Dutch Pension Funds and Mineral Mining

Take Responsibility

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Dutch Association of Investors for Sustainable Development

Vereniging van Beleggers voor Duurzame Ontwikkeling **(VBDO)**

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About VBDO

The Dutch Association of Investors for Sustainable Development (VBDO) is a not for profit multi-stakeholder organisation. Our mission is to make capital markets more sustainable. Members include insurance companies, banks, pension funds, asset managers, NGOs, consultancies, trade unions, and individual investors. VBDO is the Dutch member of the international network of sustainable investment fora. VBDO's activities target both the financial sector (investors) and the real economy (investees) and can be summarised as follows:

Engagement

Since more than 20 years ago, the core activity of VBDO has been engagement with 40+ Dutch companies listed on the stock market. VBDO visits the annual shareholders' meetings of these companies, asking specific questions and voting on environmental, social and governance (ESG) themes. The aim of this engagement is to promote sustainable practices and to track progress towards the companies becoming fully sustainable, thereby providing more opportunities for sustainable investments.

Thought leadership

VBDO initiates knowledge building and sharing of ESG-related issues in a pre-competitive market phase. Recent examples of this include: three seminars on climate change related risks for investors; the development of guidelines on taking Natural Capital into account when choosing investments and organizing round tables about implementing human rights in business and investor practices. Also, we regularly give trainings on responsible investment both to investors as well as NGOs.

Benchmarks

Benchmarks are an effective instrument to drive sustainability improvements by harnessing the competitive forces of the market. They create a race to the top by providing comparative insight and identifying frontrunners, thus stimulating sector wide learning and sharing of good practices. VBDO has extensive experience in developing and conducting benchmarking studies. VBDO has conducted annual benchmarking exercises, for example, since 2007 about responsible investment by Dutch pensions funds, and since 2012 responsible investment by Dutch insurance companies.

This has proven to be an effective tool in raising awareness about responsible investment and stimulating the sustainability performance of pension funds and insurance companies. VBDO is one of the founding partners of the Corporate Human Rights Benchmark, which ranks the 500 largest companies worldwide on their human rights performance, and makes the information publicly available, in order to drive improvements. VBDO's Tax Transparency Benchmark ranks 64 listed multinationals on the transparency of their responsible tax policy and its implementation.

For more information about VBDO, please visit our website: www.vbdo.nl/en

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Foreword VBDO

VBDO is pleased to present this report on Dutch Pension Funds and Mineral Mining, as part of the Shared Resources Joint Solutions Programme resulting from our cooperation with IUCN NL. In this report, VBDO investigates if and how Dutch pension funds take mineral mining into account in their (responsible) investment process.

Minerals are everywhere, in almost everything we make. The minerals extracted from our earth have been, are and will remain an important driver of our global economies. While we are seeing a shift from linear material uses to more circular ones, a great amount of minerals is still needed as input for one of the biggest challenges of our time: the transition towards a carbon free economy. In the coming decades, it's inevitable that increased exploration will lead to more mines, resulting in more pressure on communities and the environment, and consequently increasing business risk. A multi-stakeholder approach is needed to guide the sector towards more responsible ways of mining. Investors, particularly institutional ones, play an important role and have a responsibility to address this topic in their investment processes.

We can say that responsible investment in mineral mining is on the agenda of pension funds in the Netherlands, but the formulation of policy and implementation still poses many challenges and uncertainties. With this study, we aim to support pension funds to overcome those challenges and offer them guidance to implement their policies and conduct active engagement. We also hope this study offers a valuable insight for the investment community into the materiality of the issues that accompany this sector and the supply chains that follow after.

I would like to thank our partner IUCN NL for our constructive collaboration on this topic. I would also like to thank the participating pension funds and their asset managers for their cooperation, input and valuable contributions.

Angélique Laskewitz
Executive Director
VBDO

“Since we need minerals for the energy transition, excluding the entire sector is not a solution. However, the sector has a history of acting irresponsibly and it will be difficult to transform it to become more sustainable, and to convince investors that it has changed.”

Mid-sized Dutch asset manager

Foreword IUCN NL

The mining sector provides many materials that are considered essential to today's society. Nickel, copper, cobalt, limestone and phosphate provide the materials to make buildings, cars, computers, fertilisers and many more products. Alongside this, the global energy transition is leading to a surge in demand for metals to build solar panels, windmills and batteries.

Unfortunately, the extraction of these essential raw materials often comes with high social and environmental risks and, too often, significant costs. This is especially the case in areas with weak public policies and issues with law enforcement, where mining is associated with large-scale loss of nature and biodiversity, negative impacts on local communities and poor working conditions. In order to minimise these unwanted consequences of mineral extraction, IUCN NL promotes responsible mineral governance. Current mining activities and future projects should be managed in a responsible manner to minimise the impact on the environment and communities.

Responsible extraction and use of raw materials starts with full transparency in the raw materials chain, from mine to end user. The investors in the extractive sector can make a valuable contribution to achieving that transparency, by demanding necessary information about the supply chain and by engaging with mining corporations on responsible mining.

The risks and challenges related to mineral mining do not only affect biodiversity and local societies; they also affect shareholders and other investors. This report recognises the challenges that investors face and provides pension funds with clear recommendations on how to formulate and implement a policy on responsible mineral mining.

Guarantees for the protection of nature and ecosystem services are vital to us all. While extraction sites only have a limited lifespan, we will depend on clean water, soil fertility and other ecosystem services forever.

It heartens me that several pension funds are taking efforts to increase the long-term net societal benefit from the mining sector and to reduce its negative environmental footprint. I encourage these frontrunners to embrace the recommendations in this report to step up their efforts, and I urge other pension funds to follow in their footsteps, assume responsibility and proactively support necessary change in the sector.

Coenraad Krijger
Director
IUCN National Committee of The Netherlands (IUCN NL)

Executive summary

The mineral mining sector is notorious for severe violations of basic human rights, health & safety issues, environmental damage, and other negative impacts. As a major contributor to climate change, this sector needs to adopt greener practices if we are to achieve the Paris Agreement laid out in 2015. However, the energy transition needed to reach a carbon neutral economy by 2050 demands vast amounts of minerals for new green infrastructure. This requires a transformation of the mineral mining sector: if we fail to act now, the situation will worsen and eventually increase sustainability, business and financial risks.

This study looks at the extent to which mineral mining is considered in the responsible investment (RI) strategies of Dutch pension funds. 76% of the 50 largest Dutch pension funds responded to our questionnaire by providing details about their policy and practice. When referring to pension funds in this report, we refer to the funds that responded to our questionnaire. The report analyses what the funds are doing and the obstacles they face, as well as providing guidance for responsible investment in this sector.

THE FINDINGS

Almost all Dutch pension funds invest in mineral mining, either by investing directly in mineral mining companies, indirectly, through companies with minerals in their supply chain, or by investing in commodity trading. It is not surprising that the majority of the pension funds identify multiple risks (e.g. emissions, health and safety, and reputation) surrounding the mining sector. Almost half of the pension funds indicate that all minerals are of concern and pose risks. However, the identification of these risks doesn't directly translate into policies on the mineral mining sector: only 23% of pension funds with investments in the mineral mining sector have included this topic in their responsible investment policy.

According to pension funds, the best approach to minimise wrongdoings in the mineral mining sector is engagement. Over 90% of pension funds indicate that engagement is an effective approach to influence both mining corporations and companies further down the supply chain. However, fewer than half of the pension funds actually engage with mineral mining companies on ESG (environmental, social and governance) issues and only one third engage with companies that deal with minerals in the supply chain. Just over half of the pension funds utilises ESG integration, in most cases relating to specific risks, such as carbon emissions. Fewer than half of funds consider ESG issues when selecting investments, and only one third indicate that ESG issues have a demonstrable effect on individual holdings; the rest use a sector wide approach. Voting on ESG issues is done by more than half of the funds, but only a fraction conclude that ESG issues have demonstrably influenced a casted vote. Furthermore, there is a relatively low adoption of sector specific sustainability standards among pension funds. A new independent sector specific standard might provide insight and transparency on specific issues relating to mines, and might foster and embed more active governance relating to responsible mineral mining (e.g. remuneration, goal-setting and codes of conduct).

OUR RECOMMENDATIONS

Move from reactive to proactive

We recommend that pension funds move from a reactive stance (i.e. responding to controversies) to a proactive stance (i.e. start the conversation at an earlier stage and structurally translate lessons learned from engagement with other companies to the entire sector). With this approach, controversies can be identified earlier and investment decisions will become better substantiated.

Define sector specific policy, and apply the right instruments

Defining a sector specific policy can help to overcome the challenges that lie ahead in the mineral mining sector. Steps towards defining this policy will likely include the adoption of comprehensive international standards, mapping of stakeholder opinions, mapping of the portfolio, performing a materiality analysis and defining a mission and vision for the mineral mining sector. Implementation of the policy should utilise the correct responsible investment instruments.

Use mining specific standards to identify issues and risks

There is limited use of standards for the mineral mining sector. The standards that are used are non-sector specific and are not comprehensive enough to cover the risks of the sector. The use of a thorough standard could help investors better understand the problems and compare mining companies on their ESG performance. A standard that might be suitable for this is IRMA's Standard for Responsible Mining (SRM). A first step could be to ask mining companies to start reporting in line with IRMA's SRM.

Structurally embed salient risks into ESG integration

Salient risks should be identified and integrated into all phases of ESG analysis. ESG integration does not equal lower financial returns: research indicates that firms with strong ratings on material sustainability (ESG) topics financially outperform firms with poor ratings, whereas a focus on immaterial sustainability does not influence performance.[1]

Look beyond the usual suspects

Although this research finds that most investors are aware of at least some of the investment risks posed by mineral mining, investors have a limited view of specific issues relating to mine sites. Underexposed issues, such as mine closure and legacy, ecosystem health and water related issues in the vicinity of min-

[1] Khan, M., Serafeim, G. & Yoon, A. (2016). Corporate Sustainability: First Evidence on Materiality. The Accounting Review 91(6).

DUE TO THE MAGNITUDE AND SPREAD OF THE MINING SECTOR AND THE CORRESPONDING REGIONAL DIFFERENCES, PENSION FUNDS ALONE WILL NOT BE ABLE TO TACKLE THE PROBLEMS IN THIS FIELD

ing activities, can have substantial consequences for the environment and communities. These indirect effects should also be assessed and accounted for.

Governance as a tool for change

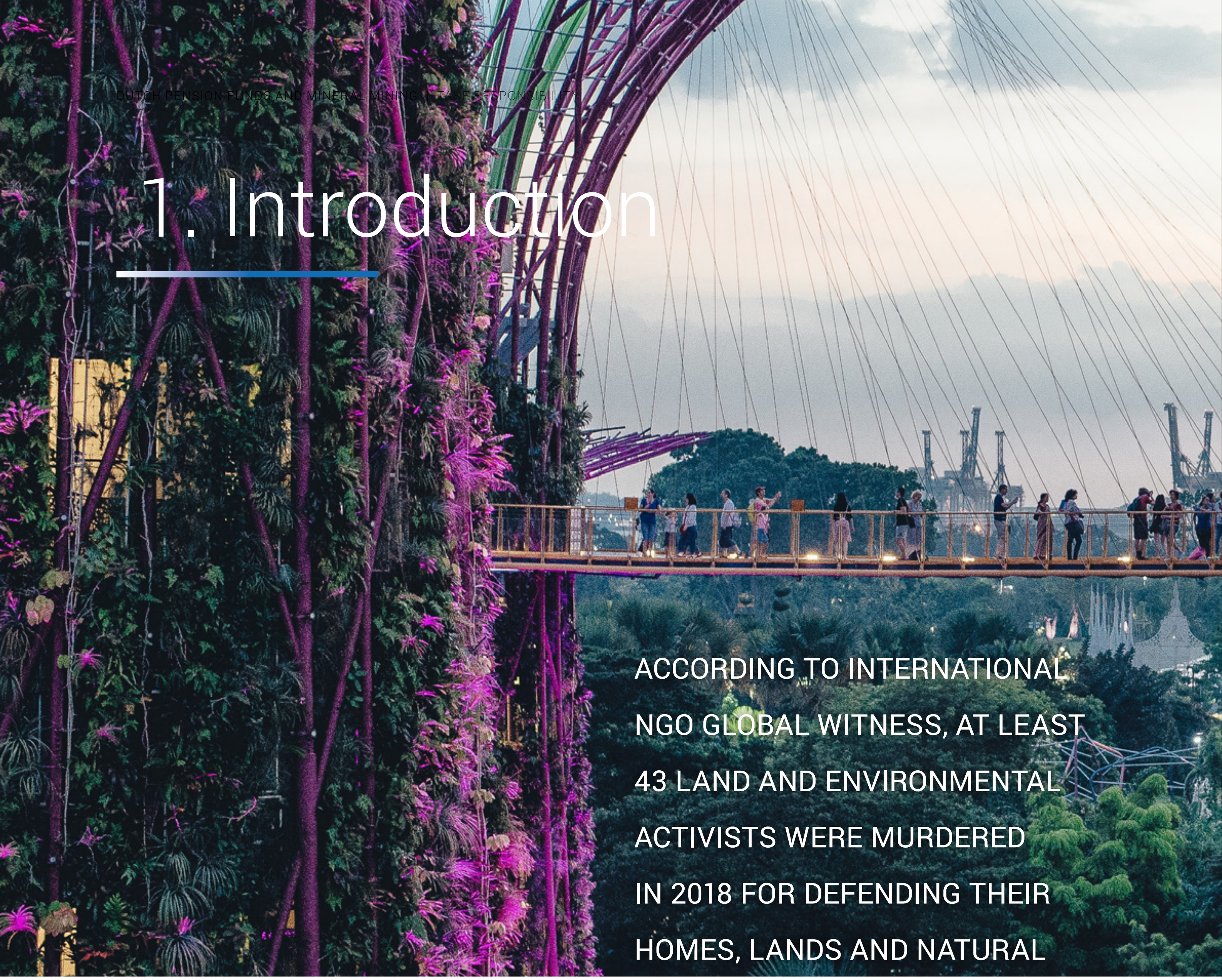
A focus on governance questions can be a good starting point for addressing issues, particularly when it comes to overcoming the lack of insight into mine site level data. A top-down approach addresses ESG issues on the right level and can make engagement measurable and target-bound.

Find common ground and work together

Due to the magnitude and spread of the mining sector and the corresponding regional differences, pension funds alone will not be able to tackle the problems in this field. Therefore, it is imperative to work together both on engagement practices and on knowledge sharing.

- Collaborative engagement and knowledge sharing: by engaging collaboratively, Dutch pension funds can share resources and research efforts, and more importantly, they can exert more pressure on companies due to having a larger shareholder influence (more AuM).
- Collaborating with experts and (local) NGOs: investors need eyes on the ground in order to understand mining practices and complex supply chains. Valuable insight can be supplied by local NGOs and their larger international partners.

The above recommendations are further elaborated on in the conclusion of this report.



1. Introduction

ACCORDING TO INTERNATIONAL NGO GLOBAL WITNESS, AT LEAST 43 LAND AND ENVIRONMENTAL ACTIVISTS WERE MURDERED IN 2018 FOR DEFENDING THEIR HOMES, LANDS AND NATURAL RESOURCES FROM EXPLOITATION RELATED TO THE MINING AND EXTRACTIVES SECTOR.[3]

This year (2019), we have seen promising progress in terms of sustainable finance and responsible investment. On a European level, we have seen the European Commission make progress on the Taxonomy for Sustainable Activities. On a national level, the Dutch financial sector (50 institutions) has committed to the Dutch Climate Agreement (aligning with the 2015 Paris Agreement). However, there is limited attention given to the mineral mining sector in the climate debate. As the United Nations Environmental Programme calculated, extraction of minerals is a major contributor (9% of total contribution) to climate change[2]. At the same time, the sector is essential in making the transition towards a carbon neutral economy as vast amounts of (critical) minerals need to be extracted to produce batteries, wind turbines, solar panels and so on. Current mining activities and future projects need to be managed in a responsible manner in order to reduce the impact on the environment and communities as much as possible. Investors have a responsibility to justify their investment decisions and as a consequence should, amongst other actions, demand more information about the supply chain of minerals and engage with mining corporations on responsible mining.

This responsible mineral mining study provides an overview of how Dutch pension funds are taking the responsible mining of minerals into account in their investment strategies. This report offers insights to

[2] IRP (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want. A Report of the International Resource Panel. United Nations Environmental Programme.

[3] Global Witness (2019). Enemies of the State? How Governments and Businesses Silence Land and Environmental Defenders.

DEFINITION OF MINERAL MINING IN THIS RESEARCH

CRIRSCO* defines a mineral resource in their International Reporting Template as follows: 'A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.'

While the above definition includes all solid mineral resources, this study excludes coal (and other fossil fuels) when it refers to mineral mining. We have not included this type of mineral in order to shift the focus from GHG-emissions to other problems in the mining sector. In addition, the transition towards clean energy demands other minerals than coal, making these other minerals part of the future of the mining industry, whereas coal will be part of the past.

* CRIRSCO: Committee for Mineral Reserves

the challenges that need to be overcome and the motivations for implementing a thorough policy. The final chapter provides pension funds (and other investors) with recommendations on how to formulate and implement a policy on responsible mineral mining. The structure of this report is as follows:

Chapter 2 offers background information on the theme;
Chapter 3 discusses the main motivations for pension funds to consider responsible mineral mining, and the challenges they face;
Chapter 4 presents the results;
Chapter 5 concludes the report and offers practical recommendations on how to approach this topic as a pension fund.

This study is based on the results from the questionnaire that is part of VBDO's yearly Benchmark Responsible Investment by Pension Funds. Together with the use of a literature review, expert interviews and case studies, the results have enabled a broad perspective on responsible mineral mining to be acquired. The questionnaire was sent to the 50 largest Dutch pension funds. For an overview of the respondents, see Appendix 1. The questionnaire used for this research is available upon request.

More information about VBDO's activities can be found in Appendix 2.

2. Mineral mining

The mining of minerals has been taking place since the very beginning of human activity and these natural resources have always conditioned the economic and civilizational development of societies and states.[4] This section provides a short overview of the history and expected future of mineral mining, followed by the impacts of mineral mining divided over social, environmental and economic themes.

In recent history, the industrial revolution caused the first major boom in the mining sector, as demand for iron and coal skyrocketed. Digitalisation has caused a second boom in the mining sector: our modern societies are highly and increasingly dependent on minerals for energy transmission, construction, transportation, communication, food supply, healthcare and a myriad of other services.[5] It is expected that on account of population and income growth, mineral resource demand will continue to rise. This is especially the case for rapidly growing economies, such as China and India, which are expected to demand more energy and resources as a result of their emerging middle class.[6]

Paris Agreement and the energy transition

Another force contributing to the future demand for minerals is the transition to carbon free energy production, which requires massive amounts of (rare earth) minerals.[7] The World Bank states that in order to meet the 2015 Paris Agreement, we will need to depend heavily on wind turbines, solar panels and energy storage units, the production of which requires an amount of (critical) minerals much greater than current production levels. Therefore, mining (and recycling) of minerals needs to increase, resulting in more mines needing to be opened. Figure 1 provides an overview of demand for several critical minerals

Figure 1 | Projected mineral demand by 2050 (base year 2011 = 100). Source: TNO, 2018

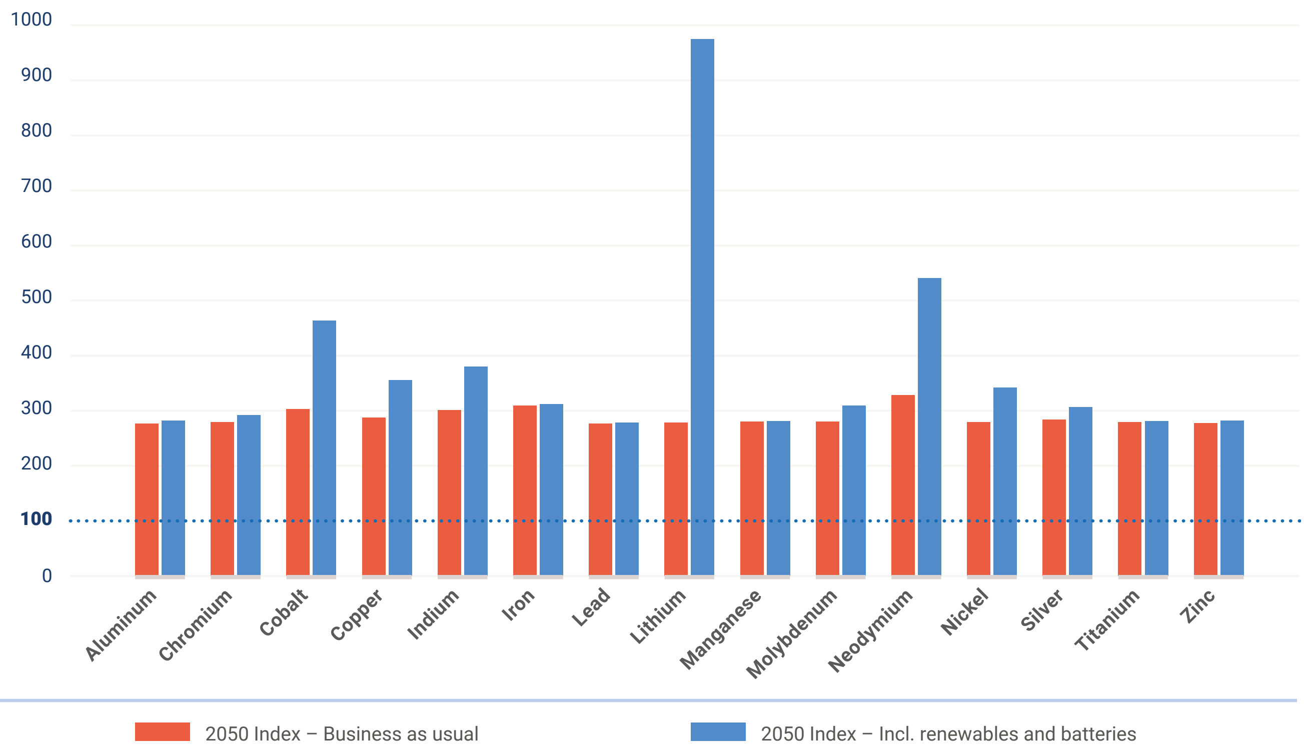


Figure 2 | Potential impacts of mining (sources listed troughout this chapter).

Potential positive impacts

- Local development
  - Infrastucture
  - Power and water supply
- Educational opportunities
- Income and employment opportunities
- Increased GDP

Orange: social impacts.
Green: environmental impacts.
Blue: economic impacts.

Potential negative impacts

- Violation of human rights
- Governance issues
- Armed conflicts, violence
- Decreased access to resources (water, land)
- Clearing or resettling people from their land
- Imbalanced demographics
- Operational safety issues
- Loss of biodiversity
- Health and safety issues
- Environmental pollution (air and water)
- CO_2 emissions
- Water use
- Income inequality
- Child-, forced-, and compulsory labour
- Quality of jobs

Note: if managed properly negative impacts can be reduced or lead to improved situations.

essential for the upcoming energy transition (base year 2011= 100). It compares two scenarios. The business as usual scenario (blue bars) shows expected mineral demand in 2050 without the energy transition, thus not fulfilling the Paris Agreement. The second scenario (orange) displays the expected demand if renewable energy and batteries are utilised in full. The figure shows that an exponential increase of our economy and, to a larger extent, further increase of sustainable energy production is not feasible based on current mineral extraction and production.[8] It is expected that demand for these metals will start to exceed supply between 2020 and 2030.[9] It is anticipated that this will lead to higher prices due to increased scarcity, which will make it even more difficult to achieve the goals set out in the 2015 Paris Agreement.

To overcome the expected shortage of (critical) minerals, alternative materials, circular use of minerals and more responsible mining are needed to achieve the United Nations' goals on sustainable energy (SDG 7). Current recycling technology for extracting minerals from products or materials is not advanced enough to meet the growing demand of specific metals. The additional supply of minerals could be achieved by opening new mines, which takes between 10 and 20 years (due to the time needed for exploration, consultation, planning and construction). Therefore, new ways of recycling or the circular use of materials and increased exploration are needed to ensure the supply of critical metals in the long run.[10] However, this has to be done in a responsible way to prevent negative social and ecological impacts.

Impacts of mining

Mining plays a vital role in providing industrial sectors with inputs needed for production. The sector also generates many other (both positive and negative) impacts, some of which are listed in the below figure. Most impacts take place on a local level. Figure 2 categorises

[4] Dubiński, J. (2013). Sustainable development of mining mineral resources. Journal of Sustainable Mining, 12(1), 1-6.
[5] International Institute for Environment and Development. (2002). Breaking new ground: the Report of the Mining, Minerals, and Sustainable Development Project. Earthscan.
[6] Dubiński, J. (2013).
[7] La Porta Arrobas, D., Hund, K.L., Mccormick, M.S., Ningthoujam, J. & Drexhage, J. R. (2017). The Growing Role of Minerals and Metals for a Low Carbon Future. Washington, D.C. World Bank Group.
[8] Rietveld, E., Boonman, H., Van Harmelen, T., Hauck, M. & Bastein, T. (2018). Global Energy Transition and Metal Demand: An Introduction and Circular Economy Perspectives. TNO.
[9] Van Exter, P., Bosch, S., Schipper, B., Sprecher, B. & Kleijn, R. (2018). Metaalvraag van de Nederlandse Energietransitie: Navigeren in een complexe keten.
[10] Van Exter, P., Bosch, S., Schipper, B., Sprecher, B. & Kleijn, R. (2018).

the potential general impacts of mining on three themes: economic, environmental and social.

Social impacts

The presence of a mine in a region can contribute to local development, when mining companies engage in providing and improving local infrastructures (e.g. road networks, power and water supply), which may allow local populations to access health and education services. Educational opportunities offered by the company and employee skill development are further potential positive outcomes.

The most apparent negative social impact relates to the violation of human rights, such as discrimination of vulnerable groups, lack of community consultation and respect for indigenous populations as well as impacts on cultural, religious and aesthetic resources. Other negative social impacts relate to the reduction of access to resources and clearing or resettling people from their land. In many countries, (indigenous) communities are heavily dependent on the resources available in their surroundings for their livelihoods, such as land and water. Mine operators may block access to land or water sources or pollute them, which generates negative impacts on current (and future) livelihoods and consequently food insecurity.[11] Mining activities could also lead to land expropriation, displacement and resettlement of local communities, without considering the communities' Free Prior and Informed Consent (FPIC), which allows communities to give or withhold consent to a mine (or other activity) that may affect their territory.[12]

Another impact can emerge relating to the demographic structure of the region. The mining activity is likely to attract workers from other regions causing migration flows, potentially causing a gender imbalance due to the prevalence of male workers, spreading problems of psychological or behavioural nature (e.g. alcoholism, drug addiction, prostitution, etc.) or leading to other sorts of conflict such as tribe related violence.[13] Global Witness estimates that at least 43 land and environmental activists were murdered in 2018 for defending their homes, lands and natural resources from exploitation related to the Mining and Extractives sector.[14] Other safety related issues originating from mining activities include operational safety problems for workers and local communities, for example through damage caused by explosives, and injuries or accidents during mine activities.[15]

WORLD BANK GROUP

CLIMATE SMART MINING FUND

In 2019, a new initiative funded by the World Bank, called Climate Smart Mining, was launched with the aim of minimising the negative environmental impacts of mining. It will work together with developing countries and emerging economies to meet growing mineral demand, while minimising environmental impacts.[20] It could enable resource-rich countries to benefit more from the increasing demand for minerals. Climate Smart Mining contributes to better governance, knowledge, capacity and improved strategy of mines. Moreover, the initiative aims to stimulate governments to create a policy, regulatory and legal framework that promotes Climate Smart Mining. To achieve these goals, the World Bank is targeting a total investment of $50 million over a five year period.[21]

Environmental impacts

Throughout the lifecycle of a mine, various direct and indirect environmental impacts occur. Direct impacts are caused by the change of land use, development of infrastructure and mining activities themselves. Before a mine starts extracting minerals, large pieces of land must be cleared, leading to loss of vegetation cover and soil erosion, which changes and decreases wildlife habitats.[16]

[11] Mancini, L., & Sala, S. (2018). Social Impact Assessment in the Mining Sector: Review and Comparison of Indicators Frameworks. Resources Policy, 57, 98-111.
[12] ActionAid (2018). Human Rights in Wind Turbine Supply Chains: Towards a Truly Sustainable Energy Transition.
[13] Mancini, L., & Sala, S. (2018).
[14] Global Witness (2019). Enemies of the State? How Governments and Businesses Silence Land and Environmental Defenders.
[15] Mancini, L., & Sala, S. (2018).
[16] ActionAid (2018).
[17] Mancini, L., & Sala, S. (2018).
[18] Mancini, L., & Sala, S. (2018).
[19] IRP (2019).
[20] The World Bank (2019). New World Bank Fund to Support Climate-Smart Mining for Energy Transition.
[21] Federal Ministry for Economic Cooperation and Development (2019). Germany supports World Bank Launch of Climate Smart Mining Facility.
[22] Pouiller, F. (2011). Barrick Closure Plan at El Indio Serves as Model. Mining Weekly.
[23] Barrick Gold Corporation (2013). Barrick mine closure done right, El Indio in Chile. YouTube.

Once in operation, a mine extracts large amounts of materials from the earth, which need to be processed to separate the ore from the uneconomic fraction. For mineral processing and dust suppression, vast amounts of water and chemicals are needed. The result is tailings, which are stored in permanent dams. This causes potential environmental impacts due to the risk of collapse and contamination of ground water. These direct effects of mining lead to indirect consequences: destruction and fragmentation of the original habitat and environmental pollution have an impact on ecosystem quality and its services, resulting in biodiversity loss in the area surrounding the mine. They can also affect far larger areas through polluted groundwater flows and surface water.[17] Indirectly, mining operations improve local infrastructure. This brings opportunities in previously inaccessible areas for other sectors, such as plantations and other forms of agriculture, through 'growth corridors' that open up the way for economic development but can cause pressure on environmentally sensitive areas. Providing access to areas increases local human activity, such as poaching and logging. This can increase the negative effect of the mining operations on biodiversity.

When pollution builds up over the lifetime of a mine, environmental impacts can also affect the health of local communities and wildlife populations. This effect can be direct, e.g. linked to the toxic or carcinogenic properties of the generated tailings, or indirect, through reduced water supply or contamination (and consequential effects on agriculture, fishery and loss of means of livelihood).[18]

Next to on-site pollution, mining also generates vast amounts of GHG emissions, which contribute to climate change. The UN Environment Programme calculated that mineral extraction accounts for 9% of worldwide annual GHG emissions.[19]

IS FULL RECLAMATION OF MINE SITES BY NATURE POSSIBLE?

The environmental impacts of mining can be minimised with proper closure management. In 2002, El Indio mine in Chile was depleted. Barrick Gold, the owner of the mine site, voluntarily drafted an extensive closure plan, together with local government and communities. This closure plan included social aspects, such as educating employees for other mining projects, and environmental aspects, whereby Barrick Gold aimed to rehabilitate the surroundings as closely to its natural state as possible. Costs for this closure project stand at approximately $70 million, and the closed mine site still requires annual monitoring.[22] Thanks to Barrick Gold's efforts, the mine site has been reclaimed by nature.[23] Nonetheless, it is debatable whether the new situation will bring back the same species of plants and animals and will have the same biodiversity value. To end on a positive note: many countries now require a closing plan before opening a new mine site. Further research is needed in order to conclude whether full reclamation by nature is possible.

Economic impacts

The main economic impacts from mining activities relate to income and employment opportunities. Mining often provides a stimulus to local economies and increased income and business opportunities, including in other sectors. When managed appropriately, mining can create jobs, spur innovation and bring investment and infrastructure.[24] On a national level, this results in an increase in GDP, through income and mining rents. This positive impact on GDP is, however, reduced if the raw ore is exported before processing.

Negative impacts relate to income inequality due to an unfair distribution of the benefits from the resource extraction and corruption, which can trigger social tensions.[25] Increased poverty can occur if local populations lose traditional means of livelihood, and when governments fail to reinvest revenues from mining in affected communities. Other negative impacts relate to the occurrence of child-, forced-, and compulsory labour, but also to the quality of jobs and the impact on livelihoods for the workers' families (including poor and dangerous working conditions, low wages, health impacts, accidents and fatalities, substandard housing provided to workers and lack of freedom in organising trade union activities).[26]

Responsible mineral governance

In the 1950s, concerns arose about the long-term availability of minerals. During the next two decades, environmental concerns rose and societies' dependence on minerals began to be questioned. While the rapid expansion of metal and mineral production prevailed, concerns relating to resource exhaustion, pollution and other undesirable externalities remained. This coincided with the rise of sustainable development movements, e.g. Club of Rome, which focused on balancing economic benefits with environmental and social costs.[27]

With the previously mentioned concerns in mind, a handful of standards and guidelines were constructed to report on mining activities: Australia was the first with the Joint Ore Reserves Committee (JORC) Code in 1989[28], followed by other standards, e.g. the Extractive Industries Transparency Initiative in 2003, and the International Reporting Template for Exploration Results, Mineral Resources and Mineral Reserves by CRIRSCO in 2006, both enabling countries to adopt reporting guidelines.[29]

To begin with, the emphasis was on ecological questions relating to damage to the environment or ethical questions relating to communities affected by mining.[30] Today, there are several (responsible) mining standards that companies, countries and investors can use.[31] The available standards are quite diverse, due to the great diversity of different mineral commodities and the range of environmental, social and economic impacts. The international standards currently most widely used by Dutch pension funds are set out on page 20-21 (Box 1). Of the standards displayed, the Initiative for Responsible Mining Assurance (IRMA), launched in 2014, is the most comprehensive and ambitious standard covering all minerals (except energy fuels) that is currently available.

DEFINITION OF RESPONSIBLE MINING BY IRMA

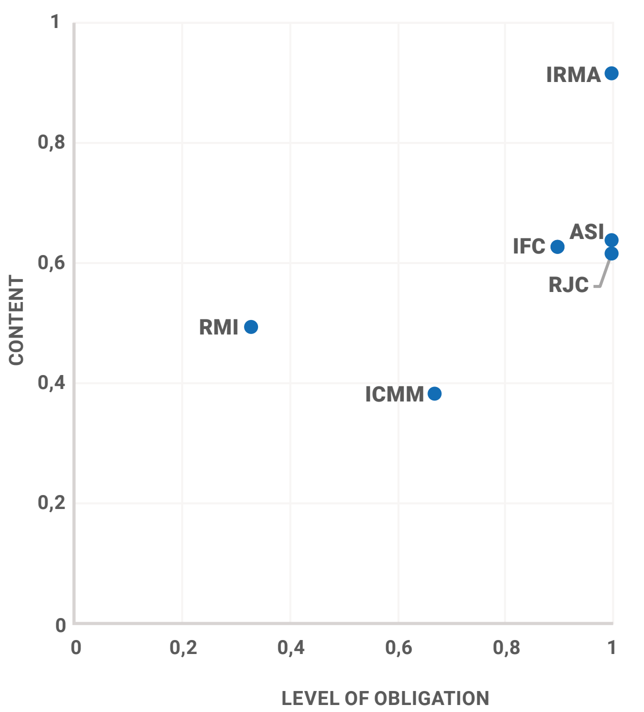
"Mining, where the mining industry respects the human rights and aspirations of affected communities, provides safe, healthy and supportive workplaces, minimizes harm to the environment, and leaves positive legacies."[32]

The IRMA standard offers a large set of criteria divided into economic, ecological and social categories. It was created by a multi-stakeholder coalition of NGOs, businesses (throughout the supply chain), affected communities, mining corporations, and labour unions.[33] Certification with the IRMA standard has only

[24] Sonesson, C., Davidson, G., & Sachs, L. (2016). Mapping Mining to the Sustainable Development Goals: An Atlas. World Economic Forum.
[25] ActionAid (2018).
[26] Mancini, L., & Sala, S. (2018).
[27] Sykes, J.P., Wright, J.P., & Trench, A. (2016). Discovery, Supply and Demand: From metals of antiquity to critical metals. Applied Earth Science, 125(1), 3-20.
[28] CRIRSCO (2013). International Reporting Template for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves.
[29] Weatherstone, N. (2008). International Standards for Reporting of Mineral Resources and Reserves: Status, Outlook and Important Issues. World Mining Congress and Expo (1-10). CRIRSCO.
[30] Weatherstone, N. (2008).
[31] Potts, J., Wenban-Smith, M., Turley, L. & Lynch, M. (2018). State of Sustainability Initiatives Review: Standards and the Extractive Economy. International Institute for Sustainable Development.
[32] Initiative for Responsible Mining Assurance (n.d.). About Us.
[33] Initiative for Responsible Mining Assurance (n.d.). Approach.

> “The environmental, social and governance issues in the mining sector are not small or easy to solve. It will also take time, energy, money and collaboration to ‘prove’ the positive steps taken by the sector and get rid of the ‘fear’ felt by investors.”
>
> **Mid-sized Dutch asset manager**

Figure 3 | Overview of the content and level of obligation of large-scale standards. Source: IISD (2018)



started very recently and the first two mines are currently being audited (November 2019). Figure 3 shows how the different mining standards compare. The y-axis shows content (extensiveness of environmental, social and business criteria) and the x-axis shows the level of obligation needed for certification (level of compliance each initiative demands of its adherents).

Box 1 | International responsible mining standards, working groups and benchmarks used by Dutch Pension funds

Standards, working groups and benchmarks consulted by pension funds			
IFC International Finance Corporation WORLD BANK GROUP	**IFC's Environmental and Social Performance Standards** Year initiative established: 1956 Year standards developed: 2006 Founding stakeholders: Civil society Commodities scope: All mineral commodities Geographic scope: Global Goal: Defining responsibilities for managing environmental and social risks, mainly in project finance Assessment and verification: Full compliance is needed to obtain a certificate as a company or project. IFC carries out their own audits; no third-party assessment is needed. Note: Not a sector specific standard; targets users in the financial sector	ICMM International Council on Mining & Metals	**ICMM's Sustainable Development Framework** Year initiative established: 2001 Year standards developed: 2003-2015 Founding stakeholders: No information provided about participation of civil society, private sector or public institutions Commodities scope: All mineral commodities Geographic scope: Global Goal: A safe, fair and sustainable mining and metals sector Assessment and verification: Companies need to comply with all ten principles and underlying performance expectations are required to be met for membership. Self-reporting is a major element of the assessment. Although third-party audits are an important element, no new audits are required.
IRMA Initiative for Responsible Mining Assurance	**IRMA Standard for Responsible Mining** Year initiative established: 2006 Year standards developed: 2014 Founding stakeholders: Civil society, private sector, affected communities Commodities scope: All mineral commodities, except for energy fuels Geographic scope: Global (not yet implemented) Goal: To improve social and environmental performance through establishment of a multi-stakeholder, independently-verified responsible mining assurance system Assessment & verification: Due to the novelty of this standard, no companies are certified yet. After self-assessment, IRMA requires full third-party assessment and audit of mining corporation.	Responsible Mining Index	**Responsible Mining Index (RMI)** Year initiative established: 2012 Year standards developed: 2017 Founding stakeholders: Civil society, private sector, public institutions Commodities scope: All mined commodities Geographic scope: Global Goal: To encourage continuous improvement in responsible mining across the industry by transparently assessing the policies and practices of large, geographically dispersed mining companies on a range of economic, environmental, social and governance (EESG) issues, with the emphasis on leading practice and learning Assessment and verification: RMI does not have a compliance or certification approach but assesses companies on several EESG criteria and scores them for the Index.
Responsible Jewellery Council	**Responsible Jewellery Council (RJC)** Year initiative established: 2005 Year standards developed: 2009 Founding stakeholders: Public institutions Commodities scope: Diamonds, gold, platinum group metals Geographic scope: Global Assessment and verification: Involves self-assessment by companies and considers third-party assessments. No audits are performed for the purpose of the standard, but previous reports are used.	asi Aluminium Stewardship Initiative	**ASI Performance Standard & ASI Chain-of-Custody Standard** Year initiative established: 2012 Year standards developed: 2014 Founding stakeholders: Civil society, private sector Commodities scope: Aluminium Geographic scope: Global Goal: To define ESG principles and criteria to address sustainability issues in the aluminium supply chain Assessment and verification: Companies need to comply with underlying ESG performance expectations. Self-reporting is a major element of the assessment and third-party audits and assurance are an important element of the process.
	Dodd Frank Act: Rule on Conflict Minerals (regulation instead of standard) Year initiative established: 2010 Founding stakeholders: US government Commodities scope: Tin, tungsten, tantalum and gold Geographic scope: The supply chain of U.S. publicly listed companies Goal: Not to stop sourcing from high risk areas, but to do so with careful due diligence.		

Corporate Human Rights Benchmark
Year initiative established: 2013
Founding stakeholders: Investors, civil society organisations
Commodities scope: Extractive sector
Founding stakeholders: Collaboration led by investors and civil society organisations
Geographic scope: Global
Goal: Preventing adverse impacts on workers, communities and consumers by benchmarking company performance
Assessment and verification: Involves a self-assessment by companies included in the benchmark. The information is than assessed by an independent audit body.
Note: Not a mining sector specific standard.

Kimberley Process Certification Scheme
Year initiative established: 2003
Commodities scope: Diamonds
Founding stakeholders: governments, the international diamond industry and civil society organisations
Geographic scope: Global
Goal: Preventing the flow of conflict diamonds, by implementing safeguards on shipments of rough diamonds and certifying them as “conflict free”
Assessment and verification: The KP works by verifying non-conflict funding by the import/export regimes of member states, which together account for 99% of diamond production.

Initially not included in research but also consulted by pension funds relating to mineral mining investments

UNPRI investor expectations and engagement on Cobalt
Year initiative established: 2018
Commodities scope: Cobalt
The investor expectations and working group of UNPRI mainly focuses on child labour risks in the cobalt supply chain. Investors aim to encourage companies and entities along the supply chain to build strong due diligence and risk assessment mechanisms so they have the right systems in place to gradually focus on every material human rights risk area.

Sustainability Accounting Standards Board (SASB) – Materiality Map
Identifies sustainability issues that are likely to affect the financial condition or operating performance of companies within an industry. It actively seeks for standardized ESG issues that are relevant a company’s performance. SASB is an independent organisation whose mission is to develop and publish sustainability accounting standards that support companies to disclose material, decision-useful information to investors. The standard is accomplished through a rigorous process that includes evidence-based research and broad, balanced stakeholder participation.

Case study: (Dutch) Government induced action: International Responsible Business Conduct agreements on gold, metal and the financial sector
The International Responsible Business Conduct (IRBC) agreements, in Dutch called IMVO Convenanten, involve partnerships between businesses, government of the Netherlands, unions and NGOs. TTogether, under the supervision of the Dutch Social and Economic Council (SER), these parters work to prevent such abuses as exploitation, animal suffering and environmental damage. All covenants are voluntary agreements and there are no consequences for violating the agreements.

IRBC Covenant: Responsible Gold Agreement – launched June 2017
This agreement is signed by a group of Dutch companies, labour unions, NGOs and the Dutch government, who work together to achieve respect for human rights and the environment throughout the gold supply chain. Signatories research their supply chain and share this information with other players. Doing so enables bad practices to be unearthed at an early stage and communicate recommendations to actors further in the supply chain. This covenant aims for a more transparent supply chain, improved practices and a decrease in the negative effects of the sector.

IRBC Covenant: Agreement for the Metals Sector – launched May 2019
The agreement specifically covers all metals and the entire international metals supply chain, including metals processing companies and end-users. The agreement focuses on national and international metals companies with the aim of improving the visibility of the entire supply chain and maximising the impact of the participants’ collective activities. The agreement will also help the metals sector to prepare for the EU’s Conflict Minerals Regulation, adherence to the UN Guiding Principles on Human Rights and Business and the OECD Guidelines for Multinational Enterprises. The covenant has broadened its scope and now includes EU participants. There is an ambition to expand these efforts in the future.

IRBC Covenant: Pension Funds – mining as one of six case studies – launched December 2018
For the Pension Fund covenant, six specific case studies will be developed over the term of the covenant, of which mining is one. The pension funds have been engaged with mining companies for many years. However, the case study provides an opportunity to share their experience and knowledge with trade unions (who are very focused on labour law), NGOs and foreign government offices (e.g. embassies) that may have an extensive network in the country they operate in. The case study will help to make pension funds’ engagement activities better informed. In addition, it will give civil society parties an opportunity to build capacity with their partner organisations, in order to gather information better, if they do not already have those connections. This is the starting point of the covenant: the idea that you are stronger together than alone.

The IRBC agreements are initiated by the Dutch Ministry of Foreign Affairs. Visit their website for more information: www.imvoconvenanten.nl

3. Mineral mining and responsible investment

This chapter outlines the impact pension funds can have on mineral mining, why they should aim for responsible investment in this sector and where the challenges lie. As large capital asset owners and shareholders of companies, pension funds can have a significant impact on the policies and activities of mining corporations and on the sector's societal impact.

Although the mining sector at large closely follows the global economic market, demand for minerals is always present due to the many different uses for it. During economic growth, industrial and jewellery uses grow, while in times of economic decline or stability, the prices of precious metals increase as they become an attractive investment option.[34] Awareness of environmental and human rights risks in the complex and globalised supply chain of minerals in an investment portfolio is essential in order to minimise investment risks. During the past decade, institutional investors have started to become increasingly aware of these risks. In this chapter, we address several of the motivations for investing responsibly in mineral mining, and the challenges faced by investors.

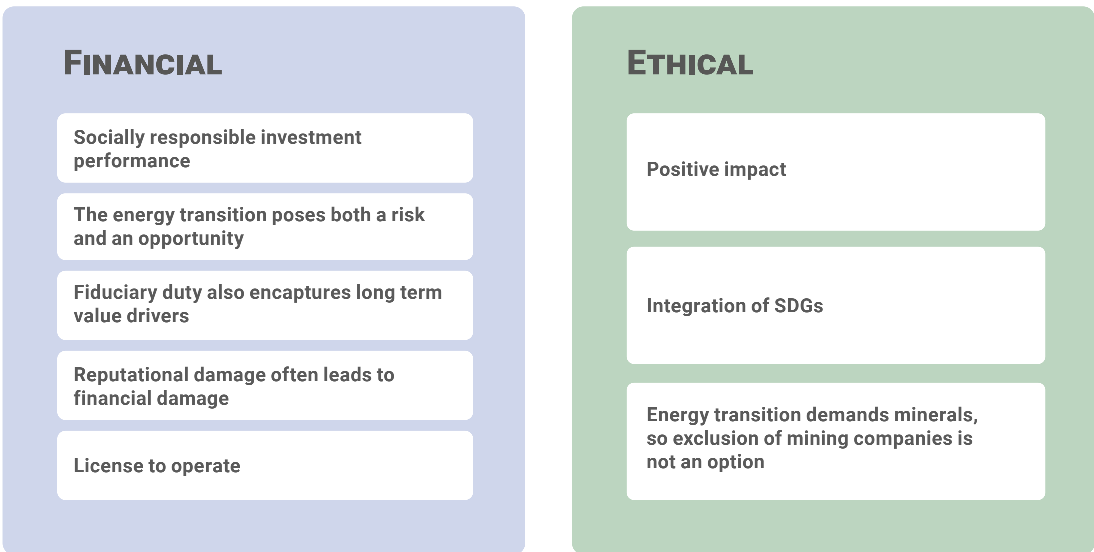
Motivations to invest responsibly in mineral mining

The main motivations for investors to invest in responsible mineral mining are set out in Figure 4 and explained in more detail over the following pages.

Financial

The effect of (socially) responsible investment on portfolio performance has been studied extensively. A meta-analysis regarding the financial performance of investment portfolios indicates that incorporating social responsibility in the investment policy is neither a weakness nor a strength.[35] Therefore, socially responsible investment (SRI) should be valued highly by investors: they can attain equal financial performance, while taking ESG issues into account, by e.g. active-

Figure 4 | Main motivators for investors to invest in responsible mineral mining.



ly engaging with mining corporations or establishing an ambitious ESG policy. Not taking ESG issues into consideration could open the investor up to financial risks.[36]

The energy transition: a risk and opportunity

Minerals are essential for the sustainable growth of economies and vital to the global energy transition. The increasing demand for minerals means it is more important than ever to ensure that mining is carried out responsibly. There are two key arguments why pension funds should be leading parties in this transition towards responsible mining. First, they are long-term investors and will increasingly face climate risks if the energy transition is halted through insufficient minerals or a delayed supply. Second, this transition generates ample financing opportunities, which institutional investors can supply.[37]

Fiduciary duty = long-term perspective

An investors' fiduciary duty is not only maximising short-term shareholder value; it's also considering long-term investment value drivers.[38] Investors operate on a basis of trust from their clients. This trust is violated when investors fail to consider the impact of their investments. As mineral mining currently faces both risks and opportunities, it is imperative that asset managers and asset owners take their part in guiding the sector in its transition.

Reputational damage due to ESG issues translates into financial loss

An investor's (and business's) reputation is highly volatile. Due to an information asymmetry between customers and the supplier or company, public opinion is not build on a strong foundation of trust.[39] The notion that companies have to do more than just make a profit is getting more widespread: integration of ESG issues is essential for upholding a good business reputation. Maintaining a good reputation is crucial in upholding returns, especially considering how quickly negative publicity can spread. Reputational damage often also leads to financial damage, demonstrated by the recent examples of Volkswagen (the 'diesel gate' scandal), Boeing (design problems with the 737 MAX aeroplane), and Bayer (acquisition of Monsanto, producer of carcinogenic insecticides). Since these financial consequences transfer to shareholders, a responsible investment strategy and management of non-financial issues is crucial for asset managers and owners. For an example of of reputational damage (and of course social and environmental harm) in the mining sector, see the additional information on the "Brumadinho dam disaster" (p. 25).

From liabilities to credit risk

Mining corporations face rising environmental liabilities. The provisions they need to set aside for reclamation efforts are already considerable, and are expected to rise as countries and NGOs become more demanding in terms of rehabilitation. Robeco revealed that, if not properly managed, these liabilities could become a credit risk for the mining companies' corporate bonds, negatively impacting enterprise value and thereby shareholder interest.[40] Furthermore, by transitioning to greener practices now, mining companies not only comply with existing legislation, but can also stay ahead of forthcoming stricter environmental legislation.

Licence to operate = legitimacy as an industry

A societal licence to operate will increasingly be important for the mining companies to stay in business. In some countries, there is increased questioning by society about the legitimacy of mining companies' operations.[41] When considering negative impacts of mining globally, such as human rights abuses, large-scale land degradation, water pollution, corruption and bribery, the social licence to operate is often a key element for mining corporations to consider. Responsible investment in mineral mining is about safe mines, good relations with organised labour, contributing positively to the environment and social development, rather than just providing jobs. It is all those aspects that give mining legitimacy as an industry.

[34] Investopedia (2018). What is the Metals and Mining Sector.
[35] Revelli, C., & Viviani, J. L. (2015). Financial Performance of Socially Responsible Investing (SRI): What have we learned? A meta analysis. Business Ethics: A European Review, 24(2), 158-185.
[36] Idzelis, C. (2019). Investors See 'Material Risk' in Ignoring ESG. Institutional Investor.
[37] Van Vollenhoven, G. (2018). Sectoral Letter on Sustainable Investments by Pension Funds: Practical Insights. De Nederlandsche Bank.
[38] Sullivan, R., Martindale, W., Feller, E. & Bordon, A. (2015). Fiduciary Duty in the 21st Century. Principles for Responsible Investment.
[39] Scandizzo, S. (2011). A Framework for the Analysis of Reputational Risk. The journal of operational risk, 6(3), 41-63.
[40] Smit, J. (2018). Miners Face Rising Environmental Liabilities. Robeco.
[41] VBDO Expert interview (2019)

Ethical

While problems in the mining sector (e.g. income inequality, health and safety issues, and human rights violations, see chapter 2) are widespread along the production chain, investors are able to influence all links within the chain, and are therefore in a unique position to act against irresponsible mineral mining. Awareness of the issues means there is an ethical obligation to improve screening and due diligence for investments in the mining sector.

Integration of the SDGs

Integration of the Sustainable Development Goals (SDGs), and the ethical principles that form their basis, is becoming increasingly important for investors. Ethical violations have long been seen as a necessary evil in the mining sector, but can no longer be ignored by investors due to growing awareness and pressure from consumers. Issues related to Decent Work and Economic Growth (SDG 8), which focuses on the equal sharing of progress,[42] Responsible Consumption and Production (SDG 12), which emphasises the importance of sustainable resource usage,[43] Life Below Water (SDG 14) and Life on Land (SDG 15) are of particular importance in the mining sector.

Role to play in the energy transition?

The energy transition demands ample supply of minerals. Therefore, it would not be ethical to simply exclude companies involved in this sector due to the negative impacts it generates. The ethical dilemma is then to find a balance between investing in this industry, while motivating mining companies to move toward responsible mineral mining practices and increase the use of recycled material.

Stimulate positive impact

Investors have both the opportunity and the responsibility to ensure their investments have a positive societal impact. While the mining sector itself is necessary, the negative impacts it causes are not. Investors can stimulate companies to set good governance practices in place in order to minimise these negative impacts. The mining sector can potentially influence local communities on a large scale, since it brings employment opportunities. If these are managed correctly, mining revenues can be fairly distributed to communities and contribute to local development.

[42] UN Sustainable Development Goals. (n.d.). Decent Work and Economic Growth. United Nations.
[43] UN Sustainable Development Goals. (n.d.). Responsible Consumption and Production. United Nations.
[44] New York Stock Exchange (2019). Vale SA.
[45] Laier, P (2019). Vale stock plunges after Brazil disaster; $19 billion in market value lost. Reuters.

OF ALL PENSION FUNDS THAT IDENTIFY RISKS IN THE MINERAL MINING SECTOR, ONLY 30% HAVE INCORPORATED MINERAL MINING IN THEIR RESPONSIBLE INVESTMENT POLICY.

Challenges to overcome

Creating a responsible investment policy and responsible practices for mineral mining brings several challenges, the most important of which are described below. Note that while these challenges are sometimes difficult to overcome, they should not hinder pension funds from taking responsibility.

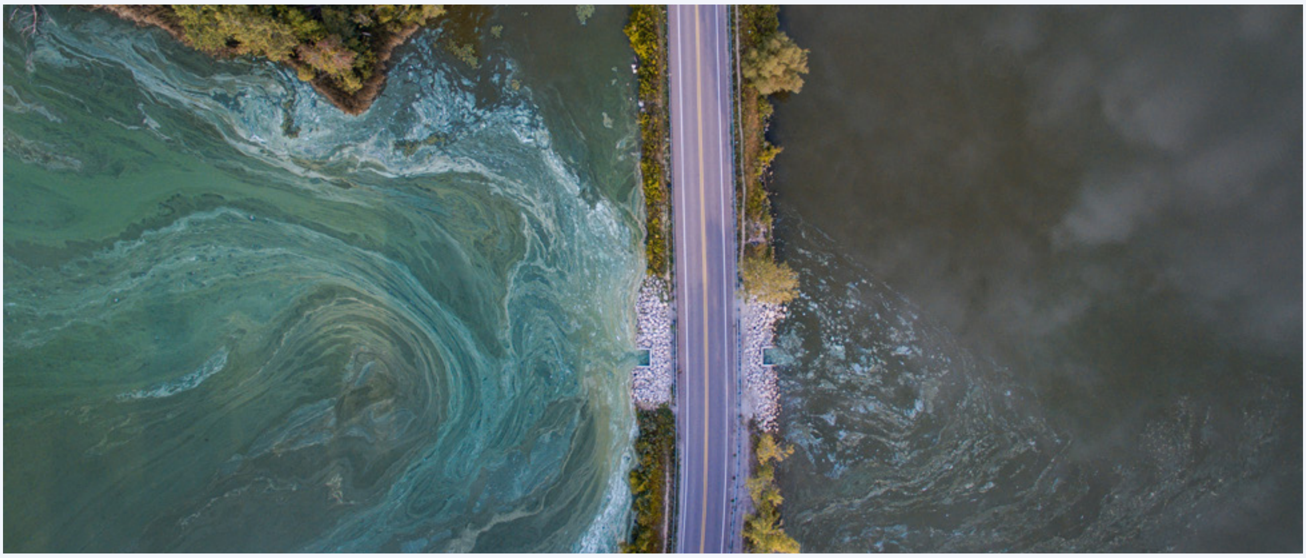
CHALLENGE 1 | LICENCE TO OPERATE IS MORE THAN LEGAL COMPLIANCE

Investment risk is generally higher when the mines are located in countries with weak legal institutions. In these cases, a mining company needs to do a lot more than just comply with legislation in order to reduce risks; it should also adopt a comprehensive international standard. The context of a mining operation is crucial in understanding the issues, legislation and impacts involved, since these factors are country, mineral and company specific.

CHALLENGE 2 | LACK OF RELIABLE MINE SITE LEVEL DATA

The global scale, complex supply chain and regional differences in the sector mean there is a lack of reliable and publicly available data on the origin of minerals and the manner in which they were mined. Due to low reporting standards in the sector, investors often request additional data from companies via questionnaires. As an investor, it is often a challenge to ask the right questions and go beyond the aggregated headquarter data level seen in mining corporations' annual reports. For investors to really gain an insight into the local issues on mine site level, it's essential to have mine site specific data. Third-party verified (ESG) data of mine sites is rarely available, but would be ex-

Figure 5 | Stock prices of Vale SA in 2019.



BRUMADINHO DAM DISASTER

On January 25th, 2019 the Brumadinho dam disaster occurred, taking the lives of at least 237 people. Three days later on the 28th of January, the news followed that Vale SA, the owner of the mine, had been aware of the risks and instability of the dam structure. Vale SA is the world's largest producer of iron ore, and the last accident at the mine occurred less than four years ago. This latest incident has caused Brazilian inhabitants to question whether Vale SA does enough to ensure safety for its workers and surrounding villages.

The dam breach severely impacted Vale. By January 29th, stocks had declined by 25% from $15.41 to as low as $11.55.[44] By the end of February, Moody's had downgraded Vale's credit to non-investment grade, while S&P Global Rating and Fitch had both downgraded Vale to their lowest investment-grade rating: BBB-.[45]
This example highlights the risks involved in the mining sector and the volatility that comes with it. The lack of oversight and strict regulation of the sector, combined with cost-cutting pressures, can lead to higher safety risks.

tremely beneficial for investors when it comes to identifying risks and pushing companies to minimise these risks.

CHALLENGE 3 | USE OF A WIDELY ACCEPTED, COMPREHENSIVE, RESPONSIBLE MINERAL MINING SPECIFIC STANDARD

Due to the importance of context in mining operations, it is crucial that all mining companies, and not just the largest corporations, start adopting a comprehensive standard for their mining operations and reporting practices (such as IRMA, ICMM or others). Adopting a common standard helps investors in comparing companies in terms of their ESG performance.

CHALLENGE 4 | SUPPLY CHAIN BLACK BOX

The mineral mining supply chain poses several difficulties in terms of transparency. In our globalised world, it's sometimes difficult to locate where the minerals go after they have been sold. It can also be difficult to find other supply chain information, such as where and how much taxes are paid, who the actual owners are of a mine or, in the case of a third-party being responsible for operating a mine, who is responsible for the (ESG) policy. In some cases, the supply chain can be closed off and even self-protecting, especially in developing countries. One of the solutions for this is the Extractives Industries Transparency Initiative (EITI), which takes a multi-stakeholder approach for different countries and requires measurable results. However, the EITI also has its limitations, due to a lack of verification and quality assurance.

CHALLENGE 5 | (IR)RESPONSIBLE MINING

The mining sector is by definition not 'sustainable'. When a company starts developing pristine land or a cultivated/inhabited area and extracting minerals, there is a large possibility that the environment or nearby communities will be negatively impacted and that ESG issues will arise. The challenge is to manage the exploration to reclamation process as responsibly as possible. There are several good examples and best practices, but when can we call it "responsible mining"? Risks for company, investor and society will remain relatively high as we keep raising the sustainability bar.

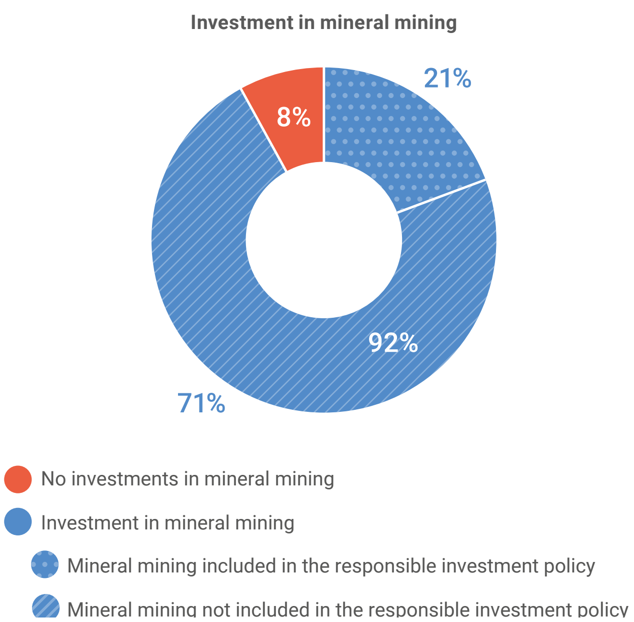
4. Results

This chapter presents and analyses to what extent mineral mining is considered in the (responsible) investment process by pension funds. These results are based on the questionnaire sent out to the 50 largest pension funds of the Netherlands, to which 38 pension funds responded (76% response rate). The results are discussed per instrument for responsible investment: exclusion, ESG integration, engagement and voting.

Mineral mining in the investment portfolio

Of the 38 pension funds that responded, three indicate that they do not have investments in the mineral mining sector. Of the 35 pension funds that invest in mineral mining, 31 do so directly in companies that conduct mineral mining. Indirect investments in the mineral mining sector, for example in companies that use minerals for their production process (technology, automotive, etc.), are made by 30 pension funds. Five pension funds invest in commodity trading of minerals. Even though 35 pension funds invest in mineral mining, only eight pension funds (21%) have developed a policy specific to the mineral mining sector. The pension funds approach mineral mining as an investment opportunity and in most cases they are well aware of the risks, both from a financial and a responsible investment point of view. Of the eight pension funds that have specifically included mineral mining in their responsible investment policy, human rights (six) and environmental risks (five) are the reasons most frequently given for having a sector specific policy on mineral mining.

Figure 6 | Investments in mineral mining and inclusion in the responsible investment policy (N = 38).



STANDARDS MOST USED BY PENSION FUNDS

Of the 36 pension funds that responded, 24 indicated they do not require companies' adherence to industry specific standards. Of the 12 pension funds that indicate they do require adherence, ten ask this directly from the mineral mining companies themselves, and nine require adherence indirectly, from companies that use minerals for their production. Figure 7 shows how many times standards were mentioned by pension funds. IRMA has not (yet) been mentioned by pension funds. The UN PRI Cobalt working group and SASB were not included in the options given but were both mentioned twice. An explanation of the relevant standards, benchmarks and laws is given in chapter 2.

Figure 7 | Standards most used by pension funds for investments in mineral mining (N = 36).

RISKS IDENTIFIED BY PENSION FUNDS

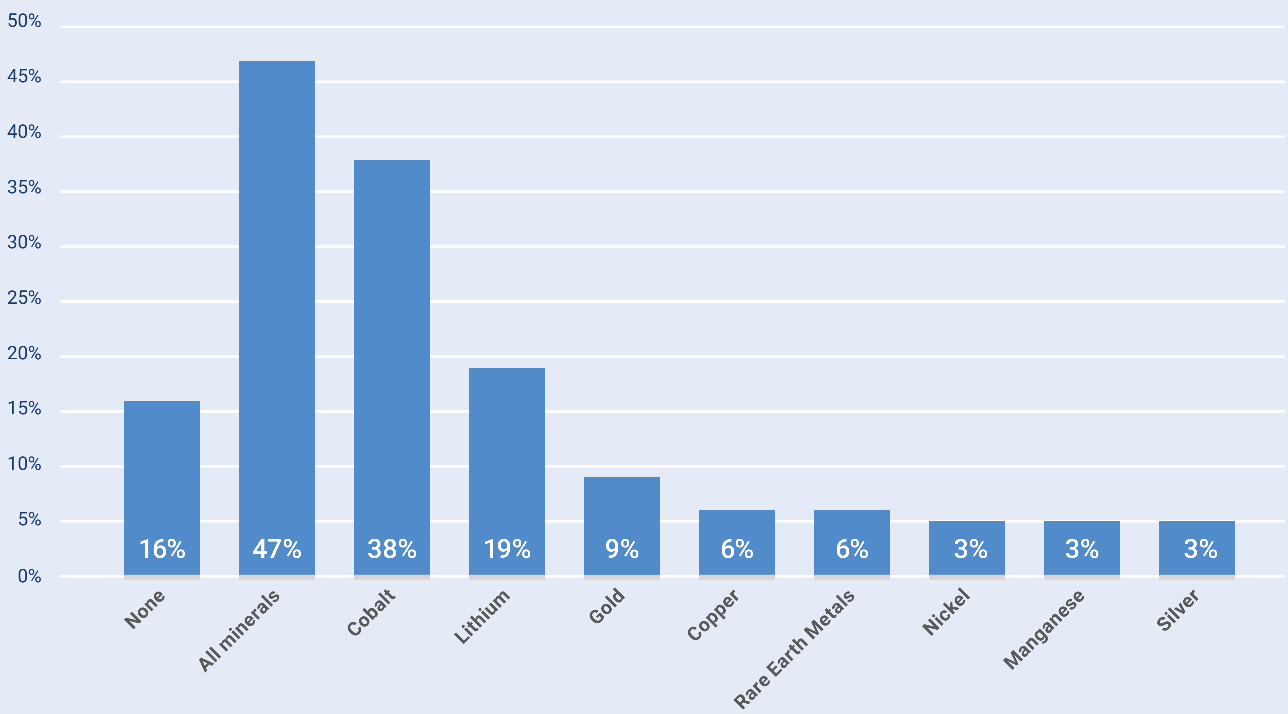
The following figure displays the top five risks associated with investing in mineral mining identified by pension funds. In general, risks are more often identified by pension funds who have included mineral mining in their responsible investment policy, than by pension funds who have not included it. An exception to this is the financial risk: this risk was more often identified by pension funds without mineral mining in their responsible investment policy (66%, compared to 37% of the pension funds with a sector specific policy on mining).

Figure 8 | Five largest risks associated with investing in mineral mining, identified by pension funds (N = 27).

MINERALS OF MOST CONCERN TO PENSION FUNDS

In chapter 2 we discussed the expected rise in the demand for minerals. We showed that the demand for lithium, cobalt and neodymium (a Rare Earth Metal), in particular, will significantly increase if the Paris Agreement is to be achieved, due to the increase in renewable energy. We asked pension funds which, if any, specific minerals they identify as a risk to the pension fund. While some pension funds indicate that they are paying special attention to the above mentioned minerals, none of the pension funds mention future shortage or scarcity. Pension funds respond that a focus on cobalt was due to risks related to child labour, labour rights and human rights. A focus on lithium, Rare Earth Minerals, silver and nickel was mostly linked to their extraction from countries with poor environmental standards, labour rights and weak institutions.

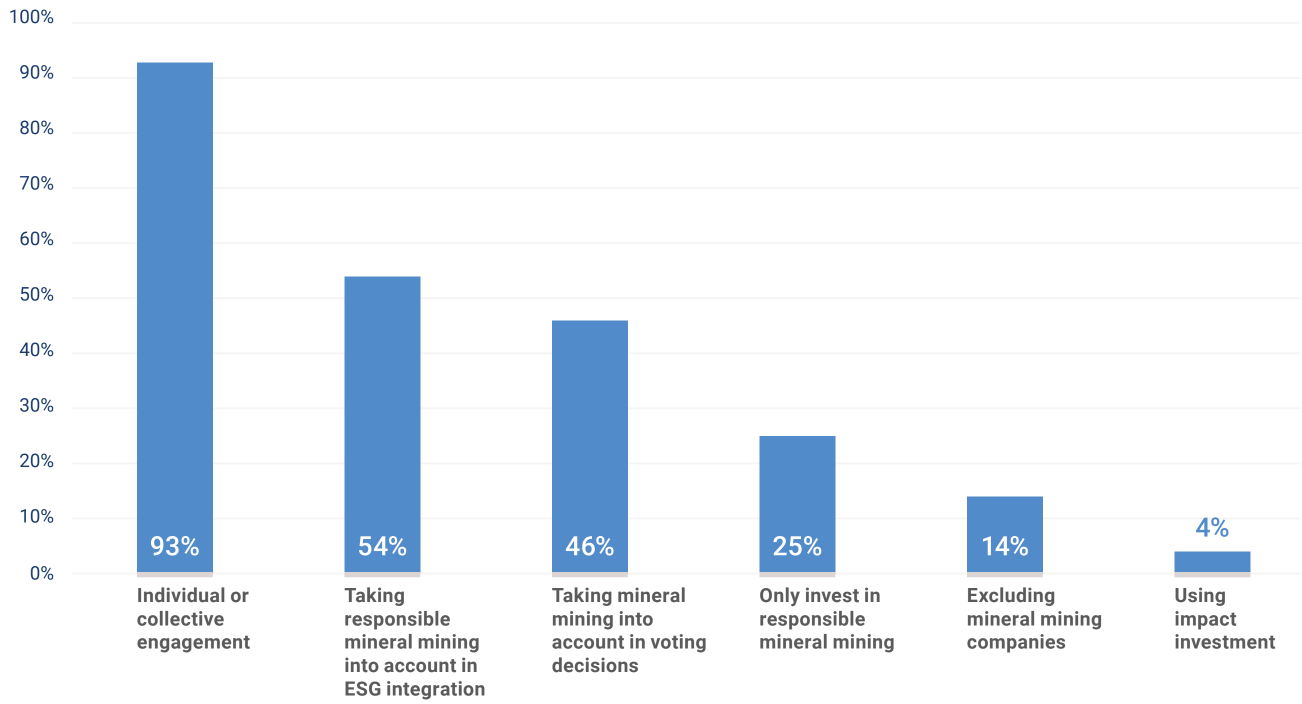
Figure 9 | The minerals of most concern to the pension funds (N = 32).



How to act on ESG issues regarding mineral mining

We asked pension funds what they think is the most effective way to act on ESG issues in the mineral mining sector. Most pension funds (93%) indicated that the most effective way is to engage individually or collectively with companies on responsible mineral mining. The second most mentioned strategy is incorporating responsible mineral mining in ESG integration (54%) and taking mineral mining into account in voting decisions (46%). Impact investment was voted the least effective way to act on mineral mining (4%). This might be the result of a lack of impact investments that solve traditional issues within the mining sector.

Figure 10 | The most effective ways to minimize wrongdoings in the mineral mining sector according to pension funds (N = 28).



Exclusion

Exclusion is a responsible investment strategy that systematically excludes certain companies, sectors or countries from the investable universe. In some cases, exclusion is considered to be a last-resort after a period of engagement. The reasons to exclude vary from legal grounds and reputational standpoints to ethical beliefs. 17 pension funds (50%) indicated ESG issues regarding mineral mining are not a reason to exclude companies. One pension fund (3%) did report that mineral mining companies could be excluded due to violations of the ICMM standards, and 16 pension funds (47%) said mineral mining could be a reason for exclusion. Where exclusion occurs, it is often as a result of a controversy and follows a period of unsuccessful engagement. Sometimes this controversy is seen in combination with a violation of UN Global Compact principles. Although the pension funds mention exclusion as one of their least effective instruments to act on mineral mining (figure 10), it is nevertheless still seen as an option by half of the group.

ESG integration

ESG integration is a process in which ESG factors are systematically integrated into the investment analysis. Integration identifies and weighs those ESG factors that could have a significant impact on the long-term performance of the portfolio.

UN GLOBAL COMPACT

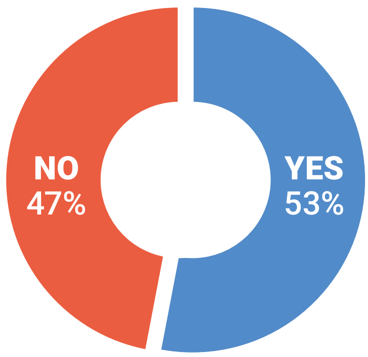
When asked about the exclusion of mineral mining companies, pension funds often mentioned it would be considered if there had been a violation of the United Nations Global Compact (UNGC). The UNGC is a voluntary initiative based on CEO commitments to implement universal sustainability principles. The ten principles fall under four themes: Human Rights, Labour, Environment and Anti-Corruption. The UNGC principles are not sector specific and have quite broad definitions. Therefore, asset managers and/or their service providers translate these principles into more specific criteria that can be used to identify controversies in the mining sector.

[46] UN Global Compact (n.d.) The Ten Principles of the UN Global Compact.

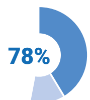
The results show that almost half (16, that is 47%) of the responding pension funds do not integrate ESG issues regarding mineral mining into their investment decisions. 53% (18 pension funds) do integrate ESG issues into their investment decisions related to mineral mining. The pension funds that make use of ESG integration, do so throughout all investment phases. While almost half of the pension funds conduct ESG integration, there is quite a difference in the uptake at each investment phase (selection, monitoring and evaluation) This could be explained by the fact that ESG integration is a timely and costly manner of responsible investment and therefore less viable (for smaller asset owners at least) at each investment phase.

It should be noted that for some pension funds, ESG integration takes place on a more general level for every investment decision. This means ESG integration automatically also occurs with investment decisions related to the mineral mining companies, but does not focus on specific issues related to the miner-

Figure 11 | ESG integration for mineral mining investments

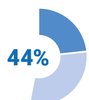


Of the pension funds that indicate they take ESG issues into account in investment decision making:

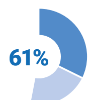


Take ESG issues regarding mineral mining into account in the selection of investments.

Take ESG issues regarding mineral mining into account in the risk monitoring of investments.



Take ESG issues regarding mineral mining into account in the evaluation of investments.



Indicate ESG issues regarding mineral mining have a demonstrable effect on individual holdings.

al mining sector, such as child labour or water related issues. Some pension funds have also identified mining specific ESG criteria, as this sector poses different risks than other sectors. Motivations for mineral mining ESG integration include risks such as bribery & corruption, climate change, competitive behaviour, scarcity of natural resources and operational health & safety.

Engagement

Pension funds can actively influence the policies and activities of companies through their investments. In most cases, the asset manager conducts engagement activities on behalf of the pension fund, sometimes through an external engagement service provider. Through engagement, the pension fund engages in a dialogue with the companies it invests in, in order to address issues around business strategy and ESG.

For eight pension funds (24%), ESG issues regarding mineral mining are not currently a reason for engagement. The remaining 26 pension funds do engage with companies regarding mineral mining ESG issues. Of those 26 pension funds, 42% stated that ESG issues related to mineral mining are specifically considered when selecting companies for engagement. As engagement is seen by the pension funds as the most effective responsible investment instrument, an interesting point to take into consideration is the difference between individual and collaborative engagement. The questionnaire did not ask whether funds engage individually or collaboratively; however, through additional interviews, we have found that both forms of engagement are used, but that collaborative engagement is preferred in most cases.

Voting

As a shareholder, institutional investors have certain rights that can be exercised to address particular issues. Voting at annual general meetings is one such right. This provides the investor with a tool to directly influence a certain policy or activity. Shareholders can suggest, adopt or reject resolutions through voting. Influence through voting is exerted by over half of the pension funds. 16 pension funds (47%) indicate ESG issues regarding mineral mining are part of the research used in voting decisions. Another four responded that ESG is considered during research and that this leads to a demonstrable effect on casted votes. 14 pension funds do not make use of the voting instrument with

Figure 12 | ESG engagement of mineral mining companies

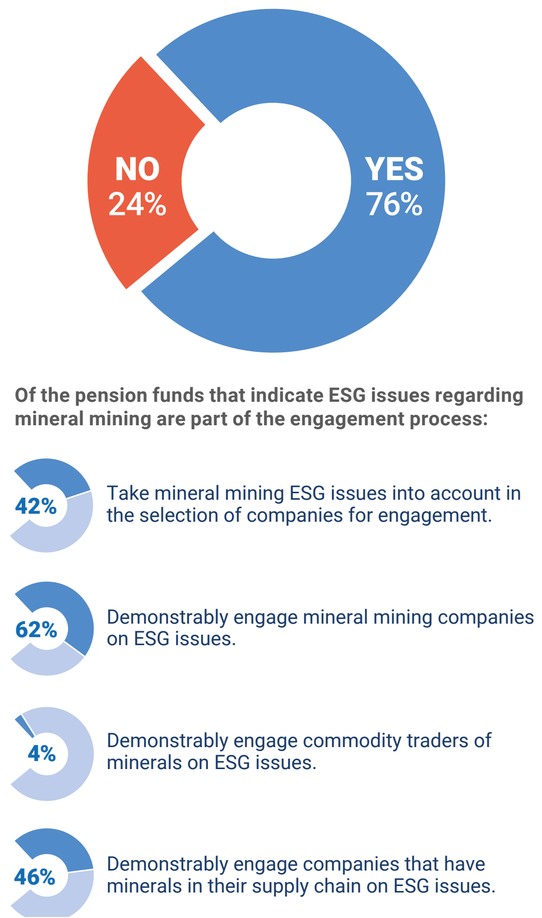
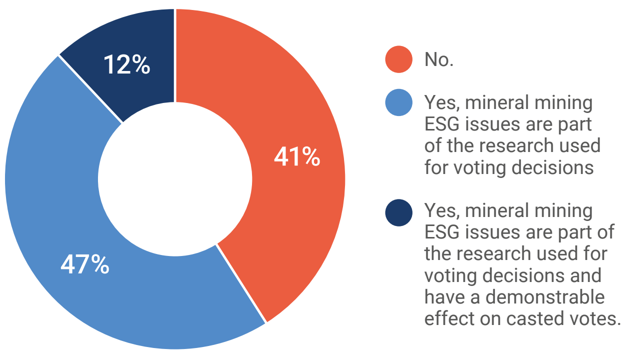


Figure 13 | Mineral mining integration in voting decisions



ESG issues regarding mineral mining. It was found that of the asset owners that do apply voting, most casted votes were related to governance issues. Examples of topics include remuneration policy and lack of transparency. There were a few examples of shareholder proposals relating to environmental and social topics, but these were mainly already included on the ballot.

5. Conclusions and recommendations

The mineral mining sector is crucial in providing essential resources to societies. These resources can then help to (sustainably) fuel economies. With limited recycling options available, the extraction of raw materials is still essential to many industries. Indeed, the demand for minerals is expected to rise due to population growth, an increasing middle class in emerging economies, and the imperative energy transition, the latter being essential for meeting the Paris Agreement. Although the mining of minerals has a significant positive impact, it creates (often unnecessarily) negative impacts for communities and the environment. If the sector wants to keep its licence to operate, it needs to ensure that minerals are mined responsibly. As institutional investors, pension funds have a large role to play in this and should exert their influence on the mining sector in order to minimise the (financial) risks.

Conclusions

Almost all the pension funds who responded to our questionnaire indicate that they have investments in the mineral mining sector, either direct, indirect or through commodity trading. Only eight pension funds have specifically included mineral mining into their responsible investment strategy. Responsible investment has four main instruments: exclusion, ESG integration, engagement and voting. The instrument deemed to be the most effective at minimising issues relating to mineral mining companies is individual or collaborative engagement (92%), followed by ESG integration (54%).

When it comes to the actual implementation of these instruments, engagement (individual and collaborative) is not only the most popular way to stimulate responsible mineral mining, it's also used most by the pension funds (76%). The second most implemented instrument is voting, which is utilised by 59% of the pension funds. ESG integration (53%) and exclusion (50%) are used by about half of the pension funds. However, ESG integration was in most cases not linked to mining specific criteria, but more general standards and guidelines. Voting, one of the active ownership instruments, was mostly related to governance issues and in many cases also did not include issues specific to mining, but were more general.

These results indicate that while mineral mining is considered in the responsible investment strategy of pension funds, there is still progress to be made in identifying specific mineral mining issues, linking these to specific risks and implementing them in the investment processes. Considering the large risks that mineral mining brings and the increasing need for minerals, it is imperative that the transition to more responsible mining of minerals should occur in the near future.

Recommendations

Mineral mining brings with it risks and challenges, which also affect shareholders and other investors. This section recognises the main challenges for investors and formulates concrete recommendations for how investors should act on mineral mining.

RECOMMENDATION 1 | MOVE FROM REACTIVE TO PROACTIVE

Almost all pension funds react to controversies. Exclusion of companies is often the result of major accidents or violations of standards: a reactive response. At the same time, the majority of the pension funds associate mineral mining with multiple ESG risks, but have not yet responded to these material risks. We therefore recommend that investors behave more proactively in addressing risks before these risks lead to serious issues. In addition to consulting public sources of information, e.g. information provided by data providers or the media, pension funds would benefit from starting the conversation at an earlier stage and structurally translating lessons learned from engagement with other companies to the entire sector. With this approach, controversies can be identified earlier and investment decisions will become better informed. Moreover, specific and collaborative engagement on ESG issues can lead to behavioural change by companies, as knowing that their actions have consequences even if these actions are not flagged as controversial, can make companies more careful and encourage them to adopt more responsible ways of doing business.

RECOMMENDATION 2 | DEFINE SECTOR SPECIFIC POLICY AND APPLY THE RIGHT INSTRUMENTS

Proactivity requires a consistent approach. Defining a sector specific policy can help to overcome the challenges that lie ahead in the mineral mining sector. Several steps should be taken to define this policy:

- Use comprehensive international standards as a basis for your policy;
- Map the opinions and stance on mineral mining issues of your main stakeholders;
- Map your portfolio and identify which sectors are particularly vulnerable to being affected by issues in the mineral mining sector due to their value chain;
- Undertake a materiality analysis of mineral mining and the risks involved;
- Define your mission and vision for the mineral mining sector.

When putting your policy into practice, you need to define which responsible investment instruments are the best fit for your policy and investment management strategy. A further explanation on responsible investment instruments can be found in box 2.

RECOMMENDATION 3 | USE MINING SPECIFIC STANDARDS TO IDENTIFY ISSUES AND RISKS

There is limited use of standards for the mineral mining sector. The standards that are used are not specific to mineral mining and are not comprehensive enough to cover the risks related to the sector. The use of a complete standard could help investors to better understand the problems and compare mining companies on their ESG performance. A standard that might be suitable for this is IRMA's Standard for Responsible Mining (SRM). IRMA's SRM is the most comprehensive standard for large-scale mining activities currently available and requires full compliance for certification. While full compliance is sometimes too ambitious for existing mining operations, the standard enables pension funds to track progress made by mining companies by offering partial certification.

A first step towards compliance with IRMA's SRM is for companies to start reporting in line with the standard. Reporting can fill the data gap and contribute to uniformity in the transparency of mineral mining companies. Consequently, investment decisions can be based on reports that are directly comparable and comprehensive.

RECOMMENDATION 4 | STRUCTURALLY EMBED SALIENT RISKS INTO ESG INTEGRATION

The mineral mining sector has a history of severe violations of basic human rights, environmental damage and health & safety issues and will continue to face problems in the future if the situation remains unchanged. Salient, and therefore material, risks should be identified and integrated into all phases of ESG analysis. This way, a complete picture of an investment can be gained before and during ownership.

ESG integration does not equal lower financial returns, quite the opposite: research indicates that firms with strong ratings on material sustainability (ESG) topics financially outperform firms with poor ratings, whereas a focus on immaterial sustainability does not influence performance.[47]

RECOMMENDATION 5 | LOOK BEYOND THE USUAL SUSPECTS

There is a large focus on climate change and human rights issues by pension funds. Pension funds should not be afraid to look beyond these usual suspects and start asking about underexposed issues or indirect impacts, e.g. regional development. Although this research finds that some pension funds (especially those with a specific mineral mining policy) are aware of at least some of the risks that mineral mining poses, it must be noted that pension funds have a limited view on mine site specific issues. Underexposed issues, such as mine closure and legacy, ecosystem health, and water related issues in the vicinity of mining activities, can have substantial effects on the environment and communities now and for future generations. By requesting strategic environmental impact assessments of all mine sites, pension funds and/or data providers can gain insights to these underexposed impacts.

RECOMMENDATION 6 | GOVERNANCE AS A TOOL FOR CHANGE

A focus on governance questions can be a good starting point for addressing issues, especially when it comes to overcoming a lack of mine site level data. Pension funds could demand third-party assessments on the mine site level, transparency about company structures and management and a remuneration policy based on ESG targets. Third-party mine site level assessment is important as it provides a solid basis for decision making further down the supply chain. A top-down approach addresses ESG issues on the right level and makes engagement measurable and target-bound.

RECOMMENDATION 7 | FIND COMMON GROUND AND WORK TOGETHER

It is important to realise that many stakeholders share the same goals: a transparent and profitable mining sector that minimises risks. Due to the magnitude and spread of the mining sector and the corresponding regional differences, pension funds alone will not be able to tackle the problems in this field. Therefore, it is imperative to work together both on engagement practices and on knowledge sharing.

- **Collaborative engagement and knowledge sharing**

Even for larger Dutch pension funds, influencing the behaviour of mining companies is difficult due to the global playing field. By engaging collaboratively, Dutch pension funds, large and small, can share resources and research efforts, and more importantly exert more pressure on these companies due to a larger shareholder influence (more AuM). Engagement is most effective when time-bound and measurable targets are set. This is beneficial in both guiding the actual change in policy and in preventing abuse of the extra time given to companies to adjust their practices.

- **Collaborating with experts and (local) NGOs**

Investors need eyes on the ground in order to understand the mining practices and the complex supply chains. Local NGOs and their larger international partners can help investors to gain appropriate knowledge on a regional, mineral specific level. For example, the Responsible Mining Index can be used to gather mine site or company specific data, which can support pension funds to go into depth on an issue and understand better how they can invest responsibly in the mineral mining sector.

[47] Khan, M., Serafeim, G. & Yoon, A. (2016). Corporate Sustainability: First Evidence on Materiality. The Accounting Review 91(6).

BOX 2: RESPONSIBLE INVESTMENT INSTRUMENTS

Engagement | When it is clear that a company is exposed to risks, or when it is unclear if the company has sufficient mechanisms in place to prevent controversies or salient events, an engagement process can be a powerful instrument to address these issues. The following steps can be taken by the pension fund:

- Assessing transparency is an important first step in the engagement process.
- Engage companies to commit to international standards and report back to their stakeholders.
- Engage companies to identify key risks in their own operations, in the proximity of their operations, and across their supply chain.
- Perform due diligence on companies to assess if they are doing business in a responsible manner and also requiring companies in their supply chain to act responsibly.
- Set relevant and time-bound targets.

ESG-integration | Make sure to collect relevant and up-to-date information. This information needs to be integrated into the management portfolio. A next step is to develop mining specific criteria for investments to be assessed on.

Voting | When engagement is not successful and exclusion is still a step too far, voting on policies can be initiated by tabling questions and resolutions at the annual shareholder meetings. Increased transparency in the annual report on relevant activities can also be requested.

Exclusion | Exclusion can be the right instrument to use when a company is exposed to salient environmental or human rights risks directly and/or in the supply chain, for example by not being compliant with UNGC principles, and does not respond to engagement within a reasonable period of time or make significant progress.

Appendix I. List of respondents

These are the participants who have given permission for their names to be published in this study in alphabetical order.

- Algemeen Pensioenfonds KLM
- Bedrijfstakpensioenfonds voor de Bouwnijverheid
- Bedrijfstakpensioenfonds voor de Media PNO
- Bedrijfstakpensioenfonds voor het Levensmiddelenbedrijf
- Pensioenfonds ABP
- Pensioenfonds DSM Nederland
- Pensioenfonds IBM Nederland
- Pensioenfonds KLM Cabinepersoneel
- Pensioenfonds KPN
- Pensioenfonds Openbaar Vervoer
- Pensioenfonds PGB
- Pensioenfonds PostNL
- Pensioenfonds SNS REAAL
- Pensioenfonds UWV
- Pensioenfonds van de Metalektro
- Pensioenfonds Vliegend Personeel KLM
- Pensioenfonds voor de Woningcorporaties
- Pensioenfonds Zorg en Welzijn
- Philips Pensioenfonds
- Rabobank Pensioenfonds

Appendix 2: Abbreviation list

ASI	Aluminium Stewardship Initiative
AuM	Assets under Management
CHRB	Corporate Human Rights Benchmark
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
EITI	Extractives Industries Transparency Initiative
ESG	Environmental, social and governance
FPIC	Free Prior and Informed Consent
GHG	Greenhouse gas
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
IRBC Agreement	International Responsible Business Conduct Agreement (IMVO Convenant)
IRMA	Initiative for Responsible Mining Assurance
IRMA's SRM	IRMA's Standard for Responsible Mining
IUCN NL	International Union for Conservation of Nature National Committee of The Netherlands
JORC	Joint Ore Reserves Committee
RI	Responsible investment
RJC	Responsible Jewellery Council
RMI	Responsible Mining Index
SASB	Sustainability Accounting Standards Board
SDG	Sustainable Development Goals
SRI	Socially responsible investment
SRJS	Shared Resources Joint Solutions
UN PRI	UN Principles for Responsible Investment
UNGC	United Nations Global Compact
VBDO	Dutch Association of Investors for Sustainable Development (Vereniging van Beleggers voor Duurzame Ontwikkeling)

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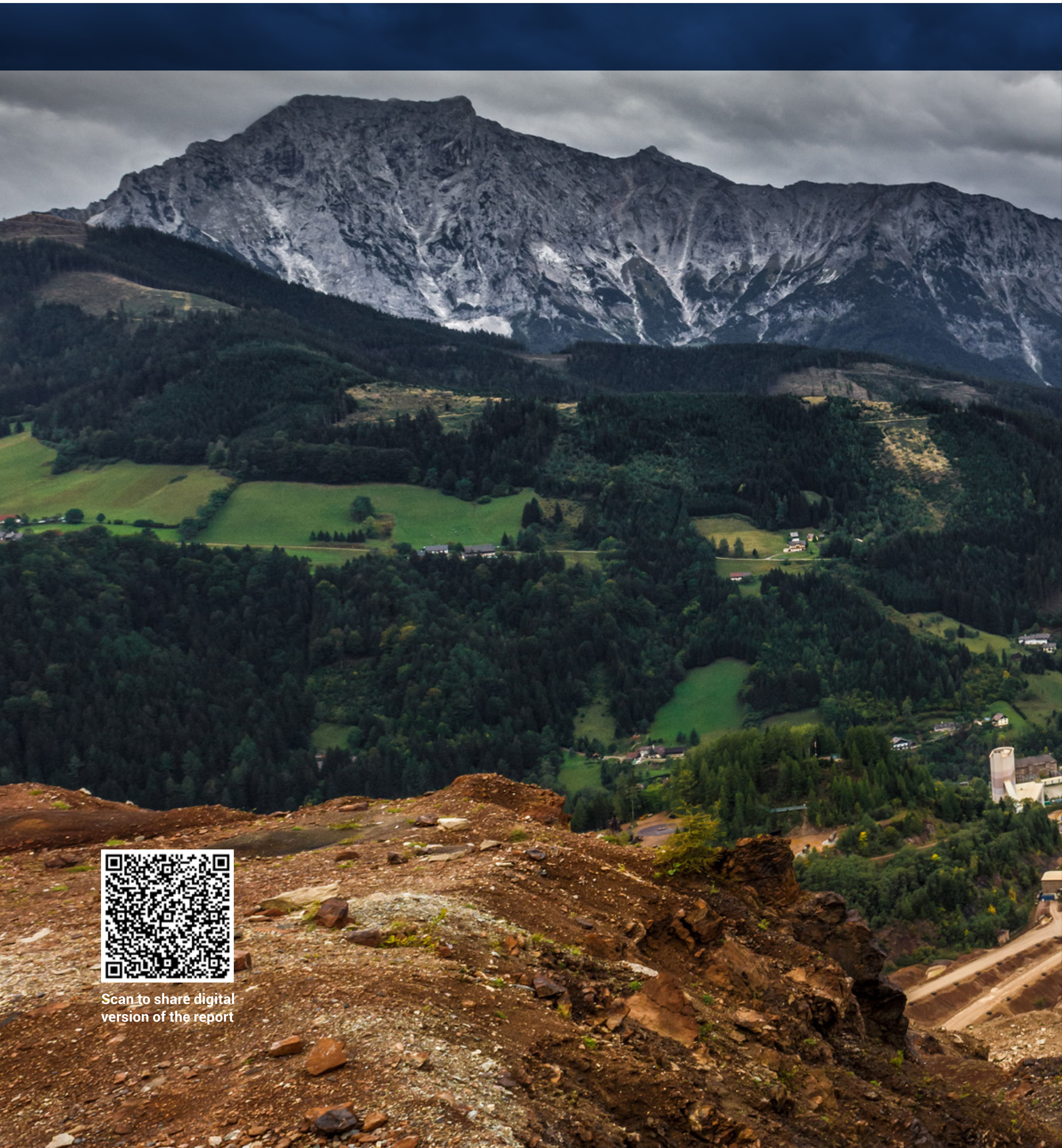

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