Geopolitical Mining

Geopolitical Mining 2025 Signals for 2026

When Mining Becomes Power

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Geopolitical Mining 2025
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Editorial Note and Legal Disclaimer

This document is part of the analytical work of Geopolitical Mining and builds on the framework developed in Mining Is Dead. Long Live Geopolitical Mining (Rivera & Zamanillo, 2025). Its purpose is to offer a structural reading of the mining system and its geopolitical signals, as a tool for discussion and strategic reflection. It is not intended to provide specific investment, legal, or public policy recommendations.

The information and interpretations presented here reflect the authors' analysis at the time of drafting and may be updated in future editions. This material is provided for informational purposes only and does not constitute financial, legal, or investment advice, nor an invitation to buy or sell any instrument or asset.

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A note to the reader

This document is a year end strategic diagnosis of the global mining system.

It is anchored in the work we developed in Mining Is Dead. Long Live Geopolitical Mining, which remains our starting point. The book set out a broad diagnosis of how mining has moved from being “an industry” to becoming a strategic field of power, and the book's Chapter 7 crystallised the lens we use here: mining as a geopolitical, institutional and symbolic system.

This 2025 diagnosis takes that lens and turns it into a practical map. It brings together the main tensions we have analysed over recent years and the evidence we have followed during 2025, and organises them into ten structural dimensions and ten strategic signals. It is both backward looking and forward looking, it consolidates what has become structurally clear at year end 2025, and it sets out what is most worth watching as 2026 unfolds.

The purpose is simple, to offer a shared reference frame. Mining developments rarely arrive as one coherent story. They appear as events, a new policy, a project delay, a community conflict, an offtake agreement, a new refinery, a supply disruption, a price move. This diagnosis is designed to help connect those events to the underlying system: why they matter, what they signal, and how they affect execution capacity across the value chain.

We invite you to use this document as a working tool. Read it, annotate it, bring it into meetings and internal discussions. During the year, we will continue to publish deeper analysis through articles and case specific work. This annual diagnosis plays a different role, it sets the frame at the start of the cycle, so that the developments that follow can be read with greater coherence and less noise.

If there is one question that guides our reading of 2026, it is this: can the system approve, finance and build the capacity it now needs, at the speed, in the locations, and in the value chain segments where it will actually be required?

Welcome to Geopolitical Mining 2026.

Marta Rivera & Eduardo Zamanillo
December 2025

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When Mining Becomes Power

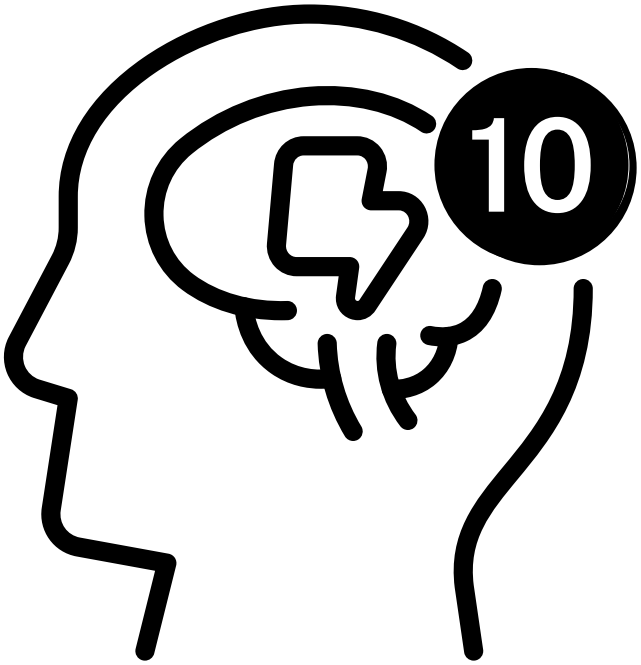
Table of Contents

Geopolitical Mining 2025
Signals for 2026

When Mining Becomes Power

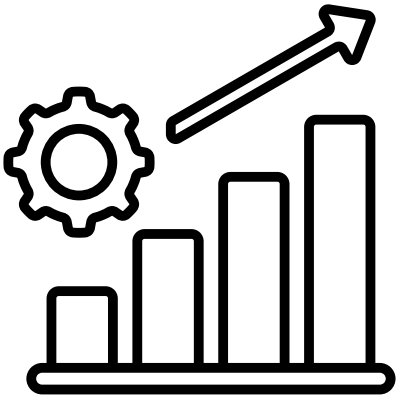
I. The 2025 Diagnosis:
Ten Dimensions of Global Mining System

This first section presents the 2025 diagnosis, ten dimensions that describe how the global mining system looks at year end 2025 through the Geopolitical Mining lens. Together, they show where demand pressure is coming from, how capital, rules, talent, legitimacy, technology and geopolitics are interacting, and where the system is most exposed. These dimensions form the baseline for the strategic signals in Section II and the direction of travel reflections in Section III.



1. Demand:

A Mineral Intensive World is Now a Structural Reality



By late 2025, critical minerals have become a recurring theme in debates on energy, industrial strategy, digital infrastructure and national security. In geopolitical mining terms, they are no longer treated as inputs at the bottom of the stack, but as enabling infrastructure, one of the quiet foundations of modern power. They are now the starting point for thinking about how countries power their economies, how they compete, how they connect and how they protect key systems.

In practice, these four agendas overlap and reinforce each other. The energy agenda relies on large volumes of copper, aluminium and battery metals to expand renewables, strengthen grids and deploy storage. Industrial strategy seeks to reposition value chains for batteries, advanced materials and manufacturing, increasing demand for nickel, lithium, graphite, manganese and rare earths. Digital infrastructure and AI add new layers of demand for power capacity and hardware, from high density data centres to high capacity networks. National security explicitly incorporates critical minerals into defence, space, and supply chain resilience programmes.

This is not just a narrative shift. Public policy has already locked these agendas in through energy and climate laws, industrial policies, trade and investment screening, and critical minerals frameworks in the United States, the European Union, the United Kingdom, China and other major actors. Some of these instruments are being recalibrated or contested, but together they keep the long term demand signal in place.

1. Demand:

A Mineral Intensive World is Now a Structural Reality

Yet mining does not operate on that timescale. Turning a geological resource into a real supply requires a long chain of steps, discovery, drilling, technical and environmental studies, impact assessments, community processes, multiple permits, financing, construction and ramp up. Even in jurisdictions where regulatory processes are comparatively efficient, each of those steps can take years.

That is the core asymmetry: the world is making decisions on energy, industry, digital infrastructure, and security that commit it to higher mineral use, while the mechanisms to expand supply remain slow, fragmented, and exposed to political and social risks.

The question by the end of 2025 is therefore no longer whether demand will grow, but whether the system will be able to approve, finance and build enough mines, refineries and recycling capacity in time, not just on paper, but in the specific jurisdictions and value chain segments where those materials will actually be needed.

2. Economics and Finance:

Profitable but Under Structural Pressure

At the end of 2025, the global mining industry remains fundamentally profitable, but it is clearly not experiencing a sustained boom.

The largest diversified mining groups continue to generate robust profits, yet margins have tightened significantly as costs rise and capital requirements for decarbonisation and new project development grow. Rather than signalling a comfortable cycle of prosperity, these indicators point to an industry navigating profitability under growing structural pressures.

In lithium, nickel, and cobalt, a clear critical paradox continues to define market dynamics. After several years of intensive investment and rapid capacity expansion, oversupply and inventory accumulation have kept prices subdued, even though 2025 has brought a partial recovery from very low levels. Meanwhile, robust long term scenarios consistently project strong and multiplying demand growth toward 2035 - 2040. This tension between short term oversupply and long term structural scarcity has made investors notably cautious, causing projects to be delayed, reevaluated, or temporarily shelved, rather than accelerated.

Copper, in contrast, has followed a different trajectory. Throughout 2025, copper prices surged to historic highs, driven by mounting fears of structural deficits and reinforced by growing demand from expanding power grids, accelerated adoption of electric vehicles, and the rapid proliferation of AI intensive data centres. Despite these elevated prices, market volatility remains significant, and copper has not yet achieved the predictable, orderly price environment typically associated with a classical supercycle.

2. Economics and Finance:

Profitable but Under Structural Pressure

Investment in critical minerals continues, though with less intensity and heightened selectivity. Capital is increasingly concentrated in fewer advanced stage projects and favoured jurisdictions, while many early stage or higher risk ventures face difficulty securing financing on favourable terms. Strategic mergers and acquisitions continue to reshape corporate portfolios, tilting exposures toward copper, lithium, and other transition minerals. Additionally, original equipment manufacturers (OEMs), major technology companies, and select governments have increased strategic equity stakes to secure supply. In geopolitical mining terms, this matters because strategic advantage is no longer defined by reserves alone, but by the ability to finance, build, and move into higher value segments of the chain, especially processing and midstream capacity. When capital becomes selective, the system's promised supply response becomes uneven.

Nonetheless, the overall investment pipeline and current spending levels remain insufficient compared to projected long-term demand. This is where finance becomes geopolitical: without sustained investment at scale, countries cannot translate geological endowment into industrial capacity, bargaining power, or strategic autonomy.

In short, mining enters 2026 in a position of cautious profitability, caught between a clear strategic narrative ("we urgently need mining") and a more hesitant financial reality ("we need mining–but selectively and prudently"). This underlying tension will define capital allocation decisions and risk appetite across the entire value chain in the coming year.

3. Regulation and ESG:

Rules that Decide what Actually Gets Built

In previous cycles, the main constraint was price. In 2025, for many projects, the main constraint is the rulebook, how permits work, how ESG is applied and how predictable the whole process is. In geopolitical mining terms, this is where sovereign speed becomes visible: the capacity to approve, build and scale responsible projects is now a strategic variable, not an administrative detail.

In several key jurisdictions, the full cycle from discovery to first production often takes 15 – 20 years, once exploration, impact assessments, consultations, multiple approvals, financing and construction are taken into account. A considerable share of the delays comes from fragmented permitting systems, overlapping mandates, poorly designed consultation processes and litigation. Even well structured projects can be trapped for years in this maze.

At the same time, ESG criteria have shifted from peripheral to central in the mining industry. Environmental and social standards are now decisive for access to capital, offtake contracts and political backing. Global standards on tailings, due diligence, and disclosure have clearly raised the bar for what counts as responsible practice. As a result, environmental performance is increasingly integral to competitiveness and diplomacy, it shapes market access, partnership options, and the credibility of supply chains.

3. Regulation and ESG:

Rules that Decide what Actually Gets Built

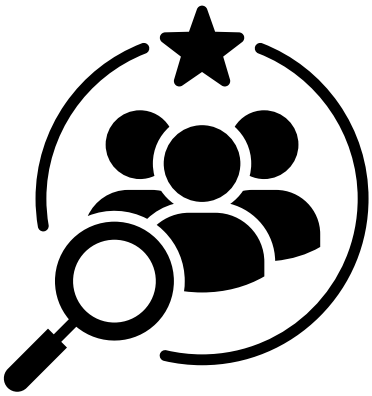
The key question, therefore, is about alignment and outcomes. In many jurisdictions, emissions, water use, tailings risk and local tensions have not evolved at the same pace as the expansion of ESG questionnaires, labels and reporting requirements. Boards, investors and regulators are increasingly asking how closely existing ESG frameworks translate into measurable improvements in risk management, operational resilience and long term value.

The underlying expectations climate transparency, human rights and supply chain integrity, do not disappear. What is likely to be tested in 2026 is how those expectations are operationalised, whether frameworks become more focused and outcome based, rewarding projects that demonstrate verifiable reductions in impact and stronger governance, rather than those that simply navigate the process more effectively.

The challenge is to make ESG and permitting work as enabling systems: demanding, credible, and predictable capable of accelerating high quality projects while stopping weak ones earlier. Without that shift, the main bottleneck for many critical mineral projects will not be geology or capital, but institutional friction: paperwork, regulatory fragmentation, and frameworks that struggle to translate standards into clear, measurable outcomes.

4. Talent:

The Quiet Skills Crisis



Beyond visible debates about prices, permitting, and ESG, the mining industry faces another structural challenge, a shortage of skilled talent.

This issue is familiar across most mining jurisdictions. The workforce is ageing, fewer students choose careers in mining engineering, geosciences, or metallurgy, and critical skills especially digital expertise and socio environmental competencies are scarce, precisely at the moment the sector seeks to embrace automation, artificial intelligence, and responsible mining. In geopolitical mining terms, this is not a secondary constraint: it directly affects speed, execution quality, and the ability to modernise operations at scale.

For many young professionals, mining still appears misaligned with their career aspirations. The sector is often perceived as remote, demanding, cyclical, male dominated and disconnected from contemporary environmental values even as operations are evolving quickly towards greater technology integration and stronger sustainability practices. This is where narrative and legitimacy matter in practical terms: industries that are seen as credible, future oriented and socially grounded tend to attract the people they need to transform.

In response, mining companies are enhancing salaries and benefits, establishing clearer career paths, investing in training and reskilling programmes, introducing more flexible working arrangements, creating integrated operational centres in urban areas, and connecting mining's purpose to the broader energy transition narrative. Even so, reversing the underlying talent shortage will require sustained effort and time, particularly for roles at the intersection of mining, data, automation, and community engagement.

4. Talent:

The Quiet Skills Crisis

From a geopolitical mining perspective, talent itself emerges as a critical axis of power:

- Countries with robust education systems and attractive living conditions will increasingly host higher value, technologically advanced mining operations.
- Conversely, jurisdictions that struggle to develop or attract skills risk remaining trapped in lower value, higher impact segments of the value chain.

In this context, the skills crisis is no longer merely an HR issue. It is now a fundamental constraint, shaping the type and quality of mining activities a jurisdiction can realistically aspire to and execute over the decade ahead. In the new mining order, talent is capacity, and capacity is power.

5. Public Image and Social Legitimacy:

The Fragile Balance

Public perception of mining sends a double message. At the macro level, societies widely recognise mining's critical role in employment, exports, and public revenues. Yet at the local and symbolic level, trust remains fragile and contested. In the era of geopolitical mining, this legitimacy gap is not peripheral, it shapes what can be permitted, financed, and sustained over time. In practice, it also shapes project timelines, cost of capital, offtake credibility, and the strength of strategic alliances.

Historical incidents, environmental damage, incomplete benefit sharing, and unresolved community tensions continue to shape attitudes toward mining. In affluent countries, "not in my backyard" (NIMBY) responses regularly stall or block projects, even as those same societies demand accelerated deployment of renewable energy, electric vehicles, and advanced digital infrastructure. In developing regions, mining is seen as economically indispensable but often linked to unmet promises, limited local development, and unevenly distributed benefits.

Formal mining companies have responded by improving transparency, enhancing ESG disclosures, investing in community programmes, and reshaping narratives to highlight their contributions to climate action and responsible practices. However, the effectiveness and authenticity of any narrative ultimately depend on tangible results: communities must see measurable improvements in employment, infrastructure, environmental protection, and respectful engagement. Legitimacy is built less through claims than through visible proof over time.

5. Public Image and Social Legitimacy:

The Fragile Balance

Crucially, public legitimacy cannot be rebuilt through messaging alone, nor through a narrative confined to the energy transition. Mining requires a deeper symbolic narrative, one that truthfully communicates its foundational role across modern civilisation. Beyond clean energy and ESG compliance, mining underpins everyday life and public systems: housing, healthcare, education, transportation, communications infrastructure, and the materials embedded in ordinary consumer goods. Articulating this role with clarity, evidence, and consistency strengthens trust far more effectively than campaigns that are perceived as corporate positioning.

Finally, formal mining's reputation continues to be eroded by the parallel presence of illegal mining, which produces many of the negative images that circulate in the media and social networks. Until society can clearly distinguish responsible mining from these destructive practices, and until policy frameworks reflect that distinction, public legitimacy will remain fragile and vulnerable.

6. Innovation and Digitalization:

From Pilots to Structural Change

“Mining 4.0” is already a tangible reality at a select group of world class operations. For these industry leaders, technology is no longer an add on; it forms the operational backbone itself:

- autonomous haulage trucks and drills,
- integrated operations centres coordinating mines, plants, rail, and ports in real time,
- artificial intelligence and advanced analytics optimising processes and maintenance schedules,
- digital twins simulating scenarios before physical implementation.

These mines demonstrate clear improvements in safety, productivity, and environmental performance. Yet they remain exceptions rather than the norm. Most mining operations worldwide still rely on fragmented data, limited digital integration, and slower innovation adoption pathways.

As a result, the system is widening a significant technology gap: between companies that can embed automation and AI deeply into daily operations and decision making, and those that cannot; and between jurisdictions with the infrastructure, stable regulation, and innovation ecosystems required for smart mining, and those that remain locked into more manual, less efficient models. In geopolitical mining terms, this is not only a productivity gap, it is a competitiveness and value capture gap.

6. Innovation and Digitalization:

From Pilots to Structural Change

Critically, innovation and digitalisation in mining extend beyond technology itself. Successful digital transitions require strategic alignment, institutional flexibility, and cultural shifts within organisations. They involve rethinking business models, regulatory frameworks, and workforce engagement. This directly reinforces the urgency of addressing the sector's underlying talent crisis (point 4): without attracting and retaining professionals who can continuously renew technologies, skills, and organisational practices, mining will struggle to sustain or scale digital transformation. It also connects back to sovereign speed, the ability to execute faster and more predictably increasingly depends on digital capability and operational intelligence.

Digital capability is also becoming a legitimate instrument. Sensors, real time monitoring, AI driven compliance systems and traceability tools increasingly determine whether a project can demonstrate performance on water, emissions, tailings and community commitments in a credible way, turning responsible mining from a claim into verifiable evidence.

At the same time, mining is converging with the broader tech ecosystem. Cloud providers, AI specialists, OEMs and startups are becoming strategic partners rather than mere vendors. AI, in particular, is moving from experimentation to a structural frontier, shaping exploration success rates, operational optimisation, and real time risk management. Thus, the key question for 2026 will not simply be what technologies exist? but rather who can effectively integrate them into a coherent business, regulatory, cultural and social model?

Answering that question, and simultaneously resolving the skills and talent challenge, will define the mining industry's competitive landscape and determine the distribution of value across the industry in the years ahead.

I. The 2025 Diagnosis:
Ten Dimensions of Global Mining System

7. Geopolitics and Concentration:

The Era of Geopolitical Mining

Mining is no longer a sector operating in the background of the global economy. By late 2025, it has become a strategic platform, where energy security, industrial autonomy, technological competitiveness and national defence intersect. This is the era of geopolitical mining: minerals are not simply traded; they are positioned, controlled, and leveraged for strategic advantage.

The geography of critical minerals remains structurally uneven and politically charged. Upstream production of key minerals, such as lithium, copper, nickel, cobalt, platinum group metals and rare earths is concentrated in a limited number of countries. The concentration tightens further downstream: an even smaller group of actors, centred on China, dominates refining, processing and intermediate manufacturing, where much of the value and strategic leverage is created.

This configuration produces a system defined by a small number of critical nodes where far more than price is decided. Disruptions in a handful of mines, refineries or logistics hubs can ripple rapidly across electric vehicles, power grids, digital infrastructure and defence supply chains. In practice, the chokepoints are often midstream: whoever controls processing capacity can shape timelines, terms, and dependency.

7. Geopolitics and Concentration:

The Era of Geopolitical Mining

In response, the United States and several key allies have moved minerals into the core of economic security and national strategy. Incentives, bilateral agreements, friendshoring initiatives, critical raw materials legislation, and tougher trade and investment screening are all attempts to reduce exposure to concentrated nodes and to rebuild strategic capacity. The open question is whether these frameworks translate into execution at speed, because in this cycle, sovereign speed is a key indicator of geopolitical power.

Producer nations, in turn, recognise that the window is real. Many are seeking more value addition, better fiscal capture and more strategic partnerships, including local processing and industrial upgrading. Yet, outcomes remain uneven, shaped by institutional strength, regulatory credibility, infrastructure, and the ability to negotiate durable alliances without locking into new forms of dependency. Extraction without industrialisation increasingly looks less like an opportunity and more like a structural vulnerability.

Ultimately, from a geopolitical mining perspective, the core question for 2026 is no longer simply who has resources underground. It is who can convert them into usable capacity, who controls which segments of the value chain, under what rules, at what speed, and with which alliances. The answers will shape not only mineral markets, but bargaining power, industrial positioning, and the emerging architecture of the global order.

In the new mining order, control of time, standards, and midstream capacity matters as much as geology.

8. Illegal Mining:

A Strategic Vulnerability and a Legitimacy Shock

Alongside the formal mining sector, a parallel economy of illegal mining has expanded, partly supported by the economics of high-value minerals. This parallel system includes:

- Illegal gold mining is driving severe ecological degradation in sensitive regions such as the Amazon basin.
- The extraction and trade of minerals such as tin, tantalum and tungsten (“3T” minerals) in environments where traceability and governance remain fragile;
- Theft and leakage from formal infrastructure and supply chains, including concentrates, cathodes and copper cables;
- And the use of minerals and precious metals as vehicles for illicit financial flows.

From a geopolitical mining perspective, the strategic problem is not only the existence of illegal extraction. It is the way it reshapes legitimacy. Illegal mining produces much of the most damaging imagery circulating in media and social networks, images that travel faster than nuance, and that rarely distinguish between responsible formal operations and destructive illegal practices. The result is a legitimacy shock that spills over into the formal sector, weakening public trust and raising friction for projects that are trying to meet higher standards.

The costs are also material. In regions like the Amazon, illegal gold mining accelerates deforestation, contaminates water systems, and destabilises local communities, deepening long term governance challenges and increasing the social and environmental burden that states and legitimate operators must ultimately confront.

8. Illegal Mining:

A Strategic Vulnerability and a Legitimacy Shock

Crucially, the expansion of illegal mining also functions as a systemic warning sign. It tends to grow fastest where formal projects are trapped in prolonged timelines, where institutional capacity is weak or fragmented, and where legitimacy gaps create a vacuum in territories that still demand livelihoods and cash flow. When the state cannot move at speed, when rules do not translate into workable pathways for responsible activity, and when communities do not see credible benefits, illegal networks often occupy the space. In that sense, illegal mining is not only a security issue, it is an indicator of institutional and strategic failure: a signal that sovereign speed, social legitimacy and governance effectiveness are not aligned with mineral reality.

In parallel, geopolitical tensions are broadening the risk landscape around minerals. Sanctions regimes, disruptions in niche but critical materials, and vulnerabilities to sabotage or cyberattacks on mining and logistics infrastructure have become relevant considerations for governments and companies alike.

From 2026 onwards, mineral security cannot be treated as a supply chain topic alone. It increasingly overlaps with governance, legitimacy, and infrastructure resilience. Addressing illegal mining, while protecting critical infrastructure and improving traceability, must move from the margins to the centre of policy frameworks and strategic planning, not as a moral narrative but as a condition for a stable and credible mining system.

9. State Activation and Execution Capacity:

Governments as System Actors

By late 2025, critical minerals policy has moved from the margins of economic debate to the centre of statecraft. Governments now treat mining and midstream capacity as part of their infrastructure and security agendas, rather than as a purely private or market driven activity. In geopolitical mining terms, this shift is central: the state has become a system actor, influencing not only demand signals but also the conditions under which supply can be permitted, financed and delivered.

This activation is visible in several layers. First, through regulatory and institutional design. Permitting architecture, consultation frameworks, environmental thresholds and the administrative capacity to process decisions now operate as strategic variables. Where states build predictable, demanding and workable systems, they increase sovereign speed and the credibility of long term roadmaps. Where mandates overlap, institutions are under resourced or litigation fills procedural gaps, the system's ability to convert policy intent into capacity is weakened.

Second, through industrial and investment policy. Critical minerals strategies, national lists, resilience plans and sector roadmaps are now accompanied by concrete tools: incentives for strategic projects, infrastructure planning, local content and beneficiation frameworks, and targeted support for processing and midstream investments. The United States, the European Union and the United Kingdom have all updated their critical minerals approaches, while Canada, Australia and several producer countries in Latin America, Africa and Asia are using policy to position themselves along the chain, from upstream to midstream and, in some cases, further down.

9. State Activation and Execution Capacity:

Governments as System Actors

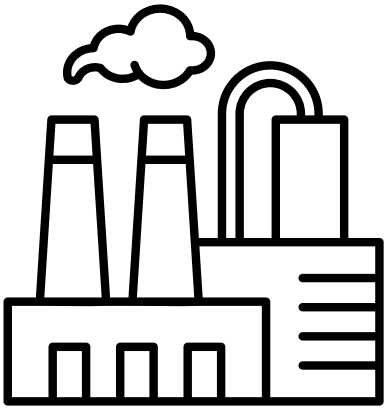
Third, through public capital and risk-sharing mechanisms. States are increasingly using development banks, strategic funds, guarantees and direct participation to de-risk long cycle investments, especially in refining, processing and enabling infrastructure. In practice, this means that the state is becoming part of the execution machinery: a partner in bridging the gap between bankable on paper and financeable under real world volatility.

Finally, through diplomacy and alliance building. Critical minerals feature in bilateral agreements, plurilateral initiatives, investment screening regimes, and friendshoring frameworks that seek to align security, industrial and environmental objectives. These tools influence who enters projects, under what standards, and with which long term obligations.

The structural question for the 2025 diagnosis is therefore clear: the state has reentered mining, but the effectiveness of that presence varies widely. The key test for 2026 will be whether state activation strengthens execution capacity, by reducing institutional friction, enabling responsible speed, and supporting strategic midstream capacity, or whether ambition and frameworks advance faster than the system's ability to deliver projects on the ground.

10. Industrialisation and Midstream Delivery:

Where Value and Leverage Concentrate



Throughout 2025, one pattern has become increasingly evident: the strategic contest in mining is shifting from the pit to the plant. While geological endowment still matters, real leverage is increasingly concentrated in refining, processing and intermediate manufacturing, the midstream segments that connect ore to technology, infrastructure and final goods. In geopolitical mining terms, this is the frontier where value capture, dependency and bargaining power are being redefined.

Producer countries recognise this. Several states rich in lithium, nickel, copper, graphite or rare earths are actively pursuing policies to move beyond raw exports towards local processing, cathode and precursor production, and, in some cases, further downstream manufacturing. Indonesia's push on nickel and stainless steel value chains, and industrialisation efforts in selected African and Latin American countries, illustrate different versions of the same instinct: use resource endowment as a platform for industrial capability, not only fiscal revenue.

Consumer countries, for their part, are seeking to de-risk concentrated midstream hubs. The focus on building or attracting refining and processing capacity, whether for rare earths, battery materials or strategic metals, reflects an understanding that dependence on a handful of processing centres translates into strategic vulnerability. This has led to a growing list of announced projects, partnerships and industrial policies across North America, Europe and parts of Asia.

10. Industrialisation and Midstream Delivery:

Where Value and Leverage Concentrate

However, the midstream transformation remains uneven. Many announced projects have yet to reach final investment decision, construction or commissioning. Technical complexity, cost inflation, infrastructure needs, skills requirements, ESG standards and community expectations all raise the bar for what counts as a viable midstream project. For several producer jurisdictions, the risk is twofold: remaining stuck at the level of policy aspiration without bankable projects, or locking into alliances that reproduce asymmetries and external dependency under a different configuration.

From a 2025 system perspective, industrialisation and midstream delivery sit at the intersection of multiple dimensions of this diagnosis: state activation, finance, technology, ESG, talent and geopolitical concentration. The central tension is straightforward: without credible midstream buildout, value and leverage remain concentrated; with it, the system gains resilience but must navigate new risks and governance demands.

The question for 2026 is whether midstream ambitions will translate into concrete capacity, projects reaching FID, infrastructure corridors moving beyond planning, alliances embedding capability transfer and standards that are both demanding and workable. The answer will determine not only where value is captured, but also how robust the new geopolitical mining order can become.

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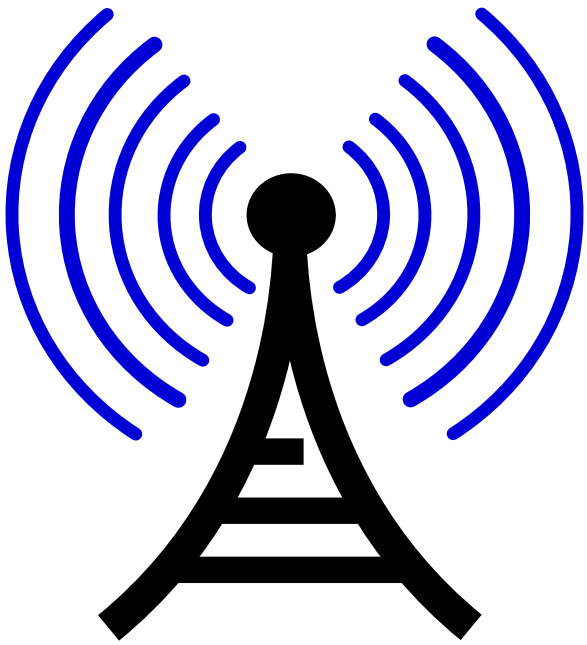
II. Strategic Signals for 2026: Tracking Geopolitical Mining

To make this diagnosis usable, we propose ten strategic signals, a shared set of observation lenses for tracking how the geopolitical mining system is evolving. These signals are qualitative by design. Their purpose is to help decision makers recognise whether key dynamics are present, how they are shifting over time, and where tensions are tightening or easing as 2026 unfolds. In short, they provide a common reference for structured observation and better questions.



1. Structural Demand and Supply Alignment

This signal focuses on whether structurally higher mineral demand is being matched by realistic, timely supply. It looks at:

- the speed of permitting, financing, construction and ramp up relative to demand trajectories;
- whether new capacity is emerging in the jurisdictions and value-chain segments where it will actually be needed.

If the project pipeline and delivery pace continue to lag behind embedded demand, this signal points to a widening structural supply gap.

2. Profitability, Capital and the Financial Gap

This signal focuses on whether mining's strategic role is reflected in how capital markets value and finance the sector. It looks at:

- profitability and margins across key segments, and how they are translating into reinvestment;
- the cost of capital and investment flows into mines, midstream capacity and enabling infrastructure;
- the distance between current investment levels and those implied by credible long term demand scenarios.

If capital remains highly selective and investment undershoots structural needs, this signal points to a financial gap that will translate into capacity shortfalls over time.

3. Regulatory Execution and ESG Outcomes

This signal focuses on whether regulatory frameworks and ESG standards are improving execution and real world performance. It looks at:

- changes in permit lead times and predictability for strategic projects;
- tangible trends in emissions, water use, tailings risk and local tensions;
- the degree to which banks, funds and offtakers use ESG to differentiate credible, lower risk projects.

If rules and ESG requirements multiply without visible improvements in delivery or impact, this signal points to misalignment between regulatory intent and system outcomes.

4. Talent and Skills

This signal focuses on whether the mining system has, and can renew, the skills required for modern operations and transformation. It looks at:

- availability and renewal of technical, digital and socio environmental talent;
- trends in mining-related enrolment, professional retention and the attraction of new profiles into the sector.

If shortages remain acute or deepen, this signal points to a binding constraint on execution, innovation and digital transformation.

5. Reputation and Social Legitimacy

This signal focuses on whether public trust and local support for mining are strengthening or eroding. It looks at:

- changes in public perception of mining's role at national and community levels;
- trends in local conflicts, acceptance of new projects, and visible improvements in benefit sharing, environmental management and transparency.

If social tensions stay high and local acceptance deteriorates despite more reporting and narrative efforts, this signal points to a structural legitimacy gap.

6. Technology Integration and Innovation Depth

This signal focuses on whether innovation is moving from pilots to structural change. It looks at:

- the extent to which automation, AI, advanced sensing and digital twins are embedded in daily operations and decision making;
- the maturity of integrated operations centres and data architectures;
- how technology adoption is affecting safety, productivity, environmental performance and responsible speed.

If innovation remains confined to a small group of flagship operations while most assets stay low integration, this signal points to a widening technology and competitiveness gap.

7. Geopolitical Concentration and Value Chain Control

This signal focuses on where leverage sits across the value chain, and whether diversification is real. It looks at:

- concentration across mining, refining, processing and intermediate manufacturing in a small group of countries or companies;
- progress or stagnation in geographic diversification of critical supply chains;
- whether producer countries are moving from extraction toward processing and higher-value segments, or remaining locked into low-value exports.

If concentration remains high and value capture stays narrowly distributed, this signal points to persistent geopolitical exposure and a gap between geological endowment and strategic power.

8. Illegal Mining and System Vulnerability

This signal focuses on the scale and systemic footprint of illegal mining, and its spillover effects on governance and legitimacy. It looks at:

- whether illegal flows are expanding or shrinking across key mineral corridors;
- the impact on environmental degradation, community stability and the reputation of formal mining.

If illegal activity expands or becomes more entrenched, this signal points to institutional and territorial vulnerability especially where speed, governance capacity and legitimacy are misaligned.

9. State Activation and Execution Capacity

This signal focuses on how decisively states are shaping outcomes in mining and critical minerals. It looks at:

- the credibility and clarity of critical minerals strategies, lists and frameworks;
- the use of public finance, incentives and de risking tools to support strategic projects and midstream capacity;
- whether policy initiatives translate into faster, more predictable execution for responsible projects.

If state activation remains largely declarative and institutional friction persists, this signal points to a gap between policy ambition and real execution capacity.

10. Industrialisation and Midstream Delivery

This signal focuses on whether industrialisation efforts are translating into concrete, bankable midstream capacity. It looks at:

- new refining, processing and intermediate manufacturing projects reaching FID, construction and commissioning;
- partnerships that embed capability transfer and shared standards, rather than only offtake headlines;
- the development of infrastructure corridors and platforms that enable scaling.

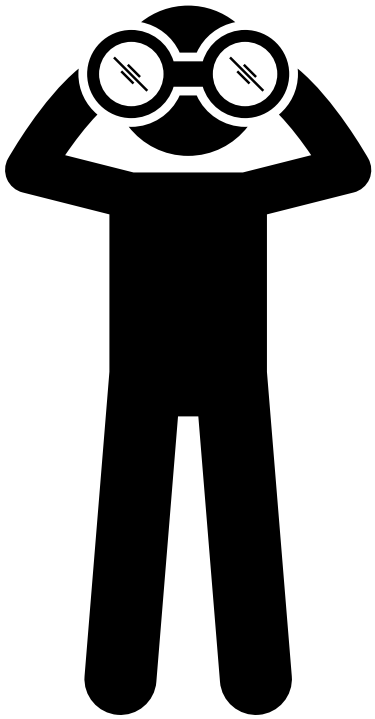
If midstream projects remain largely at the announcement stage and capacity stays concentrated, this signal points to a system that aspires to industrialisation but continues to operate with fragile chokepoints.

Geopolitical Mining 2025
Signals for 2026

When Mining Becomes Power

III. 2026 Direction of Travel: How to Read the Year Ahead

This final section looks forward. It brings together the 2025 diagnosis and the ten strategic signals to outline how the system could move in 2026: what needs to shift, where change is most likely to appear first, and which qualitative proof points will indicate whether the global mining system is adapting or staying stuck. The aim is to offer a clear direction of travel, so that events over the next year can be read with more coherence and less noise.



1. What 2025 has locked in

By year end 2025, several elements of the global mining system look structurally embedded.

Demand for critical minerals is anchored in four overlapping agendas: energy systems, industrial policy, digital infrastructure and security. Mining is profitable but under pressure: capital is selective, timelines are long, and key parts of the value chain remain concentrated. Execution has become the central constraint.

Institutions, legitimacy and skills have moved from the periphery to the core. Permitting design, ESG implementation, community outcomes and talent availability now determine not only whether projects can be approved, but also whether they can sustain support over time. Illegal mining, in this context, appears as a systemic warning signal rather than only as a discrete criminal activity.

At the same time, the state is returning as an active system actor, through strategies, public capital and alliance building, and the contest is shifting beyond extraction into refining, processing and intermediate manufacturing. Industrialisation and midstream delivery are now central to how value and leverage are distributed.

In many ways, 2025 is the year when mining could no longer be treated as “just an industry”, but had to be understood and governed, as Geopolitical Mining.

III. 2026 Direction of Travel:
How to Read the Year Ahead

2. If the system adapts

Through this lens, a year of adaptation in 2026 would likely be characterised by:

- more projects moving from announcement to final investment decision, construction and commissioning;
- gradual reductions in permitting timelines for strategic projects, without visible erosion of standards or community trust;
- early but concrete progress in midstream diversification and industrial upgrading in a small number of jurisdictions;
- clearer outcome-based ESG expectations, with monitoring focused on performance rather than process alone;
- signs of improvement in talent pipelines and operating models, especially in roles at the intersection of mining, data and communities;
- more explicit differentiation between responsible mining and illegal activity in policy, public debate and enforcement practice;
- capital starting to align more closely with long-cycle needs in mining, midstream and enabling infrastructure.

A year like this would not resolve structural gaps, but it would suggest that the system is starting to move from intent to delivery.

3. If the system stalls

A year of stagnation, by contrast, would be characterised by:

- a persistent gap between announced projects and those that reach FID or construction;
- continued lengthening or volatility in permitting timelines, with rising procedural complexity but limited gains in outcomes;
- midstream capacity remaining heavily concentrated, with most diversification efforts staying at the policy or memorandum stage;
- ESG and reporting expanding in volume while tensions around water, emissions, tailings and local conflicts remain unchanged;
- ongoing difficulty attracting and retaining talent for critical roles;
- further expansion or entrenchment of illegal mining in key corridors;
- investment flows that remain below what structural demand would imply, particularly in processing and infrastructure.

In such a scenario, 2026 would confirm that the bottlenecks identified in the 2025 diagnosis are still setting the limits of supply.

4. How to read the year ahead

The ten signals in Section II are not a ranking. They are a way of reading movement: where pressure is building or easing, where execution is gaining ground, and where the system remains constrained.

At Geopolitical Mining, we will use these signals to follow 2026 with a systemic lens, connecting policy announcements, project milestones, market moves and territorial dynamics back to the structures described in this diagnosis. Our aim is not to predict prices, but to help decision makers see the pattern behind events and recognise early when the system is starting to shift.

We invite readers to use this map in the same way, as a reference to interpret the year ahead with more clarity and a sharper sense of direction.

Geopolitical Mining 2025
Signals for 2026
When Mining Becomes Power

Final Note

Geopolitical Mining 2025: Signals for 2026 is designed to be read, printed, annotated and used as a strategic conversation tool. It is the first edition of what we intend to build into an annual map of the global mining system, updated each year as the balance between demand, execution, legitimacy and value chain control continues to shift.

The three sections of this diagnosis serve a single purpose, to offer a clear, systemic lens. The 2025 diagnosis sets out ten structural dimensions of geopolitical mining. The ten strategic signals translate that diagnosis into observation lenses for 2026. The closing section outlines how the system could move, and how to read that movement in practice.

For readers who want to go deeper into the foundations of this lens, mining as a geopolitical, institutional and symbolic system, Mining Is Dead. Long Live Geopolitical Mining sets out the broader diagnosis and country perspectives on which this annual map is built.

This 2025 edition is its practical companion, a way to keep the map current, track the signals that matter, and maintain strategic clarity while the world of geopolitical mining continues to evolve. Thank you for reading, and for putting this document to work in your own strategic conversations.

Welcome to Geopolitical Mining 2026.

Marta Rivera & Eduardo Zamanillo
December 2025

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