



ESG and Precious Metals Mining: A Sprott Primer

Sprott





ESG and Precious Metals Mining

Ethical investing is an increasingly sophisticated endeavor across the investment world and affects all sectors of the global economy. For the precious metals mining sector, substantial innovation is replacing a historically patchy approach to environmental, social and governance (ESG) issues. Increased institutional and investor demands have helped to shift attitudes and policies in favor of much stronger ESG policies.

In this guide, we cover the key ESG issues that drive debates within the sector. We also share Sprott's evolving approach to ESG investing and our efforts to be an industry leader as norms evolve. Indeed, Sprott is committed to the highest standards in sustainable investing with the view to giving back more to both environmental and local social causes in connection with opening and operating mines throughout the world.



We All Depend on Precious Metals

In the modern era, precious metals are an incredibly important input to the technologies that we depend on every day. Gold, silver, platinum and palladium are among the rarest elements in the world. These metals are found in every smartphone, personal computer and virtually any industrial product that needs to manage or store electricity in a highly controlled manner. Batteries, multilayer ceramic capacitors, even the LCDs on our televisions and phones – all require precious-metal inputs. While silver was historically crucial for its critical role in film-based photography, today it plays an equally vital role in solar panels, converting the electrons from solar energy into electricity. The platinum group metals (PGMs) are used in every catalytic converter, a technology that reduces the harmfulness of emissions from non-electric cars and trucks. They're also a key component in certain chemotherapy drugs. Every human in the developed world uses and relies upon precious metals, whether they realize it or not.

To most investors, precious metals mining might seem incompatible with ESG standards. The industry's legacy is certainly complicated, and it's easy to assume that modern mining operations have not improved. However, mining has come a long way as an industry, to a state where most companies understand that they must make ethical and responsible choices for their businesses to remain viable.

Precious metals mining absolutely has a significant impact on the natural environment. It may surprise many to learn, however, that mining's area of disturbed land is typically small compared to other primary industries such as forestry, farming and cattle production. All human activity impacts the environment, often negatively. The question for all of us, is whether the benefits offset the economic and social costs.

PRECIOUS METALS ARE HIGH VALUE

Precious metals include a narrow group of high-value metals:

- Gold
- Silver
- Platinum and palladium, and a handful of other platinum group metals (PGMs)

Natural ESG Forces at Work

Mining has some surprisingly powerful ESG factors at work in its favor. First, it's a mature and heavily regulated industry. Across the developed world, mining companies must meet strict standards for disclosures around business practices that cover quite a large portion of ESG concerns, from environmental standards to employment practices.

Second, the mining sector is comprised almost entirely of publicly held companies. Given that precious metals mining is such a capital-intensive business, companies rely on publicly sourced equity and debt financing, and those transactions are heavily regulated. Public financing also drives a high degree of corporate governance and general transparency that investors can't expect from privately held companies.

Finally, the cultural and social dynamics have evolved to where mining companies view community buy-in and goodwill as necessary ingredients to securing permits and to their economic success. To put it another way, mining companies are treating local communities and the environment better, as a matter of necessity and good business. In most regions of the world, new mining projects only get off the ground when they are designed to be mutually beneficial to both the local community and the mining companies.

Beyond jewelry and currency, precious metals are used in a range of important industrial and health applications:

- Electronic components used in smartphones, computers and televisions
- Solar-panel components
- Medicines, including some cancer treatments and even some antibiotics
- Catalytic converters, which reduce the harmfulness of emissions from all non-electric cars and trucks

Key ESG Issues in Precious Metals Mining

For any asset management firm in our industry, it's essential to identify complex ESG issues and determine their urgency. For Sprott, this is an everyday process as we evaluate mining companies.

Clear Issues of Ethical Crisis – It's important to single out certain events that we consider an ethical crisis, such as major infrastructure failure like the 2017 tailings-dam collapse at a Vale-owned mine in Brazil, which killed more than 200 people and leaked toxic materials across a vast area of land. Likewise, we would consider certain other events to be an ethical crisis: like preventable fatal mining accidents, most common among artisanal mines operating unlawfully and child labor/forced labor for conflict minerals under the direction of owners who are effectively warlords. By any ethical barometer, events of this nature are completely intolerable. Displacement issues for native people can also fall into this category, in extreme instances.

Nuanced Issues of Judgment – That said, there is a much wider range of ESG issues in precious metals mining that we would consider nuanced, situations where many factors must be evaluated together. Here are some of the key ESG issues that are impacting our industry today.

Environmental Issues

Environmental issues in mining are a matter of how much and for how long. How much is the question of overall impact – how significant is the effect on the mine's surrounding environment? For how long is the question of persistence: does the mine's impact cause a short period of damage followed by rapid recolonization, or is the recovery period much longer?

Here are some critical environmental questions in precious metals:

Cyanide Usage – Cyanide is a toxic chemical compound that is used in about 80-90% of gold-mining operations. The chemical leaches gold from its surrounding ore in an extremely efficient manner, both in terms of cost and process. In many instances, the toxicity of the cyanide is managed responsibly through use and disposal, but when it isn't, the outcome can be dire for drinking water, marine life and surrounding ecosystems. A few regions, most notably the EU, now prohibit the use of cyanide.

Sprott's Take: *The industry is actively developing ecologically sound alternatives to cyanide, but the options today are still low on effectiveness and high on cost. We expect this issue to improve over time, especially as conservative regions ban its use. At present, we evaluate cyanide-using operations individually to score companies on their conscientiousness.*

Mine Tailings Waste Disposal – The waste generated from extractive mining, referred to as the mine tailings, must be disposed of responsibly. Tailings usually take the form of a liquid slurry of toxic fine mineral particles, chemicals and water. Disposal issues involve a multi-disciplinary approach that considers biology, hydrology, topography, sustainable development and environment protection. Mining waste is toxic and mining engineers have the choice to dispose of waste by building a mountain, filling in a valley or storing waste underwater. In terms of underwater options, there is riverine (under a river) or marine (under the ocean) disposal.

Tailings dam design and geographic placement are important topics in the mining sector. To date, tailings volume from precious metals mines, compared to base-metal and bulk commodity mines, has been smaller and easier to engineer into safe structures.

Most countries require on-land tailings-storage facilities. However, submarine disposal is often the cheaper option, and in some cases, engineers argue that there is no suitable land-based alternative. For instance, an area like the Highlands of Papua New Guinea presents high rainfall and frequent earthquakes, while certain mining operations in Norway argue that there is no suitable land available for disposal. In cases where a company is unable (or unwilling) to use an on-land option, the design, placement and maintenance of underwater facilities and the associated dam are imperative.

Sprott's Take: *In 100% of mining examples, waste disposal is a consideration of costs, including pollution from disposal, versus benefits. We make a case-by-case evaluation of the waste-disposal decisions, looking for evidence that the company is making the best available choice.*

Impact on Protected Habitat – Waste disposal and land disturbance are also related to impact on habitat. Extractive mining and its waste will always have some impact on surrounding habitat. It is worth noting that the geographic footprint of mining waste is smaller than most people would guess; for instance, in Australia, a major location for mining, the footprint of disturbed land across the country is smaller than the total land used for residential driveways in Sydney.

Still, the impact on habitat is an important consideration. In the case of submarine disposal, mining waste can smother benthic (ocean-floor) organisms, an effect that can ripple out into the food chain of that stratum. Contamination of metals can potentially leach far enough into the food chain to pollute the seafood we eat, or to affect the welfare of vulnerable species. In cases of protected habitat, the impact is even more acute.

Sprott's Take: *In our internal debates, we focus on the extent of likely (and possible) habitat impact, knowing that mining can never be a 100% impact-free undertaking. Each operation requires individual assessment.*

Post-Production Rehabilitation – Mines are responsible for rehabilitating land after their operations have concluded. There is a gathering movement in the sector to require a separate feasibility study for reclamation efforts, rather than the limited analysis provided in the mine's initial feasibility study. In some jurisdictions, including the U.S., reclamation costs must be budgeted and bonded (invested in a government bond) at the start of a mining project. An effective and properly financed reclamation plan is an important component in the overall environmental impact of a mine.

Sprott's Take: *We always seek access to the details of a rehab plan and we support the calls to require a separate feasibility study for reclamation.*

Social Issues

One major social debate in mining concerns displacement – when a mining operation requires the relocation of communities living on the footprint of a potential mine. Amplifying the importance of the discussion, many mining opportunities are on lands that are home to native people, who are more likely to be economically and socially vulnerable.

Relocation Terms, Including Infrastructure – Whenever displacement is a factor, the relocation terms are negotiated with land owners and communities. Often, the population being relocated lacks modernized infrastructure and its attenuated health and safety benefits. Relocation programs typically include a major budget for infrastructure, including schools, hospitals and access to utilities, which can present an enormous upgrade for displaced communities. These benefits can offset the downsides of uprooting and relocating.

“PEOPLE POWER” AT ALL-TIME HIGH

In eras past, the locals were at an enormous disadvantage versus mining companies, leading to a norm of exploitation. However, in developed countries, local communities today have much more power in negotiations, empowering them to share in the gains and benefits of a mine.

Education, Training, Job Opportunities and Economic Gains – Large mining operations often displace smaller “artisanal miners” – locals who have been mining the resource in unregulated and dangerous conditions, often poisoning themselves with mercury, but who have derived a livelihood from it. Most mining programs include a component of education, training and hiring opportunities for the displaced locals, presenting an improved opportunity for them, as well as an attractive labor pool for the company.

Sprott’s Take: *When we evaluate the social effect of a mine, we look for a “net positive social impact”, considering the comprehensive impact and benefits to a community.*

Conflict Minerals and/or Corrupt Territories – There are clear-cut instances where mining operations are unquestionably linked to warlords or other nefarious political powers. These cases are often doubly offensive for the use of child or forced labor. The social damage of supporting such power structures economically is obvious – examples such as mining in the Democratic Republic of Congo, or in certain examples across Zimbabwe, China and Mexico. In other cases, corruption is the more apparent issue, though these offenses are typically committed in tandem.

Sprott’s Take: *We will not invest in any instances where child or forced labor is part of the operation, or in cases of other clear political abuses. We also avoid investing in corrupt operations or regions as much as our due diligence can identify and as may be noted in the United Nations sanctions list.*

Governance Issues

Governance involves all issues related to company structure, incentives, transparency and management. Given that most mining companies are publicly held, governance is a heavily regulated and transparent dimension, but there are certain practices that we watch for:

Workers' Rights Abuses/Fair Employment Terms – Despite regulatory and public reporting parameters, allegations against mining companies do come up, as in recent headlines at Canadian mining company regarding labor practices.

Corruption/Bribery – Unlawful practices are not just a social issue, but a governance issue as well. Corrupt business processes indicate that formal, board-approved power structures cannot be trusted.

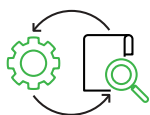
Issues with Insider Ownership of Stock – Most mining companies are small- or micro-cap, and insider trading practices are not always perfectly monitored. Some of the most common instances of bad behavior in the sector include insiders loading up on cheap stock in a variety of ways at one price and attempting to sell to the public immediately after.

Under-Invested Executives – Investors generally prefer to see company executives holding a significant portion of stock as a signal that they are aligned with shareholders' interests and believe in the company's outlook. In the mining sector, this isn't always the norm and executive compensation packages may not include equity in the bonus structure. In other cases, the company has a share-option plan that automatically regenerates after exercise.



Applying ESG Standards in Precious Metals Mining

As ESG practices develop throughout the asset management industry, more tools are becoming available to integrate ESG into our investment practices.



Screens for ESG Violations

One of the most popular tools for ESG investing is the use of “screens” – filters or labels offered by third-party research groups to sort, rank or score public companies across a range of ESG issues.



Internal Checklists or Scorecards

In lieu of third-party screens, asset managers can conduct their own version of an ESG assessment. The use of a standard tool, such as a comprehensive checklist or scorecard, is one way to apply uniform ESG guidelines across investments.



Third-Party Audits

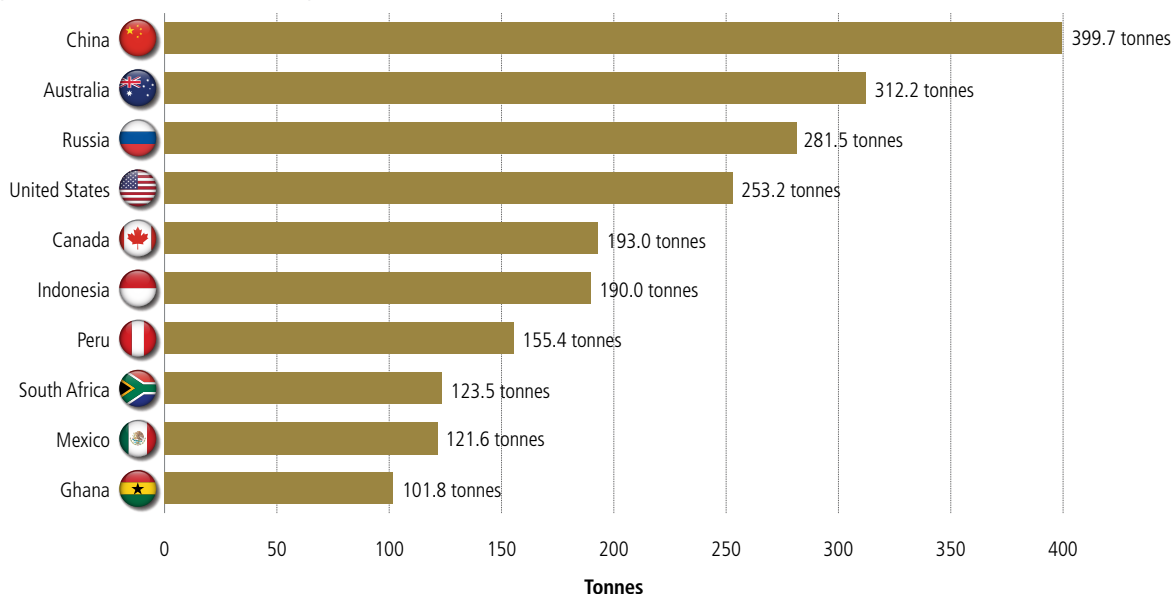
To reinforce internal research efforts, asset managers can hire auditors or researchers to sample or spot-check information gathered from mining companies. Using an effective tool on a random basis provides a view into the quality of the ESG information available to the asset manager.



Blacklist for Known Offenders

To simplify diligence, investors can keep a blacklist of sorts for countries, regions or companies which are known to violate ESG criteria.

Figure 1. The World's Largest Gold Producers



Source: GFMS, Refinitiv, Thomson Reuters, U.S. Global Investors.

Sprott's Evolving ESG Practice

At Sprott, our ESG standards are actively evolving. We aim to be an ESG leader in the precious metals mining space and we have made great strides in recent years in cultivating company-wide standards and processes.

At present, we use the following ESG tools:

1. **Due-Diligence Checklists**

Not yet satisfied by the available third-party screens, we conduct our own version of an ESG assessment whenever we are interested in a potential investment. In our credit strategy, where we make significant investments in just a handful of companies each year, our due diligence process already covers an ESG assessment. We are actively developing an approach to extend that investigative process effectively across our other investment strategies.

2. **Commissioned Third-Party Audit/Research Reports**

We work with an outside research firm to spot-check our internal assessments and to visit mining operations separately from our team.

3. **Sprott ESG Committee**

Our ESG committee includes a range of executives from compliance, our portfolio teams and management. The committee meets frequently to discuss ESG related issues. Furthermore, the ESG Committee will periodically review the effectiveness of Sprott's ESG program and report relevant findings to the CEO and Board of Sprott Inc.

4. **Adhering to The United Nations Principles For Responsible Investment (UNPRI)**

Sprott is a certified participant of the UNPRI, a framework launched in 2006 to standardize the definition and process of ESG in mining.

5. **Active Member in Canada's Responsible Investors Association (RIA)**

As a mining leader in the developed world, Canada's industry association is a prominent and influential organization in which investors and other stakeholders can debate and further ESG standards for precious metals mining.

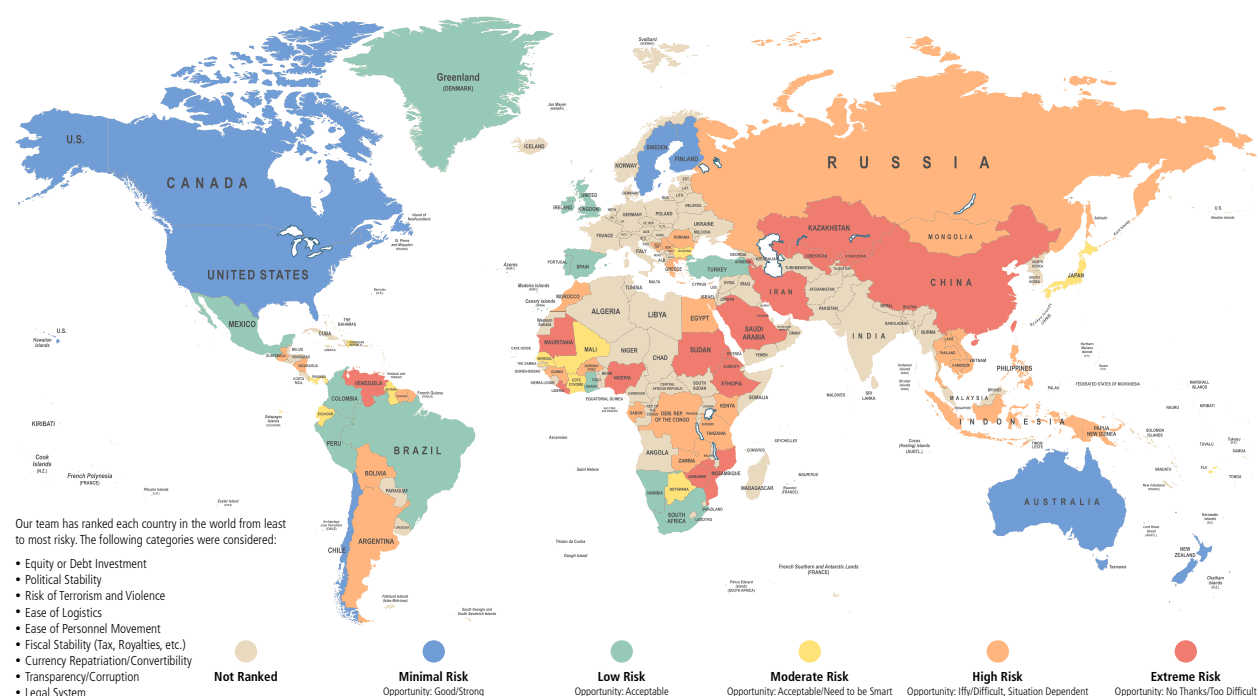
6. **Sprott Mining Risk Heat Map**

Unparalleled in scope and breadth, our precious metals investment team includes portfolio managers, geologists, analysts and traders who together boast more than 350 years of combined precious metals investment experience. Together, we have ranked each country in the world from least to most risky. See Figure 2.

At Sprott, we are committed to being a leader in ethical investing and in helping to develop the standards that we believe are necessary across the industry. Investors may be surprised to find how far the issues of environmental, social and governance concern have already developed in the space. Thanks to a number of factors, including near-universal publicly held stock, strict industry regulations and widespread best practices, many precious metals mining companies conduct operations with an appreciably ethical view.

Extractive mining may be an industry with known downsides and costs, but it also provides society with extremely valuable inputs to the things we need and want, from our ever-more-crucial electronic devices to radiation treatment inputs to the components of solar panels and other laudable innovations. As with every choice we make in our modern lives, we have to weigh the substantial costs versus substantial benefits.

Figure 2. Sprott Mining Risk Heat Map 2020



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Investment Risks

Generally, natural resources investments are more volatile on a daily basis and have higher headline risk than other sectors as they tend to be more sensitive to economic data, political and regulatory events as well as underlying commodity prices. Natural resource investments are influenced by the price of underlying commodities like oil, gas, metals, coal, etc.; several of which trade on various exchanges and have price fluctuations based on short-term dynamics partly driven by demand/supply and also by investment flows. Natural resource investments tend to react more sensitively to global events and economic data than other sectors, whether it is a natural disaster like an earthquake, political upheaval in the Middle East or release of employment data in the U.S. Low priced securities can be very risky and may result in the loss of part or all of your investment. Past performance is no guarantee of future returns. Sprott, entities that it controls, family, friends, employees, associates, and others may hold positions in the securities it recommends to clients, and may sell the same at any time.

Micro-cap stocks involve substantially greater risks of loss and price fluctuations because their earnings and revenues tend to be less predictable. These companies may be newly formed or in the early stages of development, with limited product lines, markets or financial resources and may lack management depth.

The Funds will be concentrated in the gold and silver mining industry. As a result, the Funds will be sensitive to changes in, and its performance will depend to a greater extent on, the overall condition of the gold and silver mining industry. Also, gold and silver mining companies are highly dependent on the price of gold and silver bullion. These prices may fluctuate substantially over short periods of time so the Fund's Share price may be more volatile than other types of investments.

Funds that emphasize investments in small/mid-cap companies will generally experience greater price volatility.

Funds investing in foreign and emerging markets will also generally experience greater price volatility.

There are risks involved with investing in ETFs including the loss of money.

Diversification does not eliminate the risk of experiencing investment losses.

The market for gold/precious metals is relatively limited; the sources of gold/precious metals are concentrated in countries that have the potential for instability; and the market for gold/precious metals is unregulated. The Fund may also invest in foreign securities, which are subject to special risks including: differences in accounting methods; the value of foreign currencies may decline relative to the U.S. dollar; a foreign government may expropriate the Fund's assets; and political, social or economic instability in a foreign country in which the Fund invests may cause the value of the Fund's investments to decline. The Fund is non-diversified, meaning it may concentrate its assets in fewer individual holdings than a diversified fund. Therefore, the Fund is more exposed to individual stock volatility than a diversified fund.

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