

Rat-Hole Mining

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Context

- The Supreme Court recently questioned the Union government about the practice of **rat-hole mining**, particularly following a tragic incident where rescue workers recovered bodies of miners trapped in a flooded coal mine in Assam's **Dima Hasao district**.
- Despite being banned, rat-hole mining continues to be practiced, raising concerns over safety, environmental damage, and legal oversight.

Understanding Rat-Hole Mining

What is Rat-Hole Mining?

Rat-hole mining is a primitive and hazardous coal extraction technique characterized by:

1. **Narrow, poorly ventilated tunnels** that allow only a single worker to crawl through.
2. Manual extraction using basic tools such as pickaxes, shovels, and baskets.
3. Two major methods:
 - **Side-Cutting Mining:**
 - Tunnels are dug along visible coal seams on hill slopes.
 - Coal seams in Meghalaya are very thin, typically less than 2 meters.
 - **Box-Cutting Mining:**
 - A rectangular or square pit is dug (10-100 square meters wide).
 - The pit extends vertically to depths of **100-400 feet**, after which horizontal tunnels are created.

Why is Rat-Hole Mining Prevalent?

1. Economic Viability:

- The thin coal seams in Meghalaya make rat-hole mining more cost-effective than advanced methods like opencast mining.
- Landowners often favor this method for quick profits.

2. Legal Loopholes:

- Meghalaya is a **Sixth Schedule State**, where the **Coal Mines Nationalisation Act of 1973** does not apply.
- Landowners also own the minerals beneath their land, limiting government regulation.

3. Labor Supply:

- Workers, often from **Assam, Nepal, and Bangladesh**, are employed for low wages in unsafe conditions.
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Why Was Rat-Hole Mining Banned?

The **National Green Tribunal (NGT)** banned rat-hole mining in Meghalaya in **2014**, citing its severe risks:

1. Safety Hazards:

- Lack of **ventilation, structural support, and safety equipment** leads to frequent **accidents and fatalities**.
- Flooding during monsoons poses a significant risk.

2. Environmental Impact:

- **Deforestation, land degradation, and pollution** of water bodies.
- Rivers like **Lukha and Myntdu** have become acidic, making them uninhabitable for aquatic life.

3. Human Rights Violations:

- Reports of **child labor and human trafficking** in rat-hole mines.
 - A 2013 report revealed that **222 children** were employed in such mines in the **East Jaintia Hills** district.
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Key Data and Insights

- Meghalaya has an estimated **576.48 million tonnes** of low-ash, high-sulfur coal.
 - Rat-hole mining has caused severe ecological damage, including **water contamination** with **sulfates, iron, and other toxic metals**.
 - Despite the NGT ban, **illegal mining persists** due to socio-economic dependencies and lack of enforcement.
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Challenges in Controlling Rat-Hole Mining

1. Regulatory Issues:

- Weak enforcement mechanisms allow illegal operations to thrive.

- Lack of jurisdiction under the **Coal Mines Nationalisation Act** complicates oversight.

2. **Economic Dependency:**

- Local communities rely heavily on coal mining for income.
- Alternative livelihoods are limited, making regulation difficult.

3. **Pressure on State Government:**

- High stakes for local stakeholders put political pressure on the government to resume mining legally.

Conclusion

Rat-hole mining in Meghalaya epitomizes the clash between economic interests and environmental sustainability. Despite its ban, the practice continues, fueled by legal loopholes, economic dependency, and weak enforcement.

To address this issue, the government must:

- Implement **stricter regulations** and enforce the ban more effectively.
- Promote **sustainable livelihood options** for local communities.
- Raise **awareness about environmental and safety hazards**.

Only a balanced approach that considers both the economic needs of locals and the broader implications for safety and the environment can ensure a sustainable solution.

