



RE-SOURCING
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Responsible Sourcing in a Mineral Supply Restricted Environment: More Carrot, Less Stick?

Abstract:

With the expected increase in mineral demand to manufacture green technologies, challenges are anticipated in responsible sourcing this increase, and interventions need to be considered to support mining companies achieve this. This document reflects the discussions with Sophie Chang (Skarn Associates), Augustus McFarlane (Verisk Mapelcroft) and Masuma Farooki (MineHutte), moderated by Per Storm (EIT Raw Materials) on the topic of 'Disruptions to supply chain – RS & The Green Deal', a part of the RE-SOURCING's Virtual Event (October 2020).

The [RE-SOURCING Project](#) aims to build a global stakeholder platform for responsible sourcing. The project addresses the challenges facing businesses, NGOs, and policymakers in a rapidly evolving ecological, social, business and regulatory world; through a collective, consultative, and industry & civil society driven approach. RE-SOURCING is funded by the European Commission's Horizon 2020 programme and runs from 1 November 2019 to 31 October 2023.

1. Introduction

Demand for minerals required in the production of green technologies is expected to increase substantially over the next decade; [World Bank \(2020\)](#) estimates a fivefold increase for minerals like graphite, lithium and cobalt and a doubling of demand for nickel. This mineral demand will be fuelled further as more governments define key performance indicators to meet commitments to the Paris Climate Accords (2015). Another impetus for increasing demand in the near future will result from governments (in China, Europe and North America) shifting their focus from managing the COVID pandemic to economic stimulus packages. Such stimuli result in increased government spend on mineral intensive sectors that meet climate change and equality challenges – again increasing demand for the minerals that fuel the green sectors.

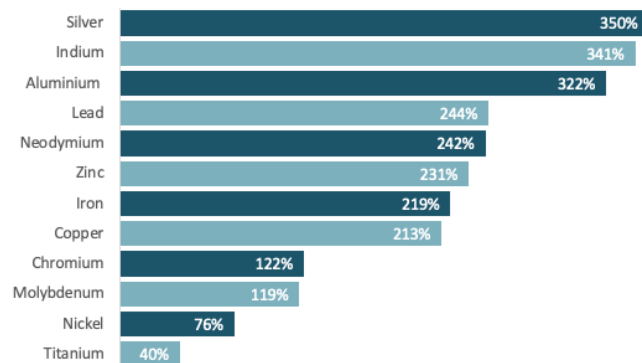


Figure 1. Relative change in demand for minerals from energy technologies (without storage)
Source: World Bank, [Minerals for Climate Action](#) (2020)

While many sustainability debates focus on the need for developing green technologies and setting key targets for sustainability (both for governments and companies), the question of where the minerals to meet this demand will come from is not being adequately considered.

While recycling of metals as a source of supply, continues to gain traction, current recycling rates and volumes are not enough to meet the anticipated demand. Issues also exist within the recycling sector, including health and safety and environmental challenges, quality of recycled material and its usability. Additionally, to further curb material demand, dematerialising or decreasing material-intensive consumption and production patterns over the longer term are being considered. This includes promoting resource use efficiency in manufacturing and changing consumption patterns towards more sustainable products (repair and re-use). While all these efforts will have some impact on lowering mineral demand, mining will account for the majority of mineral supply over the next decades. Next to considering meeting future demand, the responsible sourcing of these minerals will grow in importance.

Limitations in the supply of minerals can have serious implications for meeting EU's



Green Deal ambitions. Tightening of supply will invariably lead to an increase in price for metals, which will need to be borne by either the manufacturer or final product consumers. Not all materials can be substituted, therefore price concerns remain significant. Competition for certified responsibly sourced minerals may drive price premiums in the markets. However, this will not prevent minerals associated with serious human rights violations or environmental harm, from entering manufacturing value chains – a consequence of a supply constrained environment.

The global mining sector is expected to provide these minerals and to do so whilst incorporating responsible sourcing (RS) expectations. In this briefing document we examine the issues, challenges and government policy initiatives required to boost responsible sourcing of minerals from Large Scale Mines, in a supply restricted environment. The discussion reflects the dialogue from the RE-SOURCING Project's virtual event panel on [The Green Deal: How will increased materials demand impact Responsible Sourcing](#) (October, 2020).

2. Challenges for the Mining Sector in implementing RS

A plethora of guidelines, standards and certifications exist that address RS in the mining sector (for a more detailed list please see [The International Responsible Sourcing Agenda report](#)) and the business case for RS is also clearly emerging (such as the OECD Guidelines for Multinational Enterprises, see [RS: The Case for Business Competitive-ness](#) for more details). Many mining companies and smelters have adopted RS practices, partly driven by legal requirements (such as the EU Directive on Conflict Minerals), industry association memberships (for example the [ICMM Performance Requirements](#)) and voluntary initiatives (such as [IRMA Standards](#)). For a full discussion However, certain challenges are still apparent, impeding a wider uptake of RS implementation. From a supply perspective, identified challenges are discussed below.



Better data & measurement urgently needed

2.1 Clear & agreed definition of RS missing

RS is often discussed in terms of Environmental, Social and Governance (ESG) performance within the business and financial sectors. As with RS, ESG is not clearly defined. For some companies ESG refers to climate change impacts (one dimensional view; not considering the 'S' or 'G' in ESG), while for others this addresses a company's philanthropic activities, or it is the obtaining of a Social License to Operate (for legitimising company practices) without considering the wider societal implications of ESG practices. Often the Environmental and Governance components are better addressed and reported on, as these are more mature concepts and easier to measure. For example, greenhouse gas emissions, water usage and water recycling rates and renewable energy usage are common indicators included in mining company annual reports and filings. Similarly, for governance, resource contract transparency, payments to governments, supplier codes of conduct, gender pay gaps etc. are becoming common reported measures. Reporting on Social lags behind the others for two major reasons:

- It is a difficult metric to quantify as it largely addresses a human element &
- It is highly contextualized by the location of the activity (risks around one mine project can be very specific to that region).

Evidence of ESG performance can be assessed from the impact management and risk mitigation processes the company employs, and its considerations of ESG indicators in the long-term value creation of the business. Companies are increasingly beginning to recognise that ESG credentials can provide competitive advantage by being more attractive to investment funds, gain preference from purchasers and lower operational risks that stem from community engagements.

2.2 Mine vs. company level data required

Currently, performance on RS and ESG is reported at the company level, aggregating information from all the mining projects operated by an entity. This aggregation is problematic since it fails to distinguish between individual mine site performance, camouflaging the location specific impacts. Take the example of a mining company with projects in Canada and South Africa. The Canadian operations use hydro power, while the South African projects, by legislation, are not allowed to set up their own power generation units and must source power from the national electricity grid, which is largely coal based. The GHG emission performance for this company is therefore likely to hide the difference in performance between its Canadian and South African mines. ESG impacts and RS issues are highly contextualised by their location. Therefore, while company reporting is welcome, it is mine site information that is important to determine the mineral's RS credentials that can be readily used for downstream company procurement actions. Tost et al (2018) in their [review](#) find very limited data available for environmental analysis at the mine level, with "significant gaps in comparability of different sources, especially related to the identified boundary conditions (including type of mine and process routes), input parameter definitions, and the applied allocation methodology".



2.3 The limitations of technology in traceability

A number of RS initiatives have focused on the traceability of minerals to determine RS credentials, particularly schemes that focus on smelters as the point of assurance, for identifying the source of the mineral. For example, blockchain technology has been a driving engine to increase traceability and is increasingly used for gold and conflict minerals (tin, tungsten and tantalum). However, the technology is not without its drawbacks: it relies – as do other tracing schemes – heavily on inspectors being on the ground to verify the first tagging of a mineral shipment. There are difficulties in placing inspectors in often conflict affected areas. Additionally, verification of Artisanal and Small-scale Mining (ASM) production is difficult as the material can come from many sites, whereas verification largely takes place at trading posts. Therefore, relying on technology alone for traceability does not provide assurance for the RS credentials of a mineral. Traceability is a valuable tool, but not a value by itself.



Certification alone will not resolve RSesponsible Sourcing issues

2.4 Certification provides challenges for benchmarking

Related to traceability, transparency about the flow of minerals (from LSM/ASM to smelter to fabricator/manufacture) encompasses a number of actors in the value chain. A common assurance mechanism for transparency is certification, which involves third-party auditing. A number of third-party certification schemes currently exist; some cover all minerals (IRMA Standards for example focuses on mines and can be used for any material) while others are metal specific (The Copper Mark for example looks specifically at copper production). While certification is an important solution to provide RS assurance to the consumer/manufacture, they fail to provide company benchmarking (note benchmarking reports such as the Responsible Mining Index do not provide certification). At this time, individual companies or smelters can be certified, but the ability to compare one company's ESG/RS performance to a second company remains limited. A manufacturer/investor choosing between two companies can be assured that both are certified (often not by the same standard) but who is the better performer remains challenging to gauge, as certificates assess and weigh RS and ESG indicators differently. Efforts to provide a greater level of equivalence and convergence between the certification scheme would provide for a more fruitful benchmarking exercise.

Four issues arise around the comparability of certifications:

- ESG impacts are partly driven by the technical requirements for producing each mineral (for example water usage is more important in copper, while energy usage in aluminium production). Thereby, generalist certification processes may result in comparing oranges to apples when using the same certification scheme to compare different minerals (see Figure 2).
- Metal specific certifications (such as The Copper Mark) may inherently favour companies operating in certain jurisdictions. For example, operators in rain-fed Ghana can have similar water usage rates as those in water-scarce Chile, but they reflect two entirely different RS situations. Benchmarking them at the same level is not productive.
- National certifications, that would incorporate the specific risk factors in a jurisdiction, are not noted, apart from those addressing the Great Lakes Region and conflict minerals. For example, countries that use prison labour as allowed under their own laws cannot be benchmarked against countries who do not allow for use of such forced labour, while neither country has broken their own laws.
- A unified glossary is not currently available, with every standard/certification scheme using their own definitions and frameworks (comparison not possible) and inter certification collaboration remains limited.

Given these issues, developing a comparable benchmark for mining companies (the major companies extract multiple minerals in multiple jurisdictions) by manufacturers (who use multiple minerals from various suppliers) is a serious issue in deter

mining how responsibly sourced the overall mineral supply is. The construction of a unified glossary between certification schemes should be a priority for RS initiatives.

2.5. Focusing on the current vs. future RS performance

Understanding and implementing RS strategies (both on the company's strategic level as well as for procurement departments specifically) requires know-how, time and resources. Given the multitude of actors that impact RS (communities, labour, finance, governments), the results of RS practices may not be immediately evident. Yet, a number of certifications and assurance measures as well as investors and manufacturers look at the current RS implementation status of the company and not where it plans on going. Most ESG investment indices will only consider the current ESG performance of a company. A more improvement-oriented or forward-looking approach is taken by institutions like the EBRD (European Bank for Reconstruction and Development), who invest and work closely with project partners where they believe the company can meet its sustainability standards with some effort.

A level playing field requires all players to operate at a similar level of performance on ESG. However, to achieve such a level, some players will require more assistance than others. Therefore, both investors and downstream companies need to consider a suppliers/company's current performance, as well as take into consideration its strategies for future performance.

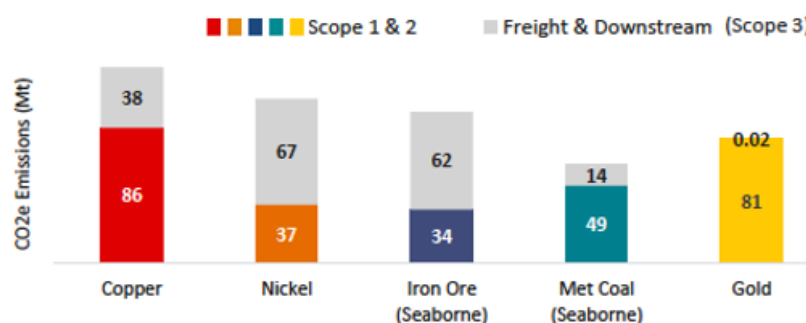


Figure 2: CO2e emissions by commodity, to first saleable product

2.6. Companies are price takers & not price makers

Mining companies are price takers and not price makers – meaning that the price for most internationally traded mineral commodities is set by international market mechanisms (commodity stock and exchange markets). This has two implications for RS mineral supply:

- An increase in demand for minerals, where supply is limited, will encourage more mining activity to take place. Each new mine or expansion of operating mines will create an ESG/RS footprint.
- For a mining company to internalise its ESG externalities (cost allocations for emissions/pollutions, larger contributions to communities, higher than legally mandated labour standards etc.) it requires a higher price for its product. Unless the markets and global political leadership agree to have ESG reflected in price, this is not likely to materialise.

Therefore, the markets (and regulation) have a role to play in determining the extent to which current and future mineral supply meets RS standards and not just the mining companies. London Metals Exchange and its [Responsible Sourcing Requirements](#) are an example of how markets and regulators are stepping into the role and promoting wider uptake of RS implementation.

2.7 Premium pricing as an option

One school of thought revolves around premium pricing for 'green' minerals, i.e., where proven/certified ESG performance for a mineral batch comes with a higher price tag. However, premium pricing is not easy to achieve. Codelco, one of the largest copper producers in 2017 announced a premium product – 'green copper'. But by 2019 Codelco dropped its pursuit as the company realised "it would struggle to guarantee its copper's sustainability once it left the mine to be melted down and taken to market ... Without that, traders said, higher prices were unjustifiable." ([Reuters, 2019](#)). As copper smelting often involves mixing different batches of copper ore, the refined metal produced can no longer be assured to be sustainably produced, thereby destroying the basis of charging a premium.



Premium pricing business models assume that more responsible manufacturers and consumers are willing and able to pay a higher price for the assurance of responsibly sourced minerals. Whilst this addresses one segment of the industry, it does not address the overall RS credentials of the mining supply. In a supply constrained market, all of the extracted minerals will be consumed. By paying a higher premium for part of the supply does not dissuade from the fact that non-compliant or weak responsibly sourced minerals are still entering the value chain and being consumed. A possible alternative is to reverse the premium concept and apply a price premium to non-compliant or weak responsibly sourced minerals, thereby penalizing the worst performers in the sector. This would provide a financial/business motive for mining companies to better implement and improve their RS strategies. It would also avoid penalizing manufacturers and consumers seeking more responsibly sourced products by charging them a higher price. A concrete example is the imposing carbon import tax being [considered by the EU](#). The tax would increase tariffs on goods that have high carbon footprints, thereby increasing their prices. The resulting loss in competitiveness would motivate businesses to incorporate ESG and RS strategies quicker and at a wider scale. It also supports a level playing field for firms, where all manufacturers will need to adhere to similar rules for market access.

3. Interventions to promote a RS-driven supply response

3.1 Tiers & interventions in the mining sector

The mining sector represents a diverse set of companies. Exploration companies, also called Juniors, focus on the exploration phase of a mining project and are rarely involved in taking a project to the production phase. Production is largely conducted by major and medium sized companies (Majors and Mediums). Majors refers to multi-jurisdictional, multi-project companies such as Barrick, BHP, Glencore, Rio Tinto and Vale that account for a sizeable share of global mineral production. Mediums tend to have smaller operations, usually two projects. While Mediums account for a smaller share of global mineral output, they are larger in number and therefore

their aggregated mining footprint is as important as that of the Majors. Majors tend to work on Tier 1 & 2 assets, while Mediums will operate Tier 2 & 3 assets. The capability of a mining company to implement RS practices is dependent on its size and nature of its operating asset (see Figure 3). Policy efforts to improve RS implementation need to distinguish between mining companies.

3.2 Efforts to create demand discipline

While many standards and regulations focus on supply, there is need to discipline demand for minerals as well. As noted in the introductory section, efficient consumption, whether through resource efficiency (relatively decreasing demand) or moving towards demineralisation (absolutely decreasing demand) is one method for lowering demand for mineral extraction but is not enough. Decreasing demand relatively can include policy and market interventions that facilitate preferential use of mineral consumption in green products and sectors, away from polluting or high ESG impact sectors. For example, virgin copper could be prioritised for delivering societally relevant and sustainable products and services (green technologies such as electric vehicles and construction of green buildings), while producers of (usually quickly discarded) mobile phones would be required to source recycled copper. Creating demand discipline as a concept is intriguing, but much work is needed to agree on how this could be done.

Tier 1

- Long mine life (> 20 years)
- High profitability
- Able to self-fund innovation, large scale projects

Tier 2

- Medium mine life (>10 years)
- Medium profitability
- Able to fund smaller, modular innovations which are commercially available
- Benefit from third party collaboration

Tier 3

- Short mine life (<10 years)
- Low profitability
- Difficult to justify new investment
- Requires third party collaboration & incentives to 'source' responsibly

Source: [Skarn Associates \(2020\)](#)

Figure 3. Mine Tiers & Company Capacity

3.3 Inclusivity in standard drafting & knowledge sharing

Governments in Africa, Australia, Canada and Latin America are much more experienced in governing and regulating mining operations, relative to EU countries (see Figure 4). There is a surplus of knowledge and experience that exists in their agencies, and while mining operation risks can be site specific, learning and exchange on good practices can occur across regions. Policies addressing community engagement, indigenous people, worker health and safety and biodiversity strategies should be shared across governments,

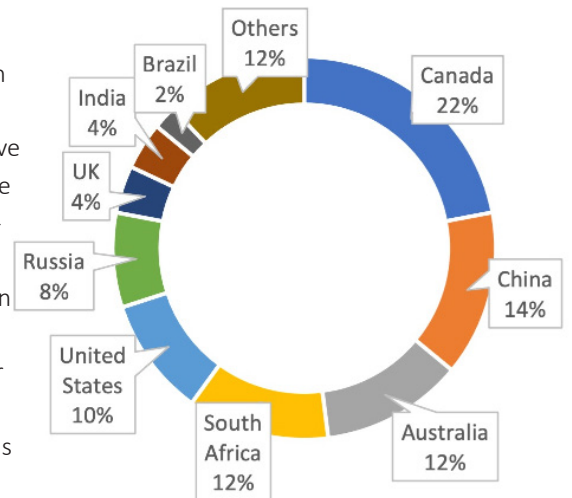


Figure 4: Mine Tiers & Company Capacity: Share of Company HQ by Country for 50 mining companies

particularly as a harmonization of these approaches will address RS challenges in cross-jurisdictional value chains. Where there is assurance that national governments have governed their mining industries to an agreed ESG standard, the need for piecemeal certification and assurance systems will decrease. Therefore, inclusive standards, one which include the input from other countries, need to be formulated.

3.4 Increasing green energy provision

A large part of the ESG footprint for large scale mining operations comes from their energy consumption; energy is one of the largest cost components for the mine. This includes the fuel to power machinery and trucks as well as grinding, separating and refining processes. Technological advances in mining equipment are already shifting to electric operated vehicles. Some mines are also setting up solar or wind power generation on their mine sites. However, to accelerate this process of energy transition, the overall transition to renewable energy by national grids is a key ingredient. Changes in regulations, where required, to not only allow but to encourage mining companies to produce their own renewable energy can be considered.

3.5 Role of investors & manufacturers

Apart from mining companies, investors and downstream actors can play a contributory role in greening mining value chains. As noted earlier, investors and manufacturers should not only consider the current ESG performance of mining company, but its future performance as well. Companies that are attempting change should receive funding and contracts, companies that do not have implementable actions should be discouraged. There is also a need to recognize the danger of only backing 'RS Champions', leaving behind the rest of the industry. In a mineral supply constrained environment, all mineral supply will be consumed, therefore 'cleaning' just a portion of this supply is not a satisfactory solution.

Apart from funding greener mining projects, investment into technologies and innovations that support better RS practices can also be considered by governments

and investors. Governments can focus such support on both EU and non-EU jurisdictions, as a large share of EU supply comes from other regions. For investors, their portfolios could consider inclusion of projects with neutral or even negative internal rates of return, for companies phasing to a more stringent ESG standard.

4 Summary

The demand for raw materials is going to continue to increase over the next two decades, even with increased efforts to enlarge circular economies, recycling, resource efficiency and dematerialise consumption. During this time certain trade-offs will need to be struck to maintain the necessary momentum for changing towards a low-carbon and circular society. For example, if a rise in GHG emissions from mining activity can be compensated by a far larger decrease in GHG emissions from electric vehicles, the trade-off may need to be accepted. The challenge that remains however is that benefits of increased RS performance might not be evenly shared or equitable. For example, regions experiencing the benefits from circular or low carbon transitions may not necessarily be the same regions experiencing the negative impacts. For a level playing field, the former need to address the impacts of the latter. By increasing (in a reasonable time horizon) RS regulations, higher (mandatory) operating standards and better assurance mechanisms, the beneficiaries can address negative impacts in producing regions.

However, assistance to mining companies must also be provided. As noted, all mining companies are not the same, and have different RS commitments and abilities to implement ESG and RS practices. Policy support and intervention must not only focus on their operations by regulating them, but also assist them in achieving the goals being set for them.

The full panel discussion is available [here](#).



Price as a means to reward RS

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