CONTROVERSY IN CONTOUR LINES: A CRITICAL ANALYSIS OF THE UNIFORM ELEVATION THRESHOLD AND THE PROPOSAL FOR AN ADDITIVE ECO-PROTECTION SCORE (AEPS)

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ABSTRACT

In the Aravalli Hill range, we see mountains and ridges that are key to recharging aquifers and also to mitigating dust storms. In November 2025, the Supreme Court ruled that any land that is at least 100 metres high within a notified area is included in the range.[1] This paper proposes the dual test, which is a mix of what is administratively convenient and what is ecologically sound. Landform relief is a highly unstable variable, based on base-contour definitions that, in turn, result from regulatory actions that also exclude many low-lying, eroded ridges. Also, we propose an Additive Eco-Protection Score (AEPS), a ten-point system that is easy to use in the field and considers factors such as height, slope, cluster proximity, and hydrology. Also, it has no regression element, which means that once a landform is protected, it will remain so under the 100 metres test. Thus, we keep 100 meters as one of the four input elements of AEPS, and we also include an element of reason that ties in the step-stone ridges.

Keywords: 100 metres definition, 500 metres cluster criterion, Aravalli Range, Additive Eco-Protection Score (AEPS), judicial directives.

[1] Neelam Ahluwalia & Ghazala Shahabuddin, *Uniform definition of Aravallis accepted by Supreme Court will be catastrophic for India's oldest mountain range*, DOWN TO EARTH (Dec. 2, 2025), https://www.downtoearth.org.in/forests/uniform-definition-of-aravallis-accepted-by-supreme-court-will-be-catastrophic-for-indias-oldest-mountain-range.

1. Introduction

1.1. Ancient roots and cultural significance

Law has classified the Aravallis as both a mining concern and a border issue, but these hills existed long before they were so classified. The Ganeshwar-Jodhpura civilisation in Rajasthan's Sikar area produced local copper in the third millennium BCE and is believed to have supplied metal to the Harappan civilisation.[2] Seasonal streams and fractured-rock aquifers supported village economies for centuries. While the role of ancient channels like the Sarasvati is debated, it is clear that communities actively managed these hills as ecosystems. Sacred groves, known as orans[3] in Rajasthan and banis[4] in Haryana, preserved vital resources and kept native vegetation standing for water, fodder, and timber. The relevance for law is practical. Protecting hills on functional grounds, because they hold water, shelter species and sustain livelihoods, is far older than any height rule.

1.2. Geological evolution and the definition controversy

The Aravalli Range, India's oldest fold mountain belt, is approximately two billion years old. It starts near Delhi, passes through Haryana and Rajasthan, and concludes in Gujarat, with its highest peak, Guru Shikhar, located in Mount Abu, Rajasthan.[5] The Aravalli Hills

[2] Esha Prasad & Ravindra Nath Singh, *The Chronology of the Ganeshwar Jodhpura Culture: A Reassessment Based on Graffiti and Cross-Cultural Comparisons*, 12 ANCIENT ASIA 1, 1-21 (2021), https://ancient-asia-journal.com/upload/1/volume/Vo.%2012%20(2021)/Paper/238-1-2914-1-10-20210628.pdf.
[3] *About Orans*, COMMUNITY CONSERVED AREAS, https://communityconservedareas.org/page/show/9239 (last visited Oct. 6, 2026).
[4] *Mangar Bani*, WIKIPEDIA, https://en.wikipedia.org/wiki/Mangar_Bani (last visited Oct. 6, 2026).
[5] *SC stays its earlier judgement concerning change in definition of Aravalli Hills; Govt welcomes SC's decision*,

are remnants of a mountain range that began to devolve in the Precambrian.[6] Guru Shikhar in Mount Abu, at 1,722 metres, is the highest peak in the range, but the greater part of the range consists of low ridges, quartzite formations, hillocks, and cut plateaus. The rule demanding that hills in its vicinity be steep and prominent offers an inverted view of a mountain range that has been around for about two billion years.[7]

The test approved in 2025 consists of two parts. In the first case, the landform must be at least 100 metres above the local relief point for it to be considered a hill. The second limb includes two or more. It means it will consider two or more hills in a range if they are within 500 metres of each other.[8] Before addressing ecological problems, we should understand 3 issues. Local relief cannot be separated from the height above sea level, so every measurement will depend on what local contour is taken as the basis. At this point, it should also be emphasised that relief is not immutable; that is, a quarried hill will have less relief, and a hole dug in the neighbourhood will have more relief. Additionally, the height limit of 500 metres makes ecological continuity limited to a line on a map.

According to the study's hypothesis, enforcing rigid distance and height restrictions in the mountain system creates legal loopholes that encourage land conversion, mineral extraction, and the destruction of ecological barriers, since land classification relies on measurable characteristics rather than on the expected benefits that should be protected under the law.

1.3. Why are the Aravallis shrinking?

There are two distinct categories of methods through which the Aravallis were eroded. The natural processes of weathering and erosion have worn down the mountains over numerous centuries, at a rate that is undetectable to today's generations. Human operating processes, on the other hand, occur over periods of months. Quarrying or blasting will have removed the mountain tops, while crushing and borrowing will have removed a large part of the base. The term “desertification” is used to describe the fact that some pressure is produced

NEWS ON AIR (Dec. 29, 2025), https://newsonair.gov.in/supreme-court-orders-formation-of-new-expert-committee-on-aravalli-range-definition/.

[6] Brian Frederick Windley, *Precambrian*, ENCYCLOPAEDIA BRITANNICA (Oct. 17, 2026), https://www.britannica.com/science/Precambrian.

[7] *Aravalli Range: Hills Recent Controversy, Geological Formation of Mountain*, NEXT IAS, https://www.nextias.com/upsc/aravalli-range (last visited Oct. 7, 2026).

[8] Prasad & Singh, *supra* note 2.

by wind-blown sand burying the lower sections and valleys,[9] thus pulling down the local surface, even if the rock remains in place.

Though the evidence of recent losses is staggering, it is not equally distributed. A 2018 report stated that 31 of 128 sampled hills in the Alwar region of Rajasthan had disappeared when comparing Survey of India toposheets from 1967-68.[10] A Rajasthan study reported that between 1975 and 2019, nearly approx. 8% of the hill system disappeared.[11]

1.4. A landscape without the Aravallis

The change in the belt's status from continuous to scattered stumps would create impermeable surfaces that would worsen runoff and hinder rainwater recharge. It would destabilise the western regions of the Indo-Gangetic plain, resulting in greater exposure to sand and dust, as well as intensified heat and air pollution in the National Capital Region.[12] The benefits offered by the range depend on its integrity and on the fact that fragmentation would have negative impacts before the last hill disappears.

2. Legal Evolution: Supreme Court Decisions and State-Level Orders

2.1. From status-based to form-based protection

Until 2025, protection in this region rested mostly on legal status and not on landform. In 1992, the Environment Ministry used the Environment (Protection) Act 1986 to restrict activities in parts of the Aravalli region, and Haryana notified lands under the Punjab Land Preservation Act 1900 (PLPA) on 18 August 1992.[13] Then, in the T.N. Godavarman Thirumulpad case, the Supreme Court interpreted "forest" in the dictionary sense, thereby establishing that the nature of the land is to be considered rather than its record.[14] In the

[9] Ministry of Environment, Forest and Climate Change, *Aravalli Hills: Protecting Ecology and Ensuring Sustainable Development*, PRESS INFORMATION BUREAU (Dec. 21, 2025), https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/dec/doc20251221740901.pdf.
[10] Jitendra & Shagun, *Aravallis broken beyond repair*, DOWN TO EARTH (Apr. 3, 2019), https://www.downtoearth.org.in/mining/aravallis-broken-beyond-repair-63812.
[11] Sumedha Sharma, *Mining mafia brings down another Aravalli hill*, THE TRIBUNE (Dec. 21, 2024), https://www.tribuneindia.com/news/haryana/mining-mafia-brings-down-another-aravalli-hill/amp.
[12] Purnima Pathak & Archana Gaur, *The Aravalli Range and Desert Ecology: Emerging Issues, Conservation Challenges, and Implications for Bee–Plant Interactions in Western Rajasthan*, 4(SP1) INDIAN J. MOD. RES. & REV. 176, 176-185 (2026).
[13] *M.C. Mehta (Kant Enclave Matters) v. Union of India*, (2018) 18 SCC 397; Ministry of Environment and Forests, *Notification under Section 3 of the Environment (Protection) Act, 1986*, S.O. 319(E) (May 7, 1992).
[14] *T.N. Godavarman Thirumulpad v. Union of India*, (1997) 2 SCC 267.

case of M.C. Mehta, mining activity was put on hold in almost 448 square kilometres of the Aravalli mountain range in Faridabad, Gurgaon and Mewat, and it was ruled that mining on the PLPA-land would need clearance under the Forest (Conservation) Act, 1980.[15] In 2018, it ordered demolition of construction in Kant Enclave on PLPA-notified land and treated that land as forest.[16]

The main characteristic of this legislation is its focus on defining the land and its purpose, rather than on its journey in the sky. The 100 metre test reverses the situation. Additionally, it generalises a zero-based practice that Rajasthan has had since 2006 for authorised mining activities in hills smaller than 100 metres.[17] Status-based tools protect only what has been notified or recorded, and in the Aravallis, much never was.

2.2. The 2024-2026 judicial timeline

The Supreme Court directed the Centre's Ministry of Environment and Forests to set up a committee to establish a uniform definition of the term in May, 2024, since states were using different criteria in granting mining licenses.[18] The Aravallis have been defined by the Forest Survey of India (FSI) in its 2010 submission to the Court, in which a slope of more than 3 degrees is considered, with the design having a range of 100 metres in the foothills and an inter-hill distance of 500 metres.[19] The Court adopted the ministry committee's height-centred formulation despite the warning against its use by its amicus curiae on 20 November 2025, who argued that it would destroy the continuity of the range.[20] In addition, it was stated that no mining lease will be granted until the Management Plan for Sustainable Mining is developed, which the judgment has assigned to the Indian Council of Forestry Research and Education (ICFRE).[21]

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[15] *M.C. Mehta v. Union of India*, (2009) 6 SCC 142; *M.C. Mehta v. Union of India*, (2008) 17 SCC 294.
[16] *Id.*
[17] Simrin Sirur, *With a new identity, the Aravalli hills stare at an uncertain future*, MONGABAY INDIA (Dec. 2025), https://india.mongabay.com/2025/12/with-a-new-identity-the-aravalli-hills-stare-at-an-uncertain-future/.
[18] *Explained: Deconstructing the Aravalli range row*, DECCAN HERALD (Dec. 2025), https://www.deccanherald.com/amp/story/india/explained-deconstructing-the-aravalli-range-row-3839408.
[19] Sachin Pernacca Sashidhar et. al., *Institutional expertise meets judicial confusion in the Aravalli hills definition case*, DOWN TO EARTH (Dec. 30, 2025), https://www.downtoearth.org.in/forests/institutional-expertise-meets-judicial-confusion-in-the-aravalli-hills-definition-case.
[20] *How the Supreme Court's new definition of the Aravalli redraws the landscape of India's oldest hill range*, THE LEAFLET, https://theleaflet.in/environment/how-the-supreme-courts-new-definition-of-the-aravalli-redraws-the-landscape-of-indias-oldest-hill-range (last visited Oct. 13, 2026).
[21] *Supreme Court takes Suo Motu cognisance on issue of definition of Aravalli Hills*, NEWS ON AIR (Dec. 28, 2025), https://newsonair.gov.in/supreme-court-takes-suo-motu-cognisance-on-issue-of-definition-of-aravalli-

The public has started to believe the figures given, but the figures themselves are debated. Media reports prepared using the internal materials of the FSI organisation report that, out of 12,081 hills above 20 metres, only 1,048 hills in 15 districts of Rajasthan managed to cross the 100 metre mark, which comes to just 8.7% of the total.[22] The FSI later said it had carried out no study that concluded that 90% of the Aravallis would be left unprotected.[23] According to the ministry, mining can take place in only 0.19% of the 1.44 lakh square kilometres of the Aravalli range. This definition covers a larger area than the three-degree slope test, as the average slope in 12 of the 34 districts is below three degrees.[24] Critics argued that 1.44 lakh square kilometres overstates the range, since it includes the full area of the districts.[25] These digits cannot be compared because the first one counts hill ranges, while the second one concerns land in districts. Nobody argues about the direction of the effect: hilly districts have a 100 metre test excluding more landforms than the slope test. What remains unanswered is the number of landforms and which ones are excluded.

The Court acted suo moto on December 27, 2025. Only two days after that, on the 29th of December, a vacation bench of the Supreme Court stayed the order of 20th November, issued a notice to both the Centre and the four states, and set up a new expert committee.[26] The High Court gave its go-ahead to the High-Powered Committee, which will be headed by Kanchan Devi, Director General of the Indian Council of Forestry Research and Education, to look into the issue at hand. The committee is to present their report by the end of 2026.[27]

On January 21, 2026, the suspension was extended;[28] on February 26, the policy on mining remained unchanged;[29] and finally, on June 3, 2026, the High Court formed a High-

hills/.

[22] *After Govt's Clarification, FSI Says It Hasn't Carried Out Study Stating 90% of Aravallis Left Unprotected*, THE WIRE (Dec. 24, 2025), https://thewire.in/environment/after-govts-clarification-fsi-says-it-hasnt-carried-out-study-stating-90-of-aravallis-left-unprotected.

[23] *Id.*

[24] *How the Supreme Court's new definition*, *supra* note 20.

[25] *Explained: New Aravalli benchmark could have effects beyond mining*, THE INDIAN EXPRESS (Dec. 23, 2025), https://indianexpress.com/article/explained/aravalli-benchmark-could-have-effects-beyond-mining-10433763/.

[26] *Supreme Court takes Suo Motu cognisance, supra* note 21.

[27] *Supreme Court Rejects Six-Month Extension For Aravalli Hills Expert Panel Report, Sets November 30 Deadline*, LIVELAW (Sept. 7, 2026), https://www.livelaw.in/top-stories/supreme-court-rejects-six-month-extension-for-aravalli-hills-expert-panel-report-sets-november-30-deadline-548900.

[28] *SC warns illegal mining can lead to irreversible damage in Aravallis*, NEWS ON AIR (Jan. 21, 2026), https://newsonair.gov.in/sc-to-constitute-expert-committee-for-holistic-examination-of-mining-in-aravallis/

[29] Sukriti Mishra, *Supreme Court To Constitute Expert Committee On Aravalli Definition; Mining Halt To Remain*, LAWBEAT (Feb. 26, 2026), https://lawbeat.in/top-stories/supreme-court-to-constitute-expert-

Powered Committee of five members under the chairmanship of the head of ICFRE.[30] On 7 September 2026, it refused a six-month extension, fixed 30 November 2026 as the deadline, allowed issue-specific interim reports, and listed the matter for 2 December 2026.[31] After that, in a notice dated 25 October 2026, it was stated that the process of defining the height of the mountains, which is based on a 100 metre distance, has been suspended and is being reassessed. The decree issued in 2025 specified the distance and ordered that maps be created, thereby ensuring that the laws followed the science rather than the other way around.

2.3. State-by-state dynamics

Rajasthan: The majority of the area and a large section of the mining operation are state-owned, and the state has imposed a local relief criterion of 100 metres since 2006. According to the Ministry, the mining leases in the hilly regions of the 20 districts of Aravalli cover approximately 247 square kilometres, which is about 0.2% of the total area of these districts.[32] Much of the State's notified forest lies in low hill systems, so a 100-metre test bites hardest here and turns protection of low ridges into a question of measurement.[33]

Haryana: The Aravalli range is spread largely in Gurugram, Faridabad, Nuh, Rewari and Mahendragarh. Mining in the Aravalli hills of Gurugram, Faridabad, and Nuh has been restricted since the 2009 orders, and real estate disputes over land conversion and jurisdiction remain unresolved. In 2023, hills were flattened at the Nuh–Rajasthan border, while both States claimed ownership of them.[34]

Delhi: Delhi Ridge is situated near the north end of the range. Although a significant part of it is governed under reserved forest regulations, it is extensively disturbed by roads, rail

committee-on-aravalli-definition-mining-halt-to-remain-1568288

[30] *Supreme Court forms high-powered expert panel to re-examine Aravalli definition*, DECCAN HERALD, https://www.deccanherald.com/amp/story/india/supreme-court-forms-high-powered-expert-panel-to-re-examine-aravalli-definition-4025638 (last visited Oct. 15, 2026).

[31] *Mangar Bani, supra* note 4.

[32] Kalyan Ray, *No new mining lease in Aravalli till ICFRE makes sustainable mining plans: MoEF*, DECCAN HERALD (Dec. 22, 2025), https://www.deccanherald.com/amp/story/india/no-new-mining-lease-in-the-aravalli-till-icfre-makes-sustainable-mining-plans-moef-3839726.

[33] Prasad & Singh, *supra* note 2.

[34] Sumedha Sharma, *Raj miners eat into Nuh Aravallis; Haryana to claim costs, plug gaps*, THE TRIBUNE (Dec. 8, 2024), https://www.tribuneindia.com/news/haryana/raj-miners-eat-into-nuh-aravallis-haryana-to-claim-costs-plug-gaps/amp.

tracks, waste dumping, and other encroachments. Its significance lies in its connection to the southern ridges and in providing relief from the city's heat and pollution, regardless of altitude.

Gujarat: The southwestern section of the range belongs to the state and is an area for which we have the least data. The lack of a publicly available district-wise inventory of hills makes it difficult to specify the number of landforms in Gujarat that are 100 metres or more, thus yielding four different results from one rule.

2.4. A critical assessment of the dual test

The priority is fairness towards the department. A single figure is simple to implement, decreases territorial disputes, and provides mine operators and inspectors with the same map. However, this comes with three types of incorrect cost information.

The *first one* refers to what is called the cliff effect. In this case, the 99-metre and 101-metre ridges are ecologically equivalent. However, the 99-metre ridge is restricted, while the 101-metre ridge is unrestricted. Every threshold yields a cliff, but this cliff occurs at a point where it crosses a large part of the range's landforms, making it steep and resulting in a large affected population.

The *second one* is the self-extinguishing protection. Self-extinguishing protection is a term whose meaning is dependent on the local relief. If the hill is lowered, the protection will weaken as the regulated activity proceeds. A rule that can be negated by the action of the subjects it regulates is poorly formulated.

The *third one* is referred to as functional blindness. Recharge, interception of dust, and animal movement are functions that belong to the landscape, and low ridges are usually of most significance in places where they cover the area between high ridges. The definition of 2025 does not mention these three aspects.

There is also a doctrinal mismatch, the Indian environmental law has long preferred function to form. Forests are defined by character,[35] the precautionary principle asks the State to act on credible risk without waiting for certainty,[36] and the public trust doctrine

[35] *M.C. Mehta v. Union of India*, (2009) 6 SCC 142.
[36] *Vellore Citizens Welfare Forum v. Union of India*, (1996) 5 SCC 647.

holds natural resources for the public.[37] There is difficulty in aligning the exclusion of low landforms with these three requirements because it seems arbitrary under Article 14 as well as incompatible with the responsibility of the State under Article 48A.

Finally, in the 2010 scheme of the FSI, a distance of 100 metres was used as a buffer in a hill-based test, and this value now appears in the latest test as a gain in altitude. This may be termed an observation rather than a finding, but it is a reasonable one deserving a response from the Committee.

3. Ecological Functions: How the Aravallis Protect North India

The range is often said to have four functions, and the evidence for these functions varies widely. The function of groundwater recharge is the one for which the evidence is the strongest. The cracked and weathered rocks of Precambrian age absorb rainfall, allowing it to seep into the aquifers that supply water to Gurugram, Faridabad, Delhi, and Jaipur.[38] The concept of habitat connectivity has its bases firmly laid. A habitat linkage between Sariska Tiger Reserve in Rajasthan and Asola Bhatti Wildlife Sanctuary in Delhi can be used only if there are stepping-stone habitats between the 2 large habitat blocks.

The idea of a desertification barrier is real, but it is not measurable. According to ecologists, there are approximately a dozen gaps in the ecosystem where plants have disappeared, through which dust from the Thar desert reaches the Delhi-NCR region.[39] It cannot be concluded definitively from the available information what the effect of these gaps on NCR particulate loads is when compared to the contribution of agricultural burning, vehicle emissions, construction, and industrial activity. Protection should rest first on what is best evidenced, namely water and connectivity, and both are functions that low ridges can deliver.

There are two important roles to consider. First of all, the vegetation on the hills influences the local climate and holds back pollution. Second, the hills support local people in sectors

[37] *M.C. Mehta v. Kamal Nath*, (1997) 1 SCC 388.
[38] Prasad & Singh, *supra* note 2.
[39] Vibha Sharma, *Saving Aravallis from death by definition, all eyes on Jan 21*, THE STATESMAN (Jan. 18, 2026), https://www.thestatesman.com/exclusive-interviews/saving-aravallis-from-death-by-definition-all-eyes-on-jan-21-1503542606.html.

such as grazing, energy, fodder, medicine, and spirituality, especially in Rajasthan and Gujarat, which are now being introduced to the Court.[40]

4. Risks of Losing Low-Elevation (<100 m) and Disconnected (>500 m) Ridges

The risks follow from a geographic point. Low, isolated ridges are the landforms the dual test is most likely to omit.

Widening gaps: The removal or construction of ridges bordering an existing breach causes breaches to widen, while also reducing the distance of the region of the range that blocks winds laden with dust.

Hydrological loss: Shallow ridges and their slopes are important places where water from local aquifers is absorbed. The elimination of these structures results in loss of recharge at places where water tables are already deep.

Air quality: Dust carried by winds is merely one of the constituents behind the particulate matter in the Delhi-NCR. Other causes of pollution include dust from uncovered soil and minerals, waste from mines, and dust from crushers. People living near the hills suffer the consequences and are already afflicted with many respiratory conditions.[41]

Fragmentation: If hills that are more than 500 metres apart are left unprotected, they become islands, and wildlife will likely invade peri-urban areas.

These risks do not depend on a particular hill; rather, they depend on the overall situation and the specific area in which they are located. Therefore, it is necessary to consider the risks at the level of the biome as a whole.

5. Proposed Practical Solution: The Additive Eco-Protection Score (AEPS)

5.1. Design Logic

There are three important criteria that a valid substitute for the dual test must fulfil. In the first place, it should aggregate the contributions of multiple indicators to its total score so that none of them outweighs the others. Secondly, it must be feasible and rely on previously

[40] *Mangar Bani*, *supra* note 4.
[41] *Id.*

collected information from such institutions as the Survey of India or the Forest Survey of India, but not less than that. Thirdly, it should follow the 'no-regression' approach, which means it should not result in a reduction in the protections currently available to individual landforms due to the introduction of the 100 metres criterion. So, it is concluded that this alternative method, which measures data according to relevant criteria derived from field tests, can be applied to a variety of landforms in the Aravalli hills, as shown on geological maps, if they have a local relief of more than 20 metres.

5.2. The scoring matrix

$$AEPS = P_{Height} + P_{Slope} + P_{Proximity} + P_{Hydrology}$$

Criterion	Parameter band	Points	Practical logic
Height (P_{Height})	≥ 100 m	3	Keeps the existing criterion as one input
	50-99 m	2	Partial credit for eroded ridges
	< 50 m	1	
Slope (P_{Slope})	Average slope > 15º	2	Guards steep slopes against quarrying-induced erosion
	5º to 15º	1	
	<5º	0	
Cluster proximity ($P_{Proximity}$)	Within 500 m of a protected hill	3	Covers stepping-stone hills up to 1 km apart
	500 m to 1 km	2	
	Isolated (> 1 km)	0	
Hydrology ($P_{Hydrology}$)	Feeds a mapped stream, wetland or recharge zone	2	Protects recharge, whatever the height
	Dry or isolated drainage	0	

5.3. Thresholds and safeguards

In comparison, areas or lands with a score of less than five points are placed in the recovery and buffer zone category, where everything must comply with the afforestation norms set

under the supervision or observation of the forest department. First of all, *the non-regression principle* does not allow unexpected results in measuring topographical objects. According to this principle of non-regression, every geological object with an elevation over 100 metres is protected, regardless of its specific rating under this AEPS Model. For instance, a solitary flat, arid hill 120 metres high has only three scores. The second key principle is *the anchor rule*, which determines the protected hills in accordance with the parameter area and allows marking the hills as "protected-hill" if their height is 100 metres or above or they have received a qualification score in any previous measure, given the fact that the assessment can only be carried out twice for the object.

The rule is illustrated by two significant examples: a hill of 40 metres (1) which has steep slopes (2) and is located around 700 metres from the bigger hill (2) and is part of the local water system (2) has a score of 7 points, being able to survive even though it failed a test deemed by two requirements put forward by the government. As a result, the ridge, which is 25 metres high and 3 degrees inclined, is located 400 metres from the original hill, as denoted by the national contour map but not reflected in the drainage map, receives a score of 4, placing it in the buffer zone category.

All states must measure each parameter uniformly. The digital elevation model used must have a resolution of 10 metres or better for both height and slope measurements, using the lowest surrounding contour for height and averaging slope across the landform footprint. The proximity must be determined using the lowest contour line in line with the 2025 definition, which is used for its 500 metres geographic limb. Concerning hydrology, one has to refer to the drainage and recharge mapping prepared by the Survey of India.

5.4. Implementation and legal footing

The process for determining the score will be based on a reference height model to be created before the start of the 2025 term. This will remove any so-called incentive to dig the hills. The calculations will be done by an independent technical adjudication group representing branches of government. They will be made public so that anyone can appeal them if they find them inaccurate. According to section 3 of the EPA 1986, the principles outlined above will be utilised by the High-Powered Committee to sanction them. It will be easier to prove a position concerning the graduated justification under Article 14 than an absolute one excluding ecologically valuable land.

The legally valid leases present the most challenging issue. A lease in a new landform must not be terminated without due procedure. The preferable solution should be the completion of existing leases within a specified period, subject to the restoration obligation secured by the lessee in accordance with Articles 300A and 19(1)(g).

5.5. Limits

The judgment is necessary to identify and establish the bands and their corresponding point values and can be used as a reference point for calibration purposes. However, this data should be validated in pilot districts such as Faridabad–Gurugram–Nuh and Alwar by cross-referencing the FSI hill inventory and recharge maps, and by conducting a sensitivity analysis based on the number of landforms that change category when a band is moved. An objective definition of "feeds" is also required that is not based on any claim made by the sender. The evaluation, moreover, does not take into account the existing protection status of the designated and notified areas.

There are three additional limitations. The measurement method gives you results for the terrain one feature at a time, while ecological significance is typological and is partly accounted for through the proximity indicator. The evaluation system does not envisage protection: illegal extraction has been occurring even under the existing regulations, and the availability of a better map will hardly help without proper inspection and enforcement. Finally, a backwards-looking test is also possible in which an application of the measuring system to the Survey of India maps of 1967-1968 will show whether the hills that no longer exist would have had the necessary protection if the system had already been in operation.

6. Conclusion and Policy Recommendations

The fact that the standard 100 metres and the standard 500 metres seem equally valid can be a positive aspect for the governance of the system, but it also brings several drawbacks. These drawbacks include a lack of process consistency, neglecting an individual's function, and failing to take the extreme edges into account. AEPS is the answer to the commission's assessment, expressed in three phases: a summary of the parameters used for measurement, clarity of the thresholds, and a clause of non-regression that protects everything already covered by the current assessment process.

The reasoning is composed of three parts. A definition follows a variable characteristic. It allows destruction to operate on functions, especially those of a stream and connection, so that the low hill can function. The simplicity of the result allows us to combine all those functions and keep the clarity of the 100 metre rule.

The five policy steps follow:

(i) Change the two-factor rules of height and distance with a multi-factor test similar to the AEPS, with the first factor being the criterion of 100 metres and being the lower bound. Maintain the status quo regarding mining activity until the Committee submits its report on the issue, and extend this status quo to every landform with a relief of 20 metres or more in the identified districts.

(ii) Engage in the task of publicly creating GIS (Geographic Information System) and LiDAR (Light Detection and Ranging) mapping of the entire Aravalli region, create a base elevation map, and circulate the created maps such that all can be easily audited.

(iii) Finalise the Management Plan for Sustainable Mining with the necessity of restoring legacy mining sites and establish a ban on new leases until the mapping is complete.

(iv) Consult with indigenous and pastoralist communities before any classifications are made.

(v) Correlate the Survey of India sheets from 1967-68 with present structures throughout the region, so that the extent of loss is determined rather than approximated.

The case has been scheduled for hearing on December 2, 2026. However, whatever the Committee's recommendations may be, the key lesson from this dispute is that a mountain range cannot be legally defined by its peaks alone.

7. Bibliography

7.1. Cases

- *In re: Definition of Aravalli Hills and Ranges and Ancillary Issues*, SMW(C) No. 10 of 2025 (Supreme Court of India) (orders of Nov. 20, 2025 and Dec. 29, 2025).
- *M.C. Mehta (Kant Enclave Matters) v. Union of India*, (2018) 18 SCC 397.
- *M.C. Mehta v. Kamal Nath*, (1997) 1 SCC 388.
- *M.C. Mehta v. Union of India*, (2008) 17 SCC 294.
- *M.C. Mehta v. Union of India*, (2009) 6 SCC 142.
- *T.N. Godavarman Thirumulpad v. Union of India*, (1997) 2 SCC 267.
- *Vellore Citizens Welfare Forum v. Union of India*, (1996) 5 SCC 647.

7.2. Constitutional and Statutory Provisions

- Constitution of India, arts. 14, 48A.
- Environment (Protection) Act 1986, s. 3.
- Forest (Conservation) Act 1980.
- Ministry of Environment and Forests, Notification under s. 3, Environment (Protection) Act 1986 (7 May 1992).
- Punjab Land Preservation Act 1900.

7.3. Journal Articles

- Esha Prasad & Ravindra Nath Singh, *The Chronology of the Ganeshwar Jodhpura Culture: A Reassessment Based on Graffiti and Cross-Cultural Comparisons*, 12 ANCIENT ASIA 1, 1-21 (2021), https://ancient-asia-journal.com/upload/1/volume/Vo.%2012%20(2021)/Paper/238-1-2914-1-10-20210628.pdf.
- Purnima Pathak & Archana Gaur, *The Aravalli Range and Desert Ecology: Emerging Issues, Conservation Challenges, and Implications for Bee–Plant Interactions in Western Rajasthan*, 4(SP1) INDIAN J. MOD. RES. & REV. 176, 176-185 (2026).

7.4. Reports, News Articles and Online Sources

- *About Orans*, COMMUNITY CONSERVED AREAS, https://communityconservedareas.org/page/show/9239 (last visited Oct. 6, 2026).

- *After Govt's Clarification, FSI Says It Hasn't Carried Out Study Stating 90% of Aravallis Left Unprotected*, THE WIRE (Dec. 24, 2025), https://thewire.in/environment/after-govts-clarification-fsi-says-it-hasnt-carried-out-study-stating-90-of-aravallis-left-unprotected.

- *Aravalli Range: Hills Recent Controversy, Geological Formation of Mountain*, NEXT IAS, https://www.nextias.com/upsc/aravalli-range (last visited Oct. 7, 2026).

- Brian Frederick Windley, *Precambrian*, ENCYCLOPAEDIA BRITANNICA (Oct. 17, 2026), https://www.britannica.com/science/Precambrian.

- *Explained: Deconstructing the Aravalli range row*, DECCAN HERALD (Dec. 2025), https://www.deccanherald.com/amp/story/india/explained-deconstructing-the-aravalli-range-row-3839408.

- *Explained: New Aravalli benchmark could have effects beyond mining*, THE INDIAN EXPRESS (Dec. 23, 2025), https://indianexpress.com/article/explained/aravalli-benchmark-could-have-effects-beyond-mining-10433763/.

- *How the Supreme Court's new definition of the Aravalli redraws the landscape of India's oldest hill range*, THE LEAFLET, https://theleaflet.in/environment/how-the-supreme-courts-new-definition-of-the-aravalli-redraws-the-landscape-of-indias-oldest-hill-range (last visited Oct. 13, 2026).

- Jitendra & Shagun, *Aravallis broken beyond repair*, DOWN TO EARTH (Apr. 3, 2019), https://www.downtoearth.org.in/mining/aravallis-broken-beyond-repair-63812.

- Kalyan Ray, *No new mining lease in Aravalli till ICFRE makes sustainable mining plans: MoEF*, DECCAN HERALD (Dec. 22, 2025), https://www.deccanherald.com/amp/story/india/no-new-mining-lease-in-the-aravalli-till-icfre-makes-sustainable-mining-plans-moef-3839726.

- *Mangar Bani*, WIKIPEDIA, https://en.wikipedia.org/wiki/Mangar_Bani (last visited Oct. 6, 2026).

- Ministry of Environment, Forest and Climate Change, *Aravalli Hills: Protecting Ecology and Ensuring Sustainable Development*, PRESS INFORMATION BUREAU (Dec. 21, 2025), https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/dec/doc202512217409 01.pdf.

- Neelam Ahluwalia & Ghazala Shahabuddin, *Uniform definition of Aravallis accepted by Supreme Court will be catastrophic for India's oldest mountain range*, DOWN TO EARTH (Dec. 2, 2025), https://www.downtoearth.org.in/forests/uniform-definition-of-aravallis-accepted-by-supreme-court-will-be-catastrophic-for-indias-oldest-mountain-range.

- Sachin Pernacca Sashidhar et. al., *Institutional expertise meets judicial confusion in the Aravalli hills definition case*, DOWN TO EARTH (Dec. 30, 2025), https://www.downtoearth.org.in/forests/institutional-expertise-meets-judicial-confusion-in-the-aravalli-hills-definition-case.

- *SC stays its earlier judgement concerning change in definition of Aravalli Hills; Govt welcomes SC's decision*, NEWS ON AIR (Dec. 29, 2025), https://newsonair.gov.in/supreme-court-orders-formation-of-new-expert-committee-on-aravalli-range-definition/.

- *SC warns illegal mining can lead to irreversible damage in Aravallis*, NEWS ON AIR (Jan. 21, 2026), https://newsonair.gov.in/sc-to-constitute-expert-committee-for-holistic-examination-of-mining-in-aravallis/.

- Simrin Sirur, *With a new identity, the Aravalli hills stare at an uncertain future*, MONGABAY INDIA (Dec. 2025), https://india.mongabay.com/2025/12/with-a-new-identity-the-aravalli-hills-stare-at-an-uncertain-future/.

- Sukriti Mishra, *Supreme Court To Constitute Expert Committee On Aravalli Definition; Mining Halt To Remain*, LAWBEAT (Feb. 26, 2026), https://lawbeat.in/top-stories/supreme-court-to-constitute-expert-committee-on-aravalli-definition-mining-halt-to-remain-1568288.

- Sumedha Sharma, *Mining mafia brings down another Aravalli hill*, THE TRIBUNE (Dec. 21, 2024), https://www.tribuneindia.com/news/haryana/mining-mafia-brings-down-another-aravalli-hill/amp.

- Sumedha Sharma, *Raj miners eat into Nuh Aravallis; Haryana to claim costs, plug gaps*, THE TRIBUNE (Dec. 8, 2024), https://www.tribuneindia.com/news/haryana/raj-miners-eat-into-nuh-aravallis-haryana-to-claim-costs-plug-gaps/amp.

- *Supreme Court forms high-powered expert panel to re-examine Aravalli definition*, DECCAN HERALD, https://www.deccanherald.com/amp/story/india/supreme-court-forms-high-powered-expert-panel-to-re-examine-aravalli-definition-4025638 (last visited Oct. 15, 2026).

- *Supreme Court Rejects Six-Month Extension For Aravalli Hills Expert Panel Report, Sets November 30 Deadline*, LIVELAW (Sept. 7, 2026), https://www.livelaw.in/top-stories/supreme-court-rejects-six-month-extension-for-aravalli-hills-expert-panel-report-sets-november-30-deadline-548900.

- *Supreme Court takes Suo Motu cognisance on issue of definition of Aravalli Hills*, NEWS ON AIR (Dec. 28, 2025), https://newsonair.gov.in/supreme-court-takes-suo-motu-cognisance-on-issue-of-definition-of-aravalli-hills/.

- Vibha Sharma, *Saving Aravallis from death by definition, all eyes on Jan 21*, THE STATESMAN (Jan. 18, 2026), https://www.thestatesman.com/exclusive-interviews/saving-aravallis-from-death-by-definition-all-eyes-on-jan-21-1503542606.html.