

How Aravallis influence air pollution in Delhi-NCR—why protection of India's oldest mountain matters | Explained

The Aravalli Range plays a crucial role in maintaining air quality and water security in Delhi-NCR by acting as a natural barrier against dust and heat.

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As the Delhi-NCR region struggles with severe air pollution, attention has shifted to the recent protests over the Aravallis. Environmentalists, citizen groups such as People for Aravallis, scientists, and opposition parties, including the Congress and Samajwadi Party, argue that the proposed height-based definition would leave more than 90% of the range's low-lying ridges, foothills, and scrublands without strong protection.

They warn this could open the door to increased mining, real estate projects, and urban expansion, causing irreversible harm—accelerating desertification, depleting groundwater, eroding biodiversity, and worsening air pollution and water scarcity across north India.

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Aravalli serves as a critical natural barrier preventing the eastward spread of the Thar Desert, supports groundwater recharge for rivers like the Chambal and Luni, maintains biodiversity, and helps moderate climate and air quality in the National Capital Region (NCR).

What is Aravalli Hills controversy?

In November 2025, the Supreme Court accepted a uniform legal definition of what constitutes the Aravalli Hills and Aravalli Range on the recommendation of a committee led by the Environment Ministry.

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Under this definition, an "Aravalli Hill" is a landform with an elevation of at least 100 metres above its local surrounding terrain and an "Aravalli Range" is a cluster of two or more such hills within 500 metres of each other.

Meanwhile, Union Minister for Environment, Forest, and Climate Change Bhupender Yadav on Monday assured that the government is committed to keeping the hills safe.

According to the union minister, the reclassification has been done to bring uniformity in the enforcement of environmental laws across states, as before each state had its own classification to allow mining. Similarly, he also informed that only 0.19% of the whole range has been opened to mining, and no new mines are being opened. The area affected is expected to be 277.89 square kilometres, out of a total 1.44 lakh square kilometres.

He also said that the definition has been made stricter in order to protect the Green Aravalli wall.

In conversation with *Mint*, Dr Manish Kumar, a climate scientist with over 10 years of experience and director of Sustainable Bharat Foundation, a not-for-profit research organization, spoke about the impact of the Aravalli Range on air pollution.

(Edited excerpts)

How does Aravalli create an impact on Delhi's air pollution?

The Aravallis act as a natural barrier that helps limit dust transport and influences regional wind patterns. Degradation of this landscape can increase dust loading toward Delhi-NCR, particularly during dry and windy conditions. Strengthening vegetation cover, regulating mining activities, and restoring degraded patches in the Aravallis can therefore support regional air quality management. While Delhi's pollution has multiple drivers, protecting surrounding natural buffers remains an important complementary strategy.

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Why are environmentalists concerned?

Environmentalists are mainly concerned about how ecological value will be interpreted during implementation. While the Supreme Court has sought clarity and uniformity, the Aravalli ecosystem includes lower hill systems, slopes, forests, and groundwater recharge zones that are environmentally significant. The key opportunity now lies in ensuring that scientific mapping and the proposed management plan adequately capture these functional ecological components.

Why does the Delhi-NCR ecological balance matter?

Delhi-NCR's ecological balance is closely linked to surrounding natural systems such as the Aravallis, forest patches, and groundwater recharge zones. These systems help regulate temperature, support water security,

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and reduce environmental stress from rapid urbanisation. Integrating ecological considerations into land-use planning and regional development strategies can significantly reduce long-term urban risks.

What are the climate risks?

The Aravallis contribute to regional climate regulation by supporting vegetation cover, soil stability, and groundwater systems. Their degradation can intensify climate risks such as heat stress, dust storms, and declining water availability.

Why Aravallis matter?

The Aravalli range is the oldest fold-mountain belt in India, dating back around 2 billion years, that acts as a natural shield, preventing the eastward spread of the Thar Desert into the fertile Indo-Gangetic plains. By blocking hot, dry winds and sand, they maintain soil moisture and prevent the desert from advancing into Haryana, Rajasthan, western Uttar Pradesh, and beyond. Without this barrier, large parts of north India could turn arid, threatening agriculture and food security.



Source: Britannica.

For Delhi-NCR, one of the world's most polluted regions, they trap dust from the Thar and absorb particulates like PM2.5/PM10, acting as "green lungs." Their destruction would intensify heatwaves, smog, and air quality crises.

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The range's fractured rocks and terrain allow rainwater to percolate deeply, recharging aquifers that supply water to millions in water-stressed areas, including Delhi-NCR.

Moreover, the Aravallis also align with India's commitments under the UN Convention to Combat Desertification. Ongoing threats like mining and urbanisation have already caused significant damage, leading to soil erosion, reduced recharge, and habitat loss.

The Aravalli range is a 670-kilometre-long mountain range in the north-western part of India. The highest elevation of the range has been recorded at 1,722 metres.

The hill starts near Delhi, passes through Haryana, Rajasthan, and ends in Gujarat. The highest peak of the range is known as Guru Shikhar, in Mount Abu, Rajasthan.

(With inputs from agencies)

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