



DAILY EDITORIAL ANALYSIS

TOPIC

**ARAVALLI ECOSYSTEM: SUPREME
COURT'S IMPACT ON DEFINITION**

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ARAVALLI ECOSYSTEM: SUPREME COURT'S IMPACT ON DEFINITION

Context

- The **recent judgment of the Supreme Court of India**, which **redefined the Aravalli Hills** by adopting an **arbitrary '100-metre local relief' criterion**, prioritizes administrative convenience over ecological and scientific coherence, marking a decisive **rupture in India's environmental jurisprudence**.

Background and Judicial Interpretations

- The **Supreme Court of India**, in its **November–December 2025 order**, finalized a uniform and scientific **definition of Aravalli Hills and Aravalli Ranges** to regulate mining and ensure ecological protection.
 - It was followed by earlier directions issued in **May 2024** and in **August 2025**, mandating a standardized, evidence-based approach across all concerned States.
- The Court recognized the **Aravalli range's critical ecological role** as a natural shield against desertification, a groundwater recharge zone, and a biodiversity habitat.

Do You Know?

- Aravalli Range is among the **oldest Fold Mountains** globally, dating back over 3.2 billion years.
- It extends approximately 700 km across **four states in India**, as **Delhi, Haryana, Rajasthan, and Gujarat**.

Supreme Court's Acceptance and Directions

- The **Supreme Court accepted the Committee's recommendations in full** in its **final order** and issued the following directives:
 - Definition Acceptance:** The Court formally adopted the MoEF&CC definitions for Aravalli Hills and Aravalli Ranges.
 - Mining Restrictions:** Mining is **prohibited in core/inviolable areas**, except for **critical, strategic, and atomic minerals** under the **MMDR Act, 1957**.
 - Sustainable Mining:** Mining operations must strictly follow the Committee's guidelines for **environmental compliance and sustainability**.
 - Preparation of MPSM:** The **MoEF&CC**, through the **Indian Council of Forestry Research and Education (ICFRE)**, needs to prepare a **Management Plan for Sustainable Mining (MPSM)** across the entire Aravalli landscape.
 - Moratorium on New Leases:** **No new mining leases** shall be granted until the MPSM is finalized.
 - Ongoing Mining Regulation:** Existing mines may continue operations only under **strict environmental compliance**.
- The Supreme Court observed that **uncontrolled mining in the Aravallis** poses a *'great threat to the ecology of the nation'* and emphasized the need for **uniform protection criteria**.

Findings of MoEF&CC Led Committee

- It found that **only Rajasthan** had a pre-existing operational definition of the Aravalli Hills (based on the **Richard Murphy Landform Classification, 2002**), identified **landforms rising 100 metres above local relief** as hills.
 - During consultations, **all States agreed** to adopt and refine this definition for uniformity and ecological clarity.
- Key Recommendations:** The Committee proposed major enhancements:
 - Uniform elevation criterion:** All landforms rising **100 metres or more** above local relief to be classified as *Aravalli Hills*.
 - Protection of ranges:** Hills within **500 metres proximity** to be recognized as *Aravalli Ranges*.
 - Survey-based mapping:** All Aravalli hills and ranges to be **marked on official Survey of India maps**.
 - Protection of core/inviolable areas:** No mining in Protected Areas, Eco-Sensitive Zones, wetlands, or CAMPA sites.

- ♦ **Strict regulation and monitoring:** Surveillance mechanisms (drones, CCTV, and district task forces) to prevent illegal mining.
- ♦ **Sustainable mining framework:** Mining only in pre-designated, scientifically assessed zones.

Operational Definitions of Aravalli Range & Hills

- **Aravalli Hills:** Any landform in the Aravalli districts rising **100 metres or more above local relief**, determined by the **lowest contour line** encircling the landform.
 - ♦ The entire area, including the hill, slopes, and supporting terrain forms part of the Aravalli Hill.
- **Aravalli Range:** Two or more Aravalli Hills within **500 metres proximity**, measured from their outermost contour boundaries, **collectively form an Aravalli Range**.
 - ♦ The area between them, including valleys, slopes, and connecting landforms is **deemed part of the range**.

Ecological Significance of the Aravallis

- The Aravalli Hills are among **India's oldest geological formations**, stretching from **Delhi through Haryana, Rajasthan, and into Gujarat**, recognized across **37 districts**. They act as:
 - ♦ A **natural barrier** against the expansion of the Thar Desert;
 - ♦ A **groundwater recharge system** supporting agriculture and livelihoods;
 - ♦ A **biodiversity hotspot** sustaining unique flora and fauna; and
 - ♦ A **climatic stabilizer** mitigating pollution and temperature extremes in the NCR region.

Concerns & Issues Surrounding Recent Judgement

- **Flawed Metrics and Misapplied Statistics:** MoEF&CC led Committee relied on **district-wise average elevation** to justify the 100-metre threshold, which is **scientifically unsound** for a terrain as heterogeneous as the Aravallis, where elevations range from **20 to 600 metres**.
 - ♦ Consequently, thousands of smaller hills, crucial for groundwater recharge, wildlife corridors, and soil stability, risk exclusion from legal protection.
- **Ignored Warnings and Compromised Expertise:** The **Amicus Curiae** explicitly warned that adopting the 100-metre rule **would open lower hills to mining**, effectively **dismantling the ecological integrity** of the Aravallis.
 - ♦ The committee that finalized the definition lacked **independent ecologists and social scientists**, reducing complex ecological concerns to administrative details.
- **Problem of Legal Definitions:** The Court's acceptance of an **'operational definition for mining'** raises serious concerns.
 - ♦ Legal definitions are **not neutral instruments**, and once areas fall outside their scope, they are effectively **stripped of environmental protection and assessment measures like EIA**.
- **Fragmenting the Aravallis:** The Aravalli ecosystem functions as an **interconnected system** as **low hills, foothills, and aquifers** operate in tandem.
 - ♦ Protecting only the tallest peaks while disregarding the surrounding low-relief formations amounts to **ecological amputation**.

Efforts Safeguarding Aravallis

- **Ecological Safeguards and Enforcement:**
 - ♦ **Landscape-Level Protection:** Treating the Aravallis as a **continuous geological ridge** ensures connectivity between ecosystems and prevents ecological fragmentation.
 - ♦ **Transparent and Objective Mapping:** Mandatory use of **Survey of India maps** makes enforcement objective and verifiable.
 - ♦ **Technological Enforcement:** Deployment of **drones, GPS tracking, weighbridges**, and **district task forces** strengthens real-time monitoring against illegal mining.

- ♦ **Biodiversity and Groundwater Conservation:** By protecting slopes, foothills, and connecting valleys, the framework maintains:
 - **Habitat connectivity** for wildlife;
 - **Groundwater recharge** zones;
 - **Soil stability** and **vegetation cover**.
- **Management Plan for Sustainable Mining (MPSM):** The forthcoming **MPSM**, modeled after the **Saranda Forest Plan** in Jharkhand, aims to:
 - ♦ Identify **permissible and prohibited mining zones**;
 - ♦ Assess **ecological carrying capacity** and **cumulative impacts**;
 - ♦ Establish **restoration and rehabilitation protocols** post-mining; and
 - ♦ Ensure **landscape-level conservation** of the entire Aravalli ridge system from **Gujarat to Delhi**.

Constitutional & Legal Frameworks

- **Article 21 (Fundamental Right to Life):** Judicial interpretation has expanded this to include the *right to a pollution-free environment and healthy living conditions*.
- **Article 48A (DPSP):** Directs the State to *protect and improve the environment* and safeguard forests and wildlife.
- **Article 51A(g) (Fundamental Duties):** Imposes a duty on every citizen to *protect and improve the natural environment*, including forests, lakes, rivers, and wildlife.
- **Legislative Support:** Environment (Protection) Act, 1986 defines 'environment' broadly, covering air, water, land, and their interrelationships.

Safeguards For Mining and Ecological Protection

- **Forest (Conservation) Act, 1980:** Requires prior approval from the central government for using forest land for non-forest purposes, including mining.
 - ♦ Mining projects need to undergo rigorous scrutiny and obtain Forest Clearance from MoEFCC.
- **EIA Notification, 2006:** Mandates environmental clearance for mining projects based on their size and potential impact.
 - ♦ Includes public consultation and environmental management plans.
- **Mineral Conservation and Development Rules (MCDR), 2017:** Ensure scientific mining, environmental protection, and post-mining land reclamation.

Conclusion: Judicial Responsibility

- Historically, the **Supreme Court has been the custodian of India's environmental conscience**, upholding the principle that the **State is a trustee of natural assets under the Constitution**.
 - ♦ However, the recent judgement threatens to dilute that legacy.
- The Court needs to revisit this decision to restore scientific integrity and reaffirm its commitment to environmental stewardship.
- Preserving the Aravallis demands more than procedural compliance, it requires **a jurisprudence rooted in ecological literacy, precaution, and intergenerational responsibility**.

Source: IE

Daily Mains Practice Question

[Q] Examine the implications of the recent judgment of the Supreme Court of India redefining the Aravalli Hills for India's environmental jurisprudence. How does it balance ecological preservation with administrative interpretation?

