

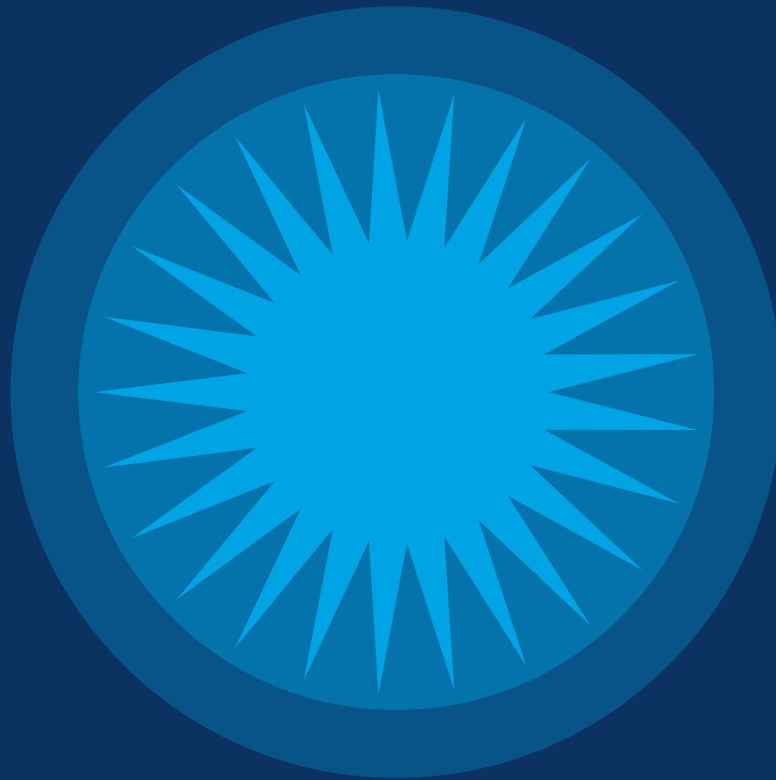


ASIA PACIFIC
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FONDATION
ASIE PACIFIQUE
DU CANADA

INVESTMENT MONITOR

2022



Critical Minerals

How Prominent is Asia Pacific Foreign Direct Investment in
Canada's Critical Minerals Sector?

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ABOUT APF CANADA

À PROPOS DE LA FAP CANADA

The Asia Pacific Foundation of Canada (APF Canada) is a not-for-profit organization focused on Canada's relations with Asia. Our mission is to be Canada's catalyst for engagement with Asia and Asia's bridge to Canada.

APF Canada is dedicated to strengthening ties between Canada and Asia with a focus on seven thematic areas.

Our research provides high-quality, relevant, and timely information, insights, and perspectives on Canada-Asia relations. Providing policy considerations and business intelligence for stakeholders across the Asia Pacific, our work includes Reports, Policy Briefs, Case Studies, Dispatches, Digital Media, and a regular Asia Watch newsletter that together support these thematic areas.

La Fondation Asie Pacifique du Canada (« la Fondation ») est une organisation à but non lucratif consacrée aux relations du Canada avec l'Asie. Sa mission consiste à servir de catalyseur et de trait d'union dans les relations entre l'Asie et le Canada. La Fondation a pour rôle de renforcer les liens entre le Canada et l'Asie, en se concentrant particulièrement sur les secteurs relevant de sept thématiques.

Notre recherche fournit des renseignements, des aperçus et des points de vue de grande qualité, pertinents et opportuns, sur les relations entre le Canada et l'Asie. Notre travail consiste à fournir des réflexions sur les politiques et des veilles économiques aux parties prenantes dans toute la région Asie-Pacifique, à l'aide de rapports, de notes de synthèse, d'études de cas, des médias numériques de dépêches et d'un bulletin d'information régulier intitulé Asia Watch. Ensemble, ces éléments soutiennent ces secteurs thématiques.

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MESSAGE FROM THE PRESIDENT AND CEO

MESSAGE DU PRÉSIDENT ET CHEF DE LA DIRECTION



Critical minerals have been making headlines worldwide, with political and corporate leaders seeking secure supplies of minerals necessary to sustain our modern economy and support the global transition toward clean energy. As demand for critical minerals increases, so does their strategic importance, which is why they feature prominently in emergent political and corporate strategies. Several countries, including Australia and the United States, have already developed critical mineral strategies and identified minerals essential for their economies. The Government of Canada just released its [Critical Minerals Strategy](#) and responded to foreign investment in this sector by revising investment screening regulations. As we explore in our third and final Investment Monitor report of 2022, strategies to promote and restrict foreign direct investment (FDI) in critical minerals will play an important role in shaping the future of FDI flows in this sector.

Exploring FDI in critical minerals between Canada and Asia from 2003 to 2021, the Investment Monitor found that critical minerals accounted for around 6% of total investment flows between Canada and the economies of the Asia Pacific. Most of this investment was generated by Asia Pacific investors, who invested C\$20.6B in the Canadian critical minerals sector during this period. Canadian investors, meanwhile, invested only C\$7.9B in critical mineral projects in the Asia Pacific during the same period. Despite this lower investment value, Canadian investors completed nearly twice as many critical mineral deals in the Asia Pacific than Asian investors completed in Canada between 2003 and 2021.

The report goes beyond investment data to incorporate information on relevant policies and strategies. In doing so, the report reveals that investment in critical minerals is influenced by

several factors, including growing global demand for critical minerals, geopolitical competition over supply chains, country-level politics, and corporate decision-making. Together these factors will continue to shape the trajectory of the critical minerals sector in Canada and Asia, as well as globally.

Since 2017, APF Canada has published regular reports on bilateral FDI flows between Canada and the Asia Pacific to facilitate evidence-based policy-making and public discourse on Canada's engagement with the region. Six years into this initiative, the Investment Monitor continues to track two-way investment at the national, provincial, and municipal levels. Last year, our [Investment Monitor](#) report examined the impact of the pandemic on FDI between Canada and Asia. While our earlier Investment Monitor reports in 2022 examined [overall investment trends](#) and investments specifically in [research and development](#), this latest report focuses specifically on critical minerals, identifying trends, providing context for specific investment deals, and charting future trajectories in FDI flows in this increasingly important sector.

On behalf of APF Canada, I would like to acknowledge the efforts of those involved in producing this report, especially our sponsors, Export Development Canada and Invest Alberta. I would also like to thank the many investment-attraction agencies and other government entities for their engagement and support for the Investment Monitor project.

And finally, I would like to thank the members of our APF Canada research team who were responsible for writing and finalizing this report: Jeffrey Reeves, Vice-President, Research & Strategy; Charles Labrecque, Research Director; Anastasia Ufimtseva, Program Manager, Business Asia; Charlotte Atkins, Project Specialist, Business Asia; our Junior Research Scholars, Rachael Gurney, and Pia Silvia Rozario; and, APF Canada's communications team for producing the final publication, Michael Roberts, Communications Director, Ted Fraser, Editor, and Chloe Fenemore, Graphic Designer.

Les minéraux essentiels ont fait les manchettes dans le monde entier, les dirigeants politiques et les chefs d'entreprise cherchant à sécuriser les approvisionnements en minéraux nécessaires pour soutenir notre économie moderne et la transition mondiale vers une énergie propre. À mesure que la demande de minéraux essentiels augmente, leur importance stratégique augmente également. C'est pourquoi ils occupent une place importante dans les nouvelles stratégies politiques et d'entreprise. Plusieurs pays, dont l'Australie et les États-Unis, ont déjà élaboré des stratégies de minéraux essentiels et déterminé ceux essentiels à leurs économies. Le gouvernement du Canada vient de dévoiler sa stratégie sur [les minéraux essentiels](#) et de répondre aux investissements étrangers dans ce secteur en révisant la réglementation de contrôle des investissements. Comme nous le soulignons dans notre troisième et

dernier rapport Investment Monitor de 2022, les stratégies visant à promouvoir et à restreindre l'investissement étranger direct (IED) dans les minéraux essentiels joueront un rôle important dans l'évolution des flux d'IED dans ce secteur.

En examinant l'IED dans les minéraux essentiels entre le Canada et l'Asie de 2003 à 2021, Investment Monitor a constaté que les minéraux essentiels représentaient environ 6 % des flux d'investissement totaux entre le Canada et les économies de l'Asie-Pacifique. La majeure partie de cet investissement a été générée par des investisseurs de l'Asie-Pacifique qui ont investi 20,6 G\$ CA dans le secteur canadien des minéraux essentiels au cours de cette période. Les investisseurs canadiens, quant à eux, n'ont investi que 7,9 G\$ CA dans des projets miniers essentiels en Asie-Pacifique au cours de la même période. Malgré cette valeur d'investissement plus faible, les investisseurs canadiens ont conclu près de deux fois plus de transactions minières essentielles en Asie-Pacifique que les investisseurs asiatiques au Canada entre 2003 et 2021.

Le rapport va au-delà des données sur les investissements pour intégrer des renseignements sur les politiques et stratégies pertinentes. Ce faisant, il révèle que l'investissement dans les minéraux essentiels est influencé par plusieurs facteurs, notamment la demande mondiale croissante de minéraux essentiels, la concurrence géopolitique sur les chaînes d'approvisionnement, la politique nationale et la prise de décision des entreprises. Ensemble, ces facteurs continueront de façonner la trajectoire du secteur des minéraux essentiels au Canada et en Asie, ainsi qu'à l'échelle mondiale.

Depuis 2017, la FAP Canada publie des rapports réguliers sur les mouvements bilatéraux des investissements entre le Canada et l'Asie-Pacifique afin de faciliter la création de politiques fondée sur les preuves ainsi que le discours public sur l'engagement du Canada avec la région. Six ans après le début de cette initiative, Investment Monitor continue de suivre le mouvement des investissements aux niveaux national, provincial et municipal. L'année dernière, le rapport d'[Investment Monitor](#) a examiné l'impact de la pandémie sur les IED entre le Canada et l'Asie. Alors que nos précédents rapports Investment Monitor en 2022 examinaient [les tendances globales de l'investissement](#) et les investissements en [recherche et développement](#), ce dernier rapport se concentre plutôt sur les minéraux essentiels, la détermination des tendances, l'établissement d'un contexte pour des transactions d'investissement spécifiques et la prévision des trajectoires futures des flux d'IED dans ce secteur de plus en plus important.

De la part de la FAP Canada, j'aimerais souligner les efforts de ceux qui ont participé à la production de ce rapport, en particulier nos commanditaires, Exportation et développement Canada et Invest Alberta. Je tiens également à remercier les nombreuses agences d'attraction des investissements et autres entités gouvernementales pour leur engagement et leur soutien envers le projet Investment Monitor.

Enfin, je souhaite remercier les membres de l'équipe de recherche de la FAP Canada responsables de la rédaction et de la finalisation de ce rapport. Jeffrey Reeves, vice-président, Recherche et stratégie; Charles Labrecque, directeur de la recherche; Anastasia Ufimtseva, gestionnaire de programme, commerce avec l'Asie; Charlotte Atkins, spécialiste de projets, commerce avec l'Asie; nos apprentis chercheurs-boursiers, Rachael Gurney et Pia Silvia Rozario; ainsi que l'équipe de communication de la FAP Canada, qui a produit la version finale du rapport : Michael Roberts, directeur de la communication, et Chloe Fenemore, graphiste.



JEFF NANKIVELL
President and CEO,
Asia Pacific Foundation of Canada

*Président et chef de la direction,
Fondation Asie Pacifique du Canada*

EXECUTIVE SUMMARY

RÉSUMÉ

The increased global demand for critical minerals incentivizes domestic and foreign investors to expand their operations in mineral-abundant countries. Analyzing investment trends across 31 critical minerals identified by Natural Resources Canada, we mapped FDI between Canada and the Asia Pacific from 2003 to 2021. Our report finds that Asia Pacific investors have invested almost three times as much in Canada as Canadian investors in the Asia Pacific in terms of investment value (C\$20.6B compared to C\$7.9B), despite Canadian investors completing almost twice as many investment deals in the Asia Pacific than Asian investors in Canada (145 compared to 78 completed transactions).

This report analyzes a subset of Investment Monitor data to understand the dynamics driving these FDI trends between Canada and Asia in critical minerals. We used this data to assess the following trends:

1. Critical mineral FDI flows between Canada and the Asia Pacific at the national and sub-national levels from 2003 to 2021;
2. The importance of individual critical minerals to foreign investors by tracing investment into individual minerals over time;
3. The role of major mining companies in the critical mineral landscape to identify dominant multinational companies involved in FDI flows between Canada and the Asia Pacific;
4. The investment made by state-owned and private companies; and,
5. National and sub-national policies designed to promote investment in critical minerals that are relevant to foreign investors.

L'augmentation de la demande mondiale de minéraux essentiels incite les investisseurs nationaux et étrangers à étendre leurs activités dans les pays riches en minéraux. En analysant les tendances d'investissement pour 31 minéraux essentiels déterminés par Ressources naturelles Canada, nous

avons cartographié l'IED entre le Canada et l'Asie-Pacifique de 2003 à 2021. Notre rapport révèle que les investisseurs de l'Asie-Pacifique ont investi près de trois fois plus au Canada que les investisseurs canadiens en Asie-Pacifique en termes de valeur d'investissement (20,6 G\$ CA comparativement à 7,9 G\$ CA), même si les investisseurs canadiens ont conclu près de deux fois plus de transactions d'investissement en Asie-Pacifique que les investisseurs asiatiques au Canada (145 comparativement à 78 transactions complétées).

Ce rapport analyse un sous-ensemble de données d'Investment Monitor afin de comprendre la dynamique qui sous-tend ces tendances en matière d'IED entre le Canada et l'Asie dans le secteur des minéraux essentiels. Nous avons utilisé ces données pour évaluer les tendances suivantes :

- 1. Les flux d'IED dans les minéraux essentiels entre le Canada et l'Asie-Pacifique aux niveaux national et infranational entre 2003 et 2021;*
- 2. L'importance des minéraux essentiels pour les investisseurs étrangers en retraçant les investissements dans les minéraux au fil du temps;*
- 3. Le rôle des grandes sociétés minières dans le paysage des minéraux essentiels pour déterminer les multinationales dominantes impliquées dans les flux d'IED entre le Canada et l'Asie-Pacifique;*
- 4. Les investissements réalisés par les entreprises publiques et privées;*
- 5. Les politiques nationales et infranationales conçues pour promouvoir l'investissement dans les minéraux essentiels qui sont pertinents pour les investisseurs étrangers.*

KEY TAKEAWAYS FROM THE REPORT

PRINCIPALES CONCLUSIONS DU RAPPORT

Asia Pacific investment in Canada's critical minerals sector exceeded Canada's investment in the Asia Pacific's critical minerals sector in the period from 2003 to 2021.

Asia Pacific investment in critical minerals accounted for 9% of total inward FDI coming from Asia Pacific investors from 2003 to 2021, while Canadian critical mineral investment in the Asia Pacific made up only 3% of total outward FDI to the Asia Pacific during the same period.

State-owned enterprises (SOEs) have played a relatively minor role in FDI flows in critical minerals, accounting for only 16% of total investment in critical minerals between Canada and the Asia Pacific.

Our data indicate that Canadian SOEs have not invested in the critical minerals sector in the Asia Pacific, but Asia Pacific SOEs have invested C\$4.7B into Canada, with the majority of investment from Chinese SOEs.

The Philippines, Australia, and China were the top-three destinations for Canadian critical mineral investment from 2003 to 2021.

While the Philippines ranked as number one because of one large investment deal, Australia and China consistently received minor deals during this period.

Saskatchewan, British Columbia, Ontario, and Quebec accounted for 97% of total Asia Pacific critical mineral investment in Canada.

The provincial distribution is driven in part by the distribution of critical mineral reserves across Canada as well as by the location of critical mineral company headquarters.

Potash and nickel were the leading critical mineral resources in terms of FDI between Canada and the Asia Pacific from 2003 to 2021.

The most sought-after mineral by Asia Pacific investors in Canada was potash, closely followed by copper and lithium. Canadian investors in the Asia Pacific have predominantly sought nickel, copper, and uranium.

Les investissements de l'Asie-Pacifique dans le secteur des minéraux essentiels au Canada ont dépassé les investissements du Canada dans le secteur des minéraux essentiels de l'Asie-Pacifique au cours de la période de 2003 à 2021.

Les investissements de l'Asie-Pacifique dans les minéraux essentiels ont représenté 9 % du total des IED entrants provenant d'investisseurs de l'Asie-Pacifique de 2003 à 2021, tandis que les investissements canadiens dans les minéraux essentiels en Asie-Pacifique n'ont représenté que 3 % du total des IED sortants vers l'Asie-Pacifique au cours de la même période.

Les entreprises publiques ont joué un rôle relativement mineur dans les flux d'IED dans les minéraux essentiels, ne représentant que 16 % de l'investissement total dans les minéraux essentiels entre le Canada et l'Asie-Pacifique.

Nos données indiquent que les entreprises publiques canadiennes n'ont pas investi dans le secteur des minéraux essentiels en Asie-Pacifique, mais que les entreprises publiques de l'Asie-Pacifique ont investi 4,7 G\$ CA au Canada, la majorité des investissements provenant d'entreprises chinoises.

Les Philippines, l'Australie et la Chine ont été les trois principales destinations des investissements canadiens dans les minéraux essentiels de 2003 à 2021.

Alors que les Philippines se classaient au premier rang en raison d'un important accord d'investissement, l'Australie et la Chine ont régulièrement fait l'objet de transactions mineures au cours de cette période.

La Saskatchewan, la Colombie-Britannique, l'Ontario et le Québec représentaient 97 % du total des investissements dans les minéraux essentiels de l'Asie-Pacifique au Canada. La répartition provinciale est déterminée en partie par celle des réserves de minéraux essentiels dans l'ensemble du Canada, mais aussi par l'emplacement des sièges sociaux des sociétés de minéraux essentiels.

La potasse et le nickel ont été les principales ressources minérales essentielles en termes d'IED entre le Canada et l'Asie-Pacifique de 2003 à 2021.

Le minerai le plus recherché par les investisseurs de l'Asie-Pacifique au Canada était la potasse, suivie de près par le cuivre et le lithium. Les investisseurs canadiens en Asie-Pacifique ont principalement recherché le nickel, le cuivre et l'uranium.

INTRODUCTION

The global demand for critical minerals is growing significantly as countries embrace a new industrialization driven by the shift to renewable energy, electric vehicles (EVs), and advanced manufacturing. This transition towards renewable energy and EVs is a part of the global net-zero commitments announced by the international community as part of the Paris Agreement on climate change. To facilitate global energy transition, worldwide demand for select critical minerals may increase by up to 500%, according to one World Bank analysis.¹ The International Energy Agency (IEA) also foresees a quadrupling of demand for critical minerals to support the development of clean technologies required to reach Paris Agreement targets by 2040.² The IEA predicts that demand for minerals will be driven by the expansion of EVs and battery storage, with demand for lithium, graphite, cobalt, and nickel growing rapidly. For example, the demand for lithium input in clean energy technologies is projected to increase by 90% of the total lithium demand by 2040.³

Global demand for critical minerals incentivizes foreign and domestic investment in mining and mineral processing industries.⁴ These investments and mining activities are shaped by geological endowments, local policies and regulations, and corporate decisions. Geology determines the location and concentration of critical minerals globally. Currently, most of the world's copper is extracted from Chile, nickel from Indonesia, cobalt from the Democratic Republic of Congo, rare earth minerals from China, and lithium from Australia.⁵ Local policies and regulations also influence corporate decisions to extract minerals in specific jurisdictions. Some jurisdictions are more permissive and put forth supportive policies for critical mineral exploration, while others exhibit protectionist sentiments towards their mineral resources, as exemplified by Chile's attempted nationalization of the critical mineral sector.⁶ Furthermore, within global supply chains, critical mineral trade is dominated by China. For example, China controls 60% of rare earth minerals, 95% of rare earth manufacturing, and 90% of global trade in rare earth minerals.⁷ Given China's dominance in critical minerals, other countries are keen on diversifying their suppliers of critical minerals and expanding domestic production.

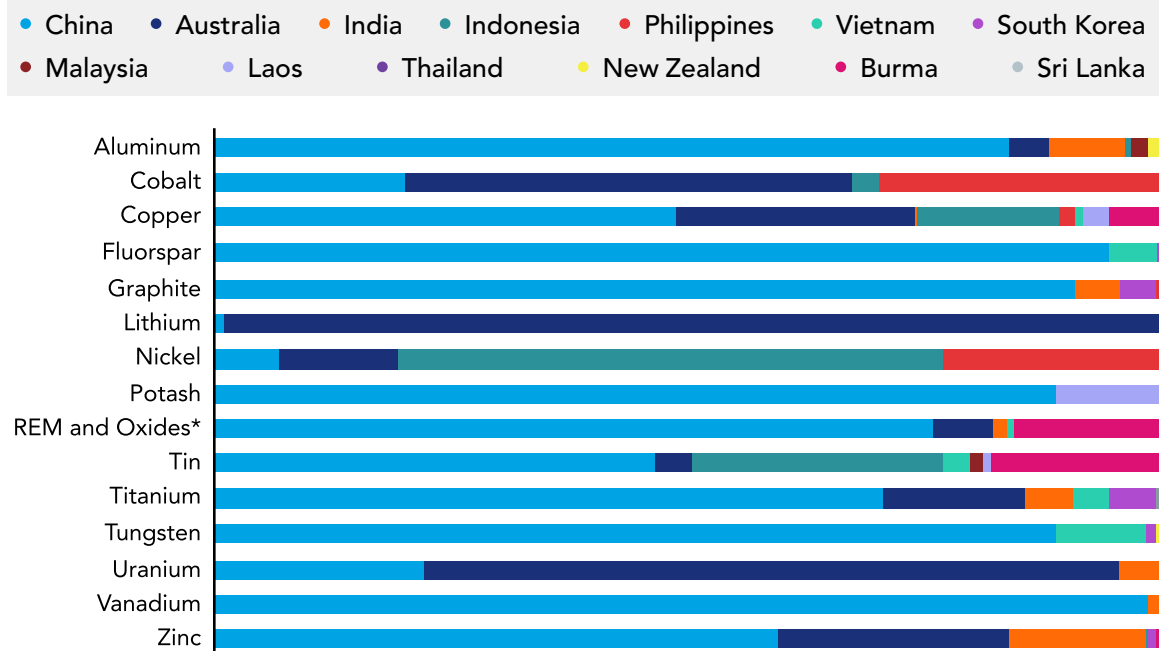
The concentration of critical minerals in just a few countries was exposed as a weakness during the COVID-19 pandemic.⁸ Realizing the concentration of critical minerals in a handful of countries, governments in advanced industrialized states, such as the U.S., Japan, and Australia, have released critical mineral strategies to ensure the security of critical mineral supplies.⁹ There are also multilateral efforts, such as the Minerals Security Partnership (MSP), established in June 2022 by Australia, Canada, Finland, France, Germany, Japan, South Korea, Sweden, the U.K., and the U.S., to improve supply chains for critical minerals.¹⁰

Critical Mineral Resources

Geological studies reveal that Australia has the largest reserves of cobalt, copper, lithium, and nickel in the Asia Pacific region, while China has the largest reserves of rare earth minerals.¹¹ Figure 1 shows that Australia was the largest producer of lithium in the region in 2020 and produced a significant amount of cobalt, copper, zinc, and uranium. China was also a leading producer of several critical minerals in the region, including aluminum, fluorspar, graphite, potash, rare earth minerals, tungsten, and vanadium. Given the existing production of critical minerals across the Asia Pacific, foreign investors seeking specific minerals may be drawn to countries currently producing these resources. Yet, foreign investors must be cautious about regulatory barriers and other government measures that could potentially impact their investments. For example, Canadian companies need to consider sanctions adopted by the Government of Canada related to Myanmar following the 2021 coup.¹²

FIGURE 1

Distribution of Critical Minerals Production in Select Asia Pacific Countries, 2020



* Rare Earth Minerals and Oxides
Source: [Minerals UK, 2020](#) (accessed November 2022)

A leading producer of many critical minerals, Canada is an attractive destination for Asia Pacific investors. Canada currently produces 21 of the 31 minerals that the federal government has identified as “critical” (Table 1) and has the potential to develop critical minerals that are not currently mined in Canada by developing some of its reserves.¹³ For example, the Northwest Territories has 23 of the 31 critical materials on the federal list and may be the first region in Canada to develop a rare earth minerals mine. As shown in Figure 2, critical

minerals are widely dispersed across Canada, with the majority currently produced in Quebec, Ontario, and B.C. Canadian companies are also actively operating in Argentina, Brazil, Chile, the Democratic Republic of Congo, Mali, Mexico, Panama, Peru, the U.S., and Zambia.

TABLE 1

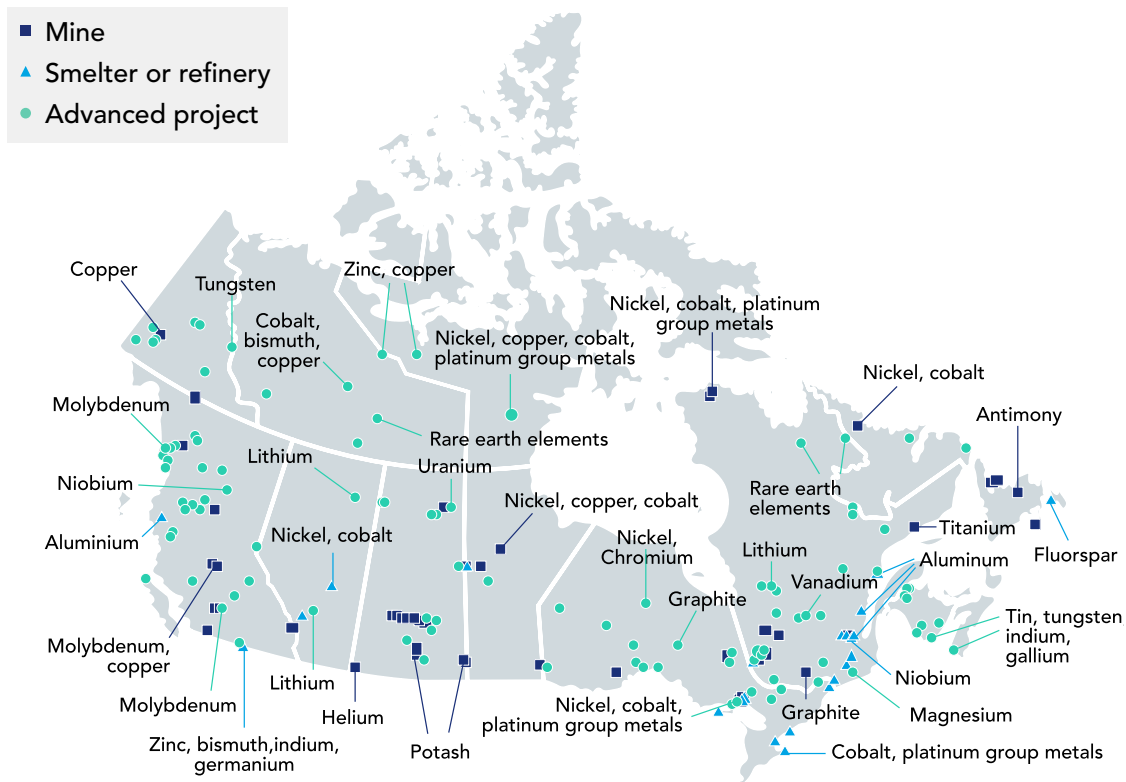
List of Critical Minerals identified by the Government of Canada

Aluminum	Antimony	Bismuth	Cesium	Chromium
Cobalt	Copper	Fluorspar	Gallium	Germanium
Graphite	Helium	Indium	Lithium	Magnesium
Manganese	Molybdenum	Nickel	Niobium	Platinum group metals
Potash	Rare Earth elements	Scandium	Tantalum	Tellurium
Tin	Titanium	Tungsten	Uranium	Vanadium
Zinc				

Source: Government of Canada, 2021 (accessed November 2022)

FIGURE 2

Canadian Critical Minerals Deposits



Source: Critical Minerals Centre of Excellence, 2022 (accessed November 2022)

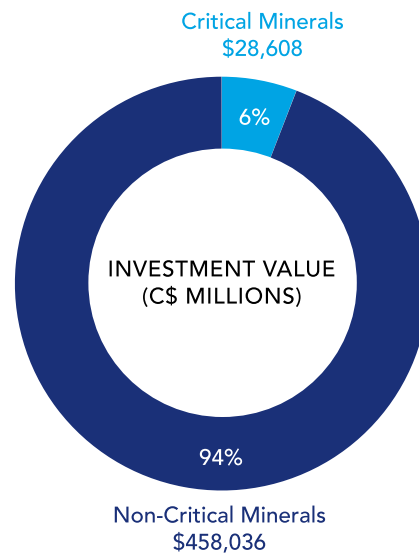
While the presence of mineral resources and extractive projects inform us about potential investment opportunities, they provide little information about FDI flows between specific countries and the business opportunities in critical minerals being pursued by multinational firms. In this report, we track these FDI flows and look at country-level investment flows, subnational investment destinations, specific investors, and the critical minerals driving investment transactions.

Methodology

Using Investment Monitor (IM) data, this report focuses exclusively on transactions involving critical minerals. To identify transactions related to critical minerals, we used the list of 31 critical minerals created by the Department of Natural Resources Canada to identify critical mineral deals within the IM database. We relied on a Python program to parse the database to identify all FDI deals that mention any of the 31 critical minerals. We reviewed individual descriptions of the deals and tracked resources extracted in the mining projects identified through the Python program. Our data selection process identified 78 deals worth almost C\$20.6B completed by Asia Pacific investors in Canada's critical mineral sector and 145 deals worth C\$7.9B by Canadian investors in the Asia Pacific. The FDI flows in critical minerals between Canada and the Asia Pacific economies accounted for only 6% of total FDI flows between Canada and Asia from 2003 to 2021 (Figure 3).

After generating the final list of deals, we ensured that our calculations for the investment value of critical minerals could disentangle investment deals where companies acquire multiple minerals. To estimate funding provided for each critical mineral individually, we have subdivided the investment value by the number of minerals extracted in specific sites. For example, when a mining operation extracts cobalt and nickel, we subdivide the investment value by two and add that to the total value of nickel or cobalt extracted in a specific country over the selected period. This helps us avoid counting the same investment twice.

FIGURE 3
Critical Minerals Investment as a Proportion of Total Canada-Asia Pacific Investment, 2003-2021



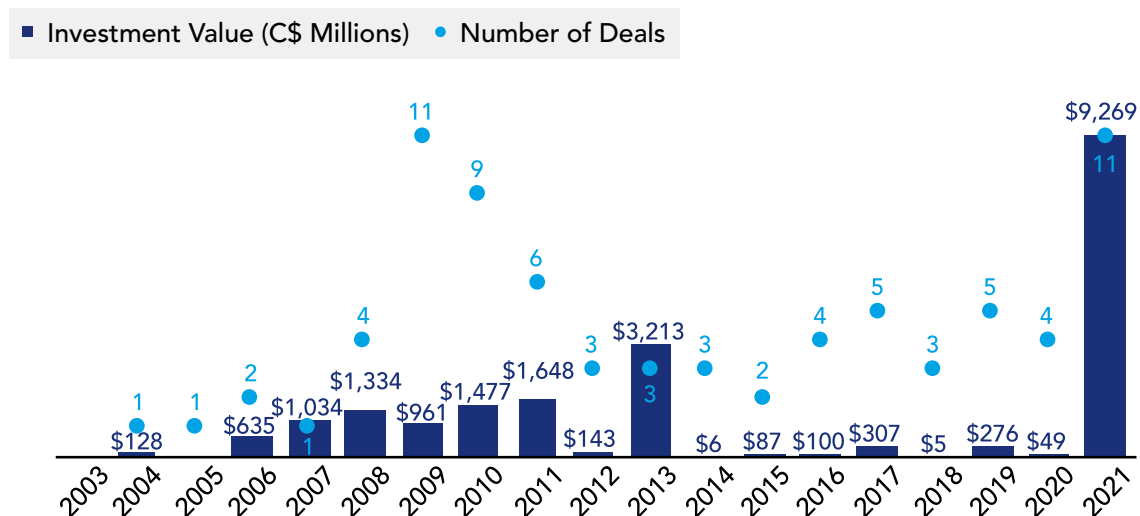
Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

ASIA PACIFIC INVESTMENT IN CANADIAN CRITICAL MINERALS

Canada is a leading global producer of nickel, potash, aluminum, and uranium, making it an attractive destination for global investment in these critical minerals. Following the lead of other advanced industrialized countries, the Government of Canada has been in the process of developing a Critical Minerals Strategy for the better part of 2022. The recently released Strategy prioritizes the development of supply and value chains for several critical minerals, including lithium, graphite, nickel, cobalt, copper, and rare-earth metals.¹⁴ The Canadian government is already working with international partners, including many in the Asia Pacific region, to establish more resilient supply chains, which is expected to increase Asia Pacific investment in Canada’s critical minerals sector.

Asia Pacific economies are becoming significant investors in Canada’s critical mineral sector (Figure 4). From 2003 to 2021, Asian companies invested C\$20.6B in Canadian critical minerals, or 9% of the total inward FDI received during that period. Last year (2021) was unprecedented in terms of Asia Pacific investment in Canada’s critical minerals, accounting for almost 45% of total Asia Pacific investment in critical minerals between 2003 and 2021. The majority of last year’s investment, a total of C\$9.3B, was driven by BHP Billiton Ltd.’s C\$7.5B investment, announced in August 2021, into the Jansen Potash Project in Saskatchewan.

FIGURE 4
Asia Pacific Critical Minerals Investment into Canada, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

While Canada has received consistent investment in critical minerals from the Asia Pacific since 2003, the first significant period of growth was observed from 2006 to 2013 (Figure 4) when the yearly investment value grew five-fold, from C\$635M in 2006 to C\$3B in 2013. From 2014 to 2020, critical minerals investment was sparse, with an average annual investment value of only C\$465M. In 2021, the critical mineral sector experienced rapid growth in FDI for the second time, with investment reaching C\$9.3B, reflecting the rise in demand for Canadian critical minerals.

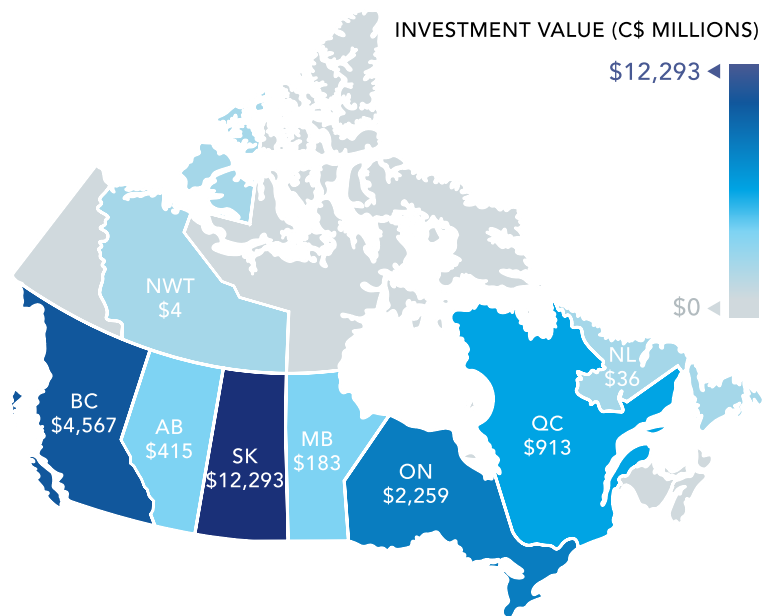
The largest investors in the Canadian critical minerals sector are Australian, Chinese, and Japanese firms. Over the last 19 years, Australian firms have invested C\$15.4B, Chinese firms have invested C\$4.4B, and Japanese firms have invested C\$565M, representing 74%, 21%, and 3% of critical minerals FDI, respectively. Australia’s investment has been concentrated in Canadian potash and copper, primarily in Saskatchewan. China’s investment in Canada’s critical minerals has been concentrated in copper, lithium, and nickel. Japan’s investment has been concentrated in Canada’s uranium and copper resources. More recently, Australia and China have dominated critical minerals investment. In the last five years, Australia has invested C\$8.4B and China has invested C\$1.1B, while Japan has only invested C\$34M.

Critical mineral reserves are spread across Canada, but investment from Asia Pacific countries in Canada’s critical minerals sector from 2003 to 2021 has been concentrated in Saskatchewan, British Columbia, and Ontario (Figure 5). These three provinces received 92% of Asia Pacific investment in Canada’s critical minerals from 2003 to 2021.

Saskatchewan has received around 60% of Asia Pacific’s FDI in Canada’s critical minerals sector, worth C\$12.3B in investment over nine transactions, with BHP Billiton’s Jansen Potash

Project accounting for over half of that value. This is not surprising as Saskatchewan has the largest global potash reserve and industry as well as the largest high-grade uranium deposits in the world.¹⁵ British Columbia has been the second-largest recipient of Asia Pacific investment

FIGURE 5
Asia Pacific Critical Minerals Investment into Canada by Destination Province, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

in critical minerals, receiving C\$4.6B in investment since 2003. British Columbia is a major producer of copper and zinc and has large deposits of molybdenum.¹⁶ Although in second position in terms of deal value, British Columbia has received the most investment deals with 31 transactions. Ontario has been the third-largest recipient of Asia Pacific investment in critical minerals, with C\$2.2B generated over 18 transactions. Ontario is a major producer of cobalt and nickel and has significant deposits of lithium and graphite under development.¹⁷

Tracking Asia Pacific acquisitions of mining rights or production facilities of Canadian companies headquartered in British Columbia and Ontario, we find that Asia Pacific investors have invested more in Canadian companies with overseas rather than domestic assets. Asia Pacific investors have invested more than C\$3.8B in Canadian companies headquartered in British Columbia with overseas assets compared to C\$698M in those with Canadian-based assets. Likewise, Asia Pacific investors acquiring critical mineral assets in Ontario have invested more in companies headquartered in Ontario with overseas assets than those working predominantly on domestic assets, with around C\$1.1B going to those with overseas critical mineral assets and around C\$1B going to companies with primarily domestic assets.

Top Asia Pacific Investors

Comparing the top 10 Asia Pacific investors in Canada since 2017 with the top 10 from 2003 to 2016, we notice a significant change in foreign investors. We find that the largest companies that dominated FDI in Canada’s critical minerals from 2003 to 2016 have not ranked as the largest investors in the last five years, with the exception of Australia’s BHP Billiton Ltd., which consistently ranked as the number one investor in Canada (Table 2).

TABLE 2

Top 10 Asia Pacific Investors in Canada’s Critical Minerals, Comparison of Top Investors During the 2003-2016 Period with the Largest Investors in the Last Five Years

Top 10 Investors 2003-2016	Investment Value (C\$ Million)	Top 10 Investors 2017-2021	Investment Value (C\$ Million)
BHP Billiton Ltd.	\$4,846	BHP Billiton Ltd.	\$7,500
Rio Tinto Ltd.	\$1,353	Zijin Mining Group Co. Ltd.	\$960
Aluminum Corporation of China Ltd.	\$1,034	Wyloo Metals Pty. Ltd.	\$617
Jilin Jien Nickel Industry Co. Ltd.	\$607	Nextview New Energy Lion Hong Kong Ltd.	\$278
Copper Bridge* Acquisition Corp.	\$549	Sinomine (Hong Kong) Rare Metals Resources Co.	\$183
Japan Uranium Management Inc.**	\$323	Sayona Mining Ltd.	\$181

Yanzhou Coal Mining Co. Ltd.	\$308	Jervois Mining Ltd.	\$75
Paladin Energy Ltd.	\$306	Orocobre Ltd.	\$30
Western Areas Ltd.	\$296	Hanwa Co. Ltd.	\$18
Perilya Canada Ltd.	\$209	Marubeni Corp.	\$17

* Joint venture between China Minmetals Non-Ferrous Metals Co. Ltd. and Jiangxi Copper Company Ltd., **Joint venture between Tokyo Electric Power Co. Inc., Toshiba Corp., and Japan Bank for International Cooperation

Australian companies – BHP Billiton Ltd., Rio Tinto Ltd., and Wyloo Metals Pty. Ltd. – have dominated the top 10 investor rankings. In total, these three investors have made up almost 70% of total inward critical minerals investment. Chinese mining companies – Aluminum Corporation of China Ltd. and Zijin Mining Group – are a distant second behind Australian companies as they make up only 10% of total investment in this sector.

These numbers are largely influenced by BHP Billiton’s significant 2021 Jansen Potash investment and could also be reflective of Canada’s investment screening measures that subject SOEs to closer review. In 2020, the Canadian government released a *Policy Statement on Foreign Investment Review and COVID-19*, announcing that all investments by SOEs would be subject to review regardless of the deal value. SOEs in critical minerals have since been subject to more scrutiny than in other sectors. For example, Zijin Mining, a Chinese SOE that acquired Canadian lithium mining company Neo Lithium Corp. for C\$960M in 2021, has been subject to an extensive post-acquisition review. The deal raised significant concerns about Canada’s openness to FDI from SOEs in the critical mineral sector leading to a policy review and culminating in measures adopted in November of 2022 restricting investment by SOEs in critical minerals (see Box 1).

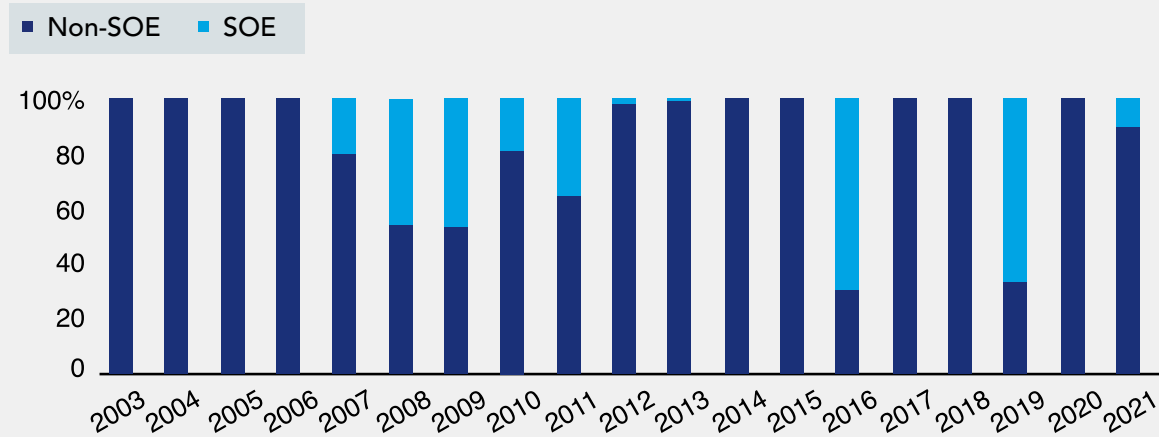
BOX 1

SOE vs Non-SOE Investments in Critical Minerals

SOEs, however, have not played a prominent role in FDI flows between Canada and Asia in critical minerals, with a few exceptions of Chinese SOEs investing in Canada. Looking at Canadian investment in the Asia Pacific from 2003 to 2021, we find that Canadian SOEs have not invested in the critical minerals sector in the Asia Pacific (Figure 6). Meanwhile, investment by SOEs from the Asia Pacific to Canada from 2003 to 2021 is more significant, as it reached C\$4.7B, generated through 22 transactions, accounting for 23% of Asia Pacific investment in the Canadian critical mineral industry. The investment by SOEs in critical minerals has been uneven, with some years (2016 and 2019) dominated by SOE-led investment (Figure 6).

FIGURE 6

SOE FDI in Critical Minerals as a Percentage of Total Critical Mineral FDI Between Canada and Asia Pacific From 2003 to 2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

In the last 19 years, the majority of the FDI by SOEs from the Asia Pacific in Canada’s critical minerals was carried out by Chinese SOEs, which were responsible for a total investment of C\$4.3B over 20 transactions. Chinese SOEs have acquired a variety of critical mineral deposits held by Canadian firms. The first notable investment by a Chinese SOE in Canada’s critical minerals occurred in 2007, with Aluminum Corporation of China’s acquisition of Peru Copper Inc. (headquartered in Vancouver, B.C.) for C\$1B. Again, investments made by SOEs in Canada’s critical minerals sector have varied over the years. In 2011, Chinese SOEs completed two significant deals worth C\$763M. One of these investments was made by Jilin Jien Nickel Industry Co. Ltd., which invested C\$456M in a nickel extraction project in Nunavik, Quebec. The second investment was made by Yanzhou Coal Mining Co. Ltd, which acquired 19 potash exploration permits in Saskatchewan from Devonian Potash Inc. and North Atlantic Potash Inc. for C\$308M. Japanese and South Korean SOEs have each made only one investment in Canada’s critical minerals sector, with Japan Uranium Management Inc. investing C\$323M in Uranium One Inc. Corp. in 2009 and Korea Electric Power Corporation acquiring Strathmore Minerals Corp. in 2012. Both deals were related to the acquisition of uranium.

While previous investments by SOEs in Canada’s critical minerals sector have gone smoothly, 2021 marked a change in Canada’s approach to investment by SOEs in Canada’s critical minerals. In 2021, China’s Zijin Mining acquired Toronto-based Neo Lithium Corp., which has lithium brine projects in Argentina, for C\$960M. This acquisition triggered a Canadian government national security review under section 25.2 of the *Investment Canada Act (ICA)*, which states that the Minister of Innovation, Science and Industry can block an investment if there are reasonable grounds to believe it could be “injurious to national security.” After an

in-depth review of the transaction, the Canadian Minister of Industry allowed the transaction to proceed without further review in January 2022.¹⁸ The decision to permit the deal drew criticism from Canadian media and the United States Congress. Both raised concerns over global economic uncertainties stemming from the COVID-19 pandemic, Zijin Mining's¹⁹ status as a Chinese SOE, and North American critical mineral supply.²⁰ Despite these concerns, the Ministry defended its decision to allow the transaction to proceed without further security review, stating that the assets acquired by Zijin Mining through Neo Lithium Corp. were in Argentina and were not of "strategic value to the North American supply chain."²¹ The House of Commons Standing Committee on Industry and Technology subsequently released a report in March 2022 noting the lack of security review for Neo Lithium Corp's acquisition and released several recommendations for improving the national security review process. The report concluded with a recommendation for the government to create a transparent process for reviewing FDI and to screen all FDI by SOEs from authoritarian regimes.²²

To facilitate a closer review of investment by SOEs, the Minister of Innovation, Science and Industry published *Guidelines on the National Security Review of Investments* under the Investment Canada Act (ICA) on March 24, 2021. The updated Guidelines state that investments by SOEs or private investors with close connections to a foreign government will face enhanced scrutiny and that investments in critical minerals specifically may be subject to security reviews by the Minister.²³ Factoring in the recent controversy triggered by Neo Lithium Corp., we expect that investments in critical minerals by SOEs will become increasingly difficult – especially after the October 2022 announcement, made by the Canadian Minister of Innovation, Science and Industry and the Minister of Natural Resources, indicating that investments by SOEs in Canadian critical minerals companies will be allowed only on an "exceptional basis."²⁴ While SOEs will receive closer scrutiny, the *Guidelines on the National Security Review of Investments* will impact all investors with suspected ties to a foreign government.

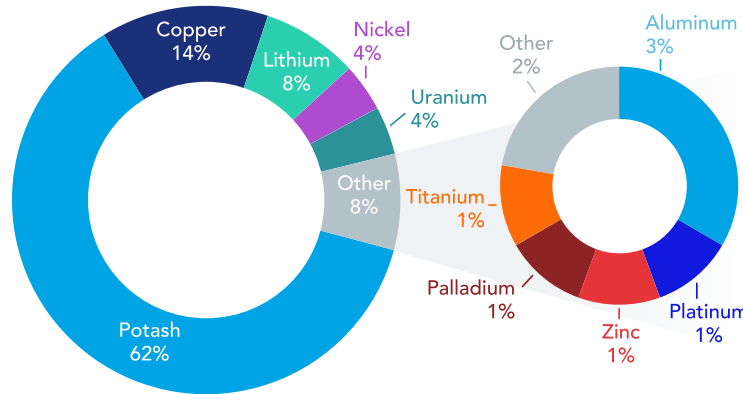
Investment by Mineral Type

The majority of Asia Pacific investment in Canada's critical minerals sector has been concentrated in a few minerals. Potash accounted for more than 60% of the Asia Pacific's investment in Canada's critical minerals, followed by copper, lithium, nickel, and uranium (Figure 7). The significant investment made by Asian companies in Canadian potash comes as no surprise, given that Canada has the world's largest potash reserves and is the leading global producer of potash, accounting for 32% of global potash production.²⁵ Most of the Asia Pacific investment in potash came from Australia's BHP Billiton. Despite BHP's early struggles in entering Canada's potash mining industry, culminating in the rejection of its proposed acquisition of the Potash Corporation of Saskatchewan in 2010, the Australian company

managed to establish a strong foothold in Canada’s market. BHP has invested C\$12.3B in Canadian potash projects, C\$11.2B of which went into developing the Jansen Potash Project in Saskatchewan, which, once finished, is set to be the largest potash mine in Canada. The Jansen Project is expected to produce 4.35 million tonnes of potash per year once completed.²⁶

FIGURE 7

Asia Pacific Investment into Canada by Mineral Type, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

Copper, lithium, and nickel accounted for 26% of Asia Pacific investment in Canada’s critical minerals between 2003 and 2021. These three critical minerals and metals are essential in the production of emerging technologies such as lithium-ion batteries, solar panels, fuel cells, and electric vehicles. Canada is an attractive investment destination for these minerals. It is the 11th largest producer of copper, accounting for 3% of global production, even though it does not have significant copper reserves.²⁷ Canada has the seventh largest global reserve of nickel and is the sixth largest global producer.²⁸ Canada also has the sixth largest global reserves of lithium, accounting for 2% of global total reserves, but Canada lacks production capacity.²⁹ Despite large lithium reserves, Canada’s lithium production remains nascent, with many projects still in the exploratory and development stages.

Asia Pacific investors have actively acquired Canadian companies with domestic and overseas critical minerals assets. Between 2003 and 2021, Asia Pacific companies invested C\$2.9B in copper, C\$1.7B in lithium, and C\$869M in nickel assets located in Canada or managed by Canadian companies overseas.

Looking at Asia Pacific investment in copper, we find that the largest deal was made by Australia-based Rio Tinto, which invested over C\$1.2B (accounting for 41% of total Asia Pacific investment in Canada’s copper sector) into Ivanhoe Mines Ltd. (Turquoise Hill Resources) for the development of the Oyu Tolgoi copper-gold mine in Mongolia. The other notable investments in Canadian copper properties include two projects in Canada: South Korea’s POSCO Daewoo Corp’s acquisition of 35% of the Kwanika Copper-Gold Project near Quesnel,

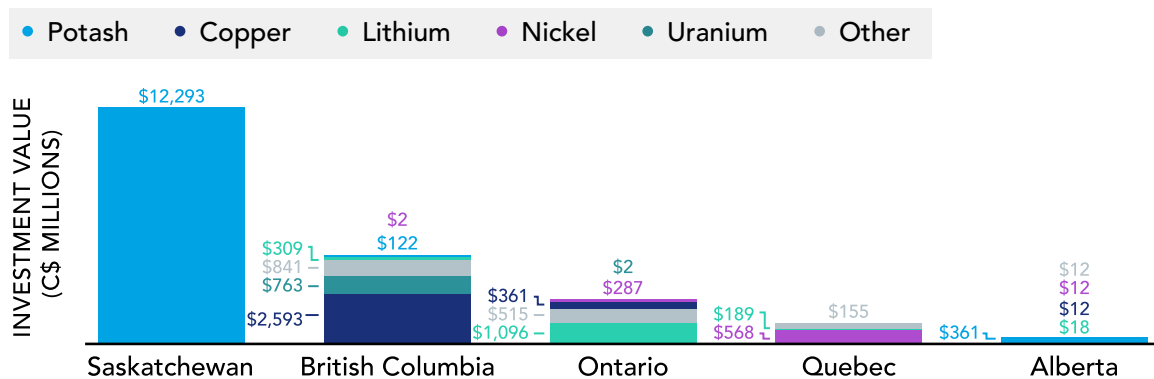
British Columbia, through two investments in 2016 and 2017 for C\$8M; and Australia’s Western Areas Ltd. joint venture with Mustang Metals to exploit the nickel-copper-platinum property, East Bull Lake Project, near Sudbury, Ontario for C\$295M.

Similar to the copper sector, many major investment deals made by Asia Pacific investors in lithium have focused on acquiring Canadian companies with overseas lithium assets. The largest deal involved the acquisition of an overseas asset by China’s Zijin Mining Group as part of its C\$960M acquisition of Neo Lithium Corp. in Argentina (See Box 2). Building up Canada’s domestic lithium capacity, Australia’s Sayona Mining Ltd. has invested C\$181M in three projects located in Quebec (Tansim Lithium Project for C\$250K in 2020, Moblan Lithium Project for C\$107M in 2021, and North America Lithium Project for C\$73.4M in 2021).

Unlike in the case of the Asia Pacific investment into copper and lithium, investment into nickel has gone primarily into Canadian-based mining properties. The largest investor in nickel was China’s Jilin Jien Nickel Industry Co. Ltd., which acquired Canadian Royalties Inc. for C\$112M in 2010 and then invested a further C\$400M into the project in 2011. Jilin Jien’s acquisition focused on Canadian Royalties’ Nunavik Nickel Project in Quebec. Nickel is typically found alongside other base metals such as copper, tin, zinc, and lead. As a result, most investment into Canadian nickel has been combined with other metals. The second largest investment into Canadian nickel was discussed in the copper section, Australia’s Western Areas Ltd.’s investment into the East Bull Lake Project in Sudbury.

Asia Pacific investment in critical mineral resources across Canadian provinces and territories differs in terms of the composition of critical minerals deals. As Figure 8 illustrates, Asia Pacific investment in critical minerals in the top five investment-recipient provinces was made into a variety of critical minerals, except for Saskatchewan. Saskatchewan attracted the majority of Asia Pacific investment in critical minerals in potash, with the Jansen Potash Project accounting for a large portion of this investment.

FIGURE 8
Asia Pacific Investment into Canada by Mineral Type and Province, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

British Columbia and Ontario, which are the second- and third-largest recipients of Asia Pacific investment in critical minerals, have attracted investment in a variety of critical minerals. A large portion of these acquisitions involved Canadian companies headquartered in British Columbia and Ontario with overseas mining assets. Both provinces serve as headquarters to multiple global mining companies due to their favourable investment conditions on the Toronto Stock Exchange, provincial tax benefits, provincial government subsidies, and easier access to staking mining claims.³⁰ Aluminum Corp. of China's C\$10B acquisition of Peru Copper Inc. in 2007 and Australia's Rio Tinto's C\$998M investment into Ivanhoe Mines³¹ between 2006 and 2011 are British Columbia's largest transactions involving critical mineral reserves located outside of Canada. In Ontario, China's Zijin Mining's C\$960M acquisition of Neo Lithium Corp. has been the largest acquisition of a Canadian company with assets in Argentina. The two largest critical mineral acquisitions located in British Columbia and Ontario are South Korea's POSCO Daewoo Corp. acquisition of the Kwanika copper-gold project near Quesnel, B.C. for C\$8M in 2017 and Australia's Western Areas Ltd. joint venture to develop the East Bull Lake nickel-copper-platinum project for C\$295M in 2008.

Quebec and Alberta ranked as fourth- and fifth-largest recipients of Asia Pacific investment in the Canadian critical mineral sector. Quebec has received C\$912M in critical minerals investment, with investment concentrated in nickel and lithium. The largest investment was by China's Jilin Jien Nickel Industry Co., which invested C\$568M in the Nunavik Nickel Project in Quebec. Australia's Sayona Mining has also invested C\$181M into three lithium mining projects in Quebec. Alberta has received C\$414M in critical minerals investment, with the majority of investment coming from BHP Billiton's potash acquisitions. BHP Billiton acquired Calgary-based Anglo Potash Ltd. for C\$360M in 2008. Alberta has received C\$52M in investment outside of potash, with small investments in copper, lithium, nickel, and platinum.

Asia Pacific investment in critical minerals across Canada's provinces has been shaped by two pull factors – an abundance of mineral resources and a supportive policy framework. While the former is hard to change, the latter has been revised by the federal and provincial governments in Canada to attract and support the mining sector. The Canadian government has just released the federal Critical Minerals Strategy in December, following in the footsteps of several Canadian provinces that have already established their own critical mineral strategies and policies (See Box 2). Other provinces are in the process of establishing their own critical mineral strategies. The management of non-renewable natural resources falls under the provincial government's jurisdiction, including applying provincial mining taxes and levies. The federal government, meanwhile, is responsible for regulating trade, commerce, federal taxation, shipping, oceanic or offshore mining, and Nunavut.³² Thus, Asia Pacific investors interested in acquiring critical mineral assets in Canada will need to familiarize themselves with both federal and provincial strategies and plans for the development of the critical mineral sector.

BOX 2

Canada's Critical Minerals Strategy: What the Future Holds

The Government of Canada's Critical Mineral Strategy was released on December 9 and will support the development of Canadian critical mineral resources and associated value chains. The Strategy relies, in part, on an extensive public consultation process that ended on September 15, 2022.³³ The Strategy solidifies Canada's position as a global mining leader by developing inclusive and environmentally responsible domestic critical mineral value chains. In the federal government's 2022 budget, it committed C\$3.8B over the next eight years to support the implementation of the Critical Minerals Strategy, including C\$80M in support for geoscience and exploration programs, C\$1.5B for the development of new infrastructure, and C\$1.5B dedicated to critical mineral projects focused on mineral processing, manufacturing, and recycling.³⁴

Several provincial governments have unveiled (or are planning to unveil) their critical mineral strategies. This box (Table 2) identifies current priorities set by Canadian provinces in terms of critical minerals. Ontario and Quebec are the only provinces with fully-fledged critical mineral strategies, while Alberta's minerals strategy partially covers critical minerals. Several provinces and territories, including Saskatchewan, Nova Scotia, and Northwest Territories, are currently developing their critical minerals strategies. The rest of the provinces and territories have yet to share their action plans or strategies on critical minerals.

Given that Ontario and Quebec are the only provinces that have developed a comprehensive critical minerals strategy, we focus on these two provinces, along with Alberta's overall minerals strategy (information for other provinces is provided in the Annex). Ontario and Quebec have both identified exploration and development of resources, supply chain resiliency, facilitative regulatory frameworks, innovation and research and development (R&D), Indigenous partnerships, and skills development as core areas in their critical mineral plans. Alberta's *Renewing Alberta's Minerals Future* report highlights strategies to promote critical minerals. Ontario, Alberta, and Quebec have also put forward investment facilitation measures, including funding opportunities and tax reduction/credits, to attract more investment into the provinces' critical mineral sector. We summarize these policies in Table 3.

TABLE 3

Critical Mineral Strategies Adopted by Canadian Provinces

Provincial Critical Mineral Strategy		Ontario's Critical Minerals Strategy 2022-2027	Renewing Alberta's Mineral Future	Quebec Plan for the Development of Critical and Strategic Minerals 2020-2025
Key Objectives		<ul style="list-style-type: none"> • Become a global supplier of responsibly sourced critical minerals (CMs) • Attract investment • Facilitate Indigenous participation in mining activities 	<ul style="list-style-type: none"> • Secure a position in the global CM supply chains, especially in the battery manufacturing sector 	<ul style="list-style-type: none"> • Meet global and provincial demand for critical and strategic minerals (CSMs)
Allocated Fund		C\$29M	—	C\$90M
Strategic Focus	Investment Facilitation	<ul style="list-style-type: none"> • Competitive corporate, mining and remote tax rates • Ontario Focused Flow-Through Share (OFFTS) tax credit 	<ul style="list-style-type: none"> • Funding opportunities from Alberta Innovates • Lower business tax rates than most other North American jurisdictions 	<ul style="list-style-type: none"> • Flow-Through Share tax deductions • An extra 10% deduction is granted if the expenses are incurred in Quebec • Additional 10% deduction, if the exploration is conducted from the surface
	Critical Mineral Exploration and Development	<ul style="list-style-type: none"> • Introduce innovative, new geospatial data products • Launch a digital platform for mineral exploration companies so that they can access Ontario's CM information from anywhere in the world 	<ul style="list-style-type: none"> • Extensive mineral mapping and better access to public geoscience information to develop an understanding of Alberta's mineral resources 	<ul style="list-style-type: none"> • Increase knowledge and expertise on CSMs by acquiring new geoscientific knowledge • Integrate digital innovation in the data processing

Strategic Focus	Supply Chain Resilience	<ul style="list-style-type: none"> Establish domestic supply chains, especially for sectors like - electric vehicles (EV), battery manufacturing Supply affordable clean electricity to mining companies 	<ul style="list-style-type: none"> Develop opportunities in battery manufacturing and clean technology value chains. 	<ul style="list-style-type: none"> Develop an integrated vision for the implementation of northern transportation, renewable energy and telecommunications network Position Quebec as a smart and electric transportation market
	Strengthening Regulatory Competitiveness	<ul style="list-style-type: none"> Develop a legislative and regulatory framework that attracts global investment Create regulatory pathways for mining projects and innovative solutions for mining wastes 	<ul style="list-style-type: none"> Improve the fiscal and regulatory environment to provide regulatory clarity and policy certainty to increase investor confidence. 	<ul style="list-style-type: none"> Expand the scope of regulations on extended producer responsibilities to new products containing CSMs
	Supporting Innovation and R&D	<ul style="list-style-type: none"> Improve mineral recovery from EV batteries Prioritize research projects related to critical minerals and EV batteries 	<ul style="list-style-type: none"> Promote innovation and industrial development to make Alberta a popular investment destination for CMs 	<ul style="list-style-type: none"> Support R&D on CSM extraction, transformation, and recycling Fund research on solid electrolyte batteries and artificial intelligence initiatives in mining, among other relevant R&D projects
	Economic Opportunities for Indigenous Partners	<ul style="list-style-type: none"> Collaborate on resource development projects with Indigenous communities Promote programs supporting Indigenous-owned businesses, workforce, and skill development 	<ul style="list-style-type: none"> Create opportunities for Indigenous Peoples in the minerals sector 	<ul style="list-style-type: none"> Ensure sustainable CSM mining practices in collaboration with Indigenous communities
	Developing a Skilled Labour Force	<ul style="list-style-type: none"> Grow the labour supply and develop a skilled labour force 	<ul style="list-style-type: none"> Develop public awareness and skilled workforce 	<ul style="list-style-type: none"> Offer measures to support the development of skills related to CSM

In addition to the official strategies listed above, other provinces have also allocated resources to increase their competitiveness in this sector. For example, Saskatchewan, with 23 of the 31 critical minerals identified by the Canadian government, has been working towards fortifying its position in global supply chains for these minerals. In March 2022, the province announced C\$300K funding for the Saskatchewan First Nations Natural Resource Centre of Excellence to support two projects, one identifying opportunities for Indigenous communities and businesses to own or participate in projects associated with critical minerals.³⁵ Nova Scotia has drafted a list of critical minerals essential for the energy transition in June 2022.³⁶ The province aims to use the draft list to develop its critical mineral strategy for sourcing, producing, and processing critical minerals. The Northwest Territories has prioritized the exploration and development of several critical minerals as a post-COVID economic rebound strategy. The government of the Northwest Territories is currently developing an action plan to guide investment in critical minerals with a particular focus on exploring and developing critical minerals located in the territories.³⁷

CANADIAN INVESTMENT IN THE ASIA PACIFIC'S CRITICAL MINERALS

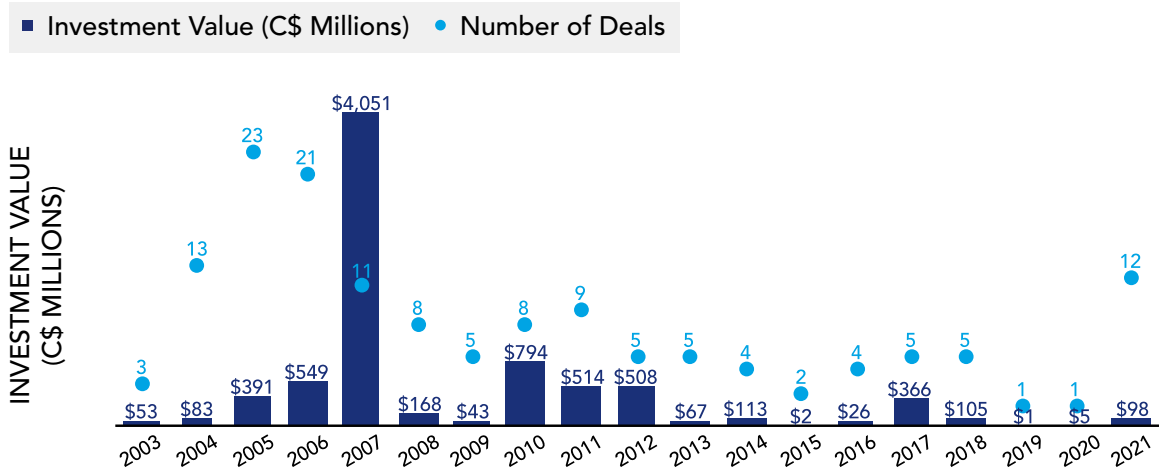
The Asia Pacific is home to some of the world's largest producers and exporters of critical minerals. The latest data from the United States Geological Survey reveals that in 2018 the Asia Pacific accounted for 90% of global tungsten production, 77% of tin production, and 70% of graphite production.³⁸ China, for example, has consistently remained among the top producers of copper, tin, tungsten, graphite, and rare earth minerals.³⁹ Many new opportunities in the region are beginning to be explored, with an estimated 10% to 30% of the world's nickel reserves lying beneath New Caledonia⁴⁰, making it a region full of prospects for Canadian critical mineral investors.

Despite the potential of the Asia Pacific's critical minerals sector, Canadian investment has been minimal. From 2003 to 2021, Canadian companies invested only C\$7.9B in Asia Pacific critical minerals, far less than the C\$20.6B invested by Asia Pacific companies in Canada's critical minerals sector. Looking at Canada's total investment in the Asia Pacific from 2003 to 2021, we find that the critical minerals sector makes up only 3% of its total regional investment.

This 3% average was driven by a spike in Canadian FDI in the Asia Pacific's critical minerals industry in 2007, when Canadian companies invested C\$4B in the sector (Figure 9). Without the spike in FDI activity in 2007, Canadian FDI in the region's critical minerals sector would make up less than 2% of total Canadian investment in the region. In general, Canadian critical minerals investments have been small in value. In the past five years, especially, the industry has been dominated by smaller investments, with 24 investments completed worth a total of C\$575M.

FIGURE 9

Canadian Critical Minerals Investment into the Asia Pacific, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

The unparalleled surge of FDI in 2007 was driven by a single large-scale investment made by a Toronto-based company involved in the mining and refining of nonferrous metals, Chemical Vapor Metal Refiner (CVMR). CVMR acquired exploration rights to mine and develop nickel deposits in Eastern Samar, a state in the Philippines. After being granted an exploration permit by the Philippines government, CVMR invested roughly C\$3.7B in nickel processing facilities in the region.

The other main outlier between 2003 and 2021 is the 2010-2012 period, marked by a few large-scale deals. In 2010, there was a total of eight critical minerals investments in the Asia Pacific, with one large investment by Toronto-based First Quantum Minerals Ltd. worth C\$428M, making up most of the investment that year. 2012 was also dominated by a single large investment by Cameco, which acquired the Yeelirrie uranium project in Western Australia from BHP Billiton for C\$482M.

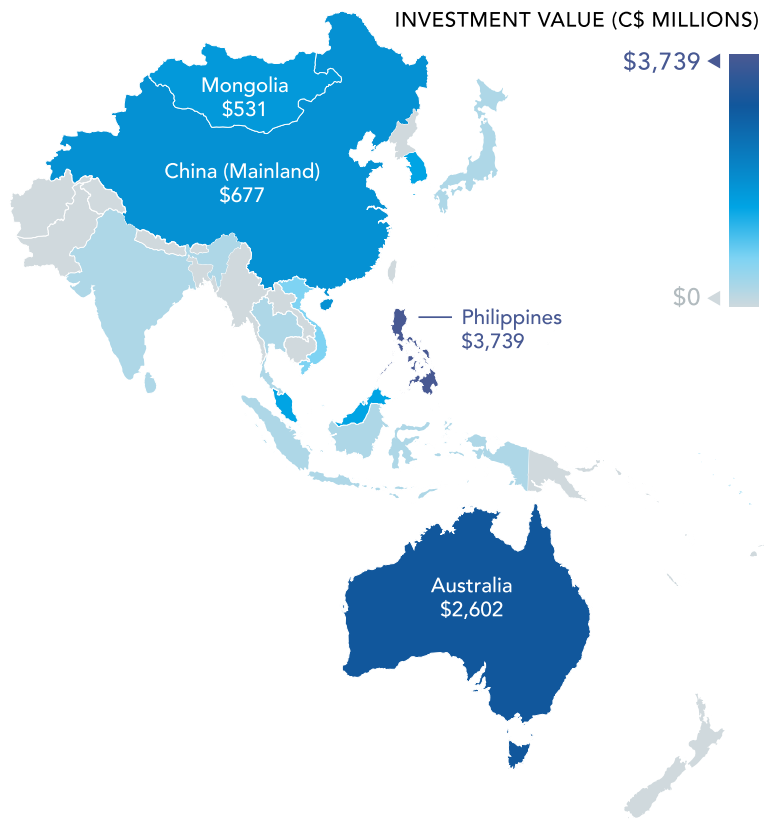
Canadian Investment in Asia Pacific Critical Minerals by Destination Country

Canadian companies have favoured the Philippines and Australia as destinations for their critical mineral investments (Figure 10). Between 2003 and 2021, Canadian firms invested C\$3.7B in the critical minerals sector in the Philippines and C\$2.6B in the critical minerals sector in Australia, accounting for 47% and 33% of Canada’s total critical mineral investment, respectively. The majority of Canadian investment in the Philippines came from a single large deal (CVMR’s 2007 investment), while most of the Canadian investment in Australia came from multiple smaller mining deals. In the past five years, Australia has been the largest recipient of Canadian critical minerals investment, with C\$555M received through 20 projects.

These investment values far exceed Canadian investment in other Asia Pacific economies, with the next largest investment recipient, mainland China, receiving only C\$677M in Canadian investment, or 9%, through multiple investment deals.

Within the top destination economies (the Philippines, Australia, and China), that received Canadian investment in critical minerals, the main destination states are Eastern Samar, Western Australia, and Guangdong, respectively. In the Philippines, Eastern Samar has received more than 100 times the investment of the second-largest investment recipient state (Zamboanga del Norte) due to the 2007 CVMR deal. In Australia, the states of Western Australia and Victoria make up most of the inward Canadian investment in critical minerals (See Box 3), though the distribution of investment is more equitable than in the Philippines, as Western Australia has received C\$1.9B, which is just four times more than the C\$462M received by Victoria. China, however, has received the most equal distribution of Canadian investment in critical minerals among three states: Guangdong, Liaoning, and Shanxi, which received C\$166M, C\$104M, and C\$101M, respectively.

FIGURE 10
Canadian Critical Minerals Investment into the Asia Pacific by Destination Economy, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

BOX 3

Western Australia became a Favourite Investment Destination Among International Investors

In the past five years, Western Australia has been the most popular Australian destination for Canadian critical minerals investment and, in 2021, was the most attractive state for international mining companies, according to the Fraser Institute's rankings.⁴¹ These rankings are based on a yearly survey of 4,000 mining companies operating around the world and is conducted to determine the most attractive destination for mining investment.⁴² Relying on the survey results, the Institute creates an Investment Attractiveness Index, based on geological attractiveness and a Policy Perception Index, which includes regulations, tax levels, and infrastructure quality, among other elements.

South Australia also made the list of top 10 destinations, rounding out the list at 10th place. Australia is the only Asia Pacific country to make the top 10 list. The favourability of both deposits and policy suggests that Australia will continue to be a popular destination for Canadian investment in the coming years.

Top 10 Canadian Investors in the Asia Pacific's Critical Minerals Sector

The top 10 Canadian mining companies investing in the Asia Pacific's critical minerals sector accounted for 82% of total Canadian critical mineral investment in the region from 2003 to 2021. Our data indicate that companies rarely make multiple investments in the Asia Pacific, resulting in a significant turnover among the list of largest investors over the years. For example, none of the top 10 Canadian investors in the Asia Pacific that emerged during the 2003-2016 investment period have appeared among the largest investors between 2017-2021 (Table 4).

TABLE 4

Top 10 Canadian Investors in the Asia Pacific, Comparison of Top Investors During the 2003-2016 Period with the Largest Investors in the Last Five Years

Top 10 investors 2003-2016	Investment Value (C\$ Millions)	Top 10 investors 2017-2021	Investment Value (C\$ Millions)
Chemical Vapor Metal Refinery Corp. (CVMR)	\$3,692	RNC Minerals	\$363
First Quantum Minerals Ltd.	\$834	Copper Mountain Mining Corp.	\$100
Turquoise Hill Resources (previously Ivanhoe Mines Ltd.)	\$546	Southern Cross Energy	\$67

Cameco Corp.	\$493	Henan Found Mining Co. Ltd.	\$16
Potash Corporation of Saskatchewan Inc.	\$183	Megawatt Lithium and Battery Metals Corp.	\$16
LionOre Mining International Ltd.	\$195	Global Energy Metals Corp.	\$4
Denison Mines Corp.	\$170	Pacific Rim Cobalt Corp.	\$3
Migao Corp. (including Yunnan Migao subsidiary)	\$124	Huntsman Exploration Inc. (Previously BlueBird Battery Metals Inc.)	\$2
Silvercorp Metals Inc.	\$116	Australian Goldfields Ltd.	\$2
Inco Ltd.	\$94	Currie Rose Resources Inc.	\$1

The three largest Canadian companies invested in the region, CVMR, First Quantum Minerals, and Cameco Corp., have all made large investments. CVMR, a Toronto-based mining firm with global mining operations, made a single large investment in 2007 in the Philippines' nickel sector. However, CVMR's lack of movement on Asia Pacific opportunities in the intervening years may indicate that it has decided to focus on other regions, as its mines are primarily located in Africa and North America. First Quantum Minerals has also made focused investments in the region, with two large deals in Western Australia's Ravensthorpe nickel mine. However, Ravensthorpe is the only mine in the Asia Pacific that First Quantum currently owns, with the majority of its projects based in Africa, South America, and Europe. The third-largest investor, Turquoise Hill Resources, has made the most investments of all three, with C\$546M invested through seven deals, with the majority of investment going to Mongolia (C\$500M) and Australia (C\$40M).

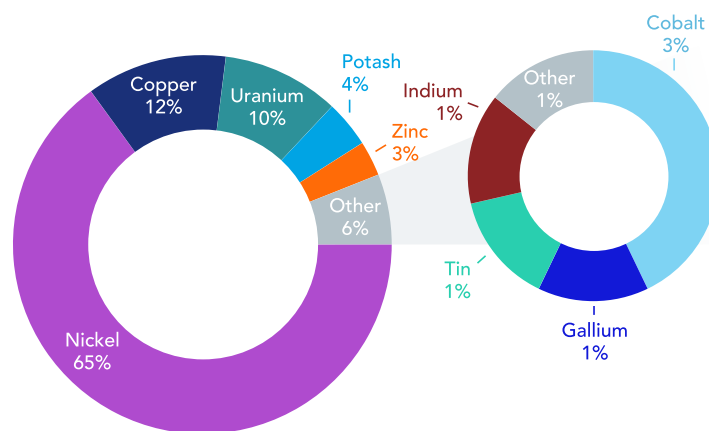
Canadian Investment in the Asia Pacific by Mineral Type

Of the 31 elements identified by the Canadian government as "critical minerals," nickel dominates Canadian investment in the Asia Pacific. Canadian companies have invested more than C\$5B in the region's nickel mining and refining industry from 2003 to 2021. While this value was primarily driven by CVMR's 2007 investment worth C\$3.7B in the Eastern Samar nickel production project, nickel remains the most popular mineral type for Canadian investors in the Asia Pacific, with C\$1.4B invested. Nickel's dominance in Canadian investment reflects its abundance in the region and nickel's growing importance in our manufacturing and energy transition strategies. According to the United States Geological Survey, in 2020, Indonesia was the world's largest producer of nickel, making up 30.4% of global production, and the Philippines was the second-largest producer in the same year, contributing 12.8% to global production⁴³.

Copper and uranium follow nickel as the second and third most popular resources in terms of value invested by Canadian mining companies in the region from 2003 to 2021. While nickel accounted for more than 60% of total Canadian investment during this period, copper and uranium have also received significant investment, receiving more than 20% of Canadian investment in the critical minerals mining sector in the region, with copper accounting for C\$983M and uranium for C\$817M (Figure 11). Investment in copper has been relatively consistent across the years. The largest deal during this period was a 2007 investment by Turquoise Hill Resources in Mongolia’s Oyu Tolgoi mine worth C\$169M. However, since 2019, investment in copper has dropped off completely.

In contrast, Canadian investment in uranium was largely concentrated in the early 2000s, with 29 of the 35 transactions between 2003 and 2021 occurring before 2010. The largest investment during the early 2000s was a 2007 expansion of Denison Mines Corp.’s ownership of Australian mining company, OmegaCorp Ltd., worth C\$157M. Since then, the only notable transaction was Cameco’s 2012 investment in the Yeelirrie uranium project. As with copper, investment in uranium has lagged recently, with the latest deal completed in 2018.

FIGURE 11
Canadian Critical Minerals Investment into the Asia Pacific by Mineral Type, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

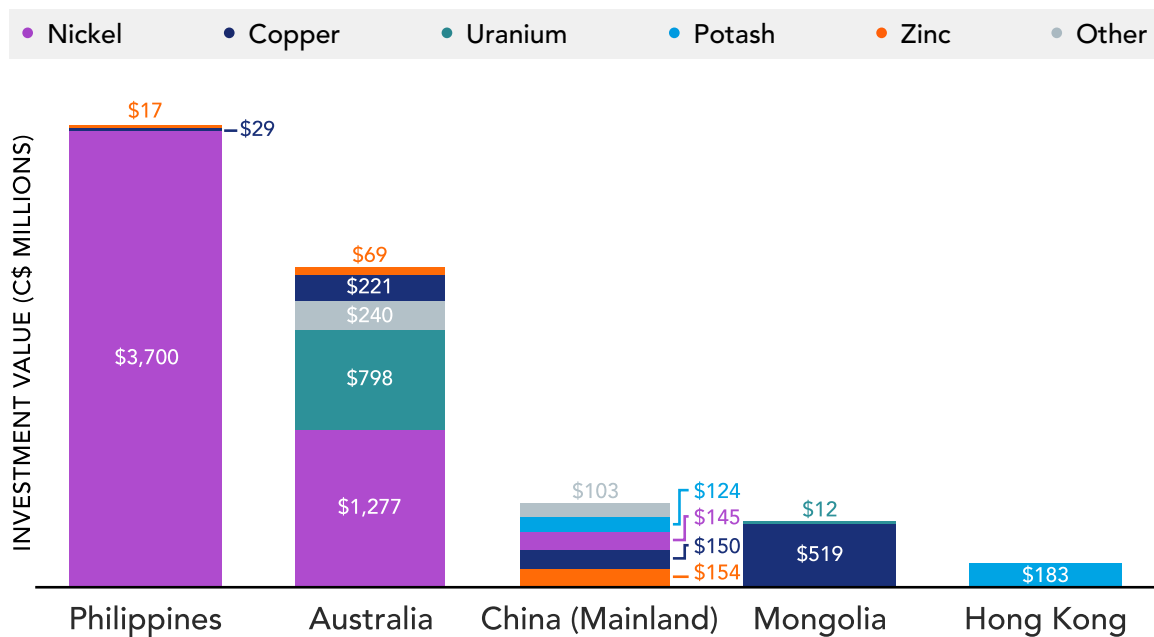
Analyzing Canadian investment in the Asia Pacific’s critical minerals sector over the past five years, we find a relatively mixed distribution of investment across minerals. Nickel has continued to dominate Canadian investment, with C\$429M invested, largely due to the 2017 investment by Canada-based RNC Minerals in Australia to expand its nickel operations at the Beta Hunt mine by investing C\$362M. Copper also maintained its position as the second-largest investment recipient, receiving C\$100M through a large merger between a Vancouver-

based Copper Mountain Mining Corp. and Australia-based Altona Mining Ltd. to extract copper from the Cloncurry Copper project in Queensland. During this period, Canadian mining firms have not been very active in the region, with the exception of 2017 and 2021, during which Canadian investors invested predominantly in nickel (C\$431M), zinc (C\$16M), and lithium (C\$5M), with Australia receiving the majority of this investment.

Over the last 19 years, the Philippines and Australia were the top two destinations for Canadian FDI in critical minerals in the Asia Pacific. The investment patterns across the two indicate unique investor experiences (Figure 12), with Canadian investment into the Philippines dominated by a single critical mineral – nickel. Nickel made up 99% of Canadian critical mineral investment in the Philippines. Similar to the investment in the Philippines, Canadian critical mineral investment in Mongolia is almost entirely dominated by one mineral: copper. The mineral makes up 98% of total Canadian critical minerals investment in Mongolia, due largely to the investments in the Oyu Tolgoi copper-gold mining complex by Turquoise Hill Resources (Ivanhoe Mines). In contrast, Canadian investment in Australia’s critical minerals was more distributed across several minerals, such as uranium, copper, and zinc, with nickel accounting for about half of Canadian FDI. In comparison, mainland China received the most equitable distribution of investment across minerals among the top five recipients of Canadian investment in critical minerals in the region.

FIGURE 12

Canadian Critical Minerals Investment into the Asia Pacific by Destination Economy and Mineral Type, 2003-2021



Source: APF Canada Investment Monitor, fDi Markets (accessed October 2022)

Overall, this report finds that Canadian investors have been predominantly interested in the Asia Pacific's nickel, copper, and uranium resources over the past 19 years. Canadian investment has primarily gone to the Philippines and Australia due to the significant mineral reserves in these countries and the relative attractiveness of their mining policies. With the transition towards a zero-emission economy and goods such as EVs, the demand for nickel, copper, uranium, and other critical minerals will continue to grow. The findings of this Investment Monitor report suggest that Canadian companies could expand their investment in mainstays such as Australia but also capitalize on Canada's new partnerships with resource-rich countries such as Indonesia and South Korea to develop their critical mineral resources.

CONCLUSION

Data from the IM indicate that Canada has been an attractive destination for Asia Pacific investors in the critical minerals sector, which accounted for 9% of total FDI flows from the Asia Pacific to Canada from 2003 to 2021. Conversely, Canadian investment in Asia Pacific critical minerals only accounted for 3% of total FDI during the same period. We found that the majority of Asia Pacific investment in Canada's critical minerals sector occurred in 2021, while Canadian investors were more active in the Asia Pacific's critical minerals sector in the mid-2000s, with 2007 marking a record level of FDI from Canada to the Asia Pacific in critical minerals. Overall, the majority of Canadian investment went to the Philippines, Australia, and China, while Asia Pacific investors have predominantly invested in Saskatchewan (mostly in potash-related projects), British Columbia, and Ontario. The most sought-after mineral by Asia Pacific investors in Canada was potash, closely followed by copper and lithium. Canadian investors in the Asia Pacific were predominantly exploring nickel, copper, and uranium.

The latest IM data for the first two quarters of 2022 suggest that Canada's critical mineral sector has retained its attractiveness to Asia Pacific investors. In contrast, the 2022 data shows that Canadian investors are less active in the Asia Pacific critical minerals sector. In the first half of 2022, Canadian investors invested only C\$10.6M in the Asia Pacific's critical minerals sector, compared to the over C\$500M invested by Asia Pacific firms in Canada.

In the first two quarters of 2022, Canadian mining companies investing in critical minerals in the Asia Pacific have predominantly focused their efforts on the acquisition of mining companies exploring copper and zinc. For example, TVI Pacific Inc., a Canadian company, has acquired Sage Capital Partners Inc., which explores copper resources in the Philippines, for C\$7.6M through its affiliate company, TVI Resource Development Philippines Inc. (TVIRD). Asia Pacific investors in Canada have largely focused on the processing of critical minerals, as illustrated by POSCO Chemical's investment. South Korea-based POSCO Chemical, in partnership with General Motors (GM), has begun constructing a C\$512M facility to process Cathode Active Material (CAM) to support GM's expansion into the critical minerals market. The CAM battery requires several critical materials, including nickel and lithium. The POSCO facility is just one example of corporate expansion in battery processing. European companies are also planning to expand their operations in Canada's battery market, as exemplified by Belgium-based Umicore's planned investment in a battery-production facility in Ontario. Umicore, a circular materials technology company, is planning to start constructing the facility in 2023, with projected completion in 2025.

We can expect that investment values in this sector to increase in the future, reflecting the global desire to expand critical mineral supplies. However, there will be constraints on some types of investment and investors based on the host country's regulations. For example, Asia Pacific investors coming to Canada should familiarize themselves with the provisions of the *Guidelines on the National Security Review of Investments* released in 2021, which will apply to the 31 critical minerals on Canada's Critical Minerals List. The Canadian government carefully reviews critical minerals investments and orders divestment on any acquisitions that may threaten Canada's national security. Illustratively, on November 2, 2022, the Canadian government relied on the national security review guidelines to order three Chinese mining companies – Sinomine Rare Metals Resources Co., Chengze Lithium International Ltd., and Zangge Mining Investment Co. Ltd. – to divest from their Canadian companies with critical mineral assets.

Foreign investors, however, may also meet policies encouraging investment in specific critical minerals exploration or refining activities. Canada's Critical Minerals Strategy was released in December 2022. The Strategy will influence domestic and international investment flows as the government puts together related incentive schemes to support the development of Canada's critical minerals sector. Likewise, Canadian mining companies interested in acquiring critical mineral assets should review evolving relevant policies in host countries. For example, Indonesian authorities are planning to place an export ban on raw tin exports in 2023 to attract FDI into processing facilities to ensure that critical minerals are refined domestically. Canadian investors may need to adjust their investment strategies around host countries' measures related to the processing and export of raw materials.

We also expect that the environmental, social, and governance (ESG) framework will become an important factor in shaping investment in extractive industries across the Asia Pacific and Canada. Mining activities have the potential to cause serious harm to the environment and communities, as they may result in air/water pollution, water depletion, and social unrest. According to a recent study, the extraction of certain critical minerals is subject to higher ESG risks.⁴⁴ ESG risks are especially elevated in jurisdictions where regulations to safeguard communities from social and environmental externalities are underdeveloped or non-existent.

The IEA notes that ESG reviews may deter investment in high-risk areas, with companies that do not meet ESG criteria losing the support of local communities, leading to potential supply disruptions.⁴⁵ Advanced industrial economies are also actively writing ESG rules for the development of critical minerals, unilaterally⁴⁶, bilaterally, or multilaterally⁴⁷ through initiatives such as the MSP. The MSP brings together advanced industrialized economies, including Australia, Canada, and Japan, interested in improving critical supply chains by supporting investment from public and private sources to develop critical mineral value chains in individual countries. Investors interested in expanding their activities in critical minerals will likely be impacted by new critical mineral strategies and ESG initiatives adopted by investment-recipient countries. To minimize the negative impact of resource extraction on

people and the planet, mining companies will need to follow sustainable ESG practices that are developed by host countries, industry associations, and international bodies.

Global disruptions will also shape the flows of FDI in critical minerals. The global fertilizer market is a case in point. Disruptions in the global potash supply chain due to the Russia-Ukraine conflict creates opportunities for Canadian potash to attract more FDI. Canada is the leading producer, accounting for 31% of global potash production, and has the world's largest reserves of potash in Saskatchewan. Russia and Belarus are the second- and third-largest producers of potash in the world, accounting for 38% of global potash exports combined. The Russian invasion of Ukraine in February 2022 and the accompanying conflict has exposed the fragility of the global potash supply chain as many countries now scramble to replace potash imports from Russia and Belarus due to sanctions. The European Union, China, Indonesia, India, and the United States are the five largest importers of potash, each importing approximately 40-50% of their total potash from Russia and Belarus, except for the United States, which imports 88% from Canada. Canada only accounts for 3% of the E.U.'s potash imports and approximately 30-50% of potash imports for China, Indonesia, and India. Given the importance of Canadian potash for Asia Pacific markets, the disruption of potash supply from Russia and Belarus may lead to an increase in Asia Pacific investment in Canada's potash.

Meanwhile, as the global demand for critical minerals continues to increase at a rapid pace, governments and companies will look to expand their activities in the critical minerals sector. As we have outlined in this report, governments are putting together financial packages to support domestic exploration for critical minerals or support corporations searching for critical minerals abroad. Mining companies are taking note of these developments and are expanding their domestic and international mining portfolio. At the same time, governments are growing increasingly sensitive to geopolitical rivalries and changing geoeconomic outlooks and seeking to expand critical mineral partnerships with like-minded countries to protect critical mineral supply chains. We anticipate that the need to invest in critical minerals in the future will heavily influence corporate strategies and planning and that investment in the sector will be led by and following evolving political trends.

Annex

Policy/ Strategy No	Programs	Type of Program	Brief Description and Key Objectives	Allocated Fund	Eligibility Criteria	Who Can Apply
1	Mineral Exploration Support Program for Critical and Strategic Minerals 2021-2024	Provincial; Quebec	The program targets to foster sustainable Critical and Strategic Minerals (CSM) exploration and development projects in Québec	C\$0.4M	<p>The project must meet the following criteria:</p> <ul style="list-style-type: none"> located in Québec and registered under a CSM exploration project hold appropriate mineral rights and be related to the geo-metallurgical or geo-environmental work include eligible expenses for a total amount of at least C\$20K at least 50% of the eligible expenses must be funded by the applicant and/or by an external person(s) <p>The project should not have reached the pre-feasibility study phase and received financial assistance under another program by the government of Quebec</p>	<ul style="list-style-type: none"> Companies in the mining industry registered in the Enterprise Register Indigenous mining funds
2	Critical Minerals Research, Development and Demonstration Program	Federal	The program provides funding to advance technological solutions for the production of critical minerals. It aims to accelerate the commercial readiness of emerging mineral processing unit operations or technologies that will support the development of zero-emission vehicle (ZEV) value chains in Canada.	C\$10.95M	<p>Technology must:</p> <ul style="list-style-type: none"> be well-advanced so that the funds will be used as a final push toward commercialization produce key critical minerals aim to support the development of ZEV value chains in Canada by providing raw material inputs for the use in batteries and permanent magnets 	<ul style="list-style-type: none"> Legal entities incorporated or registered in Canada, including for-profit and not-for-profit organizations such as mining companies, industry associations and research associations Indigenous organizations and groups Canadian post-secondary institutions

3	Mineral Exploration Tax Credit (METC)	Federal	The METC is a 15% non-refundable tax credit on eligible exploration expenses. Investors can apply this funding to cover federal income tax that would otherwise be payable for the taxation year in which the investment was made. The credit can be carried back 3 years and carried forward 20 years.	<ul style="list-style-type: none"> • Costs related to prospecting and carrying out geological, geophysical, or geochemical surveys conducted from or above the surface of the earth in searching for, but not limited to, a base-metal or precious-metal deposit are eligible expenses for METC treatment. 	<ul style="list-style-type: none"> • Individuals (other than a trust) who are deemed to incur eligible exploration expenses, either individually or through a partnership, pursuant to a flow-through-share agreement with a principal-business corporation (PBC), are eligible for the METC.
4	Critical Minerals and Emerging Technology – Alberta Innovates	Provincial; Alberta	The program is positioned to help reduce emissions, diversify Alberta’s economy, and enable technologies that facilitate other clean technology focus areas.	<p>Technology:</p> <ul style="list-style-type: none"> • could be in novel primary and secondary extraction processing critical minerals • create value-added high-tech materials from resources and raw materials readily available in Alberta • must fall in the technology readiness level (TRL) level of 3 to 7, meaning well-advanced 	<ul style="list-style-type: none"> • Researchers, innovators, small and medium-sized enterprises, large companies and others
5	Critical Minerals Tax Credit	Federal; draft stage	Explorations involving critical minerals are subject to a 30% tax credit (or a 60% tax deduction), on top of the 100% tax deductions from the flow-through structure.		

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