



THE SCHOOL OF PUBLIC POLICY

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Critical Minerals: Corporate Social Responsibility and to What We Owe to Each Other

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Abstract

This paper delves into the complex dynamics of mineral extraction in Myanmar, a country rich in diverse mineral resources. Myanmar has recently witnessed a surge in foreign investment and trade in its mining sector, particularly in what are called “critical minerals”. The demand for these minerals, driven by global trends including electric vehicle production, has led to increased extraction activities, and has made Myanmar the world’s third-largest critical mineral producer. However, this growth has brought forth multifaceted challenges, including human rights violations, environmental degradation, and social conflict.

Myanmar’s governance of the extractive industries is marked by instability and lack of transparency. Despite new legislation mandating environmental impact assessments (EIAs) and the need for responsible corporate social responsibility (CSR) practice, illegal mining persists, which causes harm to both the environment and to local communities. Drawing on Canada’s significant role in the global critical mineral market, this study offers key policy considerations to ensure ethical and sustainable mineral extraction abroad. The importance of diplomatic engagement with host countries, stringent environmental regulations and adherence to human rights standards is underscored. Through these practices, Canada can contribute to global resource security, foster sustainable development, and uphold human rights in mineral-rich nations. These priorities align with the nation’s commitment to combat climate change and promote ethical mining practices.

Keywords: Mineral extraction, critical minerals, social corporate responsibility, sustainable development, climate change, diplomatic engagement

Executive Summary

This executive summary provides an overview of the legislation surrounding Corporate Social Responsibility (CSR) and Critical Minerals in Canada, the consequences of critical mineral extraction, the role of Canadian policymakers, and the challenges and opportunities associated with mining abroad.

The Canadian government has committed to CSR for its companies operating abroad, supporting international agreements at the United Nations, the Organization for Economic Co-operation and Development (OECD) and the World Bank. Some key Canadian legislative frameworks focus on forced labor, transparency, and corruption, including the Corruption of Foreign Public Officials Act and the Canadian Ombudsperson for Responsible Enterprise. A Private Member's bill, the Corporate Responsibility to Protect Human Rights Act, seeks to hold Canadian companies operating internationally accountable for human rights violations.

The ongoing transition to electric vehicles (EVs) in Canada is part of its commitment to reducing emissions, which makes critical minerals necessary for increased battery production. However, critical mineral mining raises environmental concerns and could contribute to funding local militias in some regions. The Investment Canada Act and other legislation encourage increased capital and technology benefits for critical mineral extraction to support domestic industries and to secure the Canadian domestic supply chain.

Mining companies, including some of Canada's, have faced criticism for corrupt business conduct and human rights abuses while operating internationally. Judicial decisions, such as *Nevsun Resource Ltd v. Araya and Chevron Corp. v. Yaiguaje*, have addressed human rights violations linked to mining activities.

The extraction of critical minerals poses diverse challenges, which include environmental degradation, ecological damage, and human rights abuses. While some advocates argue that formal mining can improve human rights and economic development, others highlight the negative impacts and funding of conflicts in fragile regions.

Canadian foreign aid has supported the mining sector in developing countries, aiming to promote CSR. The Canadian government has played a significant role in promoting its mining sector abroad, often emphasizing its benefits for Canada.

A case study of Myanmar's mining industry exemplifies the challenges and instability in resource-rich regions, emphasizing the need for responsible practices and diplomatic relations when mining abroad.

Canadian policymakers must consider both economic and environmental sustainability, responsible mining and business practices, collaboration, and balancing economic interests with social and environmental concerns when extracting critical minerals abroad. Diplomatic engagement, environmental regulations, CSR policies, capacity-building and international collaboration are key policy considerations that must be made as Canada moves forward in this arena.

In conclusion, Canada's approach to critical mineral extraction abroad should prioritize responsible and sustainable practices, promote transparency, and respect human rights and local communities. By implementing comprehensive policies and collaborating with international partners, Canada can contribute to global resource security while fostering economic development and environmental protection at home and abroad.

Background

Climate change is an ongoing topic of discussion in many policy circles worldwide. Like many other countries, Canada is transitioning from cars fueled by oil and gas to electric vehicles (EVs). These types of vehicles require different minerals that are likely to emit fewer net fossil fuels than traditional oil and gas. These minerals are called “critical minerals” due to their importance in battery manufacturing and will be referred to as such throughout this paper. In 2021 the Federal Government of Canada announced its plan to reduce Canada's carbon footprint by passing regulations encouraging EV uptake and mandating the transition to EVs. In 2022 the Government of Canada announced that they would be working collaboratively with the automotive industry to build an EV battery manufacturing facility to both boost the local economy and to create a space in the global EV battery manufacturing market. However, critical minerals are needed to build cars and there is a great deal of competition between world leaders to secure critical minerals.

Numerous developing countries are reliant on exported mineral resources as a source of government revenue. There are many cases of increasing dependence on extractive industries over the past two decades (Brown, 2019). Natural resources can bring financial windfalls, creating employment opportunities and generating resources to fund poverty-reduction programs. However, the increased emphasis on extractive resources can come at a high price to local communities. Mining in particular has been associated with environmental destruction, human rights abuses, repression, forced displacement, local conflict, social tensions, and other health-related problems (Brown, 2019). According to a 2009 study done by the Prospectors and Developers Association of Canada along with key groups within the industry, Canadian companies are responsible for one-third of the 171 incidents in developing countries that they tracked over a ten-year period (Conflict, 2009). These incidents are divided into categories based on the central issue: 60% community conflict, 40% environmental contamination and destruction, and 30% unethical behavior (Conflict, 2009, pp. 10, 16). Mining has been a deeply divisive issue, and mining communities are often split into pro- and anti-extractive camps.

Canada's foreign aid program appears to have taken the side of pro-extraction, as it has a history of providing assistance to the mining sector in various countries in Africa, Asia, and Latin America. In 2011, the Canadian Government began to announce many new initiatives to promote the extractive sector's role in international development (Brown, 2019). Canadian Official Development Assistance (ODA) disbursements for mineral resources and mining began to rapidly increase, from an annual average of \$3 million USD in 2006-2011 to \$23 million USD in 2012-2017 (Canada G. A., 2022). As the emphasis on aid to the mining sector increases, Canada, who is the host for about two-thirds of the world's mining companies, stood out from its donor peers in the Development Assistance Committee of the Organization for Economic Co-operation and Development (OECD-DAC) (OECD, n.d.).

Foreign aid has previously been shown to serve donors' interests beyond the needs of the group receiving aid, including donors' commercial interests, and has demonstrated varying degrees and types of self-interest over time (Brown, 2019). In the early 2000s, international norms shifted towards greater altruism. This shift was characterized by rapidly rising levels of ODA and greater emphasis on poverty reduction at the rhetorical level and lacked follow through in practice. These norms were then emphasized at the 2002 United Nations (UN) Conference on Financing for Development, which was held in Monterrey, Mexico, and then codified in the 2005 Paris Declaration on Aid Effectiveness. The Millennium Development Goals (MDGs) and their successors the Sustainable Development Goals (SDGs) place poverty reduction and potential poverty elimination at the core of their respective agendas. Donors pledged to orient their aid programs towards achieving them (Brown, 2019).

This paper will examine the role critical minerals play in Canadian policies, and the implications of those policies globally. By undertaking an exploration of critical minerals and their importance both domestically and internationally, this paper will examine the critical role policymakers have in shaping lives around the world.

Critical minerals

Critical minerals include products such as rare earth, platinum group elements, nickel, zinc, and others on the market but have yet to be historically their importance has been overlooked (Ballinger et al., 2019). These minerals exist primarily in co-associated forms and on the small scale of their market are often sold as a by-product from other bulk mineral extraction (Dou et al., 2023). Given the sharp rise in demand for renewable energy production, reduced-emission transportation, and sustainable development, critical minerals are now in high demand in the global market (Fortier et al., 2019). The supply of critical minerals and their products' environmental and social impacts have also often been overlooked in assessing the transition of fossil energy economies like Canada's (Dou et al., 2023).

As the global political response to climate change accelerates and “clean” energy and transportation technologies advance, net-zero goals become economically and politically feasible (Burger et al., 2022; Boire & Neil, 2021). Canada is putting forward their carbon-neutral roadmaps and investing heavily in emissions reduction nationwide. The clean energy and transportation systems are central to the everyday lives of Canadians, both now and in the future (Canada G. o., Net-Zero Emissions by 2050, 2023). Critical minerals are needed for technology to shift to meet the goal of net zero carbon emissions (Gielen & Lyons, 2022). As illustrated by the average electric car, they require six times the mineral input of a conventional vehicle. The International Energy Agency (IEA) states that "the average amount of minerals required for a new power unit has increased by 50% since 2010, as the share of renewable in new investment has risen" (IEA, 2021). In carbon emission reductions alone, the World Bank estimates that about 3 billion tons of critical minerals will be needed to decarbonize the global energy system by 2050 (Prassi, 2020). This would mean that the production of minerals such as graphite, lithium and cobalt must increase by nearly 500% by 2050 to meet the need for clean energy. Meeting these demands for critical minerals on such an enormous scale will require changes to the existing production order, trade regulations and mining of critical minerals.

Despite the rise in demand, the supply of critical minerals is highly inelastic and fragile. Many deposits are in developing and highly underdeveloped countries, where mining has historically existed amongst high levels of corruption, pollution, human rights abuses, and violence (Dou et al., 2023). Mineral extraction often catalyzes negative community impacts due to weak corporate social responsibility (CSR) worldwide (Sovacool, 2019). International networks for mining investment, resource extraction, and allocation to different markets are currently under threat due to populism and trade divisions (Dou et al., 2023). The sustainable supply of critical minerals faces various challenges, from individual welfare loss, community stability, and equitable development between countries to international trade stability.

As global carbon-reducing activities continue, the issue of a sustainable supply of critical minerals will become more and more evident (Chaves et al., 2021). The current geopolitics of fossil fuels will shift to critical minerals geopolitics as the supply chain becomes more important in the global economy. Historically, there have been a great deal of undesired consequences arising from the neglect of development issues in resource-rich countries, including the proliferation of resource nationalism, disputes between international resource companies and

host countries and several regional conflicts. Given the shift in demand for critical minerals, corporate social responsibility (CSR) is more important than ever. The world needs a new global governance system for critical minerals to maintain the stability of the supply chain, and so that all involved parties accept the terms of equitable development of sustainable development goals (SDGs). The sustainable supply of critical minerals is closely linked to implementing SDGs globally. Some of these goals include dissipating the impulse of resource nationalism, promoting responsible mining action, and forming a global governance mechanism for critical minerals (UNDP, 2023). Residents, communities, companies, resource-rich countries, NGOs, and other interested parties currently construct the SDGs international governance mechanism on unequal footing.

Climate change is rapidly worsening which means achieving net zero by 2050 is an urgent task that must be taken seriously. A sustainable supply of critical minerals is the basis for achieving this goal. Unfortunately, the sustainable supply of these minerals faces many obstacles due to the interaction between traditional extractive development issues and new mineral geopolitics. CSR will be one of the key factors in ensuring that all individuals are treated with respect and dignity in this race against time. Below this paper examines the role of critical minerals in achieving net zero goals, as well as Canadian legislation and judicial decisions that currently impact our climate responsibilities.

Critical Minerals and Net-Zero Carbon Emissions

The pursuit of sustainable development and reduction in carbon emissions has resulted in the goal of a net zero future. By the end of 2021, 136 countries, 115 regions, and 235 major cities set a target of net-zero emissions by 2050 (Canada G. o., Net-Zero Emissions by 2050, 2023). As part of Canada's goal of 100% of vehicle sales being comprised of EVs by 2050, critical minerals will be a vital part of the future (Canada E. a., 2022). The international targets of net-zero included 88% of global greenhouse gas emissions, 90% of the world's economic volume, and 85% of the world's population (Dou et al., 2023). By 2020, about 50% of carbon dioxide emissions globally were reported to be higher than at the beginning of the industrial revolution (Cowan, 2022). Energy and transportation systems produce half of all emissions. Coal and oil still dominate the energy sector, and fuel vehicles form the basis of the modern transportation and logistics industry (Canada E. a., 2022).

Due to these factors, the transportation and energy sectors need to make significant adaptations to reach global net-zero goals. Given the goals and current trends, investment in renewable energy is currently, and must continue to be, significant and aggressive. The United Nations Framework Convention on Climate Change estimates that \$125 trillion must be invested in climate investment to achieve zero emissions globally by 2050 (UNFCCC) (EOSG, UNEO, 2021).

The importance of critical minerals such as nickel, cobalt, lithium, copper, and rare earth has been highlighted by the International Energy Agency (IEA) in their "The Role of Critical Metallic Minerals in the Clean Energy Transitions" report. Renewable energy, such as wind, solar, hydro, and nuclear, have a much higher mineral density per unit than thermal power

(Canada G. A., 2019). Electric vehicles consume approximately six times as many minerals of all types compared to conventional vehicles, with the major incremental increase coming from using critical minerals (U.S. Geological Survey, 2022). One of the key challenges for extracting critical minerals is the rate of extraction. The growth in demand for rare metals will change the existing economic model of mining. The challenges around the supply of critical minerals are also an issue as the supply simultaneously faces political, economic, environmental, and social difficulties. All these issues hinder the process of collecting critical minerals in a sustainable way to reach net zero.

International Challenges

Disruption and volatility in the supply chain of critical minerals has created instability in the global economy. A complex political and economic game underpins the critical mineral supply system. The current disruption in the critical mineral sector is at its core a matter of inequity and mistrust (Dou, Xu, & Keenan, 2023). This includes the disregard of development aspirations of resource-rich countries, disregard to the welfare of resource-rich countries and the erosion of mutual trust among the key players. This leads to not only an unsustainable, destabilized supply of critical minerals, but to the possible decline of the current system of global free trade and division of labor. To build a sustainable supply chain for critical minerals, there must be confident and sincere cooperation among global economies (Dou, Xu, & Keenan, 2023). In the absence of an internationally governed agreement, the Sustainable Development Goals (SDGs) can provide the basis for a code of conduct for supplying critical minerals. Because the SDGs were agreed upon by multiple interest groups, this informal code of conduct can be used to promote principles of equality, collaboration, openness, sharing and inclusiveness. This is no small task however, as many members of the international community are in steep competition to become key players.

The increasing importance of critical minerals in the national economy is observable in geopolitical conflicts and international competition (Pitron, 2022). While policies worldwide are being created to ensure that countries achieve net zero CO₂ emissions by the target year of 2050, growing demand for critical minerals has increased competition in non-economic arenas. Critical minerals have been extracted for the last century and have gone through 3 broad phases (Nassar, 2017). Initially, the goal was getting secure access to raw minerals. Most countries then established management institutions for these mineral reserves to cope with crises caused by resource supply shocks (Schulz et al., 2017; Fortier et al., 2022). Following this was a period of global allocation and division of labor beginning in roughly 2015, where countries determined their roles in critical mineral industries based on their comparative advantages (Lin, 2011). To date, the COVID-19 pandemic has impacted the global division of labor system built on trade liberalization (Vidya & Prabheesh, 2020) that has implications for the supply of critical minerals. This reshaping of the worldwide supply has become a major factor in developing the critical mineral economy (Butt & Shah, 2020). As countries are forced to reshape and adjust their critical mineral strategies, they must include strong CSR measures.

Often, most resource-rich less-developed countries want to gain more control over their natural resource wealth along with a higher share of profits (Dou, Xu, & Keenan, 2023). Actions to

mitigate climate change have raised the economic value and the political importance of critical minerals as discussed above. However, this could exacerbate the supply instability of critical minerals if not navigated responsibly, as it creates opportunities for outside governments who seek to profit from the natural resource wealth held by these less economically powerful nations (Dias, Bobba, Carrara, & Plazzotta, 2011). Through international collaboration and trade platforms, communication channels must be provided for resource-producing countries to seek development rights. Rich countries' technologies, management, investment capital, and trade networks remain indispensable to resource-rich countries, which can make trade relationships volatile.

Federal Legislation on CSR and Critical Minerals

Currently, the Government of Canada is under criticism from the international community regarding the lack of oversight of its companies operating abroad, particularly those operating in the extractive resource industry. Barrick Gold Corp. is one of the companies accused of corrupt business conduct while operating abroad, including employing police and security implicated in human rights abuses (Ng et al., 2023). The Canadian Government has committed to CSR if its companies work on the international forum. This is accomplished by supporting multiple international agreements with the United Nations (UN), the Organization for Economic Cooperation and Development (OECD), and the World Bank. All these organizations set out strategies and standards for conducting business abroad that encompass a variety of areas, including corruption, transparency, environment, and human rights.

Canadian legislation holds the Canadian government accountable to responsible business conduct internationally. This commitment to responsible conduct aligns with the Government of Canada's Feminist Foreign policy (Government of Canada, 2022B). In addition to the current legislative framework, Canada has enacted two international treaties and has also created the Responsible Business Conduct Abroad: Canada's Strategy for the Future (Government of Canada, 2023). This strategy was based on four international frameworks: the OECD Guidelines for Multinational Enterprises, the UN Guiding Principles for Business and Human Rights, the 2030 Agenda for Sustainable Development, and the UN Declaration on the Rights of Indigenous Peoples (Government of Canada, 2023). Current legislation for CSR framework focuses on areas of forced labor, transparency, and corruption. The Government of Canada implemented the Corruption of Foreign Public Officials Act (CFPOA) in 1999 as a measure to legislate the Organization for Economic Cooperation and Development (OECD) Convention to Combating Bribery of Foreign Public Officials in International Business Transactions (Government of Canada, 2022 A). This Act criminalizes the practice of bribing foreign public officials both in Canada and internationally; facilitation payments were later included in a 2017 amendment (Government of Canada, 2022 A). There have been four convictions in addition to the three ongoing cases under CFPOA today, including the heavily publicized case of SNC-Lavalin Group Inc., who were charged with bribery during construction projects in Libya (Canada, 2019).

In 2018, the Government of Canada launched the Canadian Ombudsperson for Responsible Enterprise (CORE), which addresses calls from the international communities for misconducts committed by Canadian companies operating internationally (Rolfe, 2021). The mandate of

CORE includes investigating complaints about possible human rights violations involving Canadian companies in the garment, mining, and oil and gas sectors (Government of Canada, 2023). Ongoing improvements to Canada's CSR standards are evident in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership Implementation Act, which came into effect in 2018. This Act recognizes the importance of CSR, diverse cultural identities, diversity of gender equality, the rights of Indigenous people and the importance of sustainable development (S.C. 2018, c. 23). While this agreement does not delineate specific standards or strategies for CSR, the recognition of these critical areas illustrates Canada's commitment to encouraging CSR for all its companies operating internationally. However, there must be a comprehensive plan to achieve CSR-relevant goals. In 2021 a Private Member's Bill was introduced during the 44th Parliament session. This bill is named the Corporate Responsibility to Protect Human Rights Act and is intended to require any Canadian business operating internationally to fulfill certain obligations. These obligations include a duty to prevent adverse impacts to human rights and will be accomplished through prevention measures, monitoring procedures and an annual reporting mechanism. At the time of writing this paper, the Act has yet to be passed but has completed its first reading.

Canada's transition to electric vehicles (EVs) is part of its commitment to reducing emissions as part of its 2025 net zero plan (Canada, 2022). Critical minerals, as discussed above in more detail, are necessary to build batteries for these EVs. Meanwhile the mining industry continues to fuel human rights abuses and fund local militias (Canada M.W., 2000). There is specific legislation about mining outside of the CSR. The Investment Canada Act, RSC 1985, c28, encourages increased capital and technology benefits, which in this context encourages critical mineral extraction to further develop new technology for EVs in Canada. The Act is essential to the domestic and security industries. It can bolster existing supply chains to be more secure and resilient to meet rising global demand. The Conflict-of-Interest Act (2006) encourages increased capital and technology benefits, which in this context further promotes increased critical mineral extraction to develop new technology for EVs in Canada. In 2014, Bill C-584: Corporate Social Responsibility of Extractive Corporations Outside Canada Act was proposed by a private member to ensure that corporations engaged in extractive activities in developing countries operate in a manner consistent with international environmental best practices, as well as with Canada's commitments to international human rights. This bill has yet to pass at the time of writing this paper. An Act to amend the Food and Drugs Act, the Hazardous Products Act, the Radiation Emitting Devices Act, the Canadian Environmental Protection Act, 1999, the Pest Control Products Act, and the Canada Consumer Product Safety Act and to make related amendments to another Act, SC 2016, C 9, all allowed the Government of Canada to regulate activities that could harm the environment or human health within and outside of Canada. Canadian companies operating in other countries must comply with the Canadian Environmental Protection Act (CEPA) and will face penalties for any violations. This act is crucial when studying Canadian conduct abroad as the Canadian Government seeks to expand its international sources of critical minerals. In 2019, An Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act established a framework for assessing designated projects' environmental, health, social and economic effects. This Act would be used to assess new environmental and human rights violations concerning critical mineral mines. Lastly in 2022, the

Fall Economic Statement Implementation Act provided companies with information on what Canada considers critical minerals, allowing for further legislation and regulation of the minerals defined within that Act.

The legislation has been used in judicial decisions in Canada regarding other mining conduct abroad. *Nevsun Resource Ltd v. Araya*, 2020 SCC 5, 1 SCR 166 is a lawsuit against Nevsun for alleged human rights violations at its Bisha mine in Eritrea. The Eritrean refugees claimed that they were forced to work at the mine under slave-like conditions and were treated with cruelty. The court ruled that Nevsun would be held liable for violations of customary international law and domestic tort law. Another key judicial decision was made in 2018 in the *Garcia v. Tahoe Resources Inc.* A group of Guatemalan citizens sued Tahoe Resource, a Canadian mining company, for injuries they suffered during a protest the company's mine in Escobal. Tahoe's security personnel opened fire on the citizens, causing serious injuries. The judge ruled that there was a tangible connection between the claims and the forum. In *Chevron Corp. v. Yaiguaje*, 2015 SCC 42 [2015] 3 SCR 69, a group of indigenous people from Ecuador sought to enforce a \$9.5 billion judgment against Chevron for environmental damages caused by oil drilling activities in the Amazon rainforest. Chevron argued that the judgment was decided through fraud and bribery and that the Canadian courts lacked the jurisdiction to enforce it. The Supreme Court of Canada (SCC) allowed the lawsuit to proceed, which validated legal claims that seek redress in matters of activities causing environmental harm. Finally, the case of *Susana C Mijares Peña, Human Rights Violations by Canadian Companies Abroad: Choc v Hudbay Minerals Inc.*, involved a group of Mayan Q'eqchi people from Guatemala who sued Hudbay Minerals, a Canadian mining company. The Guatemalan people claimed that they had been forcibly evicted from their homes and that the security personnel hired by the mining company had gang-raped and killed one of their leaders. The case is ongoing, but the Ontario Superior Court has permitted the claims to proceed to trial. The decisions made in this case will be critical regarding future cases for mining companies abroad.

Consequences of Extraction of Critical Minerals

Environmental Loss

Mining does involve some inherent environmental loss. Pollution, ecological degradation, and environmental damage are inevitable challenges for these extractive industries (Bebbington et al., 2018; Luckeneder et al., 2022). These industries can pose a serious threat to biological populations, water resources and ecosystems (Bebbington et al., 2018; Luckeneder et al., 2022). As demand increases, the scale and intensity of environmental damage could increase, including for example large-scale deforestation and massive loss of biodiversity (Kinda & Thimbiano, 2021). Critical minerals are an essential battlefield for global action on climate change, however, the extraction and processing of these critical minerals also threaten the climate and potentially put more pressure on the earth's carrying capacity (Watari et al., 2021). Achieving sustainable extraction through systems, production technology and incentives is a huge challenge for policymakers and resource producers. Ensuring that sustainability standards are continuous, operational, and traceable requires further examination, especially when there is a steady flow of “conflict minerals”. Conflict minerals are produced in areas of high geopolitical conflict and tend

to be produced using unethical labor, for example, minerals produced from the Democratic Republic of the Congo (DCR) being sold in international markets (Silva & Schaltegger, 2019).

Human Rights Abuses

Mining in fragile regions can have a profound and lasting impact on local community development and well-being. Critical mineral extraction is closely linked to SDG goals including health and well-being, gender equality, social equity, and sustainable communities. However, the supply instability of critical minerals is a growing issue. It is an ongoing challenge to ensure that less economically powerful resource-rich countries profit from their domestic natural resource endowments and achieve universality of resource wealth. Multiple studies have described whether these industries are 'resource curses' or 'resource blessings' (Okoh, 2014). This blessing or curse debate is exacerbated by the expansion of extractive activities in critical minerals due to climate change. The impacts of critical mineral extraction on communities are extremely complex and differ from region to region depending on their economic, cultural, institutional, and geopolitical effects. Africa, South America, and Southeast Asia have all seen increasing regional conflicts due to a lack of robust institutions and CSR legislation (Okoh, 2014). These studies have shown that it is difficult for the lower social classes to profit from natural resource extraction (Canada G. A., 2022). So-called “wicked problems” such as poverty, inequality, violent conflict, gender antagonism, and epidemics caused by extractive activities continue to jeopardize community stability (Arthur-Holmes & Busia, 2022; Baum & Benshaul-Tolonon, 2021). The goal of policymakers and their hopes to address the social and environmental challenges of informal extractive activities through the Extractive Industries Transparency Initiative (EITI) remains top of mind for many (Dashwood et al., 2022; Mulhern et al., 2022).

In contrast, some studies show that mining may replicate, rather than mitigate, the challenges associated with informal mining. A study by Robles, Verbrugge, and Geenen (2022) argued that initiatives in the Philippines to formalize mining must address some of the structural disadvantages faced by impoverished workers. Other studies have found that increased critical mineral extraction can improve human rights in developing countries and impoverished regions if proper monitoring and enforcement procedures are in place (Maconachie & Conteh, 2021). Mineral extraction in these areas can provide opportunities for economic growth and infrastructure improvements (Hilson & Maconachie, 2020). An unstable political environment can still result in critical mineral extraction-related human rights abuses despite regulation. As shown in sub-Saharan Africa, conflict minerals can fund the violence of non-state militant groups (Silva & Schaltegger, 2019). With increasing regulation regarding environmental impacts and social responsibility internationally, human rights issues in the extractive industries are improving. Canadian mining companies increasingly emphasize the importance of CSR (Poelina et al., 2021; Pons et al., 2021). Despite evidence suggesting that it is feasible to reduce human rights abuses arising from extractive activities, progress is slow, as the traditional mine-community relationship is unwilling to submit to a massive paradigm shift.

Canadian Foreign Aid and Mining

The sizeable Canadian mining industry has been operating in developing countries for over 50 years. Canadian mining companies were active in Guatemala in the 1960s and Indonesia in the

1970s. In the 1990s activity expanded into Latin America which generated a great deal of local opposition, including accusations of imperialism (Studnicki-Gizber, 2016). As seen, Canada often frames its pro-mining foreign aid as support to CSR and highlights the benefits to Canadian companies who comply with domestic legislation (Studnicki-Gizber, 2016). Private companies' CSR uses development projects and other community-oriented activities to mitigate specific threats to mining operations (Frederikson, 2018). The Canadian government presented mining and CSR as effective ways to reduce poverty rather than investigating the more fundamental problem of how to best assist poor communities, whether they are impacted by mining (Brown, 2019).

Under the Stephen Harper Conservative government which held power from 2006 to 2015, Canada's active promotion of the extractive industry accelerated, particularly internationally. In 2011, the Minister of International Cooperation Bev Oda announced a set of initiatives that signaled the government's strong desire to increase the use of aid funds to promote the mining sector. The Canadian International Development Agency (now part of Global Affairs Canada) was active in the extractive sector, and broader Canadian foreign policy has previously supported this Agency through a variety of mechanisms (Blackwood, 2012). Since then, the Canadian government took additional steps to promote the role of the Canadian mining sector abroad. In 2012, the government awarded \$25 million CAD to the creation of the Canadian International Institute for Extractive Industries and Development. In 2014 Canada started the Extractive Cooperation for Enhanced Economic Development (EXCEED) to support new and innovative projects in the extractive sector. This project used language of accountability, transparency, and economic growth, though its use of aid promotion in the extractive resource sector often seemed more concerned with benefits for Canada than developing countries (Dagher, 2014).

Myanmar received \$89.25 million from Canada as part of the development assistance funding to strengthen civil society, increase access to health, and help lead women to durable solutions in the prevention of sexual violence (Canada G. A., 2022). Below, this paper will examine the mineral extraction industry in Myanmar and the impacts that Canadian policymakers historically have abroad.

Case Study of Myanmar and Mineral Extraction

It is important to note that key limitations of this case study include largely non-digital government records on mining in Myanmar, any records do not encompass illegal mining activity, and records are not publicly accessible. Myanmar is a geologically diverse country, containing many mineral resources such as gold, silver, copper, tin, tungsten, zinc, jade, and miscellaneous gemstones (Win & Myint, 2008). Due to the vast deposits of mineral resources, Myanmar has a long history of mining. Myanmar only recently emerged from decades of strict military rule, during which time the nation's mineral deposits were poorly explored and the mining sector was underdeveloped (Gardiner et al., 2014). Natural resources are central to Myanmar's contemporary economy, but its diverse cultures, religions, and ethnicities, along with a lack of governance capacity and competing political economy imperatives are significant challenges to its economy. These challenges are exacerbated by endemic corruption throughout the economy, specifically in the natural resource sector. There is ongoing political reformation in

Myanmar and since 2010 there has been greater international engagement and the easing of long-standing economic sanctions. As a result of these reduced sanctions, there has been a rapid increase in international trade and investment in the country. Foreign direct investment in Myanmar heavily focuses on natural resource-based industries, ranking mining as one of the leading sectors (Group, 2016). Since then, new legislation was passed in late 2015 that intended to encourage foreign investment in Myanmar's mining industry by streamlining the process for further expansion of mineral extraction (Linn, 2015). As part of this law, Myanmar required environmental impact assessments (EIAs) to be conducted on all projects that could cause environmental or social harm (Woods, 2015). However, illegal mining projects are still being conducted in Myanmar at scales ranging from small artisanal mining to large open-pit mines (Osawa & Hatsukawa, 2015). The negative impacts of mining are reported to include harm done to the environment and forced human displacement in addition to the degradation of overall public health (Htun, 2014). In many parts of the country, natural resource management remains a point of contention between the central Government and non-state armed groups (Woods, 2015). Studies found that potential mining activity was identified in every state and region of Myanmar (Cornette et al., 2016). Researchers also found that much of the country's mining activity is specifically concentrated in the Saging Region and Kachin State, which have significant mineral deposits. Control of natural resource revenue has been cited as an incentive behind ongoing conflicts in this resource-rich area and a key point of ongoing peace negotiations (Cornette et al., 2016). Due to increased demand, Myanmar has recently emerged as the world's third-largest critical mineral producer (Gardiner et al., 2015).

There is a high degree of instability and uncertainty in the governance of Myanmar's extractive industries. Their legislative framework oversees the management of minerals, oil, and gas and it has been in a continuous flux since the country opened with uncertainty over which parts of legislation is under review. Participation in the regulatory process in the extractive industries has also been restricted in this nation, one of the leading restrictions being ambiguity surrounding licensing decisions. Currently public participation and consultation are non-existent in Myanmar, despite the negative impacts that could be mitigated with appropriate consultation measures. Critical mineral mining project advocates rarely consult with the local community before or during their operations (Tan-Mullins, 2014; Tang-Lee, 2016). The interactions between businesses and communities are generally hostile (Earth et al., 2009). According to the Foreign International Law 2012 and EIA Procedure, consultation is required; however, there are no guidelines on how and with whom this consultation is to be conducted. Despite international agreements and law, local communities are at a high level of risk without appropriate consultation.

Canada has taken the opportunity to play a larger role in this marketplace as customers look for products made to high environmental standards, as identified in Canada's Towards Sustainable Mining program developed by the Mining Association of Canada (MAC) (CANADIAN, 2023). Canada's mining sector has long been a global leader in setting responsible mining practices. MAC's *Towards Sustainable Mining (TSM)* program has emerged as a standard-setter with a significant international presence (CANADIAN, 2023). TSM has focused on enabling mining companies to better society's needs for minerals, metals, and energy products in the most

socially, economically, and environmentally responsible way. This is accomplished through mandatory commitments to complete annual reports and assure social and environmental performance with strong multi-stakeholder oversight. Without a sustainable and competitive critical mineral and metal manufacturing supply chain, Canada's competitiveness as a destination for advanced technology manufacturing is significantly diminished. Richly endowed regions like Myanmar are at risk of being caught in the middle of the race for critical minerals. Given their high degree of instability, this nation is likely at risk of growing negative impacts that can accompany mining when economically powerful countries experience the increased demand for critical minerals. While Canada is also planning to explore mining critical minerals domestically, they are heavily motivated to invest in mining internationally (Canada G. o., 2016). Canada is uniquely positioned to supply their allies around the world with critical minerals, representing a significant opportunity for new investment and growth in the mining and mineral processing industries.

Corporate Social Responsibility, and the Role of the Canadian Policymakers

Research on critical mineral extraction and its impact on local communities is quickly changing as the industry expands and develops. In recent decades, many extractive and mining corporations within the industry have made strides in adopting CSR strategies and deploying those strategies to pursue community development. The ripple effect of the Critical Mineral Strategy in Canada has emphasized a growing importance of CSR policies when operating internationally (Krause, 2011). While climate change remains a critical ongoing issue and critical minerals are part of the strategy to navigate Canadian commitments, policy choices about critical minerals impact the entire international community. While the intended outcome is to uphold our commitments to mitigate climate change, our solutions may in fact cause instability across the globe.

Canada must consider several key policy considerations when pursuing international resource extraction. Due to the global demand for minerals, Canada must understand the importance of effective diplomatic relations. Canada needs to navigate diplomatic relations with the host country effectively. This involves establishing strong bilateral relationships, promoting transparency, and adhering to international norms and standards. Maintaining positive diplomatic ties will ensure stability and long-term cooperation in resource extraction. If the goal is to maintain Canadian environmental sustainability, extraction must be done beyond domestic borders. Implementing stringent environmental regulations and monitoring mechanisms will help to minimize ecological damage, protect local ecosystems, and ensure responsible resource extraction. As illustrated above, human rights and labor standards are massive and complex issues. Canada must uphold human rights and labor standards in the process of extracting resources. This includes ensuring fair working conditions, respecting the rights of local communities and indigenous peoples, and avoiding conflicts with local populations. As illustrated above, collaboration with local stakeholders and adherence to relevant international human rights frameworks are essential. Policymakers must also consider economic development at home and internationally. Extracting critical minerals abroad will ideally contribute to the host

country's economic development and bring benefits to local communities. Canada can establish agreements that promote employment opportunities, skills transfer, technology sharing, and the development of local supply chains. This approach would foster economic growth and social development in the host nation.

In addition, Canada should encourage responsible supply chain management to ensure that the critical minerals extracted internationally are used in a manner consistent with ethical and sustainable practices. This includes but is not limited to tracing the supply chain, addressing concerns related to critical minerals and promoting responsible sourcing among all stakeholders. Policy efforts should focus on fostering technology and innovations in critical mineral extraction. Canada can invest in research and development to improve extraction techniques, reduce environmental impact, and enhance efficiency. Collaborating with international partners and supporting domestic innovation can strengthen Canada's position in the global critical minerals market. Canada should actively engage in international forums and initiatives related to critical minerals. By collaborating with other countries, Canada can establish common frameworks, exchange best practices, and promote responsible and sustainable resource extraction globally. This collaboration also helps address global supply chain vulnerabilities and enhances the resilience of critical mineral markets.

Conclusion

Canada's policy implications when extracting critical minerals abroad revolve around sustainability, responsible practices, collaboration, and balancing economic interests with social and environmental considerations. By implementing comprehensive policies, Canada can contribute to global resource security while promoting sustainable development domestically and internationally. To achieve the goals outlined above, Canada can pursue several avenues of policy. Possibilities include Bilateral Agreements and Diplomatic Engagement practices. Canada can negotiate bilateral agreements with host countries to establish a framework for responsible resource extraction. These agreements should include provisions for environmental sustainability, labor standards and local community benefits. Regular diplomatic engagement and dialogue can ensure the effective implementation of these policies. Canada can also feasibly implement increased environmental regulations and standards. These regulations would apply to Canadian mining companies operating internationally both now and in the future.

Specific policies regarding critical minerals may be included in the above suggestions, or new regulatory frameworks may need to be created to appropriately address the complexities surrounding critical mineral extraction. These regulations should address issues such as land reclamation, water management, waste disposal and biodiversity conservation. Regular monitoring and enforcement can ensure compliance with these regulations. Canada also ought to encourage mining companies to adopt comprehensive CSR policies. These policies should include in-depth guidelines for human rights protection, community engagement and local economic development. Canada could ensure maximum uptake of responsible practices and transparent reporting by incentivizing companies that show commitment to CSR. In addition to domestic legal measures, Canada can support capacity-building efforts in host countries to enhance their ability to manage resource extraction sustainably. This can include training

programs for local workers, technology transfer initiatives and knowledge-sharing partnerships. Canada could also promote sustainable development and reduce reliance on foreign expertise by empowering local communities and governments. By implementing these policies and adhering to the key principles that form the basis of these recommendations, Canada will be able to make significant strides toward achieving its goals of sustainable and responsible extraction of critical minerals abroad while promoting economic development, environmental protection, and respect for human rights.

Bibliography

- An Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act, t. a. (2019). An Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act, to amend the Navigation Protection Act and to make consequential amendments to other Acts, SC 2019.
- Blackwood, E. &. (2012). CIDA and the mining sector: Extractive industries as an overseas development strategy. In S. Brown (Ed.). *Struggling for effectiveness: CIDA and Canadian foreign aid*, 217-245.
- Brown, S. (2019). Foreign aid, the mining sector and democratic ownership: The case of Canadian assistance to Peru . *Wiley Online Library*.
- Canada, E. a. (2022, 12 21). *Let it roll: The Government of Canada moves to increase the supply of electric vehicles for Canadians* . Retrieved from Government of Canada: <https://www.canada.ca/en/environment-climate-change/news/2022/12/let-it-roll-government-of-canada-moves-to-increase-the-supply-of-electric-vehicles-for-canadians.html>
- Canada, G. A. (2019, 08 05). *Canada's Fight against Foreign Bribery*. Retrieved from Global Affairs Canada: <https://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/other-autre/corr-19.aspx?lang=eng#:~:text=There%20have%20been%20four%20convictions,laid%20but%20not%20yet%20concluded.>
- Canada, G. A. (2022). *Canada announces development, peace and security projects for Bangladesh and Myanmar*. Retrieved from Government of Canada.
- Canada, G. o. (2016). *CRS Abroad - Conflict Minerals* . Retrieved from CSR Practices: <https://www.nrcan.gc.ca/science-data/science-research/earth-sciences/earth-sciences-resources/earth-sciences-federal-programs/csr-abroad-conflict-minerals/17248>
- Canada, G. o. (2018, 01 18). *Multi-stakeholder Advisory Body on Responsible Business Conduct abroad*. Retrieved from Government of Canada : https://www.international.gc.ca/trade-commerce/rbc-cre/advisory_body-groupe_consultatif.aspx?lang=eng
- Canada, G. o. (2021). *Global Affairs Canada advisory on doing business with Myanmar-related entities*. Retrieved from Country and sector information : https://www.tradecommissioner.gc.ca/countries-pays/myanmar/GAC_advisory_Myanmar-AMC_affaires_Myanmar.aspx?lang=eng&_ga=2.264681359.1498834585.1674621538-160394959.1674621538
- Canada, G. o. (2022, 04 28). *About responsible business conduct abroad*. Retrieved from Government of Canada: https://www.international.gc.ca/trade-commerce/rbc-cre/about-au_sujet.aspx?lang=eng
- Canada, G. o. (2022). *Due Diligence and supply chains*. Retrieved from Business and Industry : <https://www.international.gc.ca/trade-commerce/rbc-cre/diligence.aspx?lang=eng>
- Canada, G. o. (2022). *The Canadian Critical Minerals Strategy* . Retrieved from Critical minerals in Canada: <https://www.canada.ca/en/campaign/critical-minerals-in-canada/canadian-critical-minerals-strategy.html>

- Canada, G. o. (2022, 05 24). *Transparency, anti-bribery and anti-corruption*. Retrieved from Responsible business conduct abroad: <https://www.international.gc.ca/trade-commerce/rbc-cre/transparency-transparence.aspx?lang=eng>
- Canada, G. o. (2023, 01 23). *Mandate of the Canadian Ombudsperson for Responsible Enterprise*. Retrieved from About the CORE : https://core-ombuds.canada.ca/core_ombuds-ocre_ombuds/about-a_propos.aspx?lang=eng
- Canada, G. o. (2023, 01 27). *Net-Zero Emissions by 2050*. Retrieved from Canada's climate plan: <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050.html>
- Canada, G. o. (2023, 01 25). *Responsible Business Conduct Abroad Canada's Strategy for the Future*. Retrieved from Government of Canada: <https://www.international.gc.ca/trade-commerce/rbc-cre/strategy-2022-strategie.aspx?lang=eng>
- Canada, H. o. (2013). Bill C-496.
- Canada, H. o. (2022, 03 29). *BILL C-262*. Retrieved from PARLIAMENT OF CANADA : <https://www.parl.ca/DocumentViewer/en/44-1/bill/C-262/first-reading>
- Canada, M. W. (2000, 09 18). *Canadian Mining Companies Profit from Burma's Misery*. Retrieved from Mining Watch Canada: : miningwatch.ca/news/2000/9/18/canadian-mining=companies-profit-burmas-misery
- CANADIAN, T. V. (2023). *Mining Facts*. Retrieved from THE VOICE OF THE CANADIAN: <https://mining.ca/mining-facts/>
- Celine Ng, Julia McKenzie, Oliver Zhang, Rutu Patel. (2023, 03 20). *Policy Options*. Retrieved from Legislation set to pass in the House of Commons is merely window dressing with no repercussions for rights abuses linked to overseas business activities.: <https://policyoptions.irpp.org/magazines/march-2023/supply-chain-rights-abuse/>
- Conette, K. J., Connette , G., Bernd, A., Phyo, P., Aung, K. H., Tun, L. Y., . . . Songer, M. (2016). *Assessment of Mining Extent and Expansion in Myanmar Based on Freely-Available Satllite Imagery*. Retrieved from MDPI: <https://www.mdpi.com/2072-4292/8/11/912#B9-remotesensing-08-00912>
- Conflict, C. C. (2009). *Corporate soical responsibility: Movements and foot-prints of Canadian mining and exploration firms in the developing world*. Retrieved from Mining watch: <https://www.international.gc.ca/development-developpement/assets/pdfs/countries-pays/Peru-Country-Strategy-2009.pdf>
- Cowan, C. (2022, 08 12). *Toxic rare earth mines fuel deforestation, rights abuses in Myanmar, report says*. Retrieved from Mongabay News & Inspiration form Nature's Front Line: <https://news.mongabay.com/2022/08/toxic-rare-earth-mines-fuel-deforestation-rights-abuses-in-myanmar-report-says/>
- Czerwinski, F. (2022). *Critical Minerals for Zero-Emission Transportation*. Retrieved from MDPI: <https://www.mdpi.com/1996-1944/15/16/5539>

- Dagher, R. (2014). CIDA, the Mining Sector, and the orthodoxy of economic conservatism in Harper decision making. In G. B. Doern & C. Stoney (Eds.). *How Ottawa spends, 2014–2015: The Harper government – good to go?*, 192-204.
- Daisy Myint, Syed A. Gilani, Makoto Kawase and Kazuo N. Watanabe . (2020). *Sustainable Sesame (Sesamum indicum L.) Production through Improved Technology: An Overview of Production, Challenges, and Opportunities in Myanmar*. Retrieved from MDPI: <https://www.mdpi.com/2071-1050/12/9/3515>
- Dias, A., Bobba, S., Carrara, S., & Plazzotta, B. (2011). *The role of Rare Earth Elements in wind energy and electric mobility* . Retrieved from JCR Science for Policy Report : <https://www.apren.pt/contents/publicationsothers/eu--the-role-of-rare-earth-elements-in-wind-energy-and-electric-mobility.pdf>
- Dou, S., Xu, D., & Keenan, R. (2023). *Critical mineral sustainable supply: Challenges and governance*. Retrieved from ScienceDirect: <https://pdf.sciencedirectassets.com/271788/1-s2.0-S0016328722X00116/1-s2.0-S0016328723000058/main.pdf?X-Amz-Security-Token=IQoJb3JpZ2luX2VjEGUaCXVzLWVhc3QtMSJHMEUCIQDa%2BNldYgc62mtmhi6lfPy6fZ0ns1bqyK2xvCGVQjYwiglYb6KPUVSIId%2FXg847qf5MOg8vWPJjg9Sw4Nu7XzGR>
- Downey, L., Bonds, E., & Clark, K. (2014). *Natural Resource Extraction, Armed Violence, and Environmental Degradation*. Retrieved from Sage: https://journals.sagepub.com/doi/pdf/10.1177/1086026610385903?casa_token=3pN0a1Vy-w0AAAAA:SkCaGVGlyXZfgaWXPn_ilggIspJG1X4CyMa39LISjy5W0Qdjvo35QJ7uWpM5pYZoxUN4j6J9aPcuug
- Fall Economic Statement Implementation Act, 2. S. (2022). Retrieved from <https://canlii.ca/t/55vb9>
- Frederikson, T. (2018). Corporate social responsibility, risk and development in the mining industry. *Resource Policy*, 495-505.
- Gardiner, N. J., Sykes, J. P., Trench, A., & Robb , L. J. (2015). *Tin mining in Myanmar: Production and potential*. Retrieved from Science Direct: <https://www.sciencedirect.com/science/article/abs/pii/S0301420715000938?via%3Dihub>
- Gardiner, N., Robb, L., & Searle, M. (2014, 07 20). *The metallogenic provinces of Myanmar*. Retrieved from Taylor & Francis Online: <https://www.tandfonline.com/doi/full/10.1179/1743275814Y.0000000049>
- Group, O. B. (2016). *Myanmar Mining to Welcome New Wave of FDO*. Economic News.
- Htun, K. (2014). *Sustainable mining in Myanmar*. Appl. Environ.
- International, A. (2015). *Amnesty International*. Retrieved from Myanmar: Foreign mining companies colluding in serious abuses and illegality.
- International, A. (2015, 02 10). *Myanmar: Foreign mining companies colluding in serious abuses and illegality* . Retrieved from Amnesty International .
- Inv, R. 1. (1985). Retrieved from <https://canlii.ca/t/552cn>

- Kalantzakos, S. (2020). *The Race for Critical Minerals in an Era of Geopolitical Realignment*s. Retrieved from Taylor & Francis Online : <https://www-tandfonline-com.ezproxy.lib.ucalgary.ca/doi/full/10.1080/03932729.2020.1786926>
- Kawase, K. (2021). *China worries over rare-earth supply disruption from Myanmar coup*. Retrieved from Nikkei Asia : <https://asia.nikkei.com/Spotlight/Comment/China-worries-over-rare-earth-supply-disruption-from-Myanmar-coup>
- Linn, S. (2015). *Myanmar's Mining Investment and Its Discontents*. Australia: East Asia Forum.
- Machacek, M. (2018). Global public-private partnerships and the new constitutionalism of the refugee regime. *Global Constitutionalism* .
- Nations, U. (2011). *THE UN GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS AN INTRODUCTION*. Retrieved from OHCHR: https://www.ohchr.org/sites/default/files/Documents/Issues/Business/Intro_Guiding_Principles_BusinessHR.pdf.
- Nedal T. Nassar a, Graham W. Lederer b, Abraham J. Padilla a, Joseph Gambogi a, Daniel J. Cordier a, Jamie L. Brainard a, Joseph D. Lessard c, Ryan Charab d. (2023). *Rock-to-metal ratios of the rare earth elements*. Retrieved from ScienceDirect: <https://www-sciencedirect-com.ezproxy.lib.ucalgary.ca/science/article/pii/S0959652623011162>
- OECD. (n.d.). *OECD.Stat*. Retrieved from <https://stats.oecd.org/Index.aspx>
- Osawa, T., & Hatsukawa, Y. (2015). *Artisanal and small-scale gold mining in Myanmar*. *Int. J. Hum. Cult. Stud.* .
- Shipton, L., & Dauvergne, P. (2022, 06). The influence of home country institutions on the adoption of corporate social responsibility policies by transnational mining corporations. *The Extractive Industries and Society* .
- Srivastava, N. (2023). *Trade in critical minerals: Revisiting the legal regime in times of energy transition*. Retrieved from ScienceDirect: <https://www-sciencedirect-com.ezproxy.lib.ucalgary.ca/science/article/pii/S030142072300199X>
- Studnicki-Gizber, D. (2016). Canadian mining in Latin America (1990 to present): A provisional history. . *Canadian Journal of Latin American and Caribbean Studies* , 95-113.
- Tomme Larochelle, ORCID, Aaron Noble, Paul Ziemkiewicz, David Hoffman and James Constant . (2021). *A Fundamental Economic Assessment of Recovering Rare Earth Elements and Critical Minerals from Acid Mine Drainage Using a Network Sourcing Strategy*. Retrieved from MDPI: <https://www.mdpi.com/2075-163X/11/11/1298>
- UNDP. (2023). *The SDGs in Action* . Retrieved from UNDP: <https://www.undp.org/sustainable-development-goals>
- UNECE. (2023, 04 01). *Critical Raw Minerals*. Retrieved from UNECE: <https://unece.org/unece-and-sdgs/critical-raw-materials>.

Win, S., & Myint, M. M. (2008, 11 05). *Mineral Potential of Myanmar*. Retrieved from Wiley Online Library : <https://onlinelibrary.wiley.com/doi/10.1111/j.1751-3928.1998.tb00018.x>

Witness, G. (2022, 08 09). *Myanmar's poisoned mountains* . Retrieved from Global Witness : globalwitness.org/en/campaigns/natural-resource-governance/maynmars-poisoned-mountains/

Woods, K. (2015). *Commercial Agriculture Expansion in Myanmar: Links to deforestation, Conversion Timber, and Land Conflicts*. Washington, DC, USA: Forest Trends.

Yunis, J., & Elmira , A. (2020). *Survey of mining companies 2020*. Fraser Institute Annual.