



Rat-Hole Mining

For Prelims: [Rat-Hole Mining](#), [Silkyara-Barkot Tunnel](#), [National Green Tribunal \(NGT\)](#).

For Mains: Rat-Hole Mining, Environmental pollution and degradation, Challenges Related to Indian Himalayan Region.

Source: [IE](#)

Why in News?

Recently, [Rat Hole Mining](#) method has been used to evacuate 41 workers who were trapped inside [Uttarakhand's Silkyari tunnel](#).

What is Rat-Hole Mining?

▪ About:

- Rat hole mining is a **method of extracting coal from narrow**, horizontal seams, prevalent in Meghalaya.
- The term “rat hole” refers to the **narrow pits dug into the ground**, typically just large enough for one person to descend and extract coal.
- Once the pits are dug, miners descend using ropes or bamboo ladders to reach the coal seams. The coal is then manually extracted using primitive tools such as pickaxes, shovels, and baskets.

▪ Types:

- **Side-Cutting Procedure:** In the side-cutting procedure, narrow tunnels are dug on the hill slopes and workers go inside until they find the coal seam.
 - The coal seam in the hills of Meghalaya is very thin, less than 2 m in most cases.
- **Box-Cutting:** In Box-cutting, a rectangular opening is made, varying from 10 to 100 sqm, and through that a vertical pit is dug, 100 to 400 feet deep.
 - Once the coal seam is found, rat-hole-sized tunnels are dug horizontally **through which workers can extract the coal**.

▪ Concerns:

- Rat hole mining poses significant safety and environmental hazards. The mines are typically **unregulated, lacking safety measures** such as proper ventilation, structural support, or safety gear for the workers.
- The process is not only perilous for the miners but also detrimental to the environment. Rat-hole mining has been linked to a **host of ecological issues, such as the acidification of rivers, [Land Degradation](#), [Deforestation](#), and [Water Pollution](#)**.
 - The acidic runoff from these mines, known as **Acid Mine Drainage (AMD)**, has been particularly harmful, degrading water quality and reducing biodiversity in affected water bodies.
- Despite attempts by authorities to regulate or ban such practices, they often persist **due to economic factors and the absence of viable alternative livelihoods for the local population**.

Why was Rat-Hole Mining Banned?

- The [National Green Tribunal \(NGT\)](#) banned rat-hole mining in 2014 for being unscientific, but the practice continues to be rampant.
- Several accidents have resulted in deaths of rat-hole miners in the Northeastern state.
- In 2018, 15 men involved in illegal mining were trapped inside a flooded mine. Only two bodies **could be recovered in the course of the rescue operation** that lasted for more than two months.
- Another such accident **took place in 2021** when five miners were trapped in a flooded mine. Three bodies were found before rescue teams called off the operation after a month. Add to this the **environmental pollution** caused by this method.
- Mining, however, is a key source of revenue for the state government. The **Manipur government has challenged the NGT ban**, arguing that there is no other feasible mining option for the region.
 - A panel appointed by Meghalaya High Court in 2022 found rat-hole mining continues unabated in Meghalaya.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. "In spite of adverse environmental impact, coal mining is still inevitable for development". Discuss. (2017)

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