



PROSPECTORS &
DEVELOPERS
ASSOCIATION
OF CANADA



COMMITTED TO
IMPROVING THE STATE
OF THE WORLD



INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development

PDAC-WEF-IGF INTERNATIONAL MINES MINISTERS SUMMIT 2023

CLOSING THE LOOP: DEVELOPING A CIRCULAR MINERAL INDUSTRY

Summary Report

March 6, 2023
Bank of Montreal
100 King Street West, 68th Floor



Report prepared by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF).

Summit Overview

The eighth annual International Mines Ministers Summit (IMMS) was held on Monday, March 6, 2023, at the Bank of Montreal building in Toronto, Canada. The 2023 IMMS was held on the margins of the Prospectors and Developers Association of Canada (PDAC) Convention. Twenty government representatives responsible for mining in their countries joined leaders of industry, financial institutions, and civil society to take part in the summit. The summit was co-hosted by PDAC, the World Economic Forum (WEF), and the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) under the theme ***Closing the Loop: Developing a circular mineral industry***. The meeting convened in person for the second time since the COVID-19 pandemic began and was conducted following Chatham House Rules.

Participants stated that the demand for critical minerals is increasing substantially as jurisdictions around the globe begin their transition to a lower-carbon future. There is no global energy transition without minerals, and the finite nature of these resources, as well as the increasing sustainability commitments, force the mining sector to go beyond extraction to a more circular mineral industry. It is critically important for the mining sector to change in order to achieve a responsible energy transition, including greater reuse, redesign and recycling in order to consume fewer mineral resources and use them for longer.

Governments also widely agreed that navigating the transition to a low carbon economy in a responsible matter is an imperative. There are growing concerns about how community conflicts and biodiversity commitments will be addressed as more minerals are needed. Circular economy strategies were referenced as a key component of responsible conduct that could bring benefits in terms of resilience, resource efficiency and incremental economic growth. However, circular economy strategies can be complex and need innovation and financing. Strong cooperation will be needed among countries, industry and other stakeholders, to enable countries that are starting to build their circularity strategies to learn lessons from more experienced countries.

CIRCULAR ECONOMY TO ADDRESS CRITICAL MINERALS DEMAND

Participants agreed that the transition to a circular mineral industry, from early exploration to recycling, will be critical in ensuring that global demand for critical materials can be met in an environmentally sustainable yet economical way.

Representatives noted that mining is seen today as a “take, make, waste” system. However, while minerals and metals can be mined, some like copper and zinc can also be infinitely recycled. Circularity calls for creating new ways to promote and incentivize efficiency and decouple growth from resources which can be effective to address green energy transition imperatives. The world could make the most efficient use of what is already extracted before thinking of producing more. This could include shifting part of the critical minerals’ demand focus on recycling mineral waste.

Circularity approaches shared among participants were diverse. Some strategies come from general circular economy policies, others as a specific aspect of mining law reform. Some nations focus on particular mineral supply chains based on their internal markets demands. It

was also mentioned that countries should reconsider their planning for mining: all minerals in a mining area should be considered, not only primary minerals.

Circularity then allows mining to be maximized to respond to the high demand of minerals while minimizing its negative impacts.”

CRITICAL MINERALS AS A RESPONSIBILITY

Participants agreed that current critical minerals demand is an opportunity for many countries but is also a global challenge. It is not about mining at all costs - minerals are not the only critical natural resource. Water and biodiversity are considered critical in many jurisdictions and need to be protected. Communities should trust that the mining sector will respond to increased demand for minerals while avoiding negative environmental and social impacts and optimizing positive ones.

Most governments stressed that communities should always benefit from mining. These benefits can be achieved through engagement with communities – including Indigenous Peoples - from early stages of planning, even before the land is destined to mining. And although mining might be lucrative, communities must support it. Consideration of the diversity of mining communities was mentioned as key: mining is context-specific and a one-fits-all approach should not apply. Governments, companies and communities need to work together to agree on the best use of the land.

Where mining of new minerals is accepted, government participants stated that environmental and social regulations not only need to be taken to heart but they should become stricter. Representatives from companies present at the meeting shared how, while countries impose environmental and social regulations, mining companies are going beyond and implementing higher standards with innovative strategies. For example, [ICMM companies are committed to respect protected areas and aim at net zero loss of biodiversity, especially in world heritage sites](#). WEF also shared the [Global Battery Alliance](#), a public-private collaboration platform created to ensure that battery production not only supports green energy, but also safeguards human rights and promotes health and environmental sustainability, including [circular transformation](#).

CIRCULARITY THROUGH THE WHOLE MINE LIFE CYCLE

Participants maintained that there is no circular economy without mining. Circularity does not exist without inputs, and mining provides those inputs. Participants, including governments and companies, presented how they are working towards solutions at every stage of the loop, from sustainable exploration and development to better mine closure strategies.

Attention was drawn to mine closure and post-mining transition. It was noted by some governments that little consideration is paid to mine closure. With a growing inventory of mine sites poorly closed, new and innovative solutions are needed to tackle this problem.

Several initiatives were shared. Recycling, in general, was mentioned as a leading circularity practice. The United Kingdom, for example, is supporting, through its [CLIMATES program](#), innovation in recycling of rare earths elements. Tailings re-mining is at the core of the future of mining. Industry representatives present at the meeting explained they are studying re-mining of

metal deposits in their tailings. Other innovative initiatives were shared, such as [Regeneration enterprises](#), which uses re-mining and processing of waste from legacy mine sites to support rehabilitation activities and restore natural environments.

Different waste handling strategies were mentioned throughout the meeting. Some participants are considering waste streams, which can be sources of economic value while reducing existing waste. Other initiatives include no waste mining, waste reduction and developing markets for waste rock products.

Participants mentioned that although industry is innovating in circularity initiatives, governments remain behind. It was agreed that policy is needed to take circularity to its maximum potential. Several challenges to innovation around circularity in the mining industry were mentioned including lack of incentives, lack of regulation, out of date regulations or the wrong type of regulation. For example, traditional licensing and permitting systems created for new mining projects may not be suitable for reprocessing tailings.

KNOWLEDGE SHARING AND PARTNERSHIPS TO BOOST CIRCULARITY

Government representatives around the table agree that the expected demand of critical minerals will need to be met through cooperation and trade amongst all nations. Some participants noted that circularity strategies have matured in developed mining jurisdictions. Developing countries, however, have not yet grasped the importance of creating alternatives beyond mining to respond to increasing demand of minerals. It was then widely agreed that collaboration and partnerships are essential to resolve this imbalance.

As new ideas are developed, governments need to find ways to learn from each other and collaborate. Initiatives such as the [Inter-governmental Forum on Mining, Minerals, Metals and Sustainable Development \(IGF\)](#) provide countries with dialogue forums and information sharing opportunities to address modern challenges in the mining sector.

Countries are also partnering bilaterally. Canada and the United Kingdom announced during the summit that they are working in collaboration on critical minerals. The [United Kingdom-Canada critical minerals partnership](#) is promoting joint work between both countries as they endeavor to implement their own Critical Mineral Strategies. This includes building resilient, sustainable, and transparent supply chains and developing solutions to climate change which include efforts on circularity.

Participants also acknowledged that there is a proliferation of international standards for the mining industry to raise environmental and social standards. Working towards one universal standard would facilitate these efforts. On this issue, representatives raised the Mining Association of Canadas [Towards Sustainable Mining](#) initiative and the [International Council on Metals and Minerals](#), announced their intention to work towards a common standard together with [The Copper Mark](#) and [World Gold Council](#). On the government side, participants called for a toolbox to advance responsible mining.

It was agreed that current recycling efforts in the sector around the globe are not enough. The lack of recycling technologies, investment in research and development and the complexities of organizing recycling processes to close the loops are pointed to as the reason why recycling

rates are still low today. To help overcome these challenges and realize global benefits, the sharing of information on new technologies needs to improve.

As circularity becomes a core aspect of mining sector operations participants concluded that opportunities for further dialogue in forums such as the IMMS, are essential. Governments, companies, investors, NGOs and other stakeholders all share equal responsibility in the development of a circular mineral industry.

Annex 1: List of delegates

Argentina	Secretary of Mining	Ms. Fernanda Avila
Canada	Minister of Natural Resources	Hon. Jonathan Wilkinson
Chile	Vice-Minister of Mines	Mr. Willy Kracht
Finland	Ambassador	H.E. Roy Eriksson
France	Interministerial delegate for the supply of strategic minerals and metals	Mr. Benjamin Gallezot
Guyana	Minister of Natural Resources	Hon. Vickram Bharrat
Kazakhstan	Vice-Minister of Industry and Infrastructure	Mr. IRAN SHARKHAN
Mongolia	Minister of Mining and Heavy Industry	H.E. Ganbaatar Jambal
Niger	Minister of Mines	H.E. Ousseini Hadizatou YACOUBA BOZARI
Nigeria	Minister of Mines and Steel Development	Arc. Hon. Olamelikan Adegbite
Norway	State Secretary for Trade, Industry and Fisheries	Mr. Odd Steinar Åfar Viseth
Peru	Minister of Energy and Mines	Mr. Oscar Electro Vera Gargurevich
Portugal	Secretary of State for Energy and Climate	Ms. Ana Cláudia Fontoura Gouveia
Senegal	Ambassador Designate	Mr. Ibrahim Diallo
Sweden	Minister of Climate and Enterprise	Ms. Sara Modig
Tanzania	Commissioner for Minerals	Mr. Abdulrahman MWAGA
Tchad	Minister of Mines and Geology	M. MAHAMAT ABDELKERIM
United Kingdom	Minister of State	Hon. Nusrat Ghani
USA	Deputy Assistant Secretary for Land and Minerals Management	Mr. Steven Feldgus
Zimbabwe	Ambassador-Designate	C.T. Chinenero

Annex 2: Invited guests

Bank of Montreal	Vice Chair	Hon. Brian Tobin
Bank of Montreal	Co-Head, Global Metals and Mining	Ilan Bahar
Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development	Director	Greg Radford
International Council on Mining and Metals	President and Chief Executive Officer	Rohitesh Dhawan
Mining Association of Canada	President and Chief Executive Officer	Pierre Gratton
Prospectors & Developers Association of Canada	Vice-President	Karen Rees
RESOLVE		John Thompson
TMX Group	Chief Executive Officer	John McKenzie
Vale Base Metals	Chief Executive Officer	Deshnee Naidoo
Women in Mining International	Director	Barbara Dischinger
World Economic Forum	Manager, Mining and Metals Industry	Tatiana Aguilar