The social and environmental dimensions of critical minerals in the UK: A policy discussion and evidence review

Synthesising evidence and identifying key knowledge gaps

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Aerial view of clay mining site in Cornwall with machinery, winding roads, and rural landscape under cloudy skies.
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Executive summary

Critical minerals sit at the centre of the UK's ambitions for net zero, economic resilience, national security, and technological innovation. In response to global supply risks, the UK has committed to meeting 10% of annual demand through domestic production by 2035, diversifying international sourcing and increased recycling.

To date, policy and industry discussions have focused primarily on geology, finance, and regulatory feasibility. However, as projects move from exploration to implementation, their social and environmental impacts will become decisive factors in their success or failure.

Industrial transformation: Quarry. © Karina on Adobe Stock

This brief summarises a rapid review of the state of knowledge regarding the social and environmental dimensions of critical minerals in the UK.

The evidence suggests that the UK is currently underprepared for navigating the social and environmental impacts of critical minerals projects, not because risks are unknown, but because they are insufficiently understood in the UK context. Without stronger engagement with these issues, there is a risk that:

1. Projects face delays, opposition, or cancellation;
2. Opportunities for just transition and nature recovery are missed;
3. Environmental harms compound existing degradation and inequalities.

The success of the critical minerals sector in the UK will depend not only on whether projects are technically and economically viable, but on whether their social and environmental dimensions are understood, anticipated, and governed effectively. Crucially, this is not only a question of how much we know, but how knowledge is produced, shared, and used in decision-making. These dynamics are shaped by the UK's long and distinct history of mining. The legacies of deindustrialisation continue to influence how environmental risks, social outcomes, and public perceptions of mining are shaped and experienced today.

This report synthesises current knowledge, examining what is known and where key gaps remain across four interconnected domains:

- Environmental impacts
- Just transition and local development
- Governance and decision-making
- Geopolitics and global interdependencies

Across all four, a consistent pattern emerges: the UK has a reasonable understanding of risks in principle, but a weak evidence base for how risks and opportunities will manifest and be navigated in practice. This creates a gap between ambition and implementation.

Our review of the evidence, summarised below, outlines important knowledge gaps that are essential for addressing a number of key challenges facing the critical minerals sector in the UK. These challenges include: the ability of policymakers, legislators, regulatory bodies, and stakeholders to engage, design, and implement effective regulation; the impacts of delays facing industry and investors; and risks of growing mistrust and declining social licence to operate among mining communities. Overall, addressing the issues outlined here is essential for the pursuit of a successful, responsible, and sustainable critical minerals sector.

The tables below summarise current evidence across these domains, highlighting where knowledge is robust, where gaps remain, and why these matter for decision-making.

1. Environmental baselines, impacts, and trade-offs

While global evidence on mining impacts is extensive, the UK-specific picture is limited. Onshoring has multiple environmental risks which could build on the historic impacts of mining in the UK. However, there are also opportunities for large-scale landscape restoration and building a circular economy.

What we know	Key gaps	Why it matters
Mining can drive pollution, habitat loss, and biodiversity decline; UK landscapes already show legacy impacts	The extent and spatial distribution of historic pollution and recovery in the UK	Limits to the ability to assess cumulative impacts and design mitigation
Prospective mining areas overlap with agricultural land, protected areas, and culturally significant landscapes	Which species, habitats, and ecosystem services are most at risk from future projects	Weakening planning, conservation decisions, and environmental safeguards
Restoration and biodiversity gains are possible, particularly in degraded UK landscapes	Conditions under which mining can deliver net positive outcomes for nature	Risks missing opportunities or overstating benefits for nature recovery
Environmental impacts vary significantly by extraction method and site context	Scientific assessments of the environmental costs involved in extracting a range of minerals in the UK, versus overseas sourcing	Difficulty in assessing the extent to which onshoring reduces or displaces harm

2. Just transition beyond job creation

Deindustrialised regions are complex and require more than jobs to achieve a just transition. The critical minerals industry provides a unique and crucial opportunity to achieve this.

What we know	Key gaps	Why it matters
Critical minerals are framed as a source of jobs and regional regeneration in deindustrialised areas	Accessibility of jobs to local populations given skills gaps, automation, and labour mobility	Risks misalignment between expectations and outcomes, undermining trust
Deindustrialised regions face complex, multi-dimensional inequalities beyond employment	Feasibility and design of effective reskilling and workforce development pathways	Limits the ability to deliver meaningful and inclusive economic benefits
Mining has historically shaped both physical and social infrastructure in local areas	The role of critical minerals projects in rebuilding infrastructure and local services	Missed opportunities to support broader regional development
Community perceptions of mining are diverse, shaped by history, identity, and external narratives	Conditions under which communities grant or withhold social licence to operate	Poor engagement risks delays, opposition, and project failure

3. Governance, scale, and legitimacy

A lack of clarity over the scales of decision-making involved in the permitting, financing, and monitoring of critical minerals projects risks undermining meaningful deliberation of critical minerals policy and jeopardising social and environmental opportunities.

What we know	Key gaps	Why it matters
Governance of critical minerals is fragmented across local, regional, and national levels	Effectiveness and consistency of ESG standards and regulatory approaches	Creates uncertainty for industry and uneven social and environmental outcomes
Planning and permitting processes are widely seen as slow and complex	Impacts of governance models (e.g. NSIP vs devolved approaches) on legitimacy and outcomes	Shapes both project viability and public acceptance
Local authorities play key roles but often face resource and capacity constraints	The roles, relationships, and capacities of institutions involved in oversight and enforcement	Risks gaps in monitoring, accountability, and delivery
Mineral rights ownership and geological data are often opaque and fragmented	Consequences of limited transparency in data and ownership structures	Increasing transaction costs, delays, and barriers to informed decision-making

4. Global dynamics and local outcomes

Domestic mining is entangled with international actors, affecting the social and environmental challenges and opportunities of critical minerals in the UK.

What we know	Key gaps	Why it matters
Critical mineral supply chains are globally concentrated and geopolitically contested	Social and environmental implications of foreign investment and ownership in UK projects	Shapes distribution of benefits, risks, and accountability
The UK is pursuing diversification through international partnerships and agreements	Effectiveness of Memorandums of Understandings and other partnerships in embedding ESG standards	Influences the extent to which global engagement supports or undermines local outcomes
Environmental and social harms are well documented in global mining contexts	Methods for tracing and comparing impacts across supply chains	Limits ability to evaluate trade-offs between domestic and imported supply
The UK has influence through finance and institutions (e.g. London Metal Exchange and financial markets)	Capacity to shape international norms and standards for responsible mining	Potential to miss a significant opportunity to lead on global ESG standards

Conclusion:

Across all themes, a common challenge emerges: the governance of knowledge. Gaps and inconsistencies in geological data, environmental baselines, mineral rights, and project-level monitoring do more than limit technical understanding. They shape who can participate in decision-making, whose knowledge counts, and how trade-offs are negotiated. In this sense, knowledge is not neutral; it is central to how critical minerals are governed in practice.

This report does not intend to prescribe specific policy interventions. Instead, it argues that the future of critical minerals in the UK will be determined as much by how knowledge is produced, shared, and governed as by geology or finance. At present, ambition is moving ahead of understanding, with important uncertainties around environmental impacts, social outcomes, and institutional capacity.

The UK is still at a relatively early stage of developing its domestic critical minerals sector. This creates a window to anticipate impacts, embed social and environmental considerations from the outset, and shape governance frameworks before they become entrenched. Realising this opportunity will depend on strengthening the relationships between evidence, institutions, and communities.

The challenge, then, is not simply whether to onshore critical minerals, but how to do so in ways that are just, legitimate, and informed. Addressing the knowledge gaps and governance dynamics outlined in this report is therefore a vital next step.

Disused Cornish mine engine house on Bodmin moor, near Minions, in autumn. Views across Cornwall & West Devon. © David George on Adobe Stock

About the authors

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About this brief

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