Environment & Ecology · GS - III

The global transition towards clean energy may reproduce environmental and social inequalities through critical mineral extraction. Critically examine this concern and suggest a framework for ensuring a just and sustainable energy transition.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 13/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Energy transition, critical minerals, lithium and cobalt mining, ecological degradation, Indigenous rights, environmental justice, supply-chain accountability, circular economy, recycling, free prior and informed consent.

Model Answer

Introduction

The transition towards renewable energy, electric mobility and low-carbon technologies is essential for climate mitigation. However, dependence on critical minerals creates new environmental and social challenges.

Major Concerns

1. **Ecological degradation:** Mining can cause deforestation, biodiversity loss, soil erosion and contamination of water resources.

2. **Social displacement:** Mining projects may displace Indigenous communities and undermine traditional livelihoods.

3. **Unequal distribution of benefits:** Mineral-producing regions may bear environmental costs while technological and economic benefits accrue elsewhere.

4. **Supply-chain risks:** Concentrated mineral processing and geopolitical competition can create vulnerabilities in clean-energy supply chains.

Framework for a Just Transition

- Enforce rigorous environmental impact assessments and mine-closure obligations.
- Ensure meaningful community participation and respect Indigenous rights.
- Promote recycling, material efficiency and alternative battery technologies.
- Strengthen responsible sourcing, labour standards and supply-chain transparency.
- Improve international cooperation for equitable access to critical minerals.

Conclusion

Climate action must not transfer environmental burdens to vulnerable communities. A just energy transition requires balancing decarbonisation with ecological integrity, human rights and equitable development.

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