UPSC Daily Current Affairs| Prelim Bits 10-04-2025

Active Mobility

Prelims – *General issues on Environmental ecology, Bio-diversity and Climate Change - that do not require subject specialization.*

Mains – *GS-III (Conservation, environmental pollution and degradation, environmental impact assessment)*

Why in news?

Active mobility in India has gained attention due to increasing traffic congestion, pollution, health concerns and rising pedestrian deaths.

- **Active mobility** – Refers to modes of transportation that use human power instead of a motorised form of mobility.
- Active modes of transport include walking, cycling, skateboarding, and other non-motorised modes that are used for travel and not recreational activities.

In 2020, Karnataka recorded the highest number of pedestrian deaths in the country at 13% and in 2024, Karnataka saw a decrease in pedestrian deaths, with 233 fatalities reported in Bengaluru.

Measures taken by the states across India

- **Karnataka Active Mobility Bill, 2022** – It aims to promote urban mobility through the *protection of the rights of pedestrians and cyclists*.
- The inherent goal of this bill is to provide a legal structure protecting and promoting active mobility, and ensuring equal access to public space.
- **Delhi** – Is expanding cycling tracks and pedestrian-friendly streets under its Delhi EV policy.
- **Others** – ***Pune*** has implemented a Comprehensive Bicycle Plan and developed over 300 km of cycling lanes.
- ***Chennai*** is redesigning roads under the Smart Cities Mission (SCM) to improve pedestrian safety.
- ***Kochi*** has introduced a Public Bicycle Sharing (PBS) system to enhance last-mile connectivity.

Status of other countries

- With more than 35,000 km of dedicated cycling lanes, *The Netherlands is a global leader* in promoting active mobility through cycling.

- The *European Union's Mobility and Transport department prioritises promoting walking and cycling* as a means of transport to enable more sustainable mobility.
- *Germany's Berlin Mobility Act mandates wider sidewalks and dedicated cycling lanes*, reduced speed limits for motorised vehicles within city limits, and prioritises pedestrians/cyclists in urban planning.

Vision Zero, an initiative of Vision Zero Network that aims to reduce the number of incidents between pedestrians, cyclists, and motor vehicles.

Benefits of Active mobility

- **Economic benefits** – It include *reduced household expenditure on fuel and transportation* and lower healthcare costs due to enhanced public health.
- It also boosts local businesses since pedestrian-friendly infrastructure attracts higher foot traffic.
- **Environment** – Walking and cycling are sustainable modes of transport as compared to motorised vehicles due to their *marginal carbon emissions*.
- They enhance energy security and significantly *reduce India's 12% carbon emissions from road transportation*.
- Cities with well-developed infrastructure for active transport report *cleaner air and reduced traffic congestion*.
- **Health** – Active modes of transport are known to reduce the risk of chronic diseases, improve cardiovascular health, promote mental well-being, and enhance public health among citizens.

Challenges

- Active mobility remains severely underutilised because urban infrastructure actively discourages it.
- The *lack of adequate pedestrian and cyclist-friendly infrastructure* hinders active mobility as a primary mode of transport.
- *Extreme weather conditions* and long distances of travel discourage people from adopting active modes of transport.
- Since in many regions, cars and bikes are associated with a higher social status, social perceptions act as significant barriers.
- High traffic congestion, along with weak enforcement of traffic regulations, makes walking and cycling unsafe.

Reference

1. The Hindu | Active Mobility

Breakthrough Prize, 2025

Prelims – *Current events of national and international importance| General Science.*

Why in News?

Breakthrough Prize Foundation recently announced the winners for Breakthrough Prize, 2025.

- It is an ***international award*** recognizing outstanding achievements in *life sciences, fundamental physics, and mathematics.*
- It is also known as *'Oscars of Science'.*
- **Established in** – 2013.
- **Established by** - Mark Zuckerberg and his wife Priscilla Chan, Sergey Brin, Anne Wojcicki, and Yuri and Julia Milner.
- **Reward -** $3 million each in all categories.

Breakthrough Prize in Life Sciences

For Weight-loss drugs	• **Drugs -** *Ozempic and Wegovy.* • **Awarded to -** Daniel J. Drucker, Joel Habener, Jens Juul Holst, Lotte Bjerre Knudsen and Svetlana Mojsov. • Scientists discovered and characterised the ***GLP-1 hormone***, which aided the creation of drugs treating diabetes and obesity.
Multiple Sclerosis treatment	• Multiple Sclerosis is an unpredictable chronic disease caused by the immune system attacking the protective sheath that covers nerve fibres of the central nervous system. • **Awarded to -** Alberto Ascherio and Stephen L. Hauser. • They identified the role of the ***B-cells*** of the immune system in Multiple Sclerosis (MS) and devised treatments targeted at the same. • The duo also established the ***Epstein-Barr virus infection*** as the leading cause of MS.
Gene-editing technologies	• **Awarded to** - David R Liu • Developing the base editing and prime editing technologies widely used to edit the DNA of living organisms. • They can edit the DNA without cutting its ***double helix***, and rewrite entire stretches of defective DNA with a corrected version.

Breakthrough Prize in Mathematics

- **Awarded to -** Dennis Gaitsgory
- **Achievement -** Role in the proof of the geometric Langlands conjecture.

Langlands program is described as a broad research program spanning several fields of mathematics, which grew out of a series of conjectures proposing precise connections between seemingly disparate mathematical concepts.

Breakthrough Prize in Fundamental Physics

- **Awarded to -** 4 collaborations at the Large Hadron Collider (LHC) in European Organization for Nuclear Research (CERN) – ALICE, ATLAS, CMS and LHCb.
- The collaborations studied the *Higgs boson* to understand how they impart mass to fundamental particles.

- They also discovered ***new types of particles*** to understand the strong nuclear force, and tested fundamental theories by discovering new processes to understand why matter exists in the universe.

Reference

1. The Indian Express | Breakthrough Prize 2025
2. Business Standard | Breakthrough Prize

Hadean Protocrust

Prelims – *Current events of national and international importance| World Geography.*

Mains (GS I) – *Geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.*

Why in News?

New research suggests that Earth's first crust, formed over 4.5 billion years ago.

- The Hadean protocrust is the name for the ***earth's crust***, its outermost layer when it first formed.
- **Hadean Aeon -** The term 'Hadean' denotes the initial geologic aeon of the planet.
- **Conditions of Earth -** During this period, approximately 200 million years after its formation, the Earth's surface was ***partially in a molten state*** and was frequently struck by extraterrestrial rocks.
- The surface was extremely hot and hellish, as numerous volcanoes erupted simultaneously.
- **Formation of Crust -** As the magma ocean began to cool, the initial fragments of the crust started to form.
- However, it remained somewhat unstable, with certain sections breaking away while new areas solidified.
- **Plate Tectonics -** The thicker parts of the crust slowly formed the first continents, which moved like plates on the ***asthenospheric mantle***, a layer of hot, gooey rock going 400 km down.
- These plates began to converge, occasionally sliding past one another or submerging beneath each other.
- Over thousands of years, these tectonic movements have imprinted distinctive chemical signatures in the crust.
- Indeed, researchers have been able to trace the history of plate tectonics by examining these signatures.

Reference

The Hindu | What is the Hadean protocrust?

Woolly Flying Squirrel

Prelims – *Current events of national and international importance| General Science.*

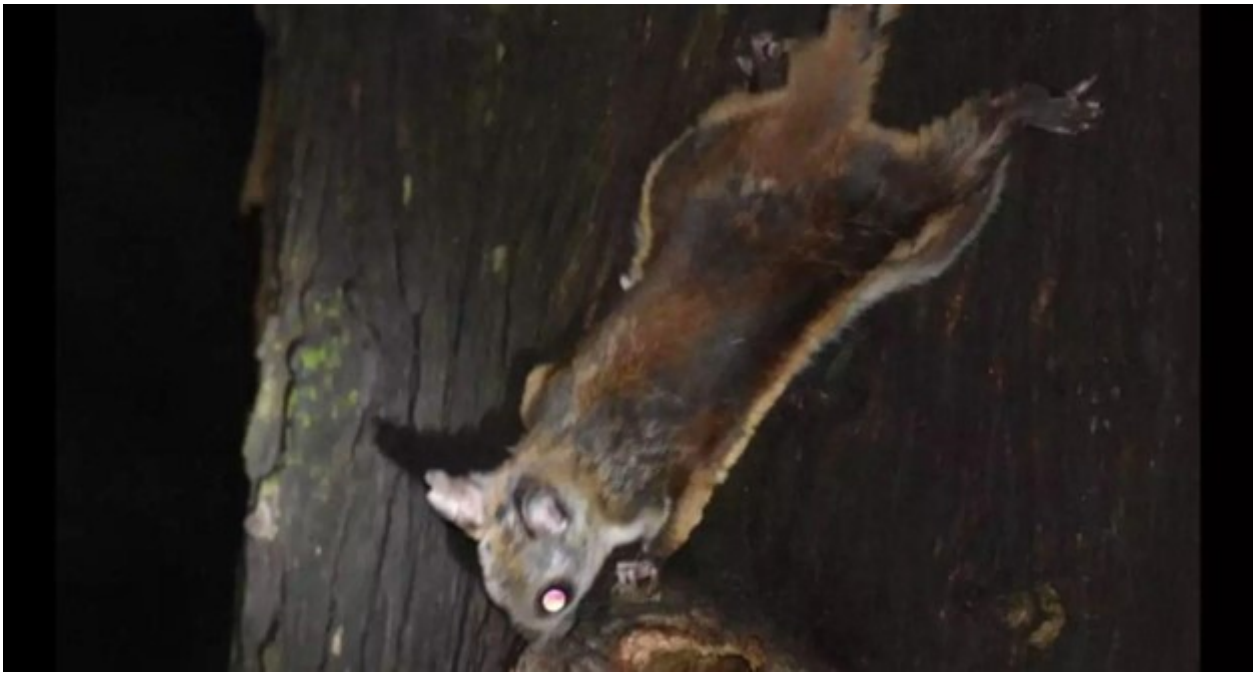
Mains (GS III) – *Conservation.*

Why in News?

Himachal Pradesh Forest Department (HPFD) has captured the first-ever photographic evidence of the elusive Woolly Flying Squirrel at Miyar Valley in Lahaul and Spiti district.

Miyar Valley is located in the Western Himalayas and is a part of the Lahaul Range, located between Pir Panjal and Zanskar Range.

- **Scientific Name -** Eupetaurus cinereus.
- It is one of the rarest and least known mammals in Asia.
- It is also the largest flying squirrel, the longest squirrel and the heaviest of all gliding mammals.
- **Endemic to -** The north-western Himalayas.
- **Habitat -** Remote and uninhabited region of caves and crevices, found on steep cliffs in dry conifer forests.
- **Distribution -** Northern Pakistan and Northwestern India.
- **Appearance -** Similar to other species of flying squirrels, this animal features flexible membranes on either side of its body that link the front and back legs.
- Its body is adorned with a thick layer of straight, silky fur. The fur on its back is a blue-gray hue, while the underside is a lighter shade of gray.
- The throat and ears are covered in creamy white hairs, and the soles of its feet are lined with dense black fur, leaving only the bare, pinkish-brown toe pads exposed.
- **Behaviour -** This species is nocturnal and arboreal; due to its large size and blunt claws, this terrestrial mammal cannot climb trees.
- It was long believed to be extinct until it was rediscovered in 1994.
- **Diet -** These rodents are herbivores, they generally feed upon mosses, lichens, buds and cones.
- **Conservation Status - IUCN** – Endangered.



References

1. Business Standard | Woolly Flying Squirrel
2. News Arena Network | Woolly flying squirrel

Biomass Mission

Prelims – *Current events of national and international importance| General Science.*

Mains (GS III) – *Awareness in the fields of IT & Space.*

Why in News?

Biomass mission will lift off soon aboard the Vega C rocket from Europe's spaceport in French Guiana.

- Biomass is an ***Earth explorer satellite*** mission to map the world's forests.
- **Launched by** - European Space Agency (ESA).
- **Aim** – It will provide information about the state of the planet's forests and how they are changing, which will help expand the knowledge about the role forests play in the carbon cycle.
- It will also observe the movement of ice sheets in Antarctica, and generate digital models of terrains covered by dense vegetation.
- **Orbit -** It will be placed in a ***sun-synchronous orbit (SSO),*** a type of orbit in which satellites are in sync with the Sun at an altitude of around 666 km.
- **Instrument used -** *Synthetic aperture radar (SAR)*, a satellite imaging technique which uses radar waves to map the Earth's surface.
- This SAR sensor will operate in the long-wave P-band frequency range, with a wavelength of 70 cm.
- Therefore, unlike other shorter-wave SAR sensors, the P-band SAR will be able to peer

down through forest canopies to assess how much carbon is stored on the floor and branches of the trees in the world's forests and to assess how levels are changing.
- The sensor will also estimate the amount of forest biomass.
- Biomass is the 1st satellite in the world to ***host a P-band SAR.***
- Biomass will address the huge technical challenge of mapping forest biomass from space.

Earth Explore program

- The satellites launched under this program are meant to provide essential information about Earth's interior, cryosphere (frozen parts), hydrosphere, atmosphere, ionosphere and land surface.
- **Gravity field and steady-state Ocean Circulation Explorer (GOCE) -** The first spacecraft mission took off in 2009 and worked till 2013.
- The mission helped further research in areas of ocean circulation, physics of Earth's interior, etc.
- **Earth Cloud Aerosol and Radiation Explorer (EarthCARE) mission -** Launched in May 2024.
- It contributes to a better understanding of Earth's radiative balance in climate, among other things.

Reference

The Indian Express | Biomass Mission

Digital Threat Report 2024

Prelims – *Current events of national and international importance.*

Mains (GS III) – *Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.*

Why in News?

India launches first Digital Threat Report 2024 recently.

- **Aim -** To address the escalating cyber threats faced by financial institutions.
- **Launched by -** Ministry of Electronics and Information Technology.
- **Collaborated with -** CERT-In (MeitY), CSIRT-Fin and SISA, a global Cybersecurity company.
- It highlights the critical need for a cohesive cybersecurity framework to safeguard the nation's financial infrastructure.
- The report addresses
    - Illuminate Adversaries' Playbook
    - Anticipate Future Attacks
    - Assess the Impact of AI in Breaches

    - Recommend Preventive and Detective Controls
    - Highlight Current Trends and Select Cases
- **Anticipated Cyber Threats in 2025**
    - Rise of deep fakes and AI-generated content
    - Growing threat of supply chain attacks and malicious libraries
    - Emerging threat of LLM prompt hacking in applications
    - Influence of adversarial LLMs enhancing attack capabilities
    - Quantum computing – A looming threat to cryptography
    - Crypto – A new frontier for cyber threats
    - IOT, the emerging threats to embedded devices.
- **Suggestions to Policy Makers**
    - Cybersecurity should be a techno commercial business decision and not just decided only on commercials
    - Digital Payment Security to have common standards for all Digital Payment Form Factors
    - Clear Preparation Roadmap for Post Quantum Cryptography
    - Empower CISOs through direct reporting to the CEO/CRO instead of CTO or CIO
    - Create more Certified Digital Payment Security Specialists in the ecosystem
    - Building a Responsible AI Framework for BFSI
- The report calls on financial institutions, regulators, and security experts to take a proactive stance in addressing cyber threats.
- As AI-driven attacks become more prevalent and compliance demands grow increasingly complex, the necessity for strategic direction in managing the cybersecurity environment is important.

References

1. PIB | Digital Threat Report 2024
2. CSK Govt | Digital-threat-report

One Liners 10-04-2025

Social Issues

Poshan Pakhwada 2025

Recently, the 7th edition of Poshan Pakhwada was started.

• It is *annual event* focuses on *improving nutrition* across India, especially for women and children.

• **Nodal Ministry** – Ministry of Women and Child Development.

• **2025 Theme** – Shuddh Jal aur Swachhta Se SwasthBachpan (Clean Water and Sanitation for Healthy Childhood).

• **Aim** – To combat malnutrition through behaviour changes at *individual, family, and community levels.*

• **4 key areas**

- Emphasis on the *first 1000 days of human life*.
- Popularization of the Beneficiary Module in the Poshan Tracker App.
- Effective management of malnutrition through the CMAM module.
- Promotion of healthy lifestyles to *address childhood obesity*.

Community-Based Management of Acute Malnutrition (CMAM) *is a training module that focuses on community-based approaches to managing acute malnutrition.*

Polity & Governance

India Skills Accelerator

Recently, the India Skills Accelerator initiative was launched.

• **Launched by** – Ministry of Skill Development and Entrepreneurship (MSDE) and World Economic Forum (WEF).

• **Aim** – To catalyze change across 3 critical levels

- By improving awareness and shifting mindsets around *future skills needs*.
- Increasing collaboration and knowledge sharing among stakeholders.
- Committing to upgrade institutional structures and policy frameworks to support a more *adaptive and responsive skilling ecosystem*.

• **Governance structure** – It Includes key stakeholders from *public and private sectors*.

• It enables cross-sectoral efforts in unlocking innovative ideas and driving systemic progress on complex challenges that demand a multi-stakeholder approach.

AadharFaceRD App

Recently, a new Aadhaar App was launched in testing phase at Aadhaar Samvaad event in Delhi by Ministry of Electronics and Information Technology (MeitY).

• It is a *facial recognition tool* for verifying Aadhaar-holders' identity for use-cases like verification during a Know-Your-Customer (KYC).

• **Developed by** - Unique Identification Authority of India.

• **Working -** Facial recognition is triggered *only through a KYC request* by scanning a QR code.

• Then, the user is prompted to show their face to their smartphone camera and blink, after which their details are verified.

• **Role** – It *secures the Aadhaar data* while sharing with hotels and other "requesting" entities without the need to share a hard copy.

• It is used as an *ID proof*, instead of simply scan a QR code.

Economy

Amalgamation of Regional Rural banks (RRBs)

Recently, the Department of Financial Services (DFS) has notified the amalgamation of 26 RRBs.

• It is the *4th phase of amalgamation*; 1st phase *started in 2024*.
• **Nodal Ministry** – Ministry of Finance.
• **Principle of amalgamation** – *One State One RRB.*
• **Purpose** – This amalgamation of 26 RRBs in 10 States and 1 UT have been carried out with for *improvement in scale efficiency and cost rationalization*.
• At present, *43 RRBs* are functioning in 26 States and 2 UTs.

Multiples GIFT Fund

Recently, the Competition Commission of India has approved the proposed acquisition of shareholding by Multiples Plenty Private Equity GIFT Fund.

• It is a *newly incorporated trust*, formed under the *Indian Trusts Act, 1882*.
• It is registered with International Financial Services Centres Authority as a Restricted Scheme.
• **Managed by** – Multiples Asset Management IFSC LLP.
***IFSC LLP**, a limited liability partnership incorporated under the Limited Liability Partnership Act, 2008 and operating within an International Financial Services Centre (IFSC).*

Security

iCAST-25 (Integrated Cyber Advanced Security Techniques)

Recently, a two-day workshop iCAST-25 was organized at Shimla.

• It is a *Cyber Security Workshop* for state police leaders of the Himachal Pradesh Government.
• **Organized by** – Ministry of Electronics and Information Technology (MeitY) and the Government of Himachal Pradesh.
• **Aim** – To promote digital literacy, empower individuals, and bridge the digital divide across Himachal Pradesh.
• **Role** – It aligns with the Government of India's mission to create a cyber-resilient public sector, ensuring a *robust digital infrastructure and resilient e-governance services* across states.

Integrated Financial Advisors (IFA) System

Recently, the Defence Secretary highlighted the role of integrated financial advisors in driving transparency.

• **Introduced in** – 1975, in various Ministries of Government of India
  - Department of Defence – *1983*.
• **Objectives** – To provide *independent financial inputs* to the Competent Financial Authorities (CFAs) to enable *transparency, accountability and responsiveness* in defence financial system.
• To enhance *capital acquisition* outcomes, multifaceted challenges confronting in the Military Engineer Services.

Science

Himalayan High Altitude Atmospheric and Climate Research Centre

Recently, the Himalayan High Altitude Atmospheric and Climate Research Centre was launched.

• It is the *1st -ever* High-Altitude Climate Research Station in India.
• **Objectives** – To understand the *cloud formation, weather patterns, and aerosol interactions*.
• **Joint initiative of** – Union Ministry of Earth Sciences, J&K Forest Department, Central University of Jammu and Swiss National Science Foundation.
• **Location** – Nathatop in *Jammu and Kashmir (J&K),* at an altitude of 2,250 meters above sea level.
• This location was chosen for its clean air and minimal pollution.

ICE-CRUNCH – Indo-Swiss Joint Research Project

As of part of recent launch of the Himalayan High Altitude Atmospheric and Climate Research Centre, the ICE-CRUNCH project was flagged off.

• **ICE-CRUNCH** – Ice nucleating particles and cloud condensation nuclei properties in the North-Western Himalayas.
• It is a joint research initiative between *Indian scientist and ETH Zurich in Switzerland*.
• **Nodal Ministry** – Ministry of Earth Sciences.
• **Aim** – To explore the *properties of ice nucleating particles* and *cloud condensation nuclei* in the region.
• To understand the *role of aerosols in cloud microphysics* and their broader implications on climate systems and precipitation in the Himalayan region.
Cloud condensation nuclei *are critical components in cloud formation and precipitation processes.*
• **Role** – It will provide the 1st set of measurements for Himalayan High Altitude Atmospheric and Climate Research Centre.

Miscellaneous

World Homeopathy Day 2025 (April 10th)

On the occasion of World Homeopathy Day 2025, Homeopathic convention is set to be hosted at Gandhinagar, Gujarat.

• **2025 Theme** – *Education, Practice, and Research*.
• These are the 3 foundational pillars for the growth of Homoeopathy.
• **Aim** – To strengthen *global access to homeopathic research advancements*, its practical applications, and its growing impact in both healthcare and industry.
• **Homeopathic convention** – It is a 2-day grand convention, organized by the *Ministry of Ayush*.
• It is to be hosted by Central Council for Research in Homeopathy (CCRH), National Commission for Homeopathy (NCH), and National Institute of Homeopathy (NIH).

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