Today's Prelims Topics

Exercise Talisman Sabre

Context

India, along with 18 other countries, is taking part in **Talisman Sabre 2025**, a significant bilateral military exercise spearheaded by Australia, which has recently begun.

About Exercise Talisman Sabre

- It is the largest **bilateral military exercise** between **Australia and the United States**, with participation from multiple countries.
- It has been held **biennially since 2005**, making 2025 its **11th edition**.
- The exercise takes place at **various locations across Australia and offshore**, involving both Defence and civilian training zones.
- Its core objective is to **promote a free and open Indo-Pacific** by enhancing **cooperation and interoperability** among key allies.
- In addition to the **U.S.**, participating nations include:
    - **Canada, Fiji, France, Germany, India, Indonesia, Japan, the Netherlands, New Zealand, Norway, Papua New Guinea, the Philippines, South Korea, Singapore, Thailand, Tonga**, and the **United Kingdom**.
    - **Malaysia and Vietnam** are attending the exercise as **observer nations**.

Source: TheHindu

3I/Atlas

Context

On July 1, scientists operating the **ATLAS telescope** in Chile announced the discovery of a celestial object named **3I/ATLAS**, which had been under observation since **June 14**.

About 3I/ATLAS

- **3I/ATLAS** is an **interstellar comet**, possibly the **oldest comet ever observed**, potentially older than the solar system by over **3 billion years**.
- It was identified based on its **highly elliptical, hyperbolic orbit** and **high velocity** of **57–68 km/s** relative to the Sun.
- Its path points back to the **constellation Sagittarius**, indicating an origin **outside the solar system**, possibly from the **Milky Way's thick disk**.
- Because of its **hyperbolic orbit**, it will pass through the solar system **once only** and **never return**.

Closest Approaches

- **Closest approach to Earth: ~270 million km**
- **Closest approach to the Sun: ~210 million km**, expected on **October 29–30, 2025**, just inside Mars's orbit.

Physical Characteristics

- 3I/ATLAS is an **active comet**, displaying a **coma** — a cloud of **dust and ice particles** around its nucleus.
- It is expected to form a **tail** as it nears the Sun due to **solar heating**.
- **Photometric studies** show a **reddish color**, with a **spectral slope of ~1.3% per 100 nm**, suggesting the presence of **complex organic molecules or water ice**.
- The **nucleus is estimated** to be **10–30 km wide**, making it **larger** than previous interstellar visitors:
    - **1I/'Oumuamua (2017)**
    - **2I/Borisov (2019)**

Ongoing Research

- Its **composition and rotation period** are currently under **active investigation** using **ground-based telescopes** across the globe.

Source: TheHindu

Mobile Money

Context

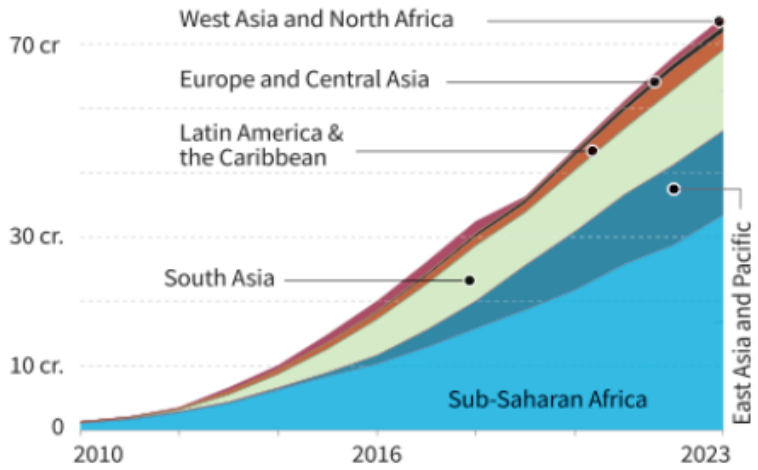
A new report reveals that **over half a billion mobile money accounts now exist globally**, with **most of them in Africa**, where mobile money is rapidly transforming financial inclusion, especially for people without access to traditional banking.

About Mobile Money

- **Mobile money** allows people to send, receive, deposit, and withdraw money using **text messages** on basic mobile phones.
- Unlike standard banking, it doesn't require a **physical bank branch** or an **internet connection**.
- It's especially useful in regions with **limited access to formal banking**, such as **Sub-Saharan Africa**.

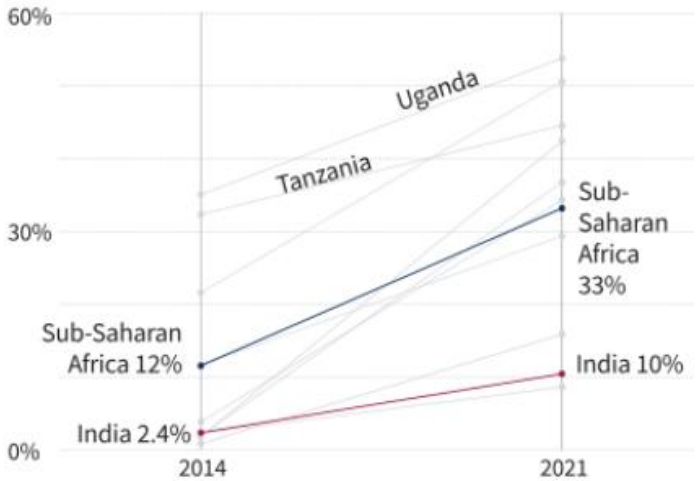
Global Adoption Trends

Chart 1: Number of active mobile money accounts (in crores). These are financial accounts managed via mobile devices.



The number of active mobile money accounts has surged, with Sub-Saharan Africa leading globally

Chart 2: The share of respondents who personally used a mobile money service in the past year (in %)



In Sub-Saharan Africa, the share of people with a mobile money account rose from 12% (2014) to 33% (2021) (Chart 2). Countries like Uganda, Tanzania, and Kenya have some of the highest usage rates.

Impact on Financial Inclusion

- In 2014, only **one-third** of adults in Sub-Saharan Africa had a bank account; by 2021, that number **more than doubled**.
- A major part of this increase is due to **mobile money**.
- Many users **only have a mobile money account**, not a traditional bank account.

Key Data Insights

- In countries like **Malawi, Cameroon, and Togo**, mobile money has become a major contributor to financial account ownership.
- In **Sub-Saharan Africa**, mobile money usage correlates strongly with **mobile phone ownership**.

Mobile money is **revolutionizing financial access**, particularly in **Africa**, by offering safe, low-cost, and accessible financial services to **unbanked populations**, without the need for traditional banking infrastructure.

Source: TheHindu

Gharial, sloth bear to be covered under Centre's scheme for critically endangered species

Context

- **Gharial** and **Sloth Bear** have been recommended for inclusion under the **Species Recovery Programme** of the **Centrally Sponsored Scheme - Integrated Development of Wildlife Habitats (CSS-IDWH)**.
- The recommendation was made by the **Standing Committee of the National Board for Wildlife (SC-NBWL)**, constituted under the **Wildlife (Protection) Act, 1972**.
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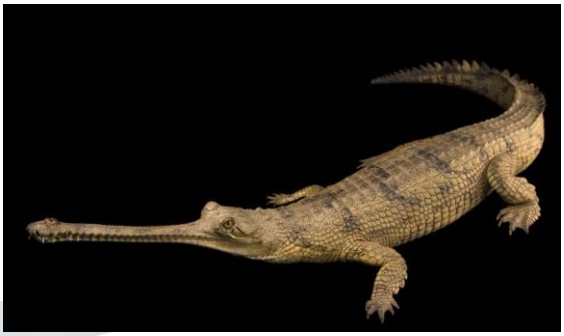
About Gharial



- **Habitat:** Found in **freshwater rivers**, mainly in:
  - **Chambal** and **Girwa Rivers** (India)
  - **Rapti-Naryani River** (Nepal)
- **Conservation Status:**
  - **IUCN:** Critically Endangered
  - **WPA, 1972:** Schedule I
  - **CITES:** Appendix I
- **Key Characteristics:**
  - Possesses the **thinnest and longest snout** among crocodilians.
  - Adult males have a bulb-like structure at the snout's tip, known as the **'ghara'**.
  - Considered the **most aquatic** crocodilian species.

About Sloth Bear

- **Habitat:** Native to **India, Sri Lanka, and Nepal**.
  - Found in 5 Indian biogeographic zones:
    - **Peninsular India, Western Ghats, Deccan Plateau, Gangetic Plain, North East**
- **Conservation Status:**
  - **IUCN:** Vulnerable
  - **WPA, 1972:** Schedule I
  - **CITES:** Appendix I
- **Key Characteristics:**
  - Small bear species with a **shaggy coat**.
  - Diet mainly consists of **termites and ants**.
  - **Solitary** and generally **nocturnal** animals.

About CSS-IDWH (Centrally Sponsored Scheme - Integrated Development of Wildlife Habitats)

- **Objective:** To provide **financial and technical assistance** to State/UT governments for **wildlife conservation** activities.
- **Key Components:**
  - Support to **Protected Areas** (National Parks, Wildlife Sanctuaries, Conservation Reserves, Community Reserves).
  - **Protection of wildlife** outside protected areas and mitigation of **Human-Wildlife Conflict**.
  - **Species Recovery Programmes** for critically endangered species and habitats.
- **Species Recovery Programme:**

- So far, **22 species** have been identified, including:
  - **Snow Leopard, Asiatic Lion, Great Indian Bustard**, etc.

Source: DeccanHerald

Aircraft Accident Investigation Bureau (AAIB)

Context

The AAIB's 15-page report stated that the two engine fuel control switches onboard transitioned from 'RUN' to 'CUTOFF' position, moments after lift-off.

What is AAIB?

- **Established:** 2012, to ensure independence from the Directorate General of Civil Aviation (DGCA), as per International Civil Aviation Organization (ICAO) recommendations.
- **Legal Backing:** Functions under the Aircraft Act, 1934, and Aircraft (Investigation of Accidents and Incidents) Rules, 2017
- **Primary Objective:**
    - To investigate aircraft accidents and serious incidents
    - To determine causes and contributing factors—not to apportion blame or liability.
    - To make safety recommendations to prevent future accidents.
- **Scope:** Investigates all accidents and serious incidents involving civil aircraft with an All Up Weight (AUW) over 2,250 kg or turbojet aircraft in Indian airspace
    - May investigate other aviation safety occurrences as required.
- **Process:** Deploys investigators to the crash site, collects and preserves evidence (wreckage, black boxes, etc.)
    - Collaborates with other agencies (like HAL, DGCA) for technical analysis.
    - Drafts and publishes final investigation reports, which are also sent to ICAO and relevant states.
- **International Role:** Functions in line with ICAO's Chicago Convention Annex 13, making reports available for global safety improvements.

Source: Indian Express

Also in News

Conducting the 2027 Census among the six main indigenous tribes in the Andaman and Nicobar Islands will not be tough as the Union government has already made contact and is running several welfare measures for these tribes, says physician Ratan Chandra Kar, speaking to *The Hindu.*

➔ The **Jarawa tribe** is native to Andaman Islands, known for their isolationist lifestyle and hunter-gatherer culture.

THE HINDU BUREAU
CHENNAI

Chief Minister M.K. Stalin on Sunday stressed the need to intensify efforts to declare *The Thirukkural* a national book and to establish a major organisation in Delhi to propagate the ideas of Thiruvalluvar.

➔ **Thirukkural** is a **Tamil text** written by **Thiruvalluvar.**

Editorial Summary

Climate Migration

Context

Climate change is triggering both droughts and floods in regions like Bundelkhand (India), forcing vulnerable communities into distress-driven migration.

What is Climate Migration?

Climate migration refers to the movement of people forced to relocate due to sudden or gradual environmental changes caused by climate change — like droughts, floods, rising temperatures, or sea-level rise.

Why Climate Migration is a Crisis

- **Forced Displacement:** It is not voluntary but driven by collapsing livelihoods and ecosystems.
    - **E.g.,** In **Bundelkhand (India)**, droughts in Panna and Datia districts have repeatedly failed crops, pushing farmers to migrate for survival.
- **Debt and Bondage:** Migrants often fall into exploitative cycles, especially in sectors like sugarcane cutting.
- **Poor Living Conditions:** Migrants live in slums or makeshift shelters without basic amenities.
- **Family Disruption:** Long-term separation, delayed remittances, and increased burden on women.
- **Lack of Social Security:** Migrants are excluded from basic welfare and healthcare systems.
    - **E.g.,** Migrants in **urban informal sectors** (construction, rickshaw pulling, etc.) lack access to **ration cards, healthcare, or schooling** for their children due to lack of portability in welfare services.
- **Loss of Local Knowledge and Ecosystem Stewardship:** Especially in pastoral and agrarian communities.

What is to be Done?

- **Recognise Migration as a Development Challenge:** Integrate it into climate adaptation policies.
- **Invest in Local Adaptation:** Promote drought-resilient crops, water harvesting, and soil conservation.
    - **E.g.,** In **Bundelkhand**, local women's group **Jal Sahelis** are restoring ponds and promoting water harvesting, reducing water scarcity and migration.
- **Ensure Social Protection:** Provide welfare benefits and healthcare access to migrant families.
    - **E.g., Odisha's Rural Urban Migration Portal.**
- **Support Livelihood Diversification:** Create rural job opportunities beyond agriculture.
- **Strengthen Land and Ecosystem Rights:** Empower pastoralists and farmers to sustainably manage ecosystems.
- **Build Safe Migration Pathways:** With legal safeguards, skill training, and housing provisions.

Source: The Hindu

Assessing India's carbon credit trading scheme targets

Context

India's industrial sector is a major greenhouse gas emitter. Recent schemes target emission intensity, but concerns remain about ambition, sector coverage, and actual impact on India's climate goals and net-zero trajectory.

India's Efforts to Tackle Emissions by Industries

- **Perform, Achieve and Trade (PAT) Scheme: Flagship market-based mechanism** for improving energy efficiency in energy-intensive industries (like steel, cement, aluminium).
    - Entities with better-than-target performance can trade energy-saving certificates.
- **Carbon Credit Trading Scheme (CCTS):** Introduced targets for reducing greenhouse gas emissions intensity in eight major industrial sectors (e.g., cement, iron & steel, petrochemicals).
    - Entities exceeding targets can sell credits; laggards can buy to comply.
- **Mandatory Environmental Regulations:** Implementation of emission standards for air pollutants (PM, NOx, SO2) for sectors like thermal power, cement, and iron & steel.
- **Incentives for Clean Technology Adoption:** Support for adoption of renewable energy, waste heat recovery, and electrification in select industries.
- **Promotion of Resource Efficiency:** Circular economy initiatives (e.g., recycling, use of alternative fuels) in cement, paper, and textile industries.
- **Voluntary Corporate Commitments:** Many large firms (e.g., Tata Steel, UltraTech Cement) have set internal net-zero or low-carbon targets and invest in green technologies.

Shortfalls of These Initiatives

- **Limited Ambition of Aggregate Targets:** Current CCTS targets (average 1.68% annual reduction in emissions intensity for 2023-27) fall short of NDC-aligned pace (2.53% per year for manufacturing).
    - **Example:** Power sector expected to decarbonize faster (~3.44% per year), highlighting slower industrial progress.
- **Partial Sectoral Coverage:** Not all industrial entities or sectors are included; SMEs (small and medium enterprises) often left out.
- **Focus on Intensity, Not Absolute Emissions:** Reduction in emissions per unit output can be offset by production growth, causing overall emissions to rise.
- **Over-reliance on Market Mechanisms:** Entities may prefer buying credits to making real efficiency improvements, especially if certificate prices are low.
    - Risk of "business-as-usual" if targets are easily achievable.
- **Insufficient Technology Upgradation:** Many industries still lack access to affordable, scalable low-carbon technologies (like green hydrogen, carbon capture).
- **Compliance and Monitoring Gaps:** Weak regulatory enforcement and data transparency undermine true emission reduction.
- **Lack of Integration with National Net-Zero Pathway:** Sectoral targets not always aligned with long-term economy-wide decarbonization strategy.

Better Solutions and Way Forward

- **Set More Ambitious, Science-Based Aggregate Targets:** Align industrial emissions reduction with India's NDCs and net-zero by 2070.
    - Gradually tighten CCTS caps using updated modelling.
- **Expand Sectoral and Entity Coverage:** Bring SMEs and hard-to-abate sectors (like chemicals, heavy manufacturing) into the compliance net.
    - Provide technical support to smaller firms.

- **Promote Absolute Emissions Reductions:** Combine intensity targets with caps on total emissions in major sectors.
- **Incentivize Technology Transition:** Direct incentives and R&D for breakthrough technologies (e.g., green hydrogen, electrification, carbon capture).
    - Facilitate low-cost finance for industry upgradation.
- **Strengthen Compliance and Transparency:** Robust monitoring, verification, and public disclosure of emission data.
    - Use digital tracking and third-party audits.
- **Integrate Circular Economy Principles:** Encourage material recycling, waste-to-energy, and use of industrial by-products (e.g., fly ash, slag).
- **Capacity Building and Skill Development:** Train industry workforce in energy management, carbon accounting, and clean technology operations.
- **International Collaboration and Best Practices:** Learn from successful emissions trading schemes (like EU ETS) and adapt to Indian context.

➔ **European Union Emissions Trading System (EU ETS):** Regularly tightens overall cap, includes more sectors, and penalizes non-compliance, driving real innovation and emissions decline.

Source: The Hindu

Wastelands to Vital Landscapes

Context

Deserts and open natural ecosystems are often wrongly viewed as wastelands, leading to misguided "greening" efforts.

Importance of Deserts & Open Ecosystem

- **Biodiversity Hotspots:** Deserts are home to uniquely adapted plants and animals (e.g., Great Indian Bustard, caracal, Indian wolf).
    - These species are found nowhere else, making deserts vital for global biodiversity.
- **Cultural and Historical Significance:** Early civilisations like Mesopotamia, Egypt, and Indus Valley arose in or near deserts.
    - Indigenous communities (Dhangar, Rabari, Kuruba) depend on deserts for their traditional livelihoods.
- **Resilience and Adaptation:** Deserts and their communities have developed resilience and ingenious survival strategies, crucial for understanding adaptation to extremes.
- **Carbon Storage:** Deserts, grasslands, and savannas store significant carbon in their soils, contributing to climate regulation.
- **Ecosystem Services:** Regulate hydrology, support migratory species, and maintain ecological balance in dryland regions.

India's Shortfalls in Desert and Open Ecosystem Conservation

- **Policy Neglect and Misclassification:** Vast open natural ecosystems are officially mapped as "wastelands," ignoring their ecological value.
    - Policies often focus on converting them into forests or agricultural land.
- **Loss of Native Ecosystems:** Afforestation and "greening" schemes often use non-native species, leading to habitat loss and ecosystem disruption.
- **Undervaluing Pastoralist Roles:** Traditional pastoralist groups, crucial for biodiversity stewardship, lack recognition and support.
- **Weak Legal Protection:** Deserts and grasslands have limited or no dedicated legal safeguards compared to forests.
- **Inadequate Restoration Efforts:** Restoration projects often emphasize tree planting over restoring native vegetation or conserving soil and water.

What Should Be Done?

- **Recognize and Protect Open Ecosystems:** Update land-use policies to value deserts, grasslands, and savannas as vital, not "wastelands."
    - Legally safeguard these ecosystems from conversion.
- **Support Pastoralist and Indigenous Communities:** Involve local groups in conservation and restoration.
    - Provide incentives and recognition for sustainable grazing and land stewardship.
- **Promote Native Restoration:** Restore degraded drylands by protecting native plants, soil, and moisture, rather than monoculture plantations.
- **Adopt Low-Tech, Nature-Based Solutions:** Emphasize water harvesting, rotational grazing, and protection of natural regrowth.
- **Policy Reforms and Awareness:** Shift focus from "greening deserts" to maintaining ecosystem diversity and resilience.
    - Celebrate and promote the value of deserts (e.g., rename World Day to Combat Desertification to World Day to Combat Land Degradation).
- **Reward Ecosystem Services:** Develop incentives for carbon storage in soils and biodiversity maintenance by communities.

Source: The Hindu