



Transition Minerals: Now and Never

Summary from Forum—February 29, 2024, Terrace, B.C.

The "Transition Minerals: Now and Never" forum, held on February 29, 2024, in Terrace, B.C., was convened with the purpose of examining the narratives and realities of mining and broadening the conversation around what are commonly referred to as "critical minerals".

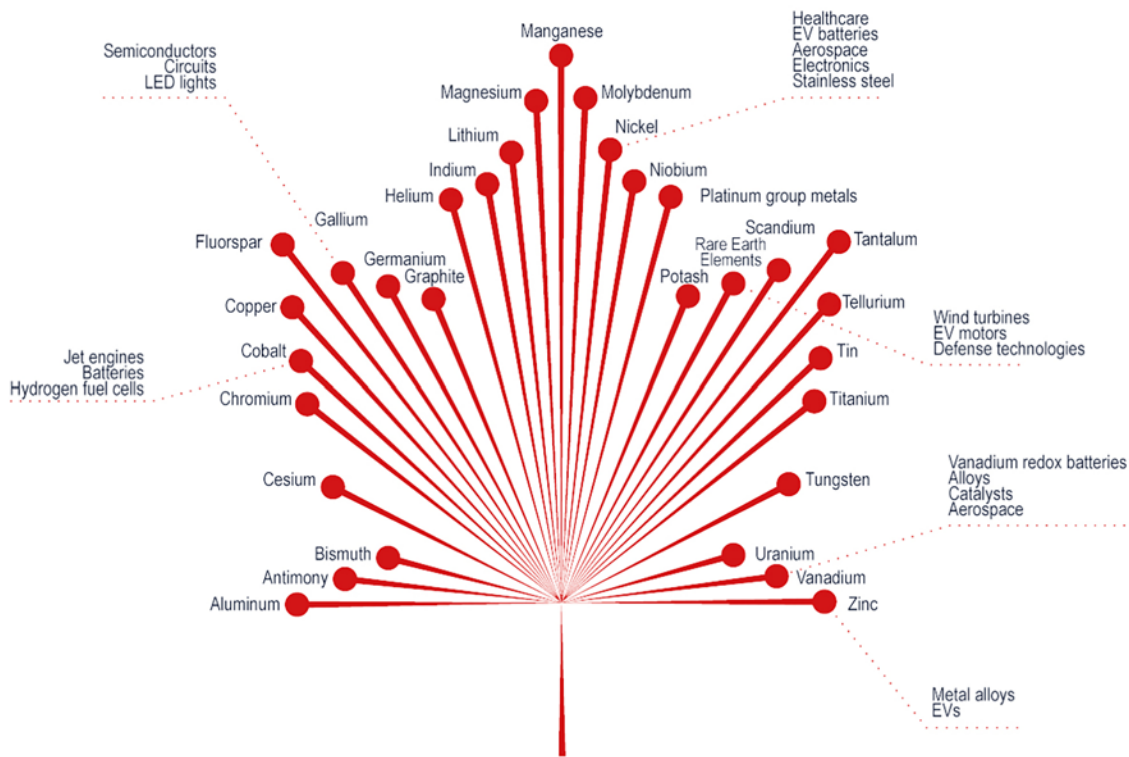
The term "transition minerals" was deliberately chosen for the forum. The push for "critical minerals" often emphasizes the necessity and urgency of extracting these resources for the sake of the green energy transition, but also for military purposes (defence and aerospace), telecommunications, medical devices, and almost any industrial production that may face supply chain disruptions. The rephrasing aims to put the focus on metals and minerals needed for climate action and shifting to renewable energy, while ensuring that we do so while reducing mining impacts on the environment, Indigenous rights, and community wellbeing. The Forum also explored how to reduce demand and consumption of transition minerals, including by sourcing from other means (such as recycled materials).

The forum brought together a diverse group of participants, including members of Indigenous communities, non-governmental organizations (NGOs), academics, and legal experts. This mix of attendees facilitated a rich exchange of ideas and perspectives, enabling a comprehensive discussion on the various aspects of mining practices in the region, particularly as they pertain to minerals necessary for technologies that are needed for the transition away from fossil fuels.

By bringing together voices from Indigenous communities directly affected by mining operations, environmental advocates, researchers, and others, the conference sought to foster a critical understanding of the environmental and social equity issues that are intertwined with the mining of transition minerals. The intent was to share knowledge and catalyze a dialogue that would foster common understanding, collaborations, and actions aimed at ensuring that the rush for these minerals does not come at the cost of ecological degradation and the marginalization of communities.

“ In 1945...humanity still relied on only about 12 metals. If you fast forward to now, we use everything in the periodic table.”

—Christopher Pollon, Forum keynote speaker and author of *Pitfall: The Race to Mine the World's Most Vulnerable Places*



Source: [The Canadian Critical Minerals Strategy](#)

1. Climate Action and Materials Constraints for the Transition

As the world grapples with the climate crisis, the push towards green and renewable energy has intensified. We are often told that this transition requires a significant increase in the extraction and utilization of various minerals essential for technologies such as solar panels, batteries, and electric vehicles. But we do not tend to hear about the challenges that come with an extractivist approach to solving the climate crisis—including ensuring a just and equitable transition that respects Indigenous rights and environmental boundaries.

There are very real constraints on extraction that will hamper a "business-as-usual" growth-based energy transition. Addressing overconsumption and excess material demand is therefore critical to preventing unacceptable levels and impacts of extraction.

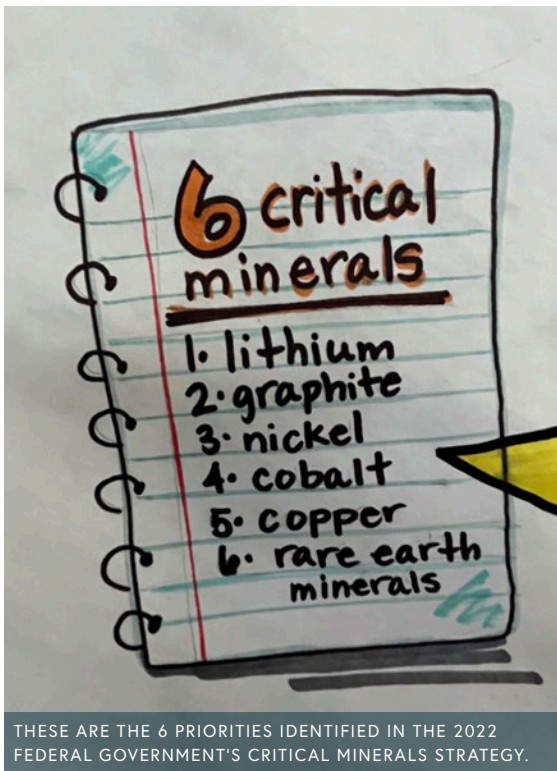
The first panel at the Forum reinforced the need for the energy transition for urgent climate action, while recognizing supply constraints, geopolitical realities, mining impacts, and a reality-check of what is actually mined in British Columbia.

Material constraints

There is a growing realization that achieving climate goals requires not only technological shifts but also a foundational change in how energy and resources are consumed and governed.

The extraction of critical minerals such as nickel, cobalt, rare earths, and copper is concentrated in regions that are ecologically sensitive and geopolitically complex. For instance, 70 percent of the world's cobalt is mined in the Democratic Republic of Congo, under conditions that often disregard human rights and environmental sustainability. Similarly, high-grade nickel, which is crucial for electric vehicle batteries, is predominantly sourced from regions like Russia and Indonesia, where mining practices pose significant environmental and social risks. Refining capacity is also heavily concentrated, with China refining 90 percent of rare earth elements and 60–70 percent of cobalt and lithium.

What's more, extraction processes are becoming increasingly energy-intensive due to declining ore grades, contributing significantly to global greenhouse gas (GHG) emissions. This, paradoxically, undermines the very goal of reducing carbon footprints that transition minerals are supposed to help us achieve.



Resource Governance and the Rush to Mine

Mining operations disproportionately impact Indigenous lands, often leading to conflicts over land use and conservation. A critical aspect of the materials constraint is the need for strict adherence to the principle of Free, Prior, and Informed Consent—ensuring that Indigenous communities decide on whether mining projects that affect their lands proceed and under what conditions.

The push for an equitable transition also highlights the importance of redefining resource governance frameworks to ensure that they are not only inclusive but also capable of mitigating the adverse impacts of mining activities. This includes re-evaluating how mining claims are staked, especially in regions like British Columbia, where the process remains overly simplified, and gives mining priority use of the land.

There is, moreover, a need to pull back the curtain on the rush to mine "critical minerals". Despite the hoopla, the majority of exploration is still for gold—accounting for 61 percent of spending in Canada in 2022. Gold, a precious metal not considered a "critical mineral", is one of British Columbia's major mined commodities, along with coal and copper. (There is also enough gold already mined to adequately supply the 8 percent of mine production used for technological applications.) While there may be some opportunities to mine nickel and some rare earth elements in B.C., we simply don't have the geology within Canada to meet the projected needs of the energy transition.

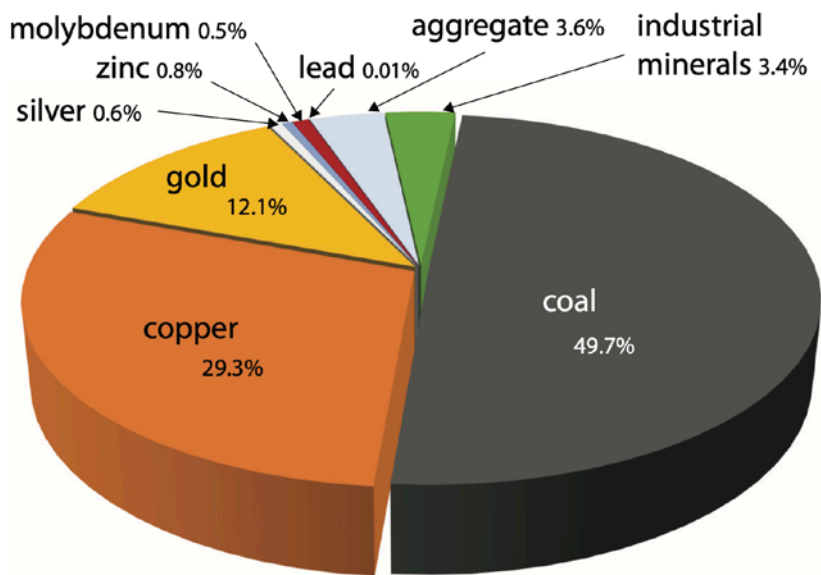


Fig. 3. 2021 forecast value of British Columbia mineral production by commodity; total is \$12.6 billion.

Source: [Provincial Overview of Exploration and Mining in British Columbia, 2021](#)

Towards Sustainability

Addressing the dual challenge of climate action and material constraints necessitates a multifaceted approach:

- **Reducing Consumption:** Rethinking not just how materials are used but also reducing the overall consumption of raw materials through changing systems of production and consumption, better design, and more efficient technologies.
- **Enhancing Recycling:** Developing robust recycling systems that can serve as a secondary source of critical minerals, thereby reducing dependency on primary extraction.
- **Innovating Alternatives:** Researching and investing in alternative materials that can either complement or replace the critical minerals currently in high demand.

The transition towards a sustainable future powered by green energy is fraught with challenges that are deeply intertwined with our current economic and social structures. As we navigate this transition, it is imperative to prioritize practices that respect ecological boundaries and social justice principles. The path forward requires a concerted effort from all sectors of society to reimagine and reform our approaches to resource use, ensuring that our solutions do not replicate the injustices of the past.

AUTHOR CHRISTOPHER POLLON GIVING A KEYNOTE SPEECH AT THE FORUM.



2. Community Impacts and the Risks of Mining

The mining sector, while contributing to regional economies, poses substantial risks and challenges to communities, especially those located near mining sites. The Forum highlighted numerous community concerns related to mining activities, ranging from environmental impacts on water bodies and landscapes to broader social repercussions. These issues underscore the need for improved mining practices and regulatory frameworks that prioritize environmental protection and community well-being.

Environmental Challenges and Community Concerns

Mining operations, particularly open-pit mining, have transformative effects on landscapes and ecosystems. They alter the physical environment and pose serious risks through the exposure and dispersion of polluting substances. One particularly critical issue is the contamination of water bodies—a frequent consequence of mining activities. This contamination not only affects aquatic life but also compromises the quality of drinking water, affecting human health and community livelihoods.

In British Columbia, there are nearly 200 mine sites that are polluting or potentially contaminating the environment. This is largely due to problems like acid rock drainage, which can devastate aquatic habitats and water quality through leaks and spills. The complexity of mining operations often leads to unforeseen challenges, such as safely managing tailings waste dams—a noteworthy risk given past catastrophic failures like the one at Mount Polley.

Specific Case Studies and Personal Accounts

The Forum included discussions on specific instances where community life has been disrupted by mining operations. The Mount Polley mine disaster was particularly noted for its profound long-term environmental impacts. The tailings dam breach resulted in significant amounts of waste and other materials being dumped into Quesnel Lake, causing extensive ecological damage and even altering the lake's behaviour. The disaster underscored regulatory failures and the inadequacy of emergency responses from the mining operators. While many promises were made by corporate and political leaders, including one to drink directly from the polluted lake, none were kept (other than to get the mine back up and running again).

Another case discussed involved the community of Wells, B.C., which faces threats from the construction of a large mining complex. The community's experiences with the environmental assessment process revealed it to be cumbersome, lacking in meaningful engagement, and skewed towards expediting mining approvals at the expense of community interests.

The discussions emphasized the importance of genuine community involvement in mining decisions. This involves not only consultation but integrating community knowledge and preferences in decision-making processes. Transparency, especially in the formation and operation of Community Advisory Committees, was identified as an important issue. Such committees held a lot of promise under the new *Environmental Assessment Act*, but in practice did not operate openly and effectively address community concerns. Community Advisory Committee members also deserve to be compensated given the expertise required, substantial documentation to wade through, and time given to provide significant feedback and evidence.



TAHLTAN ELDER BERTHA LOUIE SHARING SOME OF THE IMPACTS FROM MINING AND RESISTANCE OF SOME PROPOSALS BY HER COMMUNITY.

Elders from the Tahltan Nation shared poignant reflections on the impacts of mining activities on their community and environment. They expressed concerns about the irreversible damage caused by mining, including the polluting of lakes from tailings dams and the destruction of vital natural resources that have sustained their community for generations. The loss of berry patches, medicinal plants, and traditional hunting grounds has not only ecological consequences but also erodes the cultural heritage and way of life of the Tahltan people.

Elders from the Klabona Keepers highlighted the emotional and psychological toll on their community, particularly the anxiety over what future generations will inherit. The rapid expansion of mining claims and operations has led to significant social disruptions, including increased racism and discrimination against community members. Protests to protect their lands have often been met with arrests, underscoring a systemic disregard for their rights and well-being.

The elders called for a united front to advocate for the preservation of their land and resources, emphasizing the importance of stopping new mining projects to safeguard their environment and heritage. They urged the need for genuine and meaningful consultation processes that respect Indigenous sovereignty and prioritize environmental and cultural preservation over economic gains.

“When we all come together, we're powerful. I've seen it happen.”
—Rita Louie, panelist and Klabona Keeper

Recommendations for Moving Forward

To mitigate the risks associated with mining and ensure that community interests are safeguarded, several recommendations were put forward, including:

- Strengthening the environmental assessment process to ensure it includes opportunities and funding for community advisory committees to peer review proponent evidence and submit independent expert reviews, and meaningfully influence outcomes.
- Advocating for strict regulations on tailings management to prevent future disasters and ensuring that mining practices adhere to the highest standards of environmental protection.
- Ensuring that mineral staking respects land use plans and the Free, Prior and Informed Consent of Indigenous peoples.

The Forum highlighted that while mining has a role to play in the transition away from fossil fuels, it must not be pursued at the expense of environmental integrity and community well-being. Moving forward, a balanced approach is necessary—one that integrates robust environmental safeguards with genuine community participation and respects the rights and aspirations of those directly affected by mining activities.

3. Pivoting to Solutions

Given the extensive impacts of mining on the environment and communities, the Forum sought to explore alternatives to new mined materials, and new mines, for addressing the climate crisis. The Forum brought together experts across various disciplines to discuss strategies for reducing consumption, policy levers to reduce demand for "critical minerals", circular economy initiatives, and Indigenous-led land use plans and protected areas.

Innovative Strategies for Reducing and Greening Consumption

Participants discussed the necessity to move from extractivism to more sustainable practices. They emphasized reducing the consumption of raw materials through improved recycling processes, optimizing resource use, and integrating circular economy principles into the mining sector as well into the economy and societal functioning more broadly.

Discussion also covered technological innovations such as the optimization of battery sizes to balance efficiency with resource demand and the development of public transit infrastructures to reduce dependence on personal vehicles, thus lowering the overall mineral demand for battery production. Policy recommendations included implementing the "Right to Repair" to extend product lifespans and adopting income equality measures to curb over-consumption, which is intrinsically linked to excessive resource use. The EU directive for one charging cable fit for all cellphones and computers was cited as a small measure that will significantly reduce e-waste.

The Forum challenged prevailing assumptions about the inevitable increase in mineral demand for renewable technologies. Emphasis was placed on adopting smarter urban planning, optimizing battery sizes, and enhancing recycling efforts, which could significantly reduce our reliance on raw mineral extraction. One study cited during the Forum suggested that such comprehensive strategies could decrease lithium demand by up to 92 percent.

Critiques were also directed at the approach of greening consumption without reducing it. Examples highlighted included energy-efficient technologies like LED lighting, which haven't decreased global energy use due to increased overall consumption (sometimes known as Jevons Paradox).



FORUM PARTICIPANTS DURING A BREAK.

“ We have to take the reduction of consumption as seriously as the greening of consumption... We can look at home heating. We can build more wind farms and solar arrays and hydro projects to feed our homes with electricity, for example; OR we can all turn our thermostats down to 19 degrees tomorrow, and that would take the equivalent of 65 million fuel combustion engines off the roads.”
—J.B. MacKinnon, panelist and author of *The Day the World Stopped Shopping*



TARA MARSDEN/NAXGINKW SPEAKING ABOUT THE GITANYOW LAND USE PLAN AND IPCA.



ADRIENNE BERCHTOLD FROM SKEENAWILD TALKING ABOUT TAILINGS DAM RISKS.

The discussion emphasized the strategic importance of forming coalitions across diverse sectors to foster a comprehensive approach to sustainability. For instance, by uniting public transit advocates, anti-mining activists, community organizers, and unions, we can create a powerful alliance that champions broader systemic changes. Such collaborative efforts can aim to reduce dependency on private vehicle use and minimize the environmental footprint of mining activities, thus addressing both the supply and demand sides of the resource equation.

“ We have some agency in the amount of demand for these minerals. We don't need to assume that this skyrocketing curve is a given. It's not a fixed future state.”
—Emmett Hopkins, panelist and researcher at Climate and Community Project

Community-Centric Approaches and Indigenous Leadership

The role of Indigenous communities in reshaping mining practices was a focal point. Indigenous governments are leading on several fronts, from challenging the colonial legacy of the mineral tenure regime in B.C., to setting their own water laws and leading their own environmental assessments for mine proposals.

Indigenous-led land use plans can provide clarity for where mining, forestry and other proposals may be considered, and what is off limits due to other values. The Forum highlighted successful case studies where Indigenous communities have led conservation efforts, and negotiated terms that respect their rights and environmental stewardship when consent is given.

Environmental Policies and Long-Term Strategies

Environmental policies need to be robust enough to enforce mining regulations that minimize ecological degradation. There is also a need for a comprehensive approach to assess the long-term impacts of mining projects, incorporating "climate tests" to evaluate the potential environmental and social ramifications. There were suggestions on how mines themselves need to look at ways to shift their operations and make them more circular, and stop externalizing the costs of waste. These strategies can help to ensure that mining does not continue to contribute disproportionately to climate change and ecological damage while making the needed transition away from fossil fuels.

The Forum underscored the critical need for a multifaceted approach to addressing mining impacts—including by reducing demand, enhancing recycling, and embracing a circular economy. It also highlighted the importance of community involvement and the implementation of stringent environmental policies to ensure that mining becomes a part of a sustainable future.

4. Learning from Other Provinces' and B.C.'s Critical Minerals Strategies

The conference explored the lessons and approaches from other Canadian provinces regarding mining regulations and "critical minerals" strategies. It provided a platform for discussing how these strategies could be adapted to British Columbia's legislative and ecological landscape, as well as insights into federal, provincial and First Nations' Leadership Council "critical minerals" recommendations.

Strategic Insights and Emerging Challenges

Lessons from Ontario's mining expansion in sensitive ecological zones like peatlands underscore the importance of integrating environmental concerns at the early stages of mining planning to prevent irreversible damage. While mining companies and the provincial government are touting the Ring of Fire as key to mining minerals for the energy transition, this region is a major carbon sink that needs to be kept intact to meet global climate goals. There are over 31,000 mineral claims (over 55 times the size of Vancouver) in these "Breathing Lands".

There has been a surge in mining claims in Quebec as well—over 350,000—that have sparked concern among First Nations, residents and municipal governments. Over 40 organizations founded Quebec's Meilleure Mine Coalition in 2008. With pressures increasing for more mining, the coalition put forward a number of recommendations based on four principles—reduce at the source (investing in public transit, recycling, adopting targets to reduce solo-car use); protect the environment (through better environmental assessments, more responsible mining practices in law, no-go zones for ecologically sensitive ecosystems); respect Indigenous and local populations (end free-entry staking, allow local communities to create no-go zones); and ensure the polluter pays and tax justice for mining operations. The coalition had some success integrating mining reforms as part of the push for electrification of transportation.

British Columbia has yet to release its full "critical minerals" strategy, however there are hopes from an initial list that including sourcing beyond new mines may be incorporated. The First Nations Leadership Council also released its own strategy that includes some overarching objectives to safeguard the sustainability of critical minerals resources, to establish and respect no-go zones/IPCAs (Indigenous Protected and Conserved Areas), and to ensure best environmental and health and safety standards in mineral extraction and processing.

The Gitxaala Nation also shared information about their court challenge to the *Mineral Tenure Act* in B.C., and some of the reforms being sought as the province is now mandated to amend its mineral staking regime.

The need for a collaborative approach in developing mining policies was a recurring theme. This involves ensuring that Indigenous communities, local stakeholders, and environmental groups are actively involved in the mining policy framework to foster policies that are not only inclusive but also environmentally and socially sound.

Future Directions and Policy Recommendations

The session concluded with several forward-looking recommendations:

- Develop and implement comprehensive land-use planning that furthers biodiversity protection and provides clarity where mining might be an acceptable consideration.
- Reform mineral claim compensation mechanisms to ensure they do not undermine conservation efforts or impose undue financial burdens on the public.
- Eliminate the free-entry system for mineral claims in all provinces in order to align with Indigenous rights and protect biodiversity.
- Link electrification of transportation and green energy transition initiatives to principles of environmental justice, Indigenous rights and responsible mining practices.

This discussion underscored the importance of learning from both successes and shortcomings in other jurisdictions to refine B.C.'s approach to mineral tenure and mining operations within the push for "critical minerals". By embracing enhanced community engagement and robust environmental safeguards, B.C. can begin to improve the legacy that mining has left across its environmental and social landscape. Policy intentions and implementation also need to be clearly focused on transition minerals, that is, on the energy transition, not on mining in general. Public resources and support need to be directed towards improving the conditions of mining transition minerals, and not mining that directly counters climate objectives, like coal and precious metal mining.



FORUM ORGANIZER NIKKI SKUCE AND AUTHOR CHRISTOPHER POLLON AT READING AT SMITHERS PUBLIC LIBRARY

Conclusion

The "Transition Minerals: Now and Never" forum exposed and explored several critical themes regarding the sustainability and impacts of mining operations, especially as they relate to the transition towards green energy. Participants raised crucial insights into the current state of mining practices, highlighting a significant gap between the industry's operations and the ideals of environmental sustainability and respect for Indigenous rights.

Discussions analyzed the discourse around "critical minerals," which often portrays these resources as indispensable for the green transition. This narrative tends to justify rapid extraction processes by suggesting that environmental and other regulations—often dismissed as "red tape"—should be minimized to expedite access to these minerals. The conference underscored the risks of this approach, noting that it could lead to significant environmental degradation and marginalization of community voices, particularly those of Indigenous peoples, affected by mining operations.

Firm critiques were offered of current mining practices, detailing their impacts on communities and the environment. The consensus underscored that without significant external pressure, the mining industry shows limited inclination towards genuine reform. Empowering communities, especially Indigenous groups, emerged as a crucial element, not only in decision-making processes but also in leading the push against harmful mining operations.

The challenge of reducing overall consumption was also a focal point, with an emphasis on the need to take this as seriously—if not more seriously—as efforts towards "green" consumption. The forum advocated for a drastic shift in how resources are used and managed, promoting policies that significantly curb the extraction and use of raw materials.

“ The panels were excellent. The voices from impacted communities was especially powerful. The space we gathered in felt very welcoming and a great place to share ideas. Additional days for discussion is my only recommendation :)

—A participant's feedback on Forum

Next Steps:

Given the critical views on the potential for voluntary reform within the mining industry, the Forum underscored the necessity for strong, continued advocacy to drive change. This includes:

- Pushing for stringent laws and regulations that prioritize environmental protection and enforce community rights.
- Supporting community-led initiatives that can monitor and challenge mining operations, ensuring they are held accountable for their environmental and social impacts.
- Raising public awareness about the detrimental effects of current mining practices through educational campaigns. These efforts should aim to mobilize public opinion and increase pressure on policymakers and industry leaders.
- Fostering collaboration among different advocacy groups, including those focused on climate action and renewable energy, public transit, mining reform, and environmental justice, to form a united front capable of exerting substantial influence on policy and industry practices.
- Exposing greenwashing and misleading information as the mining sector tries to position itself as a climate saviour.

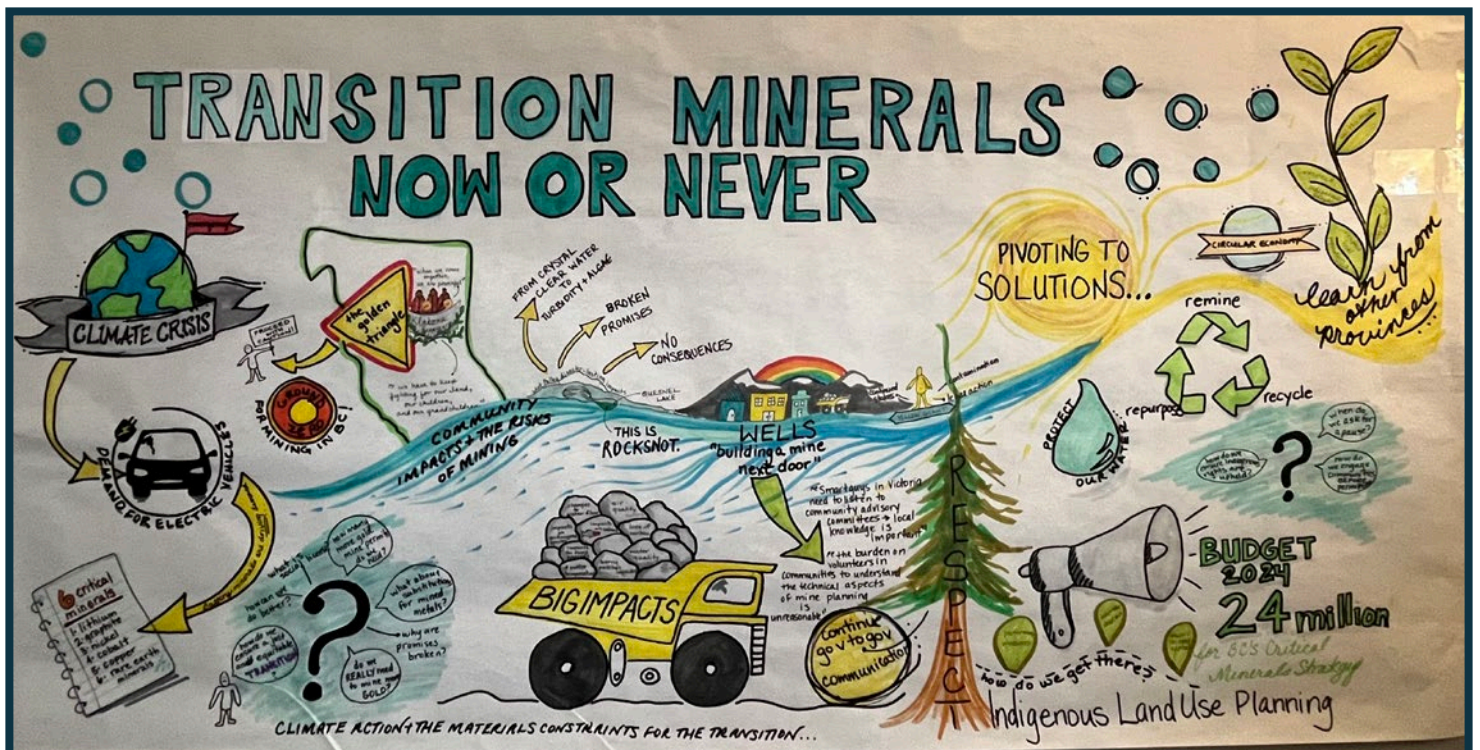
By taking these steps, stakeholders can leverage the critical perspectives shared at the conference to advocate for a more responsible mining sector and for broader solutions to the energy transition. The path forward requires robust collective action to ensure that mining practices evolve to genuinely respect ecological boundaries and the rights of those most affected by their operations.

The Transition Minerals Forum provided a valuable opportunity to bring together key groups and individuals, leaders, and resource people to exchange perspectives, share information, and engage in mutual learning. Through this, it highlighted directions for action as outlined above, but also increased participants' familiarity and literacy with a broader range of issues and discourses. Perhaps most importantly, it helped make new connections and strengthen existing relationships to allow for greater collaboration and collective action towards these shared objectives.

Acknowledgements

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Forum photos by Nikki Skuce and Tom Roper. Cover photo of Copper Mountain Mine by Benjamin Drummond and LightHawk.



GRAPHIC NOTES FROM FORUM BY SARAH ZIMMERMAN.