

UPSC CURRENT AFFAIRS – 8 July 2025



Maternal Mortality in India

GS Paper 2 – Health | Source: The Hindu

Q Context

India's Maternal Mortality Ratio (MMR) improved to 93 per 1 lakh live births (2019–21), but regional disparities and emergency obstetric care gaps persist.



What is Maternal Mortality?

- Maternal Death: Death of a woman during pregnancy or within 42 days of termination due to pregnancy-related causes. (WHO)
- MMR: Maternal deaths per 100,000 live births. (Sample Registration System)

Key Data (2019–21)

India's MMR: 93

Kerala: Lowest (20)

Assam: Highest (167)

Trend: Southern states outperform Empowered Action Group (EAG) states.

Why Reducing Maternal Mortality is Critical

- **Indicator of Public Health**: Reflects quality of healthcare, equity, and governance.
- **Preventable**: Most deaths avoidable with timely interventions.



• **SDG Target 3.1**: Reduce MMR below 70 by 2030.

★ Key Challenges

♦ Three Delays Model (Deborah Maine):

- 1. **Delay in seeking care** due to lack of awareness or social barriers.
- 2. **Delay in reaching care** especially in rural/tribal belts.
- 3. **Delay in receiving care** due to absence of specialists, blood, equipment.

♦ Infrastructure & Personnel Gaps:

- Only 2,856 of 5,491 CHCs function as FRUs.
- 66% vacancies in specialist positions.

◆ Medical & Health Causes:

- **Direct**: Postpartum haemorrhage, hypertensive disorders, sepsis, unsafe abortions.
- Indirect: Anaemia, malnutrition, malaria, TB, UTIs more severe in EAG states.

Government Interventions

- Janani Suraksha Yojana (JSY) Financial incentives for institutional deliveries.
- Janani Shishu Suraksha Karyakram (JSSK) Free transport, diagnostics, delivery.
- FRU Operationalisation Aim: 4 FRUs/district with specialists & blood storage.
- Maternal Death Reviews (MDRs) Mandatory audits of every maternal death.
- **Kerala's Confidential Review Model** Effective system with training, equipment readiness (e.g., embolism kits, uterine clamps).

Way Forward

- **Prioritise EAG States**: Infrastructure, HR, community health education.
- **Strengthen Emergency Services**: 24×7 blood banks, obstetric surgeries, ambulance access.
- Empower ASHAs & ANMs: Expand maternal tracking, risk flagging, counselling.
- Enhance ANC & PNC: Ensure early registration, IFA supplementation, risk screening.



• **Replicate Best Practices**: Kerala's review model in Tamil Nadu, Maharashtra, Jharkhand, etc.

□ Conclusion

Maternal deaths are largely **preventable** with timely, quality care and systemic readiness. India must focus on **safe motherhood**, not just safe delivery—blending community outreach with strong institutional support to achieve SDG goals.

Bonn Climate Talks 2025

GS Paper 3 – Environment | Source: The Hindu

Q Context

The Bonn Climate Talks 2025, a key mid-year climate summit ahead of **COP30** in **Brazil**, ended with limited consensus due to divides over **finance**, **equity**, **and adaptation metrics**.



What are the Bonn Climate Talks?

- Organised by: UNFCCC (Subsidiary Bodies meeting)
- Held at: Bonn, Germany (June 2025)
- **Purpose**: Technical groundwork for COP30, focusing on **climate finance**, **adaptation**, **mitigation**, **and loss & damage**.

Key Outcomes

♦ Global Goal on Adaptation (GGA)



- 490 of 9,000 indicators shortlisted (health, water, agriculture).
- India supported context-specific (not uniform) adaptation metrics.

Mitigation Work Programme (MWP)

- Agreement to keep MWP non-punitive and facilitative.
- Brazil proposed a digital climate knowledge hub.
- EU cautioned against duplication of platforms.

Loss & Damage (L&D)

- Progress on integrating L&D into Nationally Determined Contributions (NDCs).
- Funding gaps and Santiago Network implementation remain unresolved.

Climate Finance Roadmap – 'Baku to Belém'

- Talks began on targeting \$1.3 trillion/year in climate finance.
- Divide on grants vs loans and adaptation vs mitigation priorities.

Just Transition & Gender Action Plan

- Focus on equity-based transition and labour rights.
- Disagreements on terminology and scope of the new gender framework.

X Key Failures

- Agenda Deadlock: Talks delayed by 2 days over finance and carbon border tax debates.
- **Finance Accountability**: Developed countries resisted **finance indicators** under adaptation.
- **Equity Divide**: India & LMDCs pushed for **historical responsibility**; developed nations preferred forward-looking models.
- **Transparency Gaps**: Discrepancies in **ex-ante finance reporting** (Paris Agreement Article 9.5).

Way Forward

 Finance Reform: Prioritise grants and debt-free instruments, especially for SIDS and LDCs.



- **CBDR Integration**: Reaffirm equity and historical responsibility in COP30 commitments.
- **Adaptive Reporting**: Simplify and localise adaptation indicators; support capacity building.
- **Institutional Strengthening**: Empower technical bodies; depoliticise scientific review processes.

□ Conclusion

The Bonn 2025 summit failed to resolve critical divides on finance, adaptation, and equity. With **COP30 in Belém** approaching, **climate justice and political will** must align to match the urgency underscored by climate science.

PYQ Connect

Q (2021): Describe the major outcomes of COP26 to the UNFCCC. What were India's commitments?

Practice connecting summit outcomes (like Bonn 2025) with India's climate diplomacy and NDC strategy.

☐ Amaravati Quantum Valley Declaration (AQVD)

CME | GS Paper 2 & 3 | Source: News Reports

Q Context

Q

The Andhra Pradesh government has launched the **Amaravati Quantum Valley Declaration** (AQVD), a landmark initiative to promote quantum technologies and position Amaravati as a global innovation hub.





☐ What is AQVD?

A strategic declaration signed by the Andhra Pradesh government in collaboration with tech giants like IBM, TCS, and L&T, aimed at building a quantum ecosystem in Amaravati.

© Key Objectives

- Develop infrastructure and research facilities for quantum science.
- Promote public-private partnerships in R&D and innovation.
- Enable talent development through university-industry collaboration.
- Attract international investments and partnerships in quantum communication, computing, and sensing.

Significance

- First-of-its-kind State-level Quantum Policy Initiative in India.
- Positions Amaravati as a global hub for quantum research and start-ups.
- Supports India's National Quantum Mission (NQM).
- Enhances tech-driven economic growth and innovation-led development.
- Boosts future-ready skilling and STEM research ecosystem.



Relevance to UPSC Mains

GS Paper 2 – Governance & Federalism

- State-led innovation in **Science & Technology**.
- Strengthens **cooperative federalism** in implementing national tech missions.

GS Paper 3 – Science & Technology

- Application of emerging technologies in India.
- Role of PPP in high-tech R&D.
- Indigenization and capacity-building in quantum innovation.

Mains Enrichment Use

You can cite AQVD as:

- A model for state-level innovation ecosystems in emerging tech.
- An example of multi-stakeholder collaboration in science policy.
- A proactive **sub-national response** to the National Quantum Mission.
- A best practice in leveraging PPP for future technologies.

☐ Facts for Prelims (FFP)

AE UAE Nomination-Based Golden Visa Scheme

Source: TOI

Context: UAE launched a new nomination-based Golden Visa scheme for Indian and

Bangladeshi nationals.





Key Facts:

• What is it?

Long-term residency visa allowing foreigners to live, work, study, or do business in the UAE without local sponsorship.

- New Features (Nomination-Based Model):
 - Lifetime Residency (no expiry upon asset sale)
 - No Property/Business Investment Required
 - One-time fee: AED 1,00,000 (~₹23.3 lakh)
 - Can sponsor family & unlimited domestic staff
 - Multiple-entry starter visa (6 months)
 - Can stay outside UAE >6 months without visa lapse
- Eligibility (Nomination-Based):
 - Based on professional background, social contributions, and potential in fields like science, culture, trade, startups, and finance.
 - Applies to India & Bangladesh (Pilot Phase)
- Significance:
 - Deepens India-UAE ties
 - Complements CEPA 2022
 - o Enhances mobility and market access for Indian professionals

National Overseas Scholarship (NOS) Scheme

Source: HT

Context: 66 out of 106 selected candidates denied provisional award letters due to fund

shortage.





Key Features:

- Launched by: Ministry of Social Justice and Empowerment
- **Objective**: Support marginalised students for higher education (Master's/Ph.D.) abroad
- Target Groups:
 - Scheduled Castes (SCs)
 - o Denotified/Nomadic/Semi-Nomadic Tribes
 - o Landless Agricultural Labourers & Traditional Artisans
- Eligibility Criteria:
 - o Master's: Bachelor's with ≥60%
 - Ph.D.: Master's with ≥60%
 - Age ≤35 years (as on April 1)
 - o Family Income ≤ ₹8 lakh/year
 - Unconditional admission in QS Top 500 university
- Reservation & Slots:
 - Total: 125 slots/year
 - SCs 115, Denotified Tribes 6, Labourers/Artisans 4
 - 30% reserved for women
 - Max 10% per state
- Selection Process:
 - o Two phases:
 - 1. Admission to QS Top 500 university
 - 2. Broader selection (if seats remain)
- Conditional Awards:
 - o Fund-dependent allocation all selected candidates may not receive awards



Battery Passport Framework

Source: The Times of India (TOI)

Context: The Government of India, led by NITI Aayog and supported by various ministries, is developing a **Battery Passport Framework** to improve the safety, traceability, and global export potential of electric vehicle (EV) batteries.



What is a Battery Passport?

A **Battery Passport** is a **digital identity** for EV batteries, embedded in a **QR code**, which stores detailed data covering the entire lifecycle of the battery:

- Origin of battery materials
- Component configuration
- Performance metrics
- Carbon footprint
- End-of-life and recycling information

★ Why is it Needed?

- Fire Incidents: Recent EV fires highlighted battery design and safety flaws.
- **Cell Mismatch**: Combining cells from different production batches reduces safety and performance.
- Battery Swapping Readiness: Standardisation needed for interoperability.
- **Export Compliance**: Required to meet **EU regulations** on battery traceability and carbon impact.

© Objectives of the Framework

• Enhance EV safety and reduce technical failures.



- Promote quality and uniformity across manufacturers.
- Enable battery exports by complying with international norms.
- Track **entire lifecycle** for better resource use and consumer trust.
- Strengthen India's **circular economy** and green growth agenda.

🔍 Key Features

- QR-embedded Digital ID: Instant access to battery specifications and history.
- Unique Identity per Battery: Comparable to Aadhaar—enabling full traceability.
- Real-time Tracking: Data from manufacture to disposal.
- Standardised Data Format: Includes manufacturer, chemistry, capacity, batch, and use records.
- Data Sharing Protocols: Controlled access for regulators, recyclers, and users.
- Compliance with EU Norms: Especially for batteries >2kWh, aligning India with upcoming EU rules.

IN Significance for India

- Improves consumer confidence in EV technology.
- Strengthens Make in India and export potential of Indian EV manufacturers.
- Facilitates better regulatory oversight and public safety.
- A step towards sustainable mobility and climate goals.

T Vera C. Rubin Observatory

Source: Indian Express (IE)

Context: The Vera C. Rubin Observatory in Chile has released its first test images, demonstrating its capacity to transform astronomy by detecting millions of astronomical events, asteroids, and dark matter signals daily.





Mhat is the Rubin Observatory?

A **next-generation astronomical facility** situated in the **Chilean Andes** at an elevation of 8,684 feet.

It is a joint project of the **U.S. Department of Energy (DOE)** and the **National Science Foundation (NSF)**.

© Objectives

- Map the entire southern sky every 3 days over a 10-year span.
- Detect cosmic changes (supernovae, gamma-ray bursts, asteroid movement).
- Track near-Earth objects (NEOs) and identify asteroid threats.
- Investigate dark matter and dark energy.
- Provide public access to astronomical data to foster global research.

Key Features

- World's Largest Digital Camera:
 - 3,200 Megapixels, weighs 2,800 kg (size of a small car).
 - Detects objects 100 million times dimmer than the human eye can see.
 - Equipped with 6 spectral filters (UV to infrared) for precise measurements.
- Unmatched Field of View:
 - Can scan a sky area equal to 40 full Moons in one image.
 - Faster coverage than Hubble or James Webb telescopes.
- High-Speed Operations:
 - Slewing time between targets: just 5 seconds.
 - o 1,000 images per night; completes sky scans in 72 hours.
- Automated Detection:
 - o Compares current and archived images to generate 10 million alerts/night.
 - Detected 2,100+ asteroids in 10 hours during tests.
- Data Production:
 - o Generates 20 TB of data per day.
 - Will identify over 5 million asteroids and 100,000 NEOs in a decade.





- Advances Dark Matter Studies: Builds detailed 3D cosmic maps to study gravitational distortions and cosmic structures.
- Strengthens Planetary Defence: Enhances early detection of hazardous NEOs.
- **Supports Global Astrophysics**: Could confirm or challenge theories on **galaxy formation**, **cosmic expansion**, and **fundamental forces**.

Dark Web

Source: New Indian Express (NIE)

Context: A 35-year-old engineer from Kerala was arrested for operating as a **Level-4 darknet vendor**, allegedly selling LSD and ketamine via cryptocurrency platforms on the dark web.



Q What is the Dark Web?

- Definition: A hidden layer of the internet not indexed by standard search engines (like Google), accessible only through specialised tools like the Tor browser (The Onion Router).
- Functionality:
 - o .onion domains used, invisible to standard search engines.
 - Traffic routed through multiple encrypted nodes to hide identities and IP addresses.



o Decentralised and highly resistant to censorship and surveillance.

Rey Features

- Anonymity and Encryption: Ensures privacy of users and service hosts.
- **Censorship Resistance**: Popular with journalists, activists, and whistleblowers in authoritarian regimes.
- Marketplace Ecosystem: Includes both legal (data leaks, forums) and illegal (drugs, hacking tools, weapons) trade.
- Law Enforcement Challenge: Strong encryption and node-based routing make surveillance and identification difficult.

Who is a Level-4 Vendor?

- Vendor Grading: In darknet marketplaces, vendors are graded (Level 1 to Level 4 or higher) based on:
 - Volume and variety of drugs sold
 - Reliability, packaging, and customer reviews
 - Delivery success rate
- Level-4: A high-trust seller with an established reputation.

 The accused was reportedly India's only Level-4 darknet drug vendor, implying large-scale and sophisticated operations.

☞ Japonica Rice (CRISPR Gene-Edited)

Source: The Hindu

Context: Scientists at National Institute of Plant Genome Research (NIPGR) used CRISPR-Cas9 gene editing to improve phosphate uptake in japonica rice, increasing yield by up to 40% under phosphate-limited conditions.





Q What is Japonica Rice?

- Type: Short-grain, high-starch rice primarily grown in East Asia.
- **Use in Research**: Popular model due to genetic stability and ease of modification in lab settings.

☐ Scientific Development

- **Gene Targeted**: OsPHO1;2 helps transfer phosphate from root to shoot.
- **Problem**: OsWRKY6 repressor limits this transporter.
- Solution: Rather than removing the whole repressor gene (which caused side effects), only its 30 base-pair binding site was edited out using CRISPR.

Key Features

- Yield Gain:
 - 20% with full phosphate fertiliser
 - 40% with only 10% of recommended phosphate
- Better phosphate efficiency with no impact on grain quality.
- No foreign DNA in final plant; created through Mendelian segregation.
- No off-target genetic effects as validated by genome-prediction tools.
- Represents "minimal-invasive promoter gene surgery."

IN Significance for India

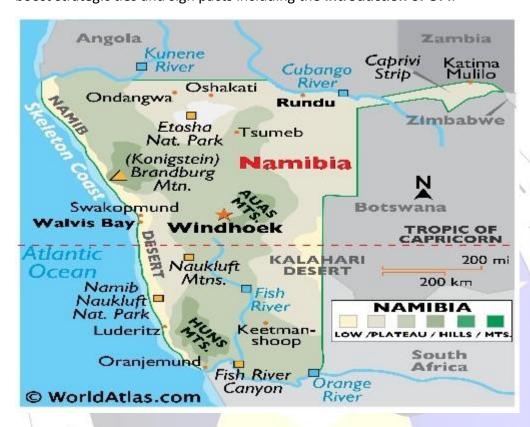
- Reduces import dependency: India imports ~4.5 million tonnes of DAP (Di-Ammonium Phosphate) annually.
- Addresses phosphorus deficiency in Indian soils.
- Eco-friendly agriculture: Reduces fertiliser overuse and runoff pollution.
- Food Security: Enhances productivity in low-input environments.
- Future scope: Transfer technology to indica rice, India's main staple.



Namibia – Mapping Focus

Source: *Indian Express*

Context: PM Modi visited Namibia—the **first Indian Prime Minister in 27 years** to do so—to boost strategic ties and sign pacts including the **introduction of UPI**.



Geographical Location

- Continent: Africa (southwest coast)
- Borders: Angola (north), Zambia (northeast), Botswana (east), South Africa (south), Atlantic Ocean (west)
- · Capital: Windhoek

Key Physical Features

- **Rivers**: Kunene, Okavango, Zambezi, and Orange (form natural boundaries and are irrigation sources).
- Namib Desert:
 - One of the oldest deserts, runs along the western coast.
 - Contains the Skeleton Coast, mineral-rich (diamonds, uranium).
- Kalahari Desert:



o Covers eastern Namibia; semi-arid, merges with savanna.

• Central Plateau:

- o Agricultural heartland
- o Contains the Etosha Pan and Fish River Canyon

• Mountains:

- o **Brandberg** (2,573 m): Highest peak, site of ancient rock art.
- **Soil**: Fertile in **Otavi Highlands** and **Caprivi Strip**; elsewhere mostly arid, sandy, or rocky.

Climate

- Arid to semi-arid with very low rainfall:
 - <50 mm on coast</p>
 - o >600 mm in Caprivi Strip
- Inland areas prone to droughts, making water management vital

