosystem services**, while enhancing ecological security and supporting sustainable development.

3. Governance Framework for Tiger Conservation:

i. **Project Tiger:**

It is a **Centrally Sponsored Scheme** implemented by the **Ministry of Environment, Forest and Climate Change (MoEFCC)**. It provides **financial and technical assistance** to tiger-range States through habitat protection, scientific management, and field-based monitoring.

ii. **National Tiger Conservation Authority (NTCA):**

It oversees the implementation of **Project Tiger**, approves **Tiger Conservation Plans**, issues management guidelines, and provides scientific, technical, and financial support to tiger-range States.

iii. **Tiger Task Force:**

It advocated greater transparency, community participation, and stronger institutional support for **Project Tiger**. Its recommendations strengthened India's tiger conservation framework and led to the **2006 amendments to the Wildlife (Protection) Act**, establishing the **National Tiger Conservation Authority (NTCA)** and the **Wildlife Crime Control Bureau (WCCB)** as statutory bodies.

4. Science-Based Monitoring:

i. **All India Tiger Estimation (AITE):**

AITE estimates tiger populations, prey species, co-predators, and habitat quality. Conducted **every four years** by the **NTCA** in collaboration with the **Wildlife Institute of India (WII)**.

ii. **Technology-Driven Monitoring:**

India uses **M-STripES, Camera Trap Data Repository and Analysis Tool (CaTRAT), ExtractCompare**, GPS, GPRS, remote sensing, and artificial intelligence to improve the accuracy and reliability of tiger monitoring.

iii. **Management Effectiveness Evaluation (MEE):**

MEE evaluates the management of tiger reserves by assessing planning, protection, management processes, and conservation outcomes, helping strengthen accountability and reserve management.

5. **International Cooperation:**

i. **International Big Cat Alliance (IBCA):**

It is a **global initiative** headquartered in India that promotes international cooperation for the **conservation of seven big cat species**.

ii. **Global Tiger Forum (GTF):**

It is the world's **only intergovernmental organisation exclusively dedicated to tiger conservation**, bringing together **13 tiger-range** countries.

iii. **Integrated Tiger Habitat Conservation Programme (ITHCP):**

It is the **IUCN's flagship tiger conservation initiative**, funded by the **German Government through KfW Development Bank**, supporting science-based conservation across priority tiger landscapes in Asia.

Source: PIB –

<https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2290233®=48&lang=1>

26. Corporate Average Fuel Efficiency (CAFE) III

Prelims:

Environment & Ecology, Economy

Mains:

GS Paper III-Environment Conservation

Current relevance:

The **Ministry of Power** released the draft **Corporate Average Fuel Efficiency (CAFE) III** norms on 16 July, proposing a revised fuel-efficiency framework.



Highlights:

1. The draft **CAFE III** norms seek to improve the fuel efficiency of manufacturers' passenger vehicle fleets by prescribing **annual sales-weighted average fuel-efficiency targets**, encouraging **cleaner technologies** and reducing dependence on imported crude oil.
2. **Background:**
CAFE norms were first introduced to reduce oil dependence and later evolved to address **greenhouse gas emissions**, encouraging innovation in fuel-efficient, hybrid, and electric vehicles.
3. **Aim:** To reduce the average emissions of passenger vehicles from **113 gCO₂/km** to **77 gCO₂/km** by **FY 2031–32**.
4. **Mechanisms under CAFE III:**
 - i. **Carbon Neutrality Factor:** Provides compliance benefits for vehicles compatible with **higher ethanol blends** and other fuels.
 - ii. **Super Credits:** Additional compliance benefits are provided for **battery electric vehicles, plug-in hybrids, strong hybrids, and flex-fuel vehicles**.

- iii. Manufacturers exceeding targets can **bank or trade compliance credits**, while companies with deficits may purchase credits from the **Bureau of Energy Efficiency (BEE)**.

5. CNG as a Policy Example:

- i. India's experience with **Compressed Natural Gas (CNG)** demonstrates that clear regulatory support can encourage manufacturers to introduce **cleaner vehicle technologies** and expand market adoption.

Source: THE HINDU - <https://www.thehindu.com/opinion/lead/beyond-compliance-indias-road-to-cleaner-mobility/article71273564.ece>

27. Western Ghats Ecologically Sensitive Area (ESA)

Prelims:

Environment & Ecology

Mains:

GS Paper III-Environment Conservation

Current relevance:

The **Union Ministry of Environment** has reissued the draft notification proposing an **Ecologically Sensitive Area (ESA)** in the Western Ghats for the **seventh time**.

Highlights:

Evolution of the ESA Proposal

1. In **2011, Madhav Gadgil Committee**, recommended that the **entire Western Ghats** be treated as ecologically sensitive, with graded levels of protection.
2. **Kasturirangan High-Level Working Group:** After objections from the States, it recommended declaring about **37% of the Western Ghats**, covering **59,940 sq. km of natural landscape**, as an Ecologically Sensitive Area.

3. In **2026** draft notification retains the proposed **ESA of 56,825.7 sq. km**, spread across **Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu**.

About the proposal:

1. The draft proposes prohibition of **mining, quarrying, sand mining, new thermal power plants, certain industries, large construction projects**.
2. Activities such as **hydel power generation** will be regulated.
3. The six Western Ghats States have expressed concerns regarding the impact of the ESA declaration on agriculture, plantations, infrastructure, development activities.
4. The **2026 draft** notification retains the proposed ESA extent, State-wise area, regulatory provisions, and list of villages **without any substantive changes from the 2024 draft** notification.



Source: THE HINDU- <https://www.thehindu.com/sci-tech/energy-and-environment/centre-reissues-notification-on-western-ghats-eco-sensitive-zone-amid-deadlock-with-states/article71277625.ece>

28. Supreme Court Restricts Ex Post Facto Environmental Clearances

Prelims:

Environment & Ecology

Mains:

GS Paper II–Judiciary, GS Paper III–Environment Conservation

Current relevance:

The Supreme Court **quashed, the 2021 Office Memorandum (OM) prospectively**, holding that it created a **permanent mechanism** for granting **ex post facto environmental clearances** to projects that had commenced without prior Environmental Clearance (EC).



At a glance:

Judicial Background:

1. A **Division Bench (May 2025)** declared retrospective environmental clearances a **gross illegality**.

2. In **November 2025**, a **larger Bench** diluted the ruling, observing that abolishing the retrospective clearance regime could have a **devastating effect on ongoing public projects worth thousands of crores of rupees**.
3. **Administrative Orders Cannot Override Law**
 - i. The Supreme Court held that the 2021 Office Memorandum, being an **administrative order**, could **not modify the environmental clearance framework** established under the **2006 Notification**.
 - ii. It ruled that **delegated legislation cannot be replaced** or modified **through administrative instructions**.
 - iii. The Court observed that an **amnesty measure cannot become a permanent parallel mechanism** to bypass the mandatory prior environmental clearance process.

Prior Environmental Clearance Regime:

- i. The Court reaffirmed that **prior Environmental Clearance (EC)** under the **2006 Notification** is **mandatory** for sectors including highways, airports, real estate and township development, mining and resource extraction.
- ii. Any relaxation to the prior EC regime can be introduced **only through an appropriate amnesty notification** for **select deserving projects** involving **supervening public interest**, and not through administrative orders.

Court's Observations:

- i. The Court observed that the 2021 OM **indiscriminately regularised projects** for a **meagre compensation**, promoting a **"pollute and then pay"** approach instead of **sustainable development**.
- ii. The Centre has been **barred from issuing administrative orders** to grant **ex post facto environmental clearances** in the future.
- iii. **Legal framework:**
The judgment clarified that the Supreme Court retains its power under **Article 142** to grant ex post facto environmental clearances in appropriate cases.

Source: THE HINDU- <https://www.thehindu.com/news/national/the-middle-path-explaining-supreme-courts-latest-verdict-on-post-facto-environmental-clearances/article71284888.ece>