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Forword

The following reports bring together reflections from contributors who participated in the 'Supply Chain Security: Connecting Europe and Northeast Asia' program in Ulaanbaatar in May 2026, including visits, exchanges, and conference discussions with local and international stakeholders. Each contributor offers their personal assessment of Mongolia's potential in critical raw materials, the challenges posed by the geopolitical context, and the prospects for international cooperation. The views expressed are those of the authors in their personal capacity and do not necessarily represent the positions of their affiliated organizations.

The final contribution, by Buyandelger Davaajantsan, complements these external perspectives with an insider's view, drawing on his role as conference moderator and his expertise as a Mongolian policy researcher.

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Strategic Mineral Resources and International Cooperation: Perspectives from Japan

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His experience includes directing the Application Development & Marketing Department and managing key organizational and network service functions. Throughout his career, he has worked extensively on strategic planning, innovation management, and digital service development.

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1. Strategic Minerals and International Cooperation: Key Takeaways

This program highlighted the increasing importance of cooperation among like-minded countries, particularly middle powers, in addressing critical challenges related to mineral resources. European and Asian countries, including South Korea and Japan, share a common understanding of supply chain vulnerabilities, indicating strong potential for further cooperation.

In Japan, concerns about critical mineral resources have intensified against the backdrop of the disruption of rare earth supply during the 2010 Senkaku Islands incident and the recent rise in geopolitical tensions. These experiences have highlighted the importance of diversifying supply sources and international cooperation.

Discussions in Mongolia reaffirmed the recognition that no single country can address these challenges alone. Strengthening communication, sharing policy experiences, and learning from each other's approaches are essential to ensuring stable and resilient supply chains.

2. Mongolia's Role and Potential in Global Supply Chains

Mongolia has significant potential to play a crucial role in global supply chains for critical mineral resources. This potential stems not only from its abundant resources but also

from its relatively high level of education among its population and its proactive relationship with its "third neighbors."

At the same time, several structural challenges remain. In particular, infrastructure development, especially in the energy and transportation sectors, and the establishment of stable, predictable mining policies and a reliable investment environment will be crucial for attracting long-term investment.

However, given the strong sense of crisis among Mongolian policymakers and stakeholders, the current situation can also be seen as an opportunity.

3. Opportunities and Limitations for Future Cooperation

Diversifying sources of critical mineral resources is an urgent priority for Japan. However, imports of such resources from Mongolia to Japan remain extremely limited. While Mongolia represents an attractive option for addressing Japan's needs, it faces several challenges, including infrastructure development — particularly with regard to transport routes — regulatory stability, and geopolitical risks. Japan should draw lessons from countries in Europe and elsewhere that have already strengthened cooperative relationships with Mongolia.

At the same time, Japan has strengths in processing technology and the production of high-value-added goods. Enhanced cooperation between Japan and Mongolia, including the potential development of new industries in Mongolia, could contribute to the country's economic development and foster a mutually beneficial relationship.

Mongolia holds substantial potential as a strategic resource partner, yet structural constraints and geopolitical realities will continue to shape its development path. This program provided a valuable opportunity to deepen our understanding of Mongolia's strategic importance in the context of global supply chains and economic security.

Critical Minerals Cooperation with Mongolia: Opportunities and Limitations

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Dr. Oh received her Ph.D. in Agricultural, Environmental and Regional Economics from The Pennsylvania State University.

1. Strategic Minerals and International Cooperation: Key Takeaways

Critical minerals are essential to a country's economy and industry and are highly susceptible to price and supply disruptions. Korea's MOTIR has identified ten strategic minerals: lithium, nickel, cobalt, manganese, graphite, and five REEs (Nd, Dy, Tb, Ce, La). Policy efforts are focused on reducing excessive dependence on specific supplier countries and scaling up recycling. In 2025, KIEP conducted a study on utilizing trade agreements to stabilize Korea's critical mineral supply chains. Choi et al. (2025) evaluated potential Critical Minerals Agreement (CMA) partners through four criteria: global export presence, production capacity and reserves, position in Korea's import supply chain, and centrality in the international network of minerals agreements. Countries are then classified into three cooperation types: core strategic partners, supply-chain and network partners, and resource-rich specialized partners.

In fact, by these criteria, Mongolia does not appear in any of the four top-20 lists, primarily because reserve and trade data for Mongolia are largely absent from global datasets. Mongolia is not represented in the BACI 2022–23 export-frequency rankings. Much of its geological coverage dates to Soviet-era surveys, and mapping has not been updated across large portions of the country. Bilateral critical minerals trade with Korea is thin. Mongolia's agreement-network centrality is negligible relative to resource potential.

However, the KAS program — which combined a conference, embassy-representative meetings, a geological laboratory visit, a policy institute roundtable, and private-sector exchanges — surfaced several strengths not captured in the data. Exchanges with policy institutes and think tanks provided firsthand perspective on Mongolia's political system and electoral arrangements; what stood out was the country's sustained multiparty democracy, impressive given its position between Russia and China. The conference and

roundtable revealed that community consent, revenue distribution, and environmental standards are active domestic policy debates. The minerals sector has become Mongolia's highest-paying industry, drawing talent accordingly — a visit to GMIT, where students were visibly engaged and capable, suggested the sector's professional pipeline is promising. A visit to a critical minerals laboratory and a briefing by the National Geological Office introduced a range of ongoing geological survey projects and mapping initiatives, including 1:50,000-scale mapping as well as other exploration and data programmes. Regularly updating and publishing findings as surveys progress would meaningfully improve Mongolia's position in global supply-chain datasets.

2. Mongolia's Role and Potential in Global Supply Chains

Although geological surveys are still in progress, Mongolia is widely expected to hold substantial mineral resources. As many countries seek to reduce their dependence on China for critical mineral supply, Mongolia carries geopolitical significance as a potential alternative source. Moving from concentrate exports to domestic refining would also ease Mongolia's landlocked transport constraints, making midstream capacity a practical as well as economic priority.

In terms of mineral types, Mongolia's most promising areas appear to be copper, rare earths, lithium, and the byproducts generated through mineral refining. While copper falls outside Korea's ten strategic minerals, it is rapidly gaining strategic significance as demand grows from EVs, renewables, and data centers, while new supply struggles to keep pace. In Mongolia copper is already its largest export commodity. Also, refining byproducts such as rhenium and selenium further broaden the cooperation surface.

Where Mongolia's potential overlaps with the strategic mineral list is in rare earths and lithium. Mongolia has several REE deposits, including LREE-dominant deposits at Mushgai Khudag (Omnogovi) and Lugiin Gol (Dornogovi). HREE bearing zones have been identified at Khalzan Buregte (Khovd). Recent findings on freeze-thaw-related REE formations in China (Heilongjiang and Jilin provinces) may provide a useful exploration analogy for northeastern Mongolia as well.

Lithium demand also looks promising, driven by continued growth in LFP electric vehicles; companies in this space typically seek long-term stability through offtake agreements rather than spot purchases.

3. Opportunities and Limitations for Future Cooperation

International negotiations on critical minerals supply chains are actively under way across multiple forums. A notable development is the Agreement on Trade in Critical Minerals (ATCM), proposed by the United States to partner and allied countries, which aims to use

tariff mechanisms to maintain minimum price floors for critical minerals and reduce dependence on China. For a resource-holding country like Mongolia, a framework that supports stable minimum prices improves the investment case for new projects and creates more predictable financing conditions. Korea, as a downstream buyer, sits on the other side of this equation, but clearer price signals benefit the broader supply chain ecosystem.

At the same time, contract renegotiation risk in Mongolia's mining sector has been a documented deterrent to long-term capital commitment. Credible stabilization commitments, through bilateral investment treaties, stabilization clauses, or multilateral arrangements, are a prerequisite for the long-term offtake relationships that buyer economies actually need.

Beyond investment security, Mongolia also faces strategic questions about how to position itself within an increasingly competitive critical minerals landscape. Resource-rich countries across Africa, Latin America, and Southeast Asia are pursuing similar opportunities. Greater transparency regardnig resource potential can help identify the minerals in which Mongolia holds a comparative advantage and support more effective coordination across the broader supply chain, reducing the risk of duplication or overcapacity.

Mongolia's critical mineral potential is substantial; translating it into global supply-chain relevance will require data visibility, investment protection, and active engagement in international discussions.

[1]*Choi, Wonseok, Soo Hyun (Catherine) Oh, Sunghun Cho, Jin Hee Hong, and Boyeong Park (2025). A Study on the Utilization of Trade Agreements for the Stabilization of Critical Mineral Supply Chains. KIEP Policy Analyses 25-07.*

Mongolia and the Critical Minerals Rush: A Case for Strategic Patience

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Previously, Antti served as a Programme Officer at the International Energy Agency, advancing clean energy transition initiatives across Eastern Europe and Central Asia, and as a Policy Analyst at the OECD, where he coordinated multilateral public-private partnerships for quality infrastructure investment to develop and launch the Blue Dot Network. He holds an MPhil in Russian and East European studies from the University of Oxford.

1. Strategic Minerals and International Cooperation: Key Takeaways

The Two Logics of the Critical Minerals Scramble

The global race for critical minerals is driven by two distinct and not always compatible logics. The first is geopolitical: critical minerals appear in sensitive defence and technology applications, and China's dominance of midstream processing and its demonstrated willingness to leverage that position through export controls has prompted Western governments to treat supply chains as a matter of national security. The second logic is economic: surging demand driven by the clean energy transition, particularly for copper in electrification and for rare earths in wind turbines and electric vehicles, is creating genuine commercial opportunities.

For Mongolia, these two logics carry very different implications. The geopolitical dimension is the more challenging. Any attempt to position Mongolian resources as part of a Western supply chain diversification strategy runs directly into the country's existential geographic constraint: it is entirely landlocked between Russia and China, with no alternative transport corridor that could realistically function under conditions of strategic confrontation. The clean energy transition logic, by contrast, is more promising. Copper, for which Mongolia holds world-class deposits concentrated in Oyu Tolgoi and Erdenet, is genuinely critical for the energy transition in a way that does not carry the defence-sector sensitivities of rare earths. Mongolia's estimated copper resources of approximately 61 million tonnes — roughly 6% of known global reserves — represent a significant national wealth that stands to appreciate in value as global copper demand continues to rise faster than supply.

Capacity Being Built: Encouraging Signs on the Ground

Visiting Mongolia with this analytical frame, what struck me most was not the resource endowment but the seriousness of the efforts underway to build the capacity to actually use it. A visit to the Geological Survey of Mongolia offered a window into work that rarely features in high-level policy discussions: the painstaking digitisation of geological databases and systematic mapping of subsoil resources across a country nearly three times the size of France. This kind of foundational work is unglamorous but essential. Without it, no international partner can properly assess what exists, where, and under what extraction conditions.

Equally instructive was a visit to the German-Mongolian Institute for Resources and Technology (GMIT), co-founded by the German and Mongolian governments in 2013. GMIT's mandate to train Mongolian engineers and technicians to international standards, with applied research directly linked to the mining sector, exemplifies what meaningful partnership looks like in practice. The institute is helping to build the human capital base without which any expansion of Mongolia's minerals value chain would rely on imported expertise and leave limited domestic benefit. This is precisely the kind of no-regret investment that Mongolia's partners should be expanding.

2. Mongolia's Role and Potential in Global Supply Chains

A Country That Wants to Move Forward

What the visits and discussions conveyed most powerfully was something harder to capture in policy analysis: a genuine national energy and optimism about Mongolia's future. I was repeatedly struck by conversations with young Mongolian leaders who had studied or worked internationally — in Europe, the United States, or East Asia — and had chosen to return. The motivation they described was not simply professional. Several spoke explicitly about wanting to raise their children in Mongolia, to pass on the language, the nomadic heritage, and the identity of a nation that has navigated extraordinary historical pressures and remained itself.

This matters for policy. A country's ability to avoid the resource curse and to translate mineral wealth into broad-based, inclusive development rather than elite capture and institutional decay depends heavily on the quality of its democratic institutions and the civic engagement of its society. Mongolia's democracy has its documented problems, including endemic corruption and recent democratic backsliding. But the combination of functioning democratic institutions and a returning diaspora of capable, nationally committed professionals represents a real asset that is even more important than outside investments in infrastructure.

The Scale Problem: Ambition and Limitations

My previous visit to Ulaanbaatar was roughly a decade ago. Returning in May 2026, the transformation is visible from the construction cranes scattered across the skyline. The country has grown, and grown fast. But what the discussions in Ulaanbaatar also conveyed was a certain tension between ambition and capacity that deserves honest acknowledgement from partners.

Mongolia is a country of approximately 3.5 million people. The projects under active discussion are remarkable in their ambition. The plan to build a new capital city at Kharkhorum has been given legal footing through legislation passed in January 2025, with a project cost widely cited at around $30 billion. Ambitions surfaced in conference discussions to develop high-value downstream processing industries linked to the minerals sector. These sit alongside the more immediate but still enormous challenge of upgrading energy and transport infrastructure across a territory the size of Western Europe. Each of these is, individually, a project that would test the institutional and financial capacity of a considerably larger country.

This is not a criticism. Ambition in goals is appropriate given the scale of Mongolia's resource endowment and the window of opportunity that current global demand creates. However, there is a need for prioritisation and sequencing. The most important near-term investments are probably the least glamorous: renewable energy capacity that reduces dependence on electricity imports from China, road and rail connectivity, and continued investment in geological knowledge and human capital. These create the platform for everything else.

3. Opportunities and Limitations for Future Cooperation

Where Partnership Can Genuinely Add Value

The rare earth question deserves particular care. Mongolia has substantial deposits, and partners in Europe, North America and Japan are keen to see them developed. But rare earths are not uniformly lucrative for producer countries: prices are volatile, processing is technically demanding, and the value chain is dominated by midstream refiners. More importantly, rare earth development oriented toward Western supply chain diversification would position Mongolia squarely in the geopolitical crossfire between China and Western powers in a way that copper production largely avoids. China's April 2025 rare earth export licensing regime is a reminder of the tools Beijing can deploy, and Mongolia — with no alternative export corridor — is highly exposed to potential Chinese pressure.

From a European perspective, the most realistic near-term contribution lies in targeted investments with durable developmental impact: geological survey support, standards and governance assistance for the extractive sector, and above all financing for energy and transport infrastructure through institutions such as the EBRD, which already has a

strong presence in Mongolia, and instruments under the Global Gateway. This framing also sidesteps some of the geopolitical sensitivity that explicit critical minerals supply chain agreements carry.

What Mongolia needs from its partners, more than ambitious supply chain declarations, is reliability, honesty about what partnership can realistically deliver and what it cannot, and a genuine willingness to align cooperation with Mongolia's own development priorities. The country's democratic institutions, its growing human capital, and the quiet determination the visit highlighted are the foundations on which those partnerships can be built.

Critical Raw Materials: Geopolitical Challenges Overshadow but Don't Dissolve Scope for Cooperation with Mongolia

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Seaman is currently an Advisor to the Critical Minerals Hub of the Asia Pacific Foundation of Canada and was a non-resident scholar in the Energy & Environment Programme of the Canon Institute for Global Studies (CIGS) in Tokyo (2013-18). He holds a Master in International Affairs from Sciences Po, Paris, a Bachelor of Arts in International Economics from Seattle University and was David L. Boren Scholar at the Beijing Center for Chinese Studies (2002-03).

1. Strategic Minerals and International Cooperation: Key Takeaways

Geopolitics of Critical Raw Materials in Context

Rapid technological change and geopolitical tensions resulting from shifts in the global balance of power give urgency to the need for diversified, and thus resilient supply chains in "critical" and "strategic" raw materials. An increasingly wide variety of metals, from aluminum and copper to lithium, gallium, and rare earths such as neodymium, dysprosium or yttrium, underpin the technologies that are defining the energy transition, the digital transformation, advances in medicine and aerospace, as well as the development of modern militaries. Yet, decades of divestment in upstream mineral extraction and processing in Europe, the United States and elsewhere, and China's focus on resource security in the context of its own economic and strategic ambitions, has led to supply chain concentration and deep dependencies. As the stakes of leadership in the technologies and industries of the future rise, dependencies and vulnerabilities are being used as leverage, with China increasingly exploiting its advantage in raw material value chains, conditioning access or cutting it off altogether. As with other vulnerable partners, Europe's response has been both to look internally to boost mining, refining and recycling in the EU, and to develop and deepen supply chain partnerships abroad.

2. Mongolia's Role and Potential in Global Supply Chains

Mongolia's Diversification Potential

Mongolia stands as a potentially important and willing partner for Europe and its partners in their drive for supply chain diversification and resilience. Recycling and resource efficiency are important parts of the resilience puzzle, but increased and diversified mine production for many minerals will be necessary for meeting ambitious goals such as Net Zero by 2050, highlighting the role for resource-rich countries such as Mongolia. Mining and minerals already make up the backbone of the Mongolian economy, constituting more than a third of the country's economic activity and over 90% of its exports, 80% of FDI and 30% of state budget revenue. Mongolia today produces a number of minerals that Europe and its partners consider strategic or critical, including coking coal, fluorspar, molybdenum and, notably, copper.

Indeed, copper is key. It is estimated that in order to meet growing demand of an increasingly electrified economy the world will need to produce as much copper in the next 25 years as it has in the last 125. Mongolia's Oyu Tolgoi mine, operated as a joint venture between Rio Tinto (66%) and the Mongolian state, is already among the top 10 copper mines in the world and looks to rank 4th by the time it reaches full capacity in 2030. While not a panacea, Mongolia's copper production will play a major role in meeting global demand and easing market tensions regardless of the specific market it serves — which today is almost exclusively China's.

Mongolia also shows great potential to produce a range of other critical raw materials, including rare earths, lithium, graphite, nickel, manganese and tungsten, as well as uranium. Mongolian authorities have underlined the importance of developing critical raw materials as part of a two-fold diversification strategy. The first is economic: diversification away from the mining sector's heavy dependence on copper and coal export revenue, the latter of which is likely to see waning demand as a result of the energy transition. This includes expanding exploration and boosting development of a broader diversity of critical mineral resources, where legislation under review by Mongolia's parliament, the Great Khural, offers to develop a new legal framework for governing critical raw material extraction, processing and wealth distribution. The second dimension is strategic and diplomatic: critical raw materials have become the centrepiece of a "third neighbor" strategy meant to deepen engagement with democratic regimes — the United States, Japan, South Korea and European partners — capitalising on their diversification imperative as a way to enhance Mongolia's strategic value and resilience capacity.

Dependencies on China and Russia Remain Severe

Beyond domestic constraints, which include infrastructure needs and environmental concerns, Mongolia's dependence on Russia and China draw a ceiling over the country's diversification efforts and broader third neighbor strategy. Mongolia depends on Russia

for one third of its electricity supply and over 90% of refined fuel. The country has no refining capacity of its own, though a refinery project is under development in partnership with India. Mongolia's limited domestic oil production is furthermore managed by PetroChina. The Chinese market meanwhile accounts for over 90% of Mongolia's exports, and China provides 41% of the country's imported goods.

While such severe dependencies underline the need for diversification, Mongolia is locked on all sides between its two neighbors. Exporting the country's mineral wealth, either in raw form or as processed goods, ultimately requires tacit or explicit approbation from Beijing and Moscow. For China in particular, Beijing has come to view its supply chain advantages in critical raw materials as a strategically important lever for deterrence and coercion, and is poised to complicate diversification efforts that would weaken its position and strengthen its strategic competitors — including the United States and Japan, but also the European Union. For partners looking to diversify their dependencies on China, Mongolia's resources and ambitions are attractive, but the country's own strategic dependencies on China and Russia necessarily limit the resilience value of supply chains that could be effectively cut off through coercion or by direct force.

3. Opportunities and Limitations for Future Cooperation

Enhancing Cooperation Remains Possible for Europe and Its Partners

Despite these constraints, there is still room for partnership even at the strategic level, with France's cooperation on uranium as a case in point. In January 2025, following nearly thirty years of discussion and negotiation and ultimately return visits from the two countries' presidents in 2023, France's largely state-owned Orano signed a joint-venture arrangement to develop uranium deposits at the Zuuvch-Ovoo mine in the country's southwest. The project should begin production in 2028 and produce 2,500 tons of uranium annually, estimated at 30% of France's current annual consumption. Uranium is vital to France's energy security, where nuclear power provides over 70% of the country's electricity, in addition to supplying the country's nuclear arsenal. The signing of the deal followed the loss of access to uranium mines in Niger, which ultimately boosted the strategic value of Mongolia's resources in a supply-constrained global market.

The case may have limited comparable value in that China does not hold a supply chain advantage in uranium. Moreover, other critical minerals such as rare earths where China does dominate tend to have a broader range of supply options, with over 300 rare earth mining projects under study or development across over a dozen countries, making for strong competition. Nevertheless, the case does demonstrate that Mongolia's strategic predicament is not a death knell for cooperation.

Mongolia's Critical Minerals and the "Third Neighbour" Promise

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He is currently CRM value chain expert working with InnoEnergy under CRM Facility, an European Union initiative to increase security and resilience of the supply chains. Prior to that, he was senior banker with EBRD Equity and Natural Resources teams in London where he also led transactions in Mongolia.

1. Strategic Minerals and International Cooperation: Key Takeaways

The "Third Neighbour" Doctrine: Durable Ambition, Narrow Room for Manoeuvre

Mongolia's Third Neighbour policy is the most consistent pillar of its foreign-economic doctrine across the past three decades. The 2025 renaming of Mongolrostsvetmet as Erdenes Critical Minerals, the strategic engagement on critical minerals with the United Kingdom, the continuing exchanges with the European Union on a possible raw-materials partnership, and parallel engagements with Japan, South Korea, the United States and France all point in the same direction. It is important, however, to be precise: most of these instruments remain at the discussion, roadmap or letter-of-intent stage rather than binding partnerships, and very few have produced executed offtake or financing transactions. The political appetite for diversification is clear; the contractual architecture behind it is still largely to be built.

The harder question is whether that ambition can translate into actual projects. Mongolia remains doubly landlocked. Its power and refined-fuel supply runs through Russia; the overwhelming majority of its mineral exports transit China. China simultaneously controls roughly 70% of global rare-earth mining and around 90% of refining, and is a near-monopsony for Mongolian copper concentrate. The northern route into European markets is effectively closed by sanctions on Russia. The Third Neighbour doctrine therefore has many friends and very few corridors — a fact that the most clear-eyed Mongolian experts acknowledge.

2. Mongolia's Role and Potential in Global Supply Chains

Where Realistic Opportunities Lie

Uranium — Orano's Zuuvch-Ovoo as a partial blueprint. The $1.6 billion investment agreement signed by France's Orano in January 2025 with state-owned MonAtom (target output ~2,500 tU per year from around 2028) is the most useful European reference point in the country. Three features made it bankable: a JV structure that accommodates the state from day one, an integrated European downstream that bypasses China entirely — conversion, enrichment and fuel fabrication all sit inside France's existing fuel-cycle infrastructure — and a captive utility end-market. Equally important is the legal vehicle: an investment agreement of the type Orano negotiated delivers tax and royalty stabilisation for up to 27 years, FX repatriation rights, expropriation protection and a choice of international arbitration. Uranium is, nevertheless, unique. There is no European equivalent of Orano for copper, rare earths or lithium: no integrated, sovereign-anchored midstream that automatically pulls Mongolian primary material into European industry without a Chinese step. Orano demonstrates the deal architecture; it does not, by itself, supply the template for the rest of Mongolia's geological endowment.

High-value, low-volume midstream — particularly rare-earth separation. The proposed UK–Mongolia air-bridge — at the discussion stage, with logistics partners reportedly engaged — illustrates that, for the right product mix, non-Chinese routing is at least logistically conceivable. A jointly developed REE separation facility on Mongolian soil — even a single pilot — would convert tonnes into strategic value and bring volumes down to a scale at which the Middle Corridor or air freight begins to make commercial sense. European industry could bring genuinely competitive intellectual property in separation chemistry.

Copper, tungsten and fluorspar — narrower but bankable. Oyu Tolgoi and Erdenet will keep moving most concentrate through China, but copper is one of the few strategic raw materials where Chinese refining is not dominant, and long-term offtake by European companies is not impossible. Mongolia is already a top-five global supplier of fluorspar and tungsten, both irreplaceable for European steel, optics and battery supply chains.

Limitations an Investor Cannot Ignore

Four constraints should be stated openly. First, China's processing position is structural; any non-Chinese midstream must be subsidised, strategic, or both, and pure commercial logic still routes most product through China. Second, the 2024 amendment to the Minerals Law caps any single private holder at 34% of the issued shares of an entity licensed for a Strategically Important Mineral Deposit; the carve-out for entities holding an investment agreement with the Government of Mongolia is the operational route through, and Orano's structure demonstrates this, but international capital reads the rule with caution until its prospective scope is settled in practice. Third, the Oyu Tolgoi tax dispute, which Rio Tinto considers inconsistent with the underlying Investment Agreement, is being watched closely by every board: until it is resolved in a manner that visibly upholds the principles of that agreement, the cost of capital for the next foreign project in Mongolia is materially higher than the geology suggests. Fourth, non-Russian

energy supply for any processing facility built in Mongolia is itself a precondition that is rarely properly factored into project economics.

3. Opportunities and Limitations for Future Cooperation

What Would Unlock Capital

A short, concrete agenda emerges from the discussions. Five steps would unlock capital most directly.

- Make full and predictable use of the existing investment-agreement architecture: it already delivers expropriation protection, fiscal stabilisation, FX rights and a choice of international arbitration — the instruments international investors understand and price.
- Give that architecture a stronger external anchor — either an EU-level investment-protection instrument, or modernised bilateral investment treaties between Mongolia and individual EU member states.
- Mobilise blended public capital — EIB, EBRD, Global Gateway and European export-credit agencies — alongside political-risk insurance, so that the financial structure absorbs some of the political risk that is today priced entirely into the equity.
- Co-develop one midstream pilot, most plausibly rare-earth separation, on Mongolian soil.
- Resolve the Oyu Tolgoi dispute in a way that visibly re-establishes the logic of the investment agreement as a public good for the whole sector — the single most consequential signal Ulaanbaatar could send to international capital at near-zero fiscal cost.

Closing Reflection

The frank tone of the week's exchanges was itself encouraging. Mongolian counterparts no longer ask whether the partnership is real; they ask what would make it bankable. What is missing is the first project that proves the model. Without it, the doctrine risks remaining politically sound but commercially marginal — and Europe will continue to find that signing memoranda is by far the easy part.

Mongolia at the Centre of the Conversation: A Moderator's Assessment

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1. Key Debates and Points of Consensus

Moderating the second session of the conference — and following the proceedings as a whole — offered a vantage point that is different from that of the international speakers whose assessments appear elsewhere in this collection. Rather than arriving with a country-specific diversification agenda, I was positioned to observe where the arguments converged, where they diverged, and what the discussions revealed about how Mongolia is actually perceived by its potential partners.

Five conclusions emerged consistently across the day. First, critical minerals are now an instrument of statecraft rather than a sectoral market: China organises its approach around "strategic minerals" and a deterrent-leverage logic that crystallised around 2020, while United States policy shows continuity-with-intensification across administrations and the European Union is building capacity through the 2024 Critical Raw Materials Act — though a recent European Court of Auditors review confirms the EU is not on track to meet its 2030 targets. Second, the real chokepoint is processing, not extraction; diversifying mines without diversifying processing does not deliver resilience. Third, the state has had to return as a strategic investor, with Japan's JOGMEC serving as the reference architecture for how that return can work. Fourth, Mongolia is best understood as a credible diversification node rather than a system-determining supplier, anchored in copper and opportunistic in critical and rare materials where a strategic co-investor exists. Fifth, the binding constraints on Mongolian participation are domestic readiness and geography, not partner willingness.

How China Frames the Question

The Chinese approach is best understood through a triad rather than a list. Security of supply is driven by China's own upstream vulnerability — it must still go overseas for many raw materials even where it dominates downstream processing. Technological catalysis exploits upstream dominance to draw in foreign technology transfer. The geopolitical lever is the most recent dimension, crystallising in Chinese internal discourse around 2020 and made explicit in President Xi Jinping's 2020 Qiushi article. The current restriction of certain rare-earth shipments to Japan is the clearest live demonstration. China itself appears to recognise that this leverage is time-limited but will defend it aggressively in the interim — which has direct implications for how Beijing would read any Mongolian move into processing.

The United States and the European Union

US critical-minerals policy shows continuity-with-intensification across administrations: incentive-based instruments have been complemented by direct interventions such as tariffs, price floors and — as a recognition of the strategic nature of the issue — the purchase of US rare earths and critical minerals company equities by the US Federal Government, while the alliance architecture has been retained (the Minerals Security Partnership succeeded by FORGE). The European Union approach rests on four goals — domestic capacity, hedging against shocks, alignment with external and development policy, and the circular economy — institutionalised in the 2024 Critical Raw Materials Act. The European Court of Auditors has confirmed the EU is not on track, and that strategic-partnership signings have not translated into higher import volumes. There is a gap between political goals and present reality.

The Return of the State and the JOGMEC Model

The most consequential cross-session conclusion is that the market alone does not produce non-Chinese supply at scale. Europe's dismantling of its strategic stockpiles in the 1990s, the failure of the 2011 Germany–Mongolia minerals agreement, and the dependence of both flagship Western rare-earth operations on state investment all point the same way. Japan is the reference model: JOGMEC combines strategic and corporate stockpiles with the ability to conduct its own early-stage exploration and to act as a strategic co-investor that de-risks projects before transferring them to private firms. The JOGMEC–JARE–Lynas tripartite structure — equity, debt and long-term offtake — is the canonical reproducible template, and it is why China's share of Japan's rare-earth imports fell from around 90% in 2010 to under 70% by the mid-2010s. The absence of a JOGMEC-equivalent institution on Mongolia's side is itself a gap in the partnership architecture.

Processing, Not Extraction, Is the Chokepoint

Every session converged on the point that the real chokepoint is processing. If Mongolian concentrate continues to be processed in China, the diversification rationale for partner investment is defeated before it begins. The corollary is that diversification of processing on a global scale serves Europe's and Northeast Asia's resilience interest regardless of where that processing occurs — which creates genuine room for cooperation and which makes indigenous or partner-based processing the central question for Mongolia rather than extraction prospectivity.

The Architecture of Cooperation

Not all minerals coalitions are equivalent. FORGE attracts broad European engagement because it is scoped to supply-chain diversification; Pax Silica is more controversial because it is embedded in a US-led AI ecosystem. For a small-state participant, narrowly-scoped diversification coalitions are more politically sustainable than those bundled with digital and AI dependence. At the regional level, a Northeast Asian "community of chip-makers" is not realistic in the near future: China's prevailing approach is self-reliance, and a minus-China configuration lacks coherence. The realistic prospect is issue-specific minilateral and bilateral cooperation — the JOGMEC–Lynas type of arrangement.

ESG and Social Licence as Cost of Admission

ESG and community standards are no longer a separate compliance track but part of the cost of doing business in any non-Chinese mining ecosystem. The JOGMEC–Lynas processing operation in Malaysia had to overcome the toxic legacy of earlier Japanese refining through serious environmental-impact work. For Mongolia, local-community objections around projects such as Oyu Tolgoi and Khalzan Buregtei are not anomalies but the price of admission to the diversification narrative, and they are compounded domestically by the conflation of critical minerals with uranium in public discourse.

2. Mongolia's Actual Position: Between External Expectations and Internal Realities

The "Sandbox" Framing and the Question of Scale

Mongolia is best described as a "sandbox": a deliberately open, neutral playground that invites partners in without becoming a wedge between its neighbours. Consistent with the Third Neighbour policy and the constitutional commitment to a non-aligned foreign policy, Mongolia's eventual mined and processed output will not decisively affect US–China competition, and discourse that overstates Mongolia's leverage damages credibility with the partners it most wants to attract. The right framing is a meaningful diversification node, not a system-determining supplier.

Three Layers of Mineral Potential

Copper is the anchor. The world will need to mine as much copper in the next 25 years as in the previous 145; Oyu Tolgoi is operating at scale, Erdenet is a long-standing state asset, and two further major projects are in development. Copper has a deep international market in which Mongolian production can compete on volume and grade, and is the realistic commercial anchor of Mongolia's role.

Rare and critical materials are more strategic than commercial. Mongolian critical and rare projects should be evaluated not against a normal commercial benchmark but against the willingness of a strategic partner — a JOGMEC-equivalent in Tokyo, a Korean fund, a French or German state-backed vehicle — to co-invest with patient capital.

Processing is the most interesting frontier. Even modest indigenous processing capacity is disproportionately valuable in a world where each additional non-Chinese node lowers systemic concentration risk. The Finnish Minerals Group's vertical-integration model is worth examining at modest scale, and a Mongolian copper smelter would be welcomed within the diversification frame.

The Forthcoming Eleven-Mineral, Three-Tier Critical-Minerals List

The most important specific policy development discussed at the conference was that the Government of Mongolia may soon adopt an official list of eleven critical minerals in three tiers: tier 1 critical to Mongolia (coal, copper); tier 2 critical to the global market; tier 3 platinum-group metals. This is more than an administrative classification — it is an analytical instrument that lets Mongolia communicate three different things to three different audiences: what matters to its own economy, what aligns with partner diversification agendas, and where it has a niche-specialist position. Its usefulness will depend on the exact composition, the inclusion criteria per tier, and the policy instruments attached. Elevating platinum-group metals to a co-equal tier risks creating expectations the underlying geology may not support, given global PGM concentration in South Africa, Russia and Zimbabwe; this risk warrants consideration before publication.

The Investability and Visibility Gap

Mongolia is not on the global investor map. Only about 4% of the territory is properly explored. There is no investment-ready critical-minerals pipeline. Commercial diplomacy is underdeveloped relative to the country's symbolic diplomatic tradition. Investor interest sits on the debt side — roughly US$5.5 billion of Mongolian sovereign, corporate and bank bonds in international markets, including a US$300 million coal-power-plant issuance this year — but not on the equity and FDI side, precisely because the project pipeline is absent. US investors met in Thailand the previous month had asked three persistent questions: does Mongolia have critical minerals, can Mongolia integrate with

Central Asia, and how would any of this be exported given the Russia–China transport constraint. These problems are largely on the Mongolian side and are not solved by partner goodwill.

Geography, Routes, and the Value-Density Logic

Geography is the binding constraint: virtually all heavy-mineral exports route through one of two neighbours. Two alternative routes were specified concretely at the conference for the first time. Toward Europe: the Middle Corridor plus airfreight for high-value, low-volume cargo. Toward Korea: the underused port of Vladivostok, for bulk concentrates. Each route carries its own dependencies and each is suited only to higher-value-density product. The Rajin port in the Democratic People's Republic of Korea, raised in audience discussion, was acknowledged to be foreclosed by United Nations Security Council sanctions. The unifying logic is value density: every alternative route is economic only for higher-value product, which makes the processing question central rather than peripheral.

Financing Channels: ODA and the CRM Facility

A financing gap sits between commercial bankability and the absence of JOGMEC-style institutional backing. Two channels can partly fill it: Korean ODA, given the long bilateral history and the development co-benefits in capacity-building, training, infrastructure and environmental monitoring; and the EU CRM Facility on the European side. Both are less politically loaded than FDI and both favour projects with mid-to-downstream components — which again reinforces the value-added imperative. Neither, however, substitutes for the equity FDI that only investability reform can attract.

3. Realistic Opportunities and Limitations for Future Cooperation

Opportunities

- **Japan as the most explicit first partner.** Japan's strategy is diversification, not decoupling; it names Mongolia as a key country; the JOGMEC template is reproducible.
- **Korea via trade policy and ODA.** Korea offers a critical-minerals-agreement track and a possible ODA financing channel, anchored in battery and semiconductor industrial demand.
- **European bilateral and facility engagement.** The Orano uranium agreement is the proof of concept that politically-accompanied European investment is possible despite geography. France, Germany and the Nordic states — notably Finland — are realistic interlocutors, and the EU CRM Facility is a structured entry point.

- **Institute-to-institute technical cooperation.** The German–Mongolian Technical Institute and Korean–Mongolian collaboration are the right scale for current capacity: technical exchange, standards transfer, training and ESG capability building.
- **The forthcoming tier list as a communication asset.** Once the three-tier list is finalised, a bilingual analytical product translating it for partner and domestic audiences would be among the highest-value contributions Mongolia's research community could make.

Limitations

- **Geography and processing are binding.** Alternative routes are niche complements, not substitutes; until processing exists somewhere in the chain, the route discussion is partly theoretical.
- **The investability gap is self-imposed.** Exploration coverage, pipeline and commercial diplomacy must be addressed on the Mongolian side; ODA and the CRM Facility do not substitute for equity FDI.
- **China-sensitivity risk.** High-profile alignment and US-coined regional vocabulary can trigger Chinese reactions on unrelated issues; framing matters as much as substance.
- **The Northeast Asian regional ceiling.** A regional minerals-and-chips community is not realistic; political capital should go to bilateral and minilateral channels.
- **The PGM niche is modest.** Tier 3 should not be oversold; global PGM supply is concentrated elsewhere and Mongolian potential is small in global terms.
- **The resilience premium is unresolved.** Unless partner governments underwrite a premium, projects do not get built — and Mongolia is not in a position to set that premium itself.

The conference demonstrated that international interest in Mongolia as a diversification partner is structurally real and growing. What the discussions also made clear is that the binding constraints are now predominantly domestic. The most useful contribution Mongolia's research and policy community can make is to say so clearly — and to treat the domestic readiness agenda with the same urgency that the country's partners are investing in their own diversification strategies.