# Today's Prelims Topics

## Asian Giant Tortoise

### Context

The Asian giant tortoise has been reintroduced into the Zeliang Community Reserve in Nagaland's Peren.

### About Asian Giant Tortoise

- Largest land tortoise in mainland Asia.
- **Geographical Distribution**: Found in the **tropical and subtropical forests** of: India (mainly Northeast: **Nagaland and Arunachal Pradesh**), Bangladesh, Myanmar, Thailand, Malaysia & Indonesia.
- **Preferred Habitat**: Dense, **moist lowland and hill forests** rich in **leaf litter** and **undergrowth**.
- **Key Features:**
    - **Diurnal, solitary,** and thrives in humid conditions
    - **Herbivorous –** eats leaves, fruits, mushrooms, and decomposing plant matter.
    - Nicknamed **"small elephant of the forest"** because it aids in **seed dispersal** by consuming fruits and defecating seeds over large distances.
        - Helps in **nutrient cycling** and **forest regeneration**.
    - **Maternal Behavior**: Females build **above-ground nests** and exhibit **maternal care** (rare in tortoises)
        - One of the very few tortoise species that **guards its nest** after laying eggs.
- **Conservation Status:**
    - **IUCN Red List:** Critically Endangered
    - **Wildlife (Protection) Act, 1972 (India):** Listed under Schedule IV

**Source:** The Hindu

# India's Fighter Jets Strength

## Context

After over six decades in service, the MiG-21 fighter jets are set to be retired from the Indian Air Force (IAF).

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## IAF Fighter Jet Squadrons: Current & Transitioning Fleet


| Fighter Jet Type | Number of Squadrons | Status | Remarks |
|---|---|---|---|
| **MiG-21 Bison** | 2 (No. 23 'Panthers' & No. 3 'Cobras') | **Retiring (by Sep 2025)** | Last units to operate MiG-21s; No. 3 will get LCA Mk1A |
| **MiG-29UPG** | 3 | **In service** | Undergoing upgrades; to be phased out in next decade |
| **Mirage 2000** | ~3 | **In service** | To be replaced by LCA Mk2; valuable multirole fleet |
| **Jaguar** | 6 | **In service (older variants)** | Ground strike role; to be phased out by 2030 |
| **SU-30MKI** | ~12 | **Mainstay of the IAF** | 260+ in service; new jets being procured; major upgrades planned |
| **LCA Tejas Mk1** | 2 | **Operational** | Indigenous; 83 Mk1A on order; 97 more expected |
| **LCA Tejas Mk1A** | Deliveries expected from 2025 | **Upcoming** | Contract for 83 jets signed; 180 total planned |
| **LCA Mk2** | Planned (0 yet) | **In development** | To replace MiG-29s, Mirage-2000s & Jaguars |
| **MRFA (Medium Role Fighter Aircraft)** | TBD (114 planned) | **Under RFI stage** | Meant to add bulk and capability |
| **AMCA (5th Gen Fighter)** | Planned (120+) | **Under development** | Prototype expected in ~10 years |

**Source:** The Hindu

# Collusive litigations

## Context

The Supreme Court has taken a suo motu cognisance of "collusive litigations" by officials of the Bengaluru Development Authority (BDA).

## About Collusive Litigation

- It refers to a lawsuit where the parties involved are **not genuinely adversarial but cooperate to achieve a predetermined outcom**e.
- The parties may share a common goal or interest, often **to manipulate the judicial process or challenge a law's constitutionality.**
- Such litigation undermines the adversarial system by creating a false dispute and can be abused to circumvent normal legislative procedures.
- In India, collusive decrees can be set aside if proven to involve collusion or fraud, but only by parties **not involved in the collusion (i.e., third party).**
- The **burden of proof lies with the challenger** seeking to invalidate the decree.
- Courts have the authority to intervene in such cases to uphold the integrity of the judicial process.

**Source:** Deccan Herald

# News in Short

## An Ancestor of potato was a tomato

**News?** A new scientific study has found that an ancestor of the modern-day potato was a wild tomato species.

**Details of the Finding**

- A genomic analysis of **450 cultivated potatoes** and **56 wild species** showed that:
  - The **potato lineage originated** from **natural interbreeding** (hybridisation) between:
    - A **wild tomato**
    - A **potato-like species** in **South America**, around **9 million years ago**.
- The **modern-day potato** (*Solanum tuberosum*) is a result of:
  - A hybrid of two wild ancestors:
    - One **tomato-like species** from Peru (resembled a tomato but lacked a tuber)
    - One **potato-like species** from Bolivia (produced a tuber but was not tomato-like)

**Source:** Indian Express

## Rhisotope Project

**News?** A South African university launched an anti-poaching campaign of injecting radioactive isotopes into rhino horns known as Rhisotope Project.

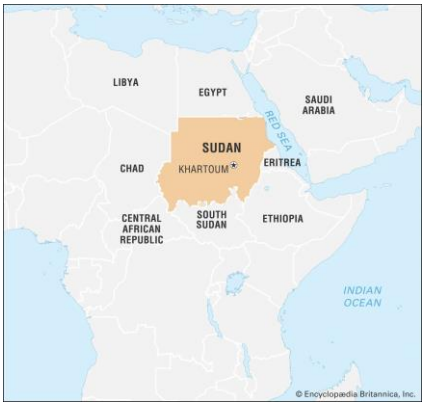
**About the Project**

- Launched by the **University of the Witwatersrand** in South Africa, with support from the **International Atomic Energy Agency (IAEA).**
- **Objective:** To deter poaching by making rhino horns:
  - **Traceable** using radiation detectors at borders and ports
  - **Unusable and poisonous** for human use (in traditional medicine)
  - Less attractive to traffickers
- **How It Works:**
  - **Radioactive isotopes** are **injected non-invasively** into rhino horns.
  - The isotopes are **harmless to rhinos**, as proven through years of safety testing.
  - These tagged horns can be **easily detected** using **Radiation Portal Monitors (RPMs)** already installed at **airports, seaports, and borders worldwide**.
  - **3D-printed horn replicas** were used during testing to simulate real-world shipping concealment.
- **Why It Matters:**
  - Rhino numbers have plummeted from **500,000 in 1900 to just 27,000 today**.
  - **Over 10,000 rhinos** have been killed in South Africa alone in the last decade.
  - Traditional methods like **dehorning** reduce poaching but harm rhino behavior and social interaction.
  - The Rhisotope Project offers a **less disruptive, scientifically sound alternative**.

**Source:** Indian Express

## ALSO IN NEWS

| | |
|---|---|
| 1 | **Pariksha Pe Charcha** sets **Guinness World Record** with 3.53 crore registrations in **8th edition (2025)**, in just one month.<br>• It is an **annual interactive programme** launched by **Prime Minister Narendra Modi** in |

| | |
|---|---|
| | **2018**.<br>● It aims to help **students (classes 6–12)**, along with their **teachers** and **parents**, manage **exam stress**, improve **time management**, and adopt a **holistic approach to learning.** |
| **2** | ● **Sudanese** paramilitary forces reportedly killed 14 civilians attempting to escape a besieged city in a village near **El-Fasher.**<br>○ **Sudan** shares its borders with **7 countries**: Egypt, Libya, Chad, Central African Republic, South Sudan, Ethiopia, Eritrea.<br>  |

# Editorial Summary

## The missing link in India's battery waste management

### Context

India's rapid EV and renewable growth is creating surging battery waste, making robust, fairly priced recycling and enforcement essential for environmental security and sustainable economic development.

### Current Trends in India

- **Rising Demand**: Lithium battery demand is projected to increase from **4 GWh in 2023** to **139 GWh by 2035**.
- **Green Energy Push**: India's **Net Zero target by 2070** and the expansion of **renewable energy** (especially battery energy storage systems or BESS) are key drivers.
- **E-waste Generation**: Lithium batteries accounted for **7,00,000 tonnes** of the **1.6 million metric tonnes** of e-waste generated in 2022.

### Challenges Arising from EV Batteries

- **Environmental Risks:** Improper disposal causes **hazardous materials** (like heavy metals and chemicals) to **leak into soil and water**.
    - **Growing volume of battery waste** poses a long-term ecological threat.
- **Inadequate Recycling Infrastructure:** Lack of **robust recycling framework** to manage battery waste sustainably.
    - High recycling costs due to requirements of **advanced technology**, **safe logistics**, and **skilled labour**.
- **Low EPR Floor Price:** Current **Extended Producer Responsibility (EPR)** floor prices are **too low**, making legitimate recycling **financially unsustainable**.
    - Encourages **fraudulent recyclers** who issue fake certificates or dump waste, as seen in India's plastic waste sector.
- **Corporate Non-compliance:** Some **large producers avoid compliance** in developing countries like India, though they follow strict norms in developed nations.
- **Loss of Valuable Resources:** Poor recycling leads to **wastage of valuable minerals** like **lithium, cobalt, and nickel**, increasing India's **import dependency**.
    - Potential **$1 billion foreign exchange loss** by 2030 due to inadequate recycling.

### Government Initiatives on Battery Waste

- **Battery Waste Management Rules, 2022 (BWMR):**
    - **Notified by**: Ministry of Environment, Forest and Climate Change (MoEFCC)
    - **Objective**: Ensure **safe, scientific, and sustainable management** of waste batteries, including EV and portable batteries.
    - **Key Features**:
        - Introduced **Extended Producer Responsibility (EPR)** for battery producers.
        - Producers are **mandated to collect and recycle/reuse** used batteries.
        - Promotes the **circular economy** by recovering valuable materials like lithium, cobalt, nickel.
        - Encourages **eco-design and use of recycled materials**.

## Solutions

- **Recalibrate EPR Floor Price:** Set a **fair and globally comparable EPR floor price** that covers– Collection, Safe transport, Advanced recycling methods, Material recovery.
    - Avoid underpricing — e.g., the UK mandates ₹600/kg, India's proposal is less than one-fourth of that.
- **Strengthen Enforcement: Digitise** the tracking of EPR certificates.
    - Introduce **strong audit systems**.
    - Impose **strict penalties** for non-compliance and fraud.
- **Formalise Informal Sector: Train and integrate** informal recyclers into the formal economy.
    - Provide **regulatory and technical support** to improve recycling standards.
- **Foster Industry Dialogue:** Encourage **collaboration between policymakers, recyclers, and industry** to design a viable, sustainable EPR pricing model.
- **Ensure No Consumer Burden:** Highlight that **consumers won't face price hikes** since manufacturers have not passed on the benefits of falling global metal prices.

## Conclusion

The rise of EVs in India is inevitable and essential for decarbonisation. But without **sustainable battery waste management**, especially **recycling**, India risks serious **environmental degradation**, **economic loss**, and a **setback to its circular economy goals**. A **revised EPR framework**, **industry accountability**, and **integration of informal sectors** can turn this crisis into an opportunity for **green growth**.

**Source:** The Hindu

# India's Pandemic Toll Remains Elusive

## Context

India's official COVID-19 death toll likely underestimates the true mortality impact due to under-registration, poor death certification, and failure to capture indirect pandemic-related deaths.

## What is the Civil Registration System (CRS)?

- It is a **continuous, permanent, and compulsory recording of births and deaths** in India under the **Registration of Births and Deaths Act, 1969**.
- **Key Features:**
  - **Legally Mandated:** Operates under the **Registration of Births and Deaths Act, 1969**.
    - Every birth and death must be registered within **21 days**.
  - **Decentralised Operation:** Managed at the **state and local level** (e.g., by registrars at municipal offices or Panchayats).
  - **Annual Reporting:** Publishes **annual data** on registered births and deaths.
    - Recent data (e.g., for 2021) showed a sharp rise in mortality.
  - **Linked to Health & Demographic Systems:** Integrated with the **Sample Registration System (SRS)** and the **Medical Certification of Cause of Death (MCCD)** in policy analysis.

## Systemic Gaps in Mortality Data and Surveillance

- **Incomplete Registration: 29% of deaths (2016–20)** were unregistered (NFHS-5).
  - COVID lockdowns further delayed or disrupted registration services.
- **Low Medical Certification:** In 2021, only **23.4% of registered deaths** had a medically certified cause.
  - In many cases, **deaths occurred without medical attention** (45% in 2020).
  - Leads to **misclassification or non-identification of COVID-19 deaths**.
- **Under-ascertainment of COVID Deaths:** Discrepancy between **official COVID toll (5.33 lakh)** and **excess deaths (1.02 crore in 2021)**.
  - WHO estimates **47 lakh pandemic deaths** — India disputed this, citing methodology issues.
- **Indirect Deaths Not Counted:** Deaths from **delayed treatment, mental health impacts, poverty**, and **healthcare access issues** are **not included in official statistics**.
  - In Kerala, **34% of deaths** were indirectly pandemic-related.
- **Disparities Between States:** Kerala, with a better health system, still had gaps (e.g., only **61% of deaths registered within time** in 2021).
  - States like Gujarat, MP show **greater discrepancy** between CRS data and official COVID tolls.

## Implications of These Gaps

- **Inaccurate Pandemic Assessment:** Undermines India's ability to **truthfully assess COVID's human toll**.
- **Weak Public Health Response:** Poor surveillance hampers planning for **future epidemics or disasters**.
- **Social and Policy Injustice:** Families of unrecorded COVID victims may miss out on **government compensation or welfare**.
- **Loss of Trust and Accountability:** Disparity in data erodes **public trust in institutions**.
- **Global Credibility at Stake:** Disputing WHO figures without transparent domestic data **undermines India's data credibility** on global platforms.

## Way Forward

- **Reform CRS and MCCD systems** to improve completeness and accuracy.

- **Digitise and integrate death records** with health databases.
- **Make medical certification mandatory**, especially for hospital deaths.
- **Train officials and health workers** in accurate death reporting and classification.
- **Include mortality-related questions** in the next Census to gauge indirect and underreported deaths.
- **Conduct independent mortality audits or sample surveys** to triangulate data.

**Source:** The Hindu

# Why a progressive Indian policy on Myanmar is more than plausible

## Context

In light of the Myanmar junta ending the state of emergency and announcing elections for December—even as a complex civil war continues—India must recalibrate its foreign policy towards Myanmar to strengthen its influence over its eastern neighbour.

## China's Strategic Backing of Myanmar's Junta

- **Motivation**: Preserve Chinese interests in Myanmar, especially strategic infrastructure under **One Belt One Road (OBOR)**.
- **Support Includes**:
    - Diplomatic and political pressure on **Ethnic Armed Organizations (EAOs)**.
    - Supply of **arms, aircraft, drones**, and **communication technologies**.
    - **Training pilots** and **deploying technicians** to Myanmar's defense sector.
    - **Stationing private security personnel** at key OBOR infrastructure like **Kyauk Phyu Port** in Rakhine State.

## India's Emerging Strategic Opportunity

- **Due to**: Rising **anti-China sentiment** among Myanmar's ethnic minorities and the Bamar majority.
- **Reason**: China's coercive tactics — including **border closures**, **supply disruptions**, and **military support to the junta** — have alienated large sections of the Myanmar population.
- **Implication for India**: A **strategic opening** to engage with **resistance groups**, support **inclusive development**, and counter Chinese influence in its immediate neighbourhood.

## Significance of Myanmar for India

- **Strategic Location:**
    - **Shared Border**: India and Myanmar share a **1,643 km-long border** with four northeastern states — Arunachal Pradesh, Nagaland, Manipur, and Mizoram.
    - **Gateway to Southeast Asia**: Myanmar is a vital link for India's **Act East Policy** and a bridge to ASEAN.
- **Geopolitical Buffer:** Acts as a **strategic buffer between India and China**.
    - Myanmar's tilt towards China increases India's security concerns, especially in the Bay of Bengal and northeastern borders.
- **Security Concerns:**
    - **Insurgency in Northeast India**: Some Indian insurgent groups (like NSCN-K, ULFA) have used Myanmar territory as a safe haven.
    - **Counterterrorism coordination** with the Myanmar Army has been critical for operations like **Operation Sunrise**.
- **Economic & Connectivity Interests:**
    - **Natural resources**: Myanmar is rich in oil, gas, timber, and rare earths.
        - India seeks to secure energy imports and investment opportunities.
    - Enhancing **land-sea connectivity** through Myanmar is crucial for trade with ASEAN.
- **Cultural and Ethnic Linkages:** Strong people-to-people links, especially among **Chin, Kuki, and Mizo communities** across the border.
    - **Buddhist cultural heritage** strengthens soft power ties.

## Key India-Myanmar Projects and Agreements

- **Kaladan Multi-Modal Transit Transport Project:** Connects Kolkata port to **Sittwe Port (Myanmar)** by sea, then to **Mizoram** via river and road.
    - Aims to reduce dependence on the Siliguri Corridor for Northeast India's connectivity.

- **India-Myanmar-Thailand Trilateral Highway: 1,360 km highway** connecting **Moreh (Manipur) to Mae Sot (Thailand)** via Myanmar.
    - Part of the broader plan to integrate India with ASEAN.
- **Border Area Development Projects:** India supports infrastructure development (roads, schools, health centres) in **Sagaing and Chin** regions of Myanmar to promote stability and development.

## How India Should Recalibrate Its Myanmar Policy Post-2021 Coup

- **Support Democratic Forces Strategically:** Engage with **National Unity Government (NUG)** and ethnic groups pushing for federal democracy.
    - Provide **capacity-building, legal aid, and technical support** for constitution drafting and governance reforms.
- **Leverage India's Democratic Federal Model:** Share India's **experience in managing multi-ethnic federalism**, which is relevant as Myanmar's opposition seeks to replace the 2008 military-drafted constitution with a **federal democratic one**.
- **Stop Arms and Fuel Supplies to the Junta:** Immediately **halt sales of dual-use/military goods** to the junta, which uses them against civilians.
    - Aligns India with international norms and distances it from China's transactional engagement.
- **Humanitarian Assistance & Border Policy Reform: Reinstate Free Movement Regime (FMR)** for border tribes.
    - Open **cross-border aid corridors** in Mizoram and Manipur, modelled on **Thailand's humanitarian corridors**.
    - Collaborate with **UN agencies and NGOs** to provide aid without junta control.
- **Protect Asylum Seekers and Refugees:** Uphold the principle of **non-refoulement**, halt deportations, and treat those fleeing as **refugees, not illegal migrants**.
    - Set up **humane refugee shelters**, especially in Northeast states with shared ethnic kinship.
- **Outmaneuver China through Values-Based Diplomacy:** Unlike China's **authoritarian alliance with the junta**, India can become the **champion of federal democracy and human security** in Myanmar.
    - This will boost India's **soft power**, secure goodwill, and maintain influence in the region.

## Conclusion

India must **go beyond realpolitik** and transactional diplomacy in Myanmar. By anchoring its Myanmar policy in **democracy, human security, and regional solidarity**, India can:

- Reclaim moral leadership in Southeast Asia,
- Counterbalance China's growing clout,
- Strengthen its Act East Policy, and
- Enhance regional stability that directly impacts India's own border security.

**Source:** The Hindu

# Why Heat Action Plans Aren't Cooling Cities

## Context

- According to a **2024 study by the Council on Energy, Environment and Water (CEEW)**, over **50% of Indian districts**—home to **more than 1 billion people**—are at **high to very high risk** from extreme heat.
    - This alarming trend highlights not only a public health emergency but also a governance and urban planning crisis, exposing the urgent need to reimagine India's **Heat Action Plans (HAPs)**.

## What are Heat Action Plans (HAPs)?

- Heat Action Plans (HAPs) are localized policy tools designed to reduce the human and economic impacts of extreme heat.
- First introduced in **2013 in Ahmedabad**, they are now being adopted by over **250 cities and districts** in **23 heat-prone states**.
- They aim to coordinate early warnings, public awareness, health preparedness, and adaptive urban strategies during heatwaves.

## Issues Faced by HAPs

- **Lack of Long-Term Vision:** Most plans focus on **short-term or reactive measures** (e.g., water stations, advisories), not long-term climate resilience.
    - Structural reforms like **climate-sensitive housing or urban redesign** are largely missing.
- **Underfunding and Poor Coordination:** Long-term measures are often **underfunded**, **uncoordinated**, or **absent**, limiting their overall effectiveness.
- **Top-Down Planning with Limited Local Involvement:** HAPs are often developed **without community input**, ignoring local vulnerabilities and needs.
- **Uneven Implementation and Exclusion:** Densely populated and low-income urban areas are **excluded** from tree-planting or cooling strategies due to **land and infrastructure constraints**.
- **Narrow Framing of the Problem:** Heat is still treated primarily as a **public health issue**, whereas it intersects with **labour rights**, **housing**, **urban planning**, and **environmental justice**.

## What Can Be the Solutions?

- **Mandate and Standardize HAPs:** Make HAPs **legally binding** and develop **national guidelines** to standardize and monitor quality.
- **Invest in Long-Term Infrastructure:** Promote **climate-resilient urban planning**, such as:
    - Reflective building materials
    - Green roofs
    - Tree-lined streets
    - Water body restoration
- **Inclusive and Participatory Planning:** Involve **local communities, urban poor, and workers** in the design and implementation of HAPs.
- **Targeted Cooling for Vulnerable Areas:** Prioritize **cooling interventions** in **high-density informal settlements** through public cooling shelters, water access, tree cover.
- **Integrated Approach Across Sectors:** Link HAPs with **housing, labour, healthcare, and disaster management** policies to tackle heat stress holistically.
- **Data and Monitoring Systems:** Strengthen systems to **track heat-related illnesses and deaths**, and use data to guide interventions.

**Source:** The Hindu