re-sourcing

Moving towards a Unified Vision of Responsible Sourcing

Final report and lessons learnt in the RE-SOURCING Project

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Preface

The European Green Deal is the European Union's bold ambition to tackle the growing threat of climate change and environmental degradation. In order to realize this ambition without causing further harm in the process, we need to ensure that the extensive global sourcing and consumption of raw materials required for the green transition is based on sustainability principles & practices. Global supply chains are the backbone of today's economy and improving responsible business conduct within them is key to a more sustainable and equal future. Much of the value created in these supply chains is distributed unevenly, often benefitting wealthy consuming societies at the cost of severe environmental and social impacts in extracting and producing countries further upstream the supply chain: child and forced labour, dangerous working conditions, unfair wages, pollution, environmental disasters and more.

This book is the result of a four-year multi-stakeholder engagement process with multi-national companies, policy representatives, major think-tanks and civil society organisations, and included a comprehensive research endeavour covering innovative business cases as well as recent political developments. In doing so, it captures the immensely dynamic and fast-moving discourse on responsible sourcing in Europe and world-wide to drive change towards more equal cost-benefit sharing.

A team of international experts from in total 12 partner organisations formed the RE-SOURCING multi-stakeholder platform for responsible sourcing in mineral value chains, in particular renewable energy, mobility and electronics. The platform organised a variety of webinars, workshops, in-person events and other activities. It offers a platform website not only containing all project outputs but also covering a significant array of topics, references to external sources, etc.

It is both the project team's ambition and hope that together, we have been significantly contributing through awareness raising and advocacy, research, knowledge exchange and peer learning to advance the responsible sourcing agenda globally and inclusively, as well as fostering real impact on the ground for affected people.

The authors hope that this book is not only an inspiration but remains also critical wherever needed. It is intended to be thought-provoking for practitioners and scholars to draw lessons for their work: How companies can meaningfully engage with their supply chain partners, moving away from mere compliance, reporting exercises and risk aversion towards mutual and inclusive benefits that improve working conditions, livelihoods and respect the integrity of the environment; for civil society to watch corporate misconduct, and inform and support all involved stakeholders in the implementation of responsible sourcing; for policy makers to understand the intricacies, power dynamics and trade-offs of responsible sourcing to create an enabling legislative framework without disadvantaging or leaving anyone behind; and for all involved stakeholders to engage in mutual exchange for continued learning and improvement.

As mentioned above, the RE-SOURCING project and its outputs that form the basis of this book are the collective effort of all project partners. More concrete information about contributions can be found in the section on Acknowledgements. In addition, the RE-SOURCING team thanks everyone who supported, followed and participated in the project.

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Engagements outside the sector specific workshops and consultations were undertaken under Work Package 3, under Global Advocacy Forums. These reflect the engagements and workshops organised by the efforts of Shahrzad Manoochehri, Emanuele Difrancesco and Mathias Schluep from The World Resources Forum Association (WRFA). For Latin America, the engagement effort was led by Iris Wunderlich and Christoph Meyer (AHK Business Centre/ "CAMCHAL"), for Africa by Andrew van Zyl & Lisl Pullinger (SRK Consulting South Africa) and for China by Andrew van Zyl & Pengfei Xiao (SRK Consulting China).

Moreover, this work reflects the rich discourse of panel discussions at the RE-SOURCING conferences and webinars hosted over the past four years. These reflect the efforts of Alexander Graf, Andreas Endl, Noe Barriere and their team at the Institute for Managing Sustainability at the Vienna University of Economics and Business (Austria).

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Abbreviations

ADB	African Development Bank
AMDC	African Mineral Development Centre
ARM	Alliance for Responsible Mining
ASM	Artisanal and small-scale mining
ATFA	African Tax Administration Forum
AU	African Union
CCCMC	China Chamber of Commerce of Metals, Minerals and Chemicals
CRM	Critical Raw Materials
CRMA	Critical Raw Materials Act
CSO	Civil Society Organisations
CSR	Corporate Social Responsibility
DRC	Democratic Republic of Congo
ECLAC	Economic Commission for Latin America and the Caribbean
EEE	Electrical and Electronic Equipment
EHS	Environment, Health, and Safety
EIB	European Investment Bank
EoL	End-of-Life
EPR	Extended Producer Responsibility
ESG	Environmental, Social and Governance
EU	European Union
GHG	Greenhouse gas emissions
GIIP	Good International Industry Practice
GRI	Global Reporting Initiative
ICC	International Chamber of Commerce
ICMM	International Council on Mining and Metals
IEA	International Energy Agency
IFC	International Finance Cooperation
IFRS	International Financial Reporting Standards
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IRENA	International Renewable Energy Agency
IRMA	Initiative for Responsible Mining Assurance
ISO	International Standards Organisation
JSE	Johannesburg Stock Exchange
LCA	Life cycle assessment
LME	London Metals Exchange
LSM	Large-scale mining
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturer
PV	Photovoltaics
RBA	Rights Based Approach

RE	Renewable Energy
RMAP	Responsible Minerals Assurance Process
RS	Responsible Sourcing
SADC	South African Development Community
SDGs	Sustainable Development Goals
SLO	Social Licence to Operate
TCFD	Task Force on Climate-related Financial Disclosures
TNFD	Taskforce on Nature-related Financial Disclosures
UK	United Kingdom
UN	United Nations
USA	United States (of America)
WECD	World Commission on Environment and Development
WEEE	Waste electrical and electronic equipment

Executive summary

[Keywords: Renewable Energy, Mobility, Electronics, Sustainability Standards, Responsible Sourcing Definition, Responsible Sourcing Framework

This report offers a comprehensive overview of the RE-SOURCING Project, which sought to advance the concept of Responsible Sourcing (RS) in an evolving global landscape. The **project's actions** were multifaceted, encompassing the facilitation of a universally accepted definition of RS; the generation of incentives supporting responsible business conduct across mineral supply chains; the exchange of information and best practices; and the promotion of RS in the international political arena.

The RE-SOURCING Project started with **documenting the sustainability challenges** within mineral supply chains, shedding light on the complexities and interdependence between environmental, social, and economic impacts and the role of governance. The project also noted increasing awareness and advocacy from civil society actors, governments, and industry alliances to address these challenges and push for net-positive impacts from the operations of mineral supply chains.

The **diverse RS approaches** encompass various pathways, ranging from collaborative alliances and partnerships to address the collective challenges, to efforts aimed at mitigating knowledge disparities and enhancing transparency through data sharing. These endeavours collectively strive to enhance RS practices in mineral supply chains. The project **identified a common narrative** within these approaches: Addressing the power imbalance between actors in a supply chain; focusing/support disenfranchised groups to have influence and participate in the decision-making process for issues that impact them.

Moving from the general overview, the project focused on **three key sectors in the European Union**: Renewable Energy, Mobility and Electronics. Consulting on sustainability challenges and opportunities across their supply chains, the project developed individual roadmaps for each sector. The **roadmaps outline targets and milestones to 2050**, to achieve the RS Vision, outlining specific objectives for policy makers, industry actors and for civil society. The essential feature of these targets is that they require collaboration between actors, and they are inter-dependent, i.e., they must be addressed collectively and at the same time.

In addition to the roadmaps, the project identified **good practice cases** by governments, companies, and civil society initiatives. In drilling down to how RS implementation looks like, sharing these case studies with a wider audience provided opportunities for peer learning and cross-sectoral knowledge sharing. While each case focused on different aspects of RS, overall successful implementation could be attributed to clearly defined RS objectives and developing (and funding) a plan to achieve those objectives.

Given that mineral supply chains are international, the project reached out to **stakeholders in Latin America, Africa, and China** to garner their understanding and ambitions for sustainable development and RS. Through focused discussion forums, the findings indicated that while all regions share similar ambitions for RS, priorities differ given their local/national challenges.

Based on the consultations and research from the three key sectors and the international engagement, the RE-SOURCING Project put forward a **definition for** RS. Framed under a rights-based approach, we defined RS as: "… a process where duty-bearers ensure policies, processes and compliance mechanisms exist to deliver the environmental, social, and economic rights, as prioritised by stakeholders who are impacted by the activities within a mineral supply chain".

While there are many interesting observations and recommendations from the four years of the RE-SOURCING Project, the four main findings are:

- The **necessity of a globally accepted framework** for RS approaches, to align standards, guidelines, and legislation. A common framework addresses the issues of fragmentation, whilst setting out clear guidance and target for companies and governments for RS practices.
- To **level the playing field** for responsible business practices, both incentives and mandatory requirements are important. The level playing field **is the result of many actions** (from waste & recycling regulations to labour rights standards) coming together. The overlap in actions in the environmental, social, and economic spheres is necessary to enable a level playing field.
- The importance of **information exchange and collaboration** among stakeholders to foster RS practices cannot be over emphasised. Peer learning and alliances remain a strong tool for scaling up of RS practices.
- The significance of **integrating RS discussions into international political forums** for global impact is high. While there are different pathways and different priorities for global regions, the sustainable development objective is common amongst all.

More detailed recommendations are provided under this project's reports, here we summarise the common narrative across these recommendations for policy makers, industry actors, and civil society organizations:

- Foster a **collaborative effort** among all stakeholders to drive RS forward, acknowledging that success depends on collective action.
- Recognize that the **recommendations are interrelated and non-hierarchical**, and they should be pursued concurrently with shared goals.
- Build **upon actions that are already in progress**, demonstrating the commitment to advancing RS.

In conclusion, the RE-SOURCING Project findings emphasise the common objectives underlying RS approaches, whilst acknowledging that there are different pathways to achieve them. This is necessary to address diverse challenges, engage various stakeholders, and implement a range of practices. It is also essential that RS approaches work under a common RS framework, such that they are aligned towards sustainability goals and enhance responsible mineral supply chains across all sectors.

1 The importance of responsible sourcing

In 1998, nine international mining companies set up the Global Mining Initiative to understand and change their operations to meet societal expectations. This was a response to internal as well as external pressures (IIED, n.d). Companies were increasingly facing community discord, often accompanied by: Violent incidents such as community protests and blockades of mine access roads; opposition to planned construction of mining projects; corruption and bribery accusation. Companies faced threats of mining projects being nationalised by host governments and targeted campaigns focusing on their treatment of their workers. The reputational damage from these issues could also impact their share prices.

Around the same decade, international policy (and politics) was increasingly focusing on securing a sustainable future for mankind and acknowledging that continued damage to the environment would be detrimental for all. Successive global summits – from the United Nation's "Earth Summit" in Rio de Janeiro (1992) to the Paris Climate Accords (2015) - focused on global targets for the better governance and management of the planet's resources (Bacchetta, 2023).

Concurrently, consumer awareness and citizenship advocacy had also begun to push for greater adherence to sustainable public policies and the environmental agenda has become an important political topic. Some businesses and investors, first gradually and then in increasing numbers, began to focus on the sustainable sourcing practices within their supply chains. For governments, corruption and bribery in the extractive sector was identified as a major issue to be tackled (Bhattacharyya & Hodler, 2010). There was a collective, even if not coordinated, movement to change operating behaviours in the extractive sector and the supply chains it fed.

Today, the green transition, including the shift to renewable energy, is heavily dependent on the consumption of minerals (IEA, 2021). However, the resulting negative impacts on ecosystems, human rights and economic inequality are no longer acceptable. The mining sector and the supply chains it participates in, are firmly pushing towards becoming more responsible in their operations, with sustainable practices as a core objective.

Responsible sourcing (RS) practices are a key tool in achieving these ambitions and limiting negative impacts in mineral supply chains. By 2023, RS is becoming a reality for businesses and policymakers, and it is increasingly demanded by Civil Society Organisations (CSOs). Everyone is striving to keep ahead of rapidly evolving ecological and social needs, company practices, business models, government regulations, and initiatives spearheaded by civil society.

In response to the growing challenge of implementing RS, the **RE-SOURCING Global Stakeholder Platform** was started in 2020. Funded under the European Union's Horizon 2020 programme, it was a four-year project (November 2019 to October 2023) coordinated by the Institute for Managing Sustainability at the Vienna University of Economics and Business Administration. The project's consortium consists of 12 international partners in and outside the EU, who have worked together to create the RE-SOURCING Platform. The project's vision was to advance the understanding of **RS as non-optional requirement in mineral supply chains**, among EU and international stakeholders. To do this the project fostered the development of a globally accepted definition of RS; facilitated the implementation of RS practices through direct knowledge exchange within its network and beyond; created visions and roadmaps for three key EU sectors; and advocated for RS in international political fora.

To guarantee a thorough and comprehensive RS framework, RE-SOURCING took a comprehensive approach by integrating firms and industries (up- and downstream) **across the mineral supply chains**

of three sectors: renewable energy, mobility, and electronics – all of which play a decisive role in the EU Green Deal and the clean energy transition. RE-SOURCING considered traditional minerals, conflict minerals, and green tech minerals in its approach. The main target groups of the project are the EU and international industry stakeholders, EU policymakers, and civil society. The RE-SOURCING Project's actions focused on:

- Facilitating the development of a globally accepted definition of RS.
- Develop ideas for incentives facilitating responsible business conduct in the EU, supporting RS initiatives.
- Enable the exchange of information and promotion of RS among stakeholders.
- Foster the emergence of RS in international political fora; and
- Support the European Innovation Partnership on Raw Materials.

RE-SOURCING **Project outputs** focused on:

For EU and international business stakeholders:

- Increased capacity of decision-makers to implement responsible business conduct.
- Better understanding and awareness of RS in three sectors: renewable energy, mobility, and electronics; and
- Facilitated implementation of lasting and stable sectoral framework conditions for RS.

For EU policymakers:

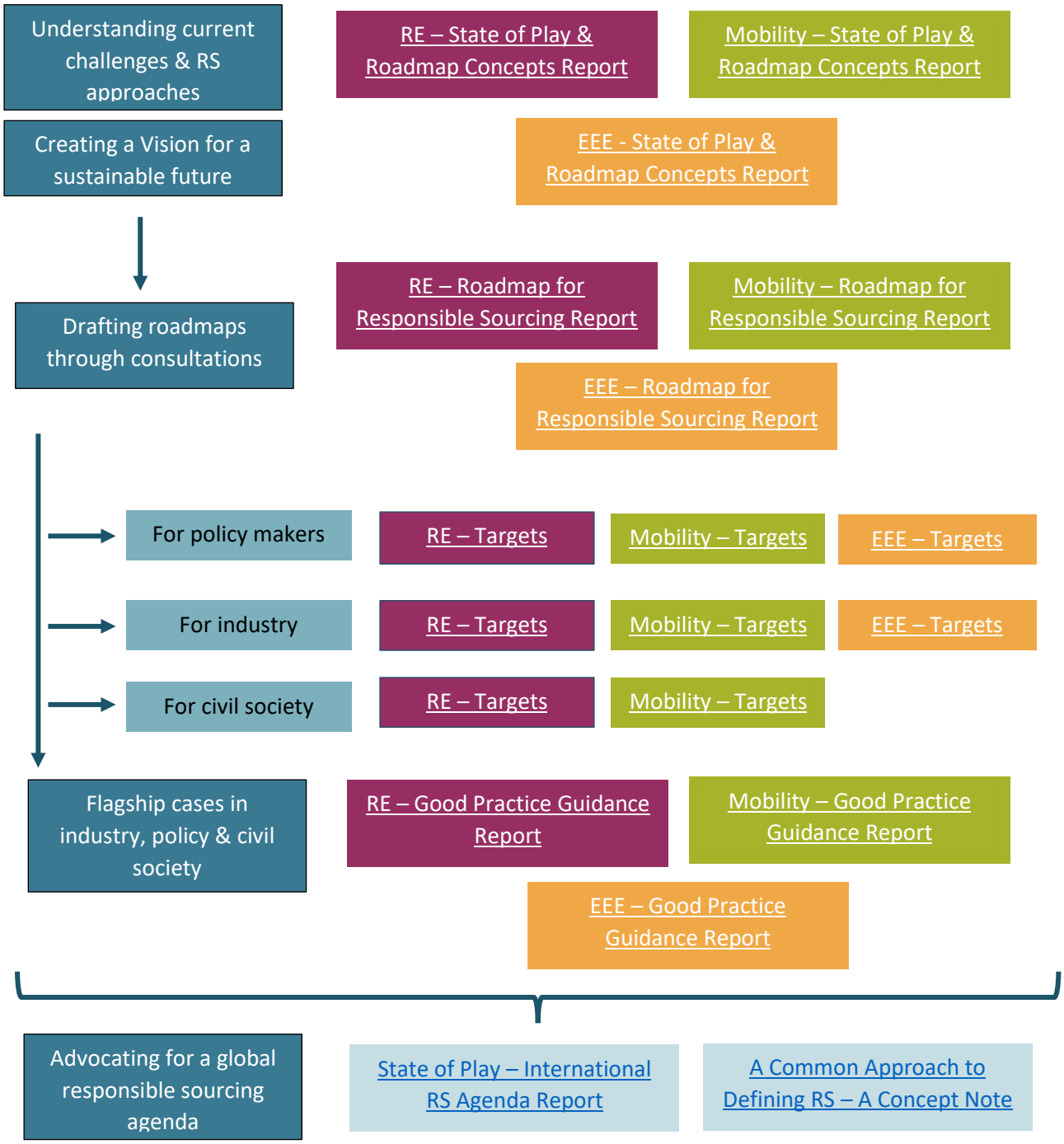
- Increased capacity for RS policy design and implementation.
- Innovative ideas on policy recommendations for stimulating RS in the private sector; and
- Better understanding and awareness of RS in three sectors: renewable energy, mobility, and electronics.

For civil society:

- Integration of sustainable development and environmental agendas into the RS discourse; an established, global level playing field of RS in international political fora and business agendas; and
- Better understanding and awareness of RS in three sectors: renewable energy, mobility, and electronics

Over the four years of the project, numerous reports, executive summaries, policy briefings, workshops, events, and webinars have been undertaken. Figure 1 outlines the major reports and executive summaries produced under the project. This final report is largely informed by the findings of these reports and the consultations undertaken in their preparation.
In this Chapter, we start with the concepts for RS and Sustainable Development used in the project. We outline the challenges that are being faced in mineral supply chains that RS practices are seeking to address and provide a simple framework to help understanding the objectives and context of RS approaches.

Figure 1 The major RE-SOURCING project outputs



**Please click on each box to access the report.*

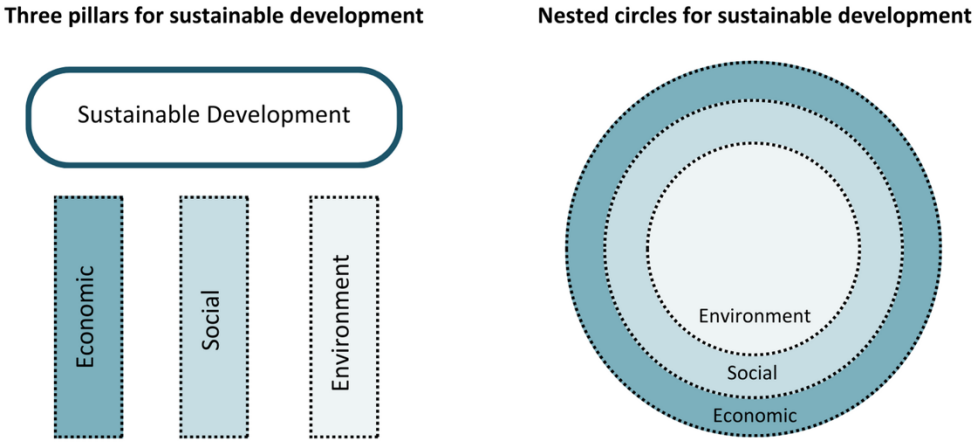
1.1 Concept of sustainability & responsible sourcing

Sustainability: In 1987, the World Commission on Environment and Development (WCED) introduced the concept of sustainable development on the international political agenda as: "Meeting the needs of the present without compromising the ability of the future generations to meet their own needs". (WECD, 1987). Often referred to Brundtland Commission report, it offered the first coherent definition of sustainable development. The drafting of the United Nations Sustainable Development Goals (UN SDGs) in 2012, provided a global consensus on the urgency and importance of providing a high quality of life that is equitably shared and within global ecological boundaries (Costanza et al., 2014; Sachs et

al., 2001). While the operationalisation of sustainable development in business and policy continues to evolve, the current discourse on defining sustainability has continued. It includes outlining key principles such as planetary boundaries, participatory and deliberative approaches and clarifying underlying assumptions such as the integration of human development and ecological boundary dimension.

In current literature, most sustainable development discussions use the UN SDG framework as their primary reference, before addressing/focusing on specific sustainability issues. Sustainable Development often refers to three pillars: environmental stewardship, social inclusion, and economic growth. Initially, the three pillars were presented together to imply balance between them (Figure 2). However, scholars and practitioners criticised its conceptual simplicity as being misleading, since different perspectives (e.g., human development centred versus ecological boundaries), as well as dependencies among them, were not addressed.

Figure 2 Approaches to define sustainable development.



A more nuanced conceptualisation resulted in the nested model approach (Figure 2) which was more sympathetic to integration of the three factors. The nested circles do not imply hierarchy, i.e., economic issues are not understood as more important than social or environmental issues. The nested circles only imply the interdependence of these spheres. The nested model still faced limitations including the inability to break boundaries that would allow for the merging of society and economy into human well-being or human capital.

This was achieved under the concept of planetary boundaries, which consisted of nine thresholds within which humanity may act in a safe manner without causing catastrophic environmental change. The nine defined planetary boundaries are: Climate change, stratospheric ozone, biogeochemical nitrogen cycle, phosphorus cycle, global freshwater use, land system change, rate of biological diversity loss, chemical pollution, and atmospheric aerosol loading. For the last two boundaries, no suitable threshold has yet been identified (Rockström et al. 2009).

Another sustainability approach discusses the concept of weak and strong sustainability for mineral resources (Dietz and Neumayer, 2007; Tost *et.al* 2018). This refers to the concept of interchangeability of human capital with natural capital. For example, human capital such as infrastructure and energy production can be developed at the cost of depleting natural capital (such as water and clean air) – but this is weak sustainability. Strong sustainability argues that natural capital cannot be completely substituted by manufactured capital. It follows that certain human actions can entail irreversible consequences (Pelenc, 2015).

Responsible Sourcing: RS is a contributory factor to sustainable development as well as economic growth and focuses on the behaviour of firms and their operations in the supply chain. Although there

is yet no common definition and operationalisation of RS (Farooki, 2020), several organisations (business, civil society organisations, policy makers) and academic discourses formulate diverse definitions depending whether the focus is on management of Environmental, Social and Governance (ESG) impacts, supply chain management including responsible purchasing practices, or transparency and due diligence (Kügerl et al. 2023). Brink *et al* (2019) finding no concrete definition in the raw materials sector, offer: "The management of social, environmental and/or economic sustainability in the supply chain through production data".

More generally, the British Standards Institution defines RS as "the management of sustainable development in the provision or procurement of a product" (BRE, 2016). The International Chamber of Commerce defines RS as "… a voluntary commitment by companies to take into account social and environmental considerations when managing their relationships with suppliers" (ICC, 2008). The ISO 20400 (2017) Guidance on Sustainable Procurement defines sustainable procurement as "… the process of making purchasing decisions that meet an organization's needs for goods and services in a way that benefits not only the organization but society, while minimizing its impact on the environment. This is achieved by ensuring that the working conditions of its suppliers' employees are decent, the products or services purchased are sustainable, where possible, and that socioeconomic issues, such as inequality and poverty, are addressed." (ISO, n.d.)

The RE-SOURCING Project focused on two aspects of RS in its research: 1) The management techniques employed by organisations to implement RS practices (such as company code of ethics, operations, labour policy, environmental policy, supplier development, etc.) and 2) On processes providing data that assist with RS (such as mapping supply chains, use of technology for establishing mineral provenance, due diligence schemes, use of certification schemes etc). RE-SOURCING specified these processual aspects with a clearer view of impact and needs-based local prioritisation. Based on our research and consultations with stakeholders, we define RS in mineral supply chains as "… a process where duty-bearers ensure policies, processes and compliance mechanisms exist to deliver the environmental, social, and economic rights, as prioritised by stakeholders who are impacted by the activities within a mineral supply chain" (Farooki, 2023).

Both sustainable development and RS are evolving concepts, they continue to be improved as stakeholders identify the negative impacts of the operations in the mineral supply chain and how these need to be curtailed and mitigated to create net-zero or even net-positive results. The management of impacts are considered under environmental, social, economic and governance factors, with an understanding that these are interdependent and changes in one are often derived from changes in the other. Therefore, they need to be collectively addressed, rather than considered under a silo approach.

Mineral supply chains: A supply chain represents the flow of minerals in the provisioning system of mineral products and consecutive production of goods and services. Mapping a supply chain does not typically consider the power relations that exist between the firms in a chain. In contrast, a *value chain* notes where 'value' is created along the supply chain – which firms have the power of design, governance, standard setting, procurement guidelines, auditing control, financial control, etc. The research under the RE-SOURCING Project used both concepts; the supply chain to identify key actors and value chain to understand power and influence (Degreif, 2020). The included actors are:

- Upstream actors: Refers to the extraction process and includes exploration, mining, and processing, intermediary and export of minerals. Smelters and refineries are included in this segment of the chain.
- Downstream actors: Refers to (re)import, semi-fabrication, material conversion and manufacturing and assembly.

- Use/Re-Use phase actors: Wholesale and retail, waste collection and recycling/smelting are included as a third segment, allowing for an evaluation of RS practices specific to the recycling node of the chain.

Approaches, initiatives & practices: These represent different ways of how stakeholders implement RS approaches, which come in many shapes and forms: Guidelines, initiatives, standards, reporting requirements, advocacy campaigns, due diligence exercises, government policies, and business strategies. For ease of purpose, we use RS approaches as an all-encompassing term for the set of actions addressing RS.

1.2 The challenges addressed by responsible sourcing

The negative legacy of mining reads of multiple failings in the environmental, social, economic and governance spheres. These challenges continue to plague the mineral supply chain today and the behaviour that leads to them requires to be changed. A summary of the key challenges identified under the RE-SOURCING Project, being tackled by RS approaches, is provided here (Figure 3). For a more detailed analysis of challenges with the three key sectors, please see Kügerl & Tost (2021); Degreif & Betz (2021) and; González & Schipper (2021). The issues are categorised under environment, social and economic factors, for ease of drafting only. These are inter-linked and impact each other.

1.2.1 Environment issues

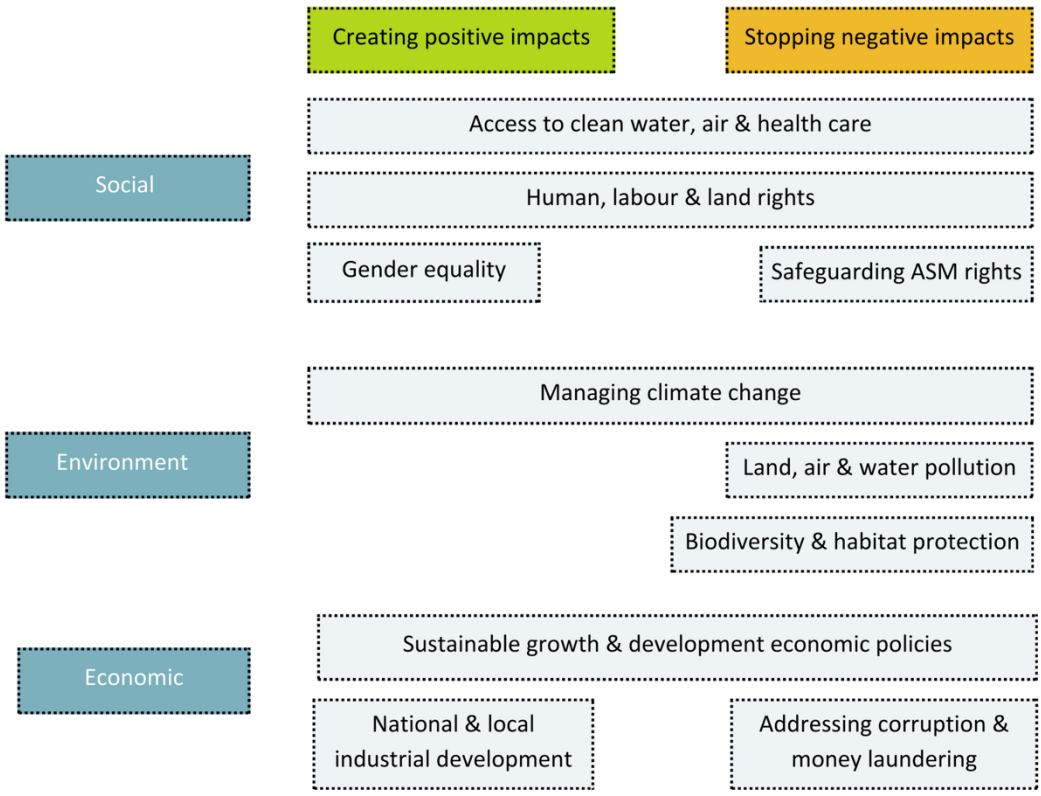
Environmental issues relate to impacts on communities and citizens in countries where minerals are extracted; impact of emissions and pollution from operations; and the environmental impact of recycling activities as well as disposal (end-of-life of product or waste). The main environmental challenges are summarised here:

Biodiversity & habitat protection: Activities across the mineral supply chain impact the biodiversity of the region of operations. From the direct impacts of chemicals and physical waste; chemical waste discharge and indirect impacts from mineral supply chain associated infrastructure and human habitation. These are often cumulative impacts on these landscapes, negatively impacting the habitats of flora & fauna, human culture, livelihoods, and quality of life.

Land, air & water pollution: Operations across mineral supply chains have led to the decline or destruction in the quality of land. This includes air pollution from operations, which is not limited to Green House Gases (GHG); water pollution including acid mine drainage; heavy metal contamination; pollution from processing chemicals; erosion and sedimentations and suspended matter. Such pollution has cumulative impacts on wider ecosystems and community health.

Climate change: Climate change refers to the long-term shifts in temperatures and weather patterns across the planet and has been mainly associated with global GHG emissions. In the short-term, it is generally associated with achieving the Paris Agreement (2015) goal of holding the increase in global average temperatures well below 2° Celsius. Net impacts across the mineral supply chain need to be considered, acknowledging that, while they make positive contributions to managing climate change (such as renewable energy and e-mobility), one cannot ignore the negative environmental impacts at extraction or recycling stages of these sectors.

Figure 3 Creating positive behaviours & discontinuing negative impacts.



Based on the State of Play Reports for Renewable Energy, Mobility and Electronics Sectors

1.2.2 Social issues

The social challenges raised by the operations of mineral supply chains impact how people live and work. The major challenges include:

Access to clean water, air & health care: Usually considered as a part of the Social Licence to Operate (SLO), RS approaches advocate for benefits to accrue to local communities in close vicinity of operations and therefore directly impacted. This includes creating and maintaining access to clean water, air, and health care services.

Gender equality: The importance of using the 'gender lens' in viewing the impact of operations on women in communities and societies. These challenges include gender representation in employment and access to decision-making at all levels of operations and actions impacting communities.

Human rights: Human rights cover civil, cultural, economic, political, and social rights within mineral supply chains including rights of workers, communities, and human-rights defenders. The challenges emphasise protecting the right of freedom from violence, conflict, harassment, and coercion.

Respecting land rights: Protecting land rights are separated from human rights to emphasize their importance, particularly those that address the treatment of Indigenous People and their ancestorial land.

Labour rights: Labour rights are mentioned separately from human rights to emphasize the importance of protecting workers, whether employed directly or through sub-contractors by an organisation. Labour rights include the right to decent work and respectful relationship by employers as well as the payment of fair wages. It also addresses the importance of providing safe working conditions for workers and for communities that may be impacted by the operations along the mineral supply chain.

Safeguarding the Artisanal and Small-scale Miners (ASM): The ASM sector faces un-safe working conditions, child-labour, lack of fair pricing by traders and in some cases violence. Excluding ASM from mineral supply chains is not a viable solution as it leads to further deterioration of the rights of artisanal miners that depend on it for their livelihoods. Safeguarding and improving the social and economic rights of the ASM sector are a major challenge.

1.2.3 Economic issues

Economic issues are heavily interwoven with realising other human rights such as adequate sustenance, housing, education, health, and employment. The main economic challenges include:

Addressing corruption & money laundering: Corruption and money laundering have been a major challenge in mineral supply chains. Often mineral revenues have been used for fuelling conflict and violence, and not for the betterment of the citizens of resource-rich developing countries.

Promoting sustainable growth & development: RS needs to address the wider sustainable development agenda and the importance of changing consumption patterns to use fewer natural resources and emphasise the importance of more sustainable production processes. This requires supportive government policies and planning.

Enabling national / local industrial development: Aimed at addressing the industrial development of resource-rich developing countries, these challenges work towards improving the economic contribution of mineral supply chains where they begin (extraction) or where they end (recycling or waste disposal). They address issues such as increasing local procurement and employment opportunities and setting up higher value-added activities in developing countries.

While this summary list of environmental, social, and economic issues is comprehensive, it is by no means exhaustive. More issues and challenges continue to be added and their prevalence is highly dependent on the specific geographic as well as socio-economic context. The provided overview is more of major challenges most referenced in internationally recognized research and reference frameworks, that RS approaches are attempting to change.

The following three points are noted in this summary: First, environmental, social, economic and governance impacts can be experienced at any stage of the mineral supply chain, although they tend to occur mostly at the extractive stage. Second, these impacts are not limited to developing resource producing countries, they also occur in developed economies. These are not limited to mineral extraction, but also noted in the transport, manufacturing and (non-)disposal of the products that were created from them. It is how operating companies prepare and mitigate their operations, and how governments monitor and enforce their mining, environmental and waste regulations, that determines the extent of the detrimental impacts created.

1.3 Understanding the responsible sourcing ecosystem

Understanding the RS ecosystem may appear to be a gargantuan task, with many approaches, entities, actors, and systems involved in developing and implementing these approaches. To understand the main narrative that flows through the RS landscape, it is helpful to visualize how these various streams interact (see Figure 4).

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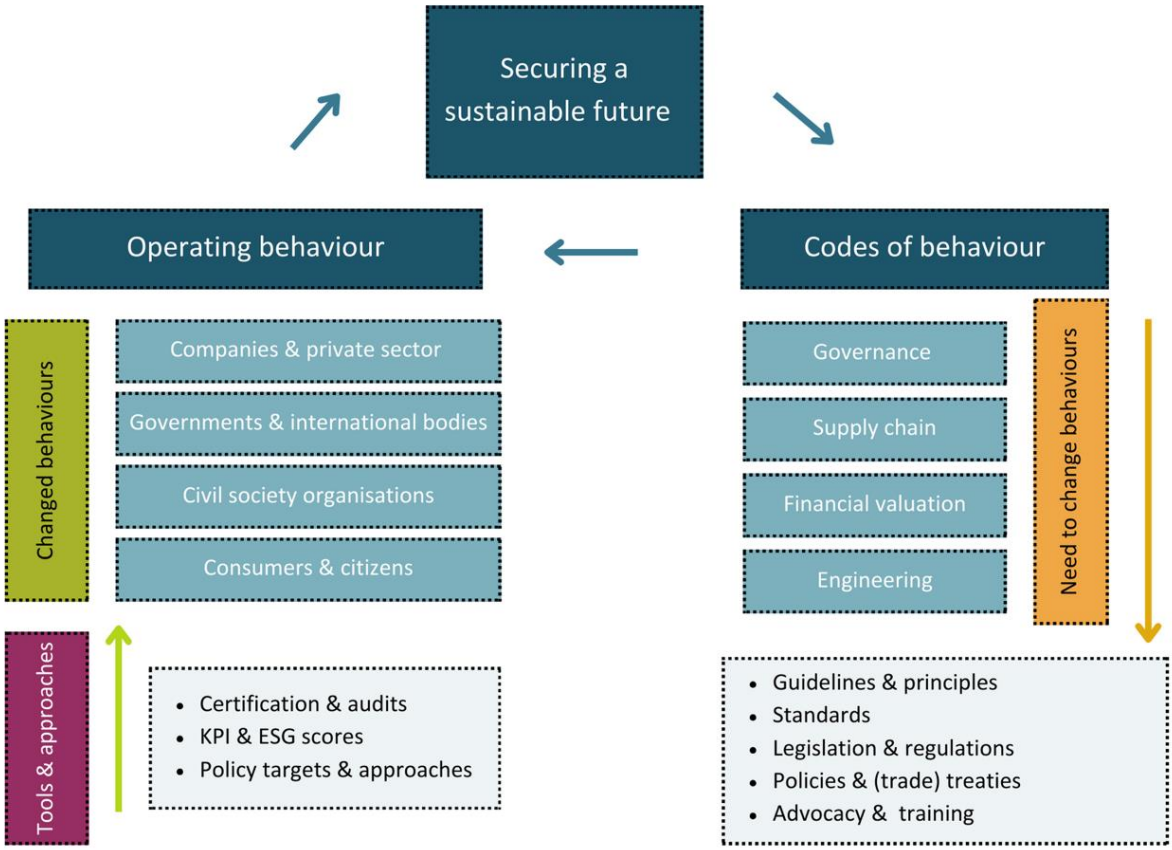
Figure 4 Understanding the responsible sourcing context.



We start with the fundamental objective of all stakeholders, which is to secure a sustainable future, acknowledging that the definition of what is sustainable will continue to evolve over time, as more scientific and social knowledge is added. To secure a sustainable future requires changes in our current behaviour. Current behaviours, to an extent, are determined by societal expectations. These expectations are normally translated into acceptable codes of behaviour. Within the minerals and related industrial complex, this includes codes of behaviour for:

1) Governance
2) Supply chains and procurement
3) The valuation of assets by financial markets and
4) The engineering and production methods.

Codes of behaviour are usually normalised through guidelines and principles, standards, legislation and regulations, public polices and by advocacy and accountability. Therefore, changes to behaviour are brought about by changing the codes that govern them.

To observe that changes are indeed taking place, evidence is provided under voluntary and regulatory assurance mechanism. These assurance mechanisms include policy commitment and reporting on the implementation of sustainability practices by the company; the use of due diligence processes to identify human-rights violation risks and develop mitigation measures; creating data & measurement indicators to reports on company performance on sustainability and chain of custody mechanisms that trace and track minerals within a supply chains. The mechanism measure key performance indicators and assessment against environmental, social and governance metrics and ascertaining compliance with public policy targets.

Where the system flows well, codes of behaviour change, compliance is verified and the system progress towards securing a sustainable future.

The push for responsible practices across mineral supply chains has come from several primary and secondary stakeholders: Mining companies, manufacturers, civil society organisations and rights defenders, investors and financial institutions, international development institutions, governments, both in the Global North and the Global South, local communities, and citizens.

The underlying message from these stakeholders is that the industry and its supply chains must incorporate and reflect societal values in their operations and business management. Power imbalances, where they impede the ability of a group to affect the decisions that impact them, needs to be addressed. The corporate behaviour that existed in the preceding century is no longer acceptable. More responsible and sustainable practices need to be undertaken and evidenced.

RS approaches may consider all or some of the codes of behaviour. Some may focus on supply chain and procurement issues only, whilst others will include elements of governance as well. Some approaches may only focus on creating a desired code of behaviour (such as creating guidelines) whilst others may also incorporate a compliance mechanism (such as a standard that requires third-party auditing).
Over the course of the research and consultations in the RE-SOURCING project, one essential element was noted - **changes in behaviour are required in multiple areas,** and together they support successful progress towards securing a sustainable future. For example, making supply chains operate under more responsible practices must be accompanied by improvements in governance that focus on delivering human rights. Engineering to make more sustainable products is only feasible when supported by financial markets rewarding environmental impact management and penalising human rights violations. This implies that to be effective, changes to codes of behaviour have to come in all four aspects. Simply addressing one aspect, such as supply chain management, will not address the risks and negative impacts that arise from bad governance. For example, requiring firms to conduct due diligence on their supply chains for the presence of child labour in ASM materials is not sufficient. Public policy and governance will also need to be strengthened to ensure children have access to schools and miners are safe from violent and organised criminals.

1.4 Conclusion

In the next chapters, we move towards more detailed discussions under the RE-SOURCING Project, drilling down into sector specific roadmaps and targets to achieve RS; examine best practice cases from businesses; consider the international RS perspectives and provide recommendations for aligning RS approaches. Here, we conclude with some general observations made about the objectives of RS approaches:

RS is aimed at protecting the rights of the most vulnerable: The aim of establishing responsible business conduct in mineral supply chains is to improve livelihoods, working conditions, and respect for human rights of the most vulnerable groups and the environment. Vulnerable groups, in most instances, are defined by the lack of an institutional system that guarantees their rights (e.g., safe working environment). For RS to truly have an impact, the focus needs to shift away from the dominant corporate perspective, where human rights risks have been mainly risks to a company's operation, rather than risks faced by vulnerable rights holders or at-risk groups (Cassinerio *et.al* 2018).

RS is looking at equitable distribution of benefits & costs: While due diligence process can facilitate the implementation of RS practices down the supply chain, it also creates compliance costs. Due diligence processes themselves (to check for irresponsible sourcing practices) have the potential to create additional administrative burden. Flanking measures are necessary (trade and investment finance linked to social and environmental sustainability criteria.), for suppliers and producers to respond adequately to RS demand imposed by clients. The same holds true for vulnerable groups that bear most of the costs associated with sourcing and manufacturing practices.

RS is in private and public business interest: Considering the implementation of due diligence procedures and the consequent impact of RS practices down the value chain, several benefits to businesses can be identified: improved processes, reduced costs, increased productivity, innovation, and improvement of societal outcomes. While benefits such as improved process and increased productivity directly transform into cost savings, improvement of societal outcomes indirectly protects a companies' reputation and brand value.

Suggested Readings from the RE-SOURCING Project

The RE-SOURCING Common Approach - Report (2020)

Challenges & Actions for Responsible Sourcing in the Renewable Energy Sector – Briefing Document (2022)

Challenges & Actions for Responsible Sourcing in the e-Mobility Sector – Briefing Document (2022)

State of Play & Roadmap Concepts – Electronics – Report (2021)

Drivers of Responsible Sourcing – Briefing Document (2021)

Responsible Sourcing: The Case for Business Competitiveness – Briefing Document (2020)

2 The pathways to promote responsible sourcing

In analysing the objectives and targets of various RS approaches, the RE-SOURCING Project identified one common denominator: The need to address the power imbalance between stakeholders in decision-making. Within the context of mineral supply chains, power imbalances can be defined as when a group directly impacted by decisions is unable to meaningfully participate in the decision-making process. For example, where a lead firm decides on selecting a manufacturing process, its decision is informed by government regulations and industry best practice. The government and the industry have influence over the decision. Local communities that may be impacted by the manufacturing process may or may not be able to influence this decision. RS approaches work towards ensuring these communities can have influence, by requiring a meaningful community engagement and a consent obtaining process.

Therefore, most RS approaches, at their centre, address the protection of stakeholders[1] who are disenfranchised within a supply chain. Given the different levels of empowerment and access to redress processes (legal or otherwise), in different countries and contexts, the definition of vulnerable and disenfranchised groups in each supply chain can differ. For example, communities that exist in countries with strong legislation have greater power to challenge companies and government decisions through established systems, than communities in weak legislative jurisdictions. In general, vulnerable stakeholders have been identified as follows (Farooki, 2023):

Local communities: The communities within a certain distance (often defined as 10 – 50 km of mine site, differs for manufacturing and recycling sites), who will bear the brunt of the negative environmental, social, and economic impacts of extractive, manufacturing & waste/recycling activity. RS approaches also consider specifically Indigenous people, who have historically seen their land and livelihood rights being marginalized. Thus, RS approaches tend to have a strong focus on companies obtaining and maintaining a SLO, community consultations and consent and inclusion in decision-making.

Workers: The history of mining and production has been mired with neglect of worker rights, whether it was in the coal mines in the UK during the industrial revolution or the current plight of workers in the mica industry (González & Schipper, 2021). Workers, directly employed or through sub-contractors, have been regularly identified as a vulnerable stakeholder group. Worker rights are often marginalized across mineral supply chains: The right to work in a safe environment; assurance of fair wages; and the right to assemble are under pressure in all nodes of the mineral supply chain. Worker rights also address the ASM sector, where unsafe working conditions, lack of protective equipment and child labour expose workers to hazardous conditions.

Therefore, many RS approaches lay out due diligence requirements, standards, and third-party reporting requirements to be met for ensuring worker safety and fair economic compensation for their work.

Consumers: While not generally considered as a disenfranchised group, research under the RE-SOURCING Project has considered the rights of consumers in line with consuming responsibly produced products, as well as looking at longer term considerations of resource efficiency and resource use. RS approaches therefore consider whether: 1) Consumers have information on the

[1] To avoid over complicating this discussion, the authors consider non-human stakeholders, such as flora & fauna, heritage and ancestorial sites, water bodies etc as stakeholders.

sustainable provenance of the goods they consume; and 2) if they choose to consume sustainable products, does the market provide adequate choice. Sustainable consumption and sustainable production are two sides of the same coin. However, the scalability of sustainable consumption remains limited until sustainable production is scaled up. RS approaches consider this including, but not limited to, encouraging product longevity, products using recycled materials, products with second life use and products that use less minerals in their manufacturing. RS approaches encourage life cycle assessment business models, considerations for circular economy and recycling and better waste disposal management.

In addressing the power imbalances between actors in mineral supply chains, RS approaches share the following objectives:

Promoting inclusivity of vulnerable groups in decisions that impact their environmental, social, and economic rights. This inclusivity not only implies consultations but also transparency in information and data sharing allowing for better informed decision-making. These will also include elements of monitoring and evaluation and redress to grievances.

The **internalisation of external costs** in public and corporate policies, i.e., companies and other operators should not pass the cost of the negative impacts of their activities (such as pollution and land degradation) on to communities and workers. This also includes not passing on the cost of RS assurance or compliance to suppliers or weaker actors in supply chains, who can ill afford them.

Promoting transparency in financial payments and material flows in supply chains. These approaches address corruption and the financing of violence that have often accompanied extractive activity. Transparency in payments to governments, politically exposed individuals, transfer pricing, money laundering, bribery, and corruption in obtaining licences and permits etc. fall under these schemes. RS approaches also promote transparency and reduce information asymmetries in the origin of resources as a key determinant to assess and address sustainability risks.

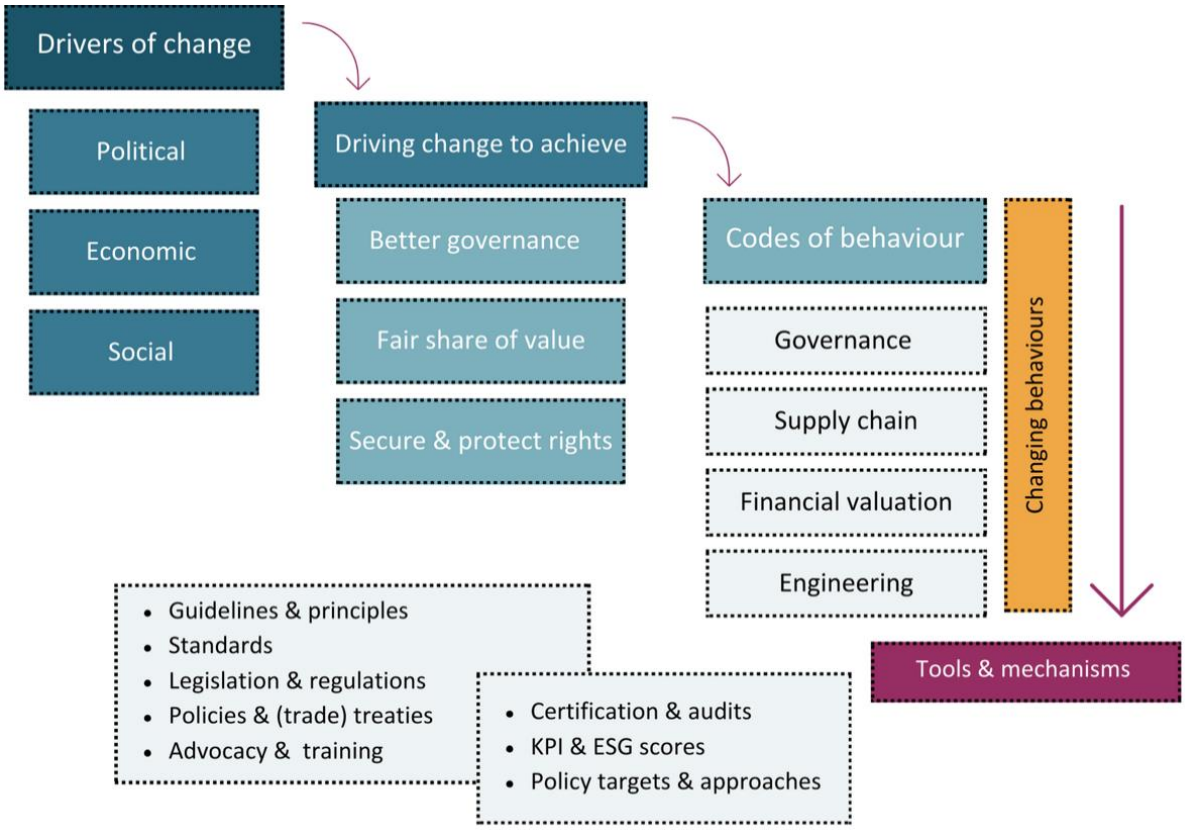
In this chapter, we summarise the findings from the RE-SOURCING Project on the pathways RS approaches have developed to encourage changes in codes of behaviour. These pathways follow a spectrum from advocacy and awareness building to legislation driven compliance. Given the plethora of RS approaches and the complex challenges they address, a host of pathways are required to suit the context in which mineral supply chains operate.

2.1 The pathways to promote responsible sourcing

By 2023, the call to change behaviours that supported sustainable development was reflected in multiple RS approaches; largely addressing corporate entities within mineral supply chains (Farooki, 2020). The clamour for more responsible corporate behaviour was being driven by a combination of political, social, and economic drivers, calling for these entities to meet the societal expectations of local communities, workers, consumers, governments, and investors.

The need for better governance, fair share of value and for the security and protection of human rights were set out as major objectives for the main actors in mineral supply chains. RS required improvements in the codes of behaviour that oversaw: 1) Corporate governance; 2) Supply chains & procurement procedures; 3) The valuation of assets by financial markets; and 4) The engineering and production methods used (see Figure 5).

Figure 5 Drivers of change & their impact on codes of behaviour



RS approaches consulted, drafted, and advocated for these changes, through numerous pathways, including mandatory (i.e., legislation, etc.) and voluntary approaches (e.g., standards and initiatives, alliances, international guidelines, etc.). Under the research and consultations of the RE-SOURCING Project four major pathways were identified:

1) Building awareness, creating knowledge, and increasing transparency around the environmental, social, governance and economic impacts of operations.
2) Through advocacy and collaboration, influencing powerful actors within supply chains to enact change.
3) Provide recommendations for what responsible behaviours and objectives should be undertaken.
4) Require assurance mechanisms to evidence that change has taken place.

2.2 Awareness building & knowledge creation

A first step for RS approaches has been to build awareness and increase the knowledge exchange amongst stakeholders by identifying and articulating the environmental, social, governance, and economic impacts of supply chain operations. This knowledge creation has focused on generating information and data and then transparency in sharing this information.

Given the complexity and length of mineral supply chains, previously lead firms such as Original Equipment Manufacturers (OEM), did not recognise or take into consideration the impacts in their upstream segments, particularly on the most vulnerable stakeholders. This RS pathway relied on developing awareness amongst lead actors that the most vulnerable groups in their supply chains

were likely to be subjected to the highest negative impacts. These groups included artisanal miners, local communities, workers in industrial minerals mining, workers in mining and smelting operations as well as those in the recycling sector.

To create awareness, RS approaches have used **track & trace approaches to map complex supply chains,** so that lead firms view the multiple nodes and jurisdictions that mineral products travel through. For example, cobalt extracted through artisanal mining in the DRC, through traders, will make its way into China for semi-fabrication and battery manufacturing, before being shipped to Europe for installation in an automobile. The complexity of the supply chain makes it difficult for the end manufacturer to be aware of the concerns that are being raised at the upstream nodes. This has led to the use of '**chain-of-custody' approaches**, to track where minerals have originated from and trace their journey from the extraction point to the end-use/manufacturing.

Track & trace approaches are not without complications and dependent on the ability to correctly tag/identify materials at their point of origin. **Traceability is a means to an end**, for lead firms, civil society actors and governments to be able to identify vulnerable communities at the point of origin of minerals. Once the vulnerable groups have been identified, **RS approaches provide guidelines** for lead firms on engaging, consulting, and assisting these communities.

Apart from vulnerable groups, the task of identifying lead firms is not always easy. For example, a single mining site may be the origin for multiple supply chains, feeding into multiple OEMs. Creating awareness of the upstream issues requires identifying the multiple suppliers/lead firms that benefit from the minerals produced. The track & trace approaches can assist in this. Once the correct beneficiaries have been identified, they are approached to change/improve their responsible practices.

In addition to track & trace, other approaches have focused on educating or building knowledge amongst the stakeholders on possible impacts and emphasising the need for transparency in information sharing.

2.3 Influencing actors & forming collaborations

Awareness building and knowledge sharing is followed by advocacy campaigns: Now that actors are aware of impacts along supply chains, they must address them. RS approaches engage with the responsible entities, which can include multiple actors (such as an industry cluster) or focus on individual companies, consumers, or investors. Identifying and assigning 'responsibility' for abuses or improvements at the mine site to a single OEM is not sufficient to improve corporate behaviour. Effectively addressing the concerns of the vulnerable would require measures to be undertaken by all manufacturers sourcing from that area – based through a collaborative effort. For example, if one automobile manufacturer engages with a vulnerable community, and the second one does not, effectively addressing human rights abuses will be a challenge. The **RS approaches therefore require collaboration by multiple actors**; a single entity does not have the resources or scope of influence to enact effective change at a large scale. Given the growing complexity of mineral supply chains, multi-stakeholder approaches are used by RS advocates.

Several RS approaches have focused on **industrial clusters**, such as the automotive sector, or the mica supply chains, to influence change in behaviour through forming alliances. There are several advantages in working through industrial clusters and alliances. First, given the complexity of supply chains and that several manufacturers share smelters or suppliers, a wider group can be driven to change behaviour. Second, entities that join alliances find they benefit from a shared platform to discuss RS challenges with peers and external stakeholders; can express dissatisfaction with the

current RS statutes as well as the inaction of peers and push for improved performance; and they gain a seal of approval from peers, clients, and governments. See **Box 1** for examples of RS alliances.

Successful RS approaches have shown that an alliance allows for streamlining the RS requirements for members and lead firms (informed by civil society, academia, and technical experts) to a manageable and implementable level by all companies. Alliances take a unified approach on RS standards, and collectively focus on the impacts of their RS activities rather than trying to, ineffectively, meet multiple standards. Given the cross-jurisdictional and global impact of most RS issues (climate change, biodiversity threat, gender rights, poverty) full risk mitigation cannot be accomplished by a single entity. Given the multiple mineral products that feed into downstream entities, a global/collective approach for tackling RS issues is imperative. This also creates a level playing field for all actors within the sector (Farooki, 2021).

Box 1 Examples of responsible sourcing alliances

Responsible Business Alliance was formed in 2004 by leading electronics companies and works towards supporting the rights of workers and communities affected by the supply chains of their members in electronics, automobile and toy sectors, and retail.

The Fair Cobalt Alliance joined key stakeholders Huayou Cobalt, Glencore, Tesla, The Impact Facility, The Responsible Cobalt Initiative and Sono Motors in an agreement to improve working conditions at ASM sites in the DRC. The group seeks to implement responsible mining practices by eliminating child labour and increasing household incomes.

The European Raw Materials Alliance seeks to promote economic resilience in the EU by addressing EU difficulties in securing access to sustainable raw and advanced materials as well as the necessary processing expertise. The initiative is organized under EIT Raw Materials and has two main workstreams: value-chain-specific consultation processes and investment channels for raw materials projects. Its objective is to diversify supply chains and attract investment by supporting innovation and training.

European Battery Alliance was initiated by the European Commission in 2017 with a focus on making the region a global leader in sustainable battery production and use. The alliance brings together stakeholders from governmental authorities and industry research institutes to promote a thriving, but also sustainable, battery value chain in Europe.

The Global Battery Alliance is a global collaboration platform, hosted by the World Economic Forum, to catalyse and accelerate action towards a socially responsible, environmentally sustainable, and innovative battery value chain to power the Fourth Industrial Revolution.

The Alliance for Responsible Mining seeks to promote 'inclusive and sustainable development' to legitimise the ASM sector. To alliance has set up voluntary standards and certification schemes and promotes the legitimacy of responsible ASM in commodity markets. ARM supports gender equality, diversification, and socially and environmentally responsible production through implementing good practice techniques and certain technological advances.

2.4 Standards & guidelines

Awareness and advocacy focus on impacts that result from operations that need to be curtailed and mitigated. Taking that reasoning to the next stage, RS approaches provide guidance to companies for behaviours and approaches that should be part of their operations. These recommended behaviours are presented as standards and guidelines. Standards will take a more rigorous approach than guidelines, outlining specific actions, processes or impacts that need to be undertaken.

For example, awareness raising would focus on curtailing forced labour within artisanal mining; guidelines will then recommend companies undertaking a human rights risk due diligence exercise to ensure minerals resulting from forced labour are not part of the mineral supply chain. Standards will require specific actions and reporting to be undertaken to ascertain that the ASM minerals in the supply chain were produced without the use of forced labour.

Several guidelines have been issued by international development institutions and the UN, and address both companies and governments. Guidelines can be wide-ranging in the issues they cover. For example, the OECD Guidelines for Multinational Enterprises (2023) address: Disclosure requirements, human rights, employment and industrial relations, environmental impacts, bribery and corruption, consumer interest, science and technology, competition, and taxation. Guidelines also offer a foundation for more rigorous standards. For example, the UN Guiding Principles for Business and Human Rights (2011) are aligned with and/or incorporated in the ISO 26000 Standard on Social Responsibility (2010).

Standards are an important cornerstone in an integrated and complementary mix of mutually reinforcing RS measures, including supporting legal requirements. Standards provide support to companies in the implementation of RS practices by specifying sustainability and RS objectives for producers, traders, and manufacturers. Standards are also **used as a diagnostic tool** for a business to understand where its risks and weaknesses in implementing RS lie. Businesses that have suffered RS related reputational damage will often seek compliance with a **standard to improve their operations**.

The drafting of RS standards is **based on multi-stakeholder consultations**, each group with their own objectives and needs. These groups can include middle and downstream purchasers, local communities, investors, governments, and consumers; they have different (often overlapping) objectives when it comes to RS implementation. The diversity of the group objectives can lead to many 'sticking points' in multi-stakeholder consultations – explaining the long time required for consultations for standard settings. Achieving consensus on best practice across all stakeholders is near impossible and therefore **trade-offs need to be managed** within a standard (Farooki, 2021).

2.5 Assurance mechanisms for change

The implementation of standards mostly remains under voluntary mechanisms, although with increased purchaser and industry peer pressures, they are taking on a more mandatory aspect. Table 1 provides a summary of the compliance mechanisms under some of the more commonly used RS schemes. These compliance mechanisms include the implementation of the standards as set out by an RS scheme; publicly committing and reporting on the company's sustainable operations; providing provenance of minerals used in manufacturing through a track & trace scheme; and supply chain due diligence approaches.

The RE-SOURCING Project noted three approaches for providing RS assurance by companies: Self-reporting; third-party assurances and legislative compliance.

Table 1 Certification schemes by type of requirements

Compliance requirements	Scheme
Implementation of sustainability requirements beyond commitment and reporting (may include due diligence on conflict risks and human rights violations)	• IFC • IRMA • Fairmined • CTC • ASI • RJC (Responsible Jewellery Council) • Fairtrade • Fairstone
Sustainability commitments in company policies; Sustainability reporting requirements	• GRI • MAC (Mining Association of Canada) • ICMM
Requires traceability and tracking of origin of raw materials, i.e., mine or secondary source	• ASI • Fairmined • Fairstone • CTC (Certified Trading Chains) • Fairtrade
Requires supply chain due diligence on conflict risks and human rights violation	• WGC (World Gold Council) • RCM (Regional Certification Mechanism) • CFSP (Conflict Free Smelter Programme) • ITSCI (only 3T) • LBMA (London Bullion Market Association)

Source: Based on Kickler and Franken (2017)

Self-reporting requires companies to provide information on the sustainability aspects of their business practices and, while encouraging, is considered the least satisfactory of assurance mechanisms discussed here. A commonly used standardised self-reporting template is the Global Reporting Initiative (GRI). GRI is an independent international organisation, in operation since 1997, working with a host of actors from governments, international institutions, firms and addresses a range of sectors, including the extractive sector. The GRI has been designed to report on the underlying question of "how an organization contributes, or aims to contribute in the future, to the improvement or deterioration of economic, environmental, and social conditions at the local, regional, or global level" (GRI, n.d.). The reporting requirements and formats include a range of topics, some are mandatory, whilst others are encouraged. Table 2 outlines the major topics that the GRI Reporting Standard for the extractive sector addresses. While GRI reporting itself does not lead to certification, the standardised reporting template can be used for third-party auditing purposes.

Table 2 GRI Reporting Standards for Sustainability for the Extractive Sector*

Sphere	Indicators for measurement
Economic	• Economic dimension • Market Presence • Indirect Economic Impacts • Procurement Practices • Anti-corruption • Anti-competitive Behaviour • Tax
Social	• Employment • Labour management relations • Occupational health and safety • Training and education • Diversity and equal opportunity • Rights of indigenous peoples • Human rights assessment • Local communities • Supplier social assessment • Public policy

Sphere	Indicators for measurement	
	• Non discrimination • Freedom of association and collective bargaining • Child labour • Forced or compulsory labour • Security practices	• Customer health and safety • Marketing and labelling • Customer privacy • Socio economic compliance
Environmental	• Materials used • Energy • Water and effluents • Biodiversity	• GHG emissions • Effluents and waste • Environmental compliance • Supplier environmental assessment

Full list of indicators and sub-indicators can be found at GRI Standards Download Centre

Source: GRI Reporting Standards (2016)

Other rigorous self-reporting assurance mechanisms **combine due diligence, management approaches and reporting**, such as the standardised reporting template created by the Responsible Minerals Initiative. The RMI has developed a host of general assessment tools for firms, with individual templates for tin and tantalum, tungsten, and gold. The tools follow a due diligence approach, requiring firms to provide information on corporate policy, mapping of their supply chains, risk mitigation employed, mine site assessments and public disclosure.

The next level of assurance is where the self-reporting mechanism is combined with third-party verification. For example, the reporting template developed under The Copper Mark combines RS performance with verification. The RMI's Responsible Minerals Assurance Process (RMAP) provides a set of standards and assessments that can be employed for auditing purposes. The approach focuses on identified social, environmental and governance issues and associated management practices of a firm to address these issues. The reporting template allows for auditing of information received from a firm.

The Initiative for Responsible Mining Assurance (IRMA) offers a voluntary certification for large-scale mines of all commodity types according to its *Standard for Responsible Mining*. This set of criteria certifies individual mines, not mining companies, based on requirements for: 1) Business integrity; 2) Planning for positive legacies; 3) Social responsibility; and 4) Environmental responsibility. The standard was developed in a multi-stakeholder process of mining companies, mining material buyers, CSOs, affected communities, and organised labour. Through certification of each mine site, the performance of the mining operations is verified by an independent third party for demonstrating sustainable and responsible production methods.

While there is progress being made on assurance mechanisms, auditing, particularly independent auditing, remains one of the weakest areas for RS implementation. Of the seven major assurance schemes that have auditing aspects and apply to large scale mining activities, an IGF review found that while six of the seven required third-party assessment, only four required third-party assessment as a key determinant of the assessment (Turley, Potts, & Lynch, 2018).

It is also important to stress that **assurance mechanisms for due diligence have only limited power to drive change** on their own, if not complemented by responsible purchasing practices and the willingness to engage in meaningful collaboration including investment into suppliers. Otherwise, assurance mechanisms – as much as binding regulation – risk to fuel a rather costly compliance and audit machinery that often increases the burden of upstream actors with the main outcome of more

requirements without additional means (financial, capacity & skills, etc.) to meaningfully address them. Secondly, international consensus grows – e.g., enshrined in OECD frameworks and EU and national legislation – that assurance and certification does not reduce or shift the responsibility of companies to conduct their own due diligence in their supply chains, including the resulting liability for non-compliance if this responsibility is being disregarded. The OECD (2022) recently published a report on the role of voluntary standard schemes in mandatory due diligence, providing various insights about the meaningful utilisation of assurance mechanisms to drive actual change.

2.6 The use of legislation

Some RS standards have become the foundation for the drafting of regulations and legislation. For example, the Dodd-Frank Act and the EU Regulation 2017/821 specify that that importers of tin, tantalum, tungsten, and gold from conflict-affected and high-risk areas must use the five-step OECD framework to conduct due diligence on their value chains. Similar references are noted in the French Corporate Duty of Vigilance Law, German Act on Corporate Due Diligence in Value chains, and the EU Corporate Sustainability Due Diligence requirements.

As the successful RS standards were drafted through a stakeholder consultative process, discussions on objectives and impacts have been considered, and measurement metrics outlined. This makes them more conducive as a template for governments to convert into regulatory requirements. See Box 2 for a few examples of legislation directly addressing RS practices.

Regulations & legislation can often speed up the process of wider and quicker implementation across players. This process does require a vigorous standard setting process to have occurred in the first place. If the standards are focused on the upstream (mining stage), the government must balance the impact this can have on downstream (manufacturing) stage actors, and vice versa. For example, the EU Regulation on Conflict Minerals (European Commission, n.d.) requires importers to adhere to the due diligence recommendations of the OECD Guidance. However, the regulation is only applicable for EU firms importing raw materials and does not focus on sourcing of semi-manufactured products that may include conflict minerals.

RS based regulations have many objectives and intentions, one of which is to manage the supply risk and economic disruptions of vital economic sectors, guaranteeing access to critical mineral resources necessary for the green transition. However, in meeting their sustainability agenda, governments also want to ensure that vulnerable groups within these supply chains are protected – through legally binding systems upholding their rights.

Box 2 Examples of responsible sourcing related legislation

2010	Dodd-Frank Act, section 1502, conflict minerals
2010	California Transparency in Supply Chains Act
2014	EU Non-Financial Reporting Directive
2016	UK Modern Slavery Act, transparency in supply chains clause
2017	French Corporate Duty of Vigilance Law
2017	EU Conflict Minerals Regulation 2017/821 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-risk areas.

2019	EU Supplementing Regulation for the recognition of supply chain due diligence schemes concerning tin, tantalum, tungsten, and gold (supplement to the Conflict Minerals Regulation).
2019	Dutch Child Labour Due Diligence Law
2021	German Supply Chain Due Diligence Act
2021	Norwegian Transparency Act on business transparency, human rights, and decent working conditions.
2023	German Supply Chain Act (Lieferkettensorgfaltspflichtsgesetz; LkSG)
2023	EU Battery Regulation 2023/1542 concerning batteries and waste batteries, incl. due diligence obligations for four major battery raw materials: lithium, nickel, cobalt, and natural graphite.
2023/4	EU Corporate Sustainability Due Diligence Directive
2023/4	EU Critical Raw Materials Act

2.7 EU policy for responsible sourcing and due diligence

The EU under its political economic prosperity and sustainability agenda perceives due diligence (DD) and RS both as a means and an ends towards its goals: DD and RS is urgently needed for assuring 1) Sufficient supply of raw materials critical for the EU twin green and digital transition, and 2) Their RS to minimize further societal and environmental harm in- and outside the EU in the light of the Europe 2030 Agenda and SDGs.

Against this background, political objectives and respective instruments for supply chain resilience and secure supply of Critical Raw Materials (CRM) as well as change company practices towards minimisation of environmental and social / Human rights impacts. Consequently the EU can draw on a mix of different instruments to target these objectives on both horizontal and product specific levels and along voluntary and supporting as well as mandatory and enforcing measures (see Table 1): Essentially, the EU can draw on relevant experiences from a wide range of existing programmes from the support for the implementation of labour standards and human rights in national legislation, over tools to enhance transparency and traceability in global supply chains, to capacity building and empowerment of local producers, and support to civil society actors for ensuring corporate accountability.

The EU has deployed several instruments which target the complex system of global supply chains and its actors operating lead companies or brands, suppliers, producers, implementing regulators and impacted rights holders. They cover a wide range of instruments enforcing rules for market practices on investment, trade, minimum requirements on business practices impacting different dimensions as well as corporate due diligence and chain of custody.

Table 3 Overview of EU & Member State level responsible sourcing & due diligence legislation

Year (adopted)	Commodity or sector-specific legislation
2020	EU - Taxonomy for sustainable activities (Finance)
2021	EU - Conflict Minerals Regulation (tin, tungsten, tantalum, and gold)
2023	EU - Battery Regulation (battery materials)
Draft proposed	EU - Critical Raw Materials Act (EU critical raw materials)
	Horizontal legislation
2017	France - "Duty of Vigilance Act" (Loi de Vigilance) - France
2019	The Netherlands - "Child Labour Due Diligence Act" (Wet Zorgplicht Kinderarbeid)
2023	Germany - "Act on Corporate Due Diligence in Supply Chains" (Lieferkettengesetz)
Draft proposed	EU - Corporate Due Diligence and Corporate Accountability

Corporate Due Diligence and Corporate Accountability

At the EU level, a draft directive on Corporate Due Diligence and Corporate Accountability (henceforth referred to "Directive on Corporate Due Diligence") was adopted by the EU Parliament (EU Parliament, 2021). The directive would oblige EU Member States to make laws to require that businesses carry out effective due diligence in relation to human rights, the environment and good governance in their operations and business relationships. While the development of the Directive has been welcomed by many actors, there are many open questions as regards its design features and enforcement measures. Several issues in particular concrete obligations of companies and their legal liability are highly contested (Schilling-Vacaflor, 2021; Schilling-Vacaflor, A., & Lenschow, 2023).

Conflict Minerals Regulation

Concerning conflict minerals and human rights impacts, the EU passed the "Conflict Minerals Regulation" (CMR) in 2017 (EU 2017/821), which entered into force on January 1st, 2021. The regulation specifies due diligence obligations for Union importers of tin, tungsten, tantalum, and gold (3TG) originating from Conflict-Affected and High-Risk Areas (CAHRAs). The regulation aims to ensure that 1) EU importers of 3TG meet international RS standards, set by the Organisation for Economic Co-operation and Development (OECD, 2013), 2) global and EU smelters and refiners of 3TG source responsibly, and, generally, 3) RS are implemented ending the exploitation and abuse of local communities, including mine workers, and support local development.

Battery Regulation

The European Commission also proposed to apply RS requirements to minerals used in batteries under the so-called Battery Regulation (i.e., lithium, cobalt, nickel, and natural graphite) (European Commission 2020). The new European Battery Regulation as part of the larger European Strategic Action Plan for batteries represents a European-wide law to modernise the EU's regulatory framework for batteries, while securing sustainability principles and leading the global battery industry. The regulation strives to create a common rule for battery production processes, waste products and recyclates fostering an EU internal market for the battery sector, and thus ensuring a level playing. In addition, it aims to increase the sustainability of the battery sector by introducing requirements for circularity and for reducing environmental, social, and human rights impacts throughout all stages of the battery lifecycle.

Critical Raw Materials Act

The proposed Critical Raw Materials Act (CRMA) will foster access to critical and strategic raw materials (CRM) from domestic as well as international sources. With regards to RS and DD it will coordinate the build-up of strategic raw materials stocks among EU MS and develop strategic partnerships with CRM producing countries and in collaborative manner strengthen their RS and sustainability performance along the supply chain. Against this background it facilitates the development of European standards for the exploration, extraction, refining and recycling of CRMs, strengthening the EU value chain and EU resilience. These in turn will be relevant for any trade-related agreements with producer countries as well as any strategic mineral development projects the EU finances within or outside its borders.

2.8 Conclusion

The RE-SOURCING Project started with documenting the challenges faced in mineral supply chains. On the positive side, the level of awareness around these impacts and the advocacy to improve these conditions was also strong. The number of sustainability and RS approaches, whether led by CSOs, industry actors or government legislation, are numerous and diverse. Various pathways are being used, from fostering collective efforts through alliances and collaborations, to addressing knowledge asymmetries and transparency data sharing to improve the RS practices in mineral supply chains.

As part of the RE-SOURCING Project, the next step was to consider what goals and targets for a sustainable future were being set. Through sector consultation, a vision was drafted that outlined these considerations. In the next chapter, we summarise the vision and the roadmaps that were created to achieve this vision.

Suggested Readings from the RE-SOURCING Project

State of Play & Roadmap Concepts: Renewable Energy – Report (2021)

State of Play & Roadmap Concepts: Mobility – Report (2021)

State of Play & Roadmap Concepts: Electronics – Report (2021)

Advocacy & Awareness Building: Connecting the Two Ends of a Mineral Value Chain – Briefing Document (2021)

Essentials of Successful Alliances to Support Responsible Sourcing – Briefing Document (2021)

Essentials for a Good Responsible Sourcing Standard: Purpose, Balance & Alignment – Briefing Document (2021)

3 A shared responsible sourcing vision

Based on the concepts of **planetary boundaries** and **strong sustainability** as well as environmental justice considerations, the RE-SOURCING Project has developed a Vision for the Renewable Energy, Mobility and Electronics Sector. This Vision contains essential considerations regarding the preservation of natural capital; the elimination of social and economic injustices; and sustainable practices for companies. The RE-SOURCING project, together with actors from different stakeholder groups, regions, and nodes in the supply chain then developed sectoral roadmaps. These roadmaps provide recommendations for EU policy makers, international industry, CSOs, research, and academia on how to achieve the vision of a responsible and sustainable renewable energy sector.

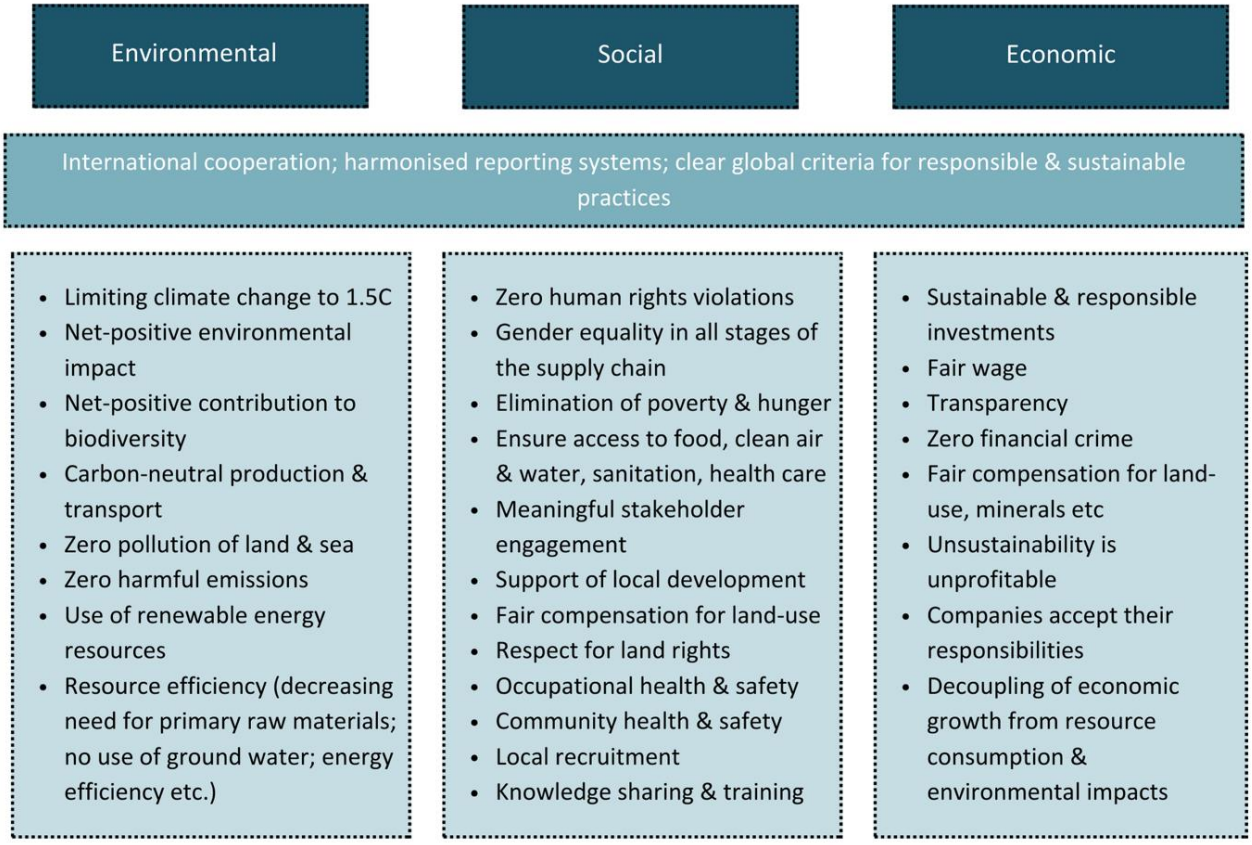
Given the detailed set of targets and milestones within these roadmaps, in this chapter we offer a summary of the major goals and strongly encourage readers to access the full roadmaps for Renewable Energy, Mobility and Electronics sectors.

3.1 The shared vision

In working with stakeholders in the renewable energy, mobility and electronics sector, the RE-SOURCING Project drafted a Vision, outlining an 'ideal' supply chain for each of the sectors. The Vision is based on two basic concepts: Planetary boundaries and strong sustainability. The concept of planetary boundaries consists of nine thresholds within which humanity may act in a safe manner without causing catastrophic environmental change. The nine defined planetary boundaries are climate change, stratospheric ozone, biogeochemical nitrogen cycle, phosphorus cycle, global freshwater use, land system change, rate of biological diversity loss, chemical pollution, and atmospheric aerosol loading. For the last two boundaries, no suitable threshold has yet been identified (Rockström et al. 2009). The concept of strong sustainability focuses on the substitutability of natural capital. Strong sustainability argues that natural capital cannot be completely substituted by manufactured capital. It follows that certain human actions can entail irreversible consequences (Pelenc et al. 2015).

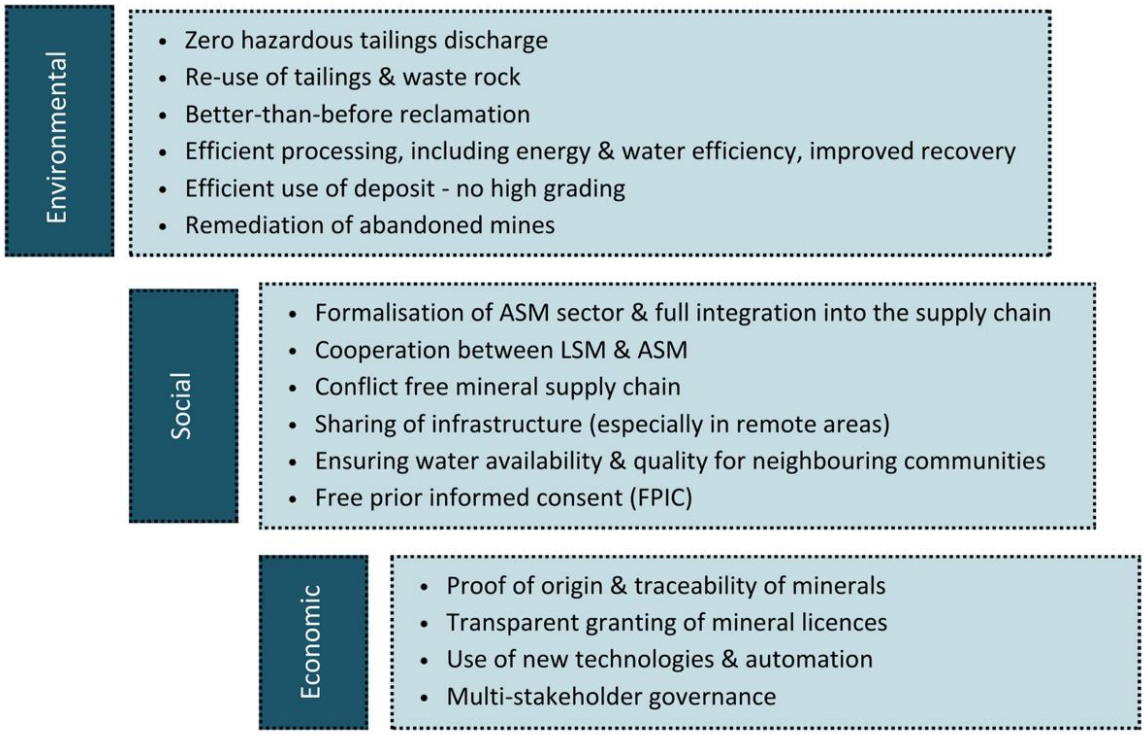
Figure 6 to Figure 9 outline the shared Vision amongst the three sector – for sector specific visions and the roadmaps to achieve them, see (Kügerl & Tost, 2021) (Betz, Degreif, & Dolega, 2021) (González & Schipper, 2021). The Vision provides for specific targets under the environmental, social, and economic pillars and requires international cooperation, a harmonised reporting system, clear global criteria for responsible and sustainable practices.

Figure 6 RE-SOURCING Project: Vision for responsible sourcing across supply chains



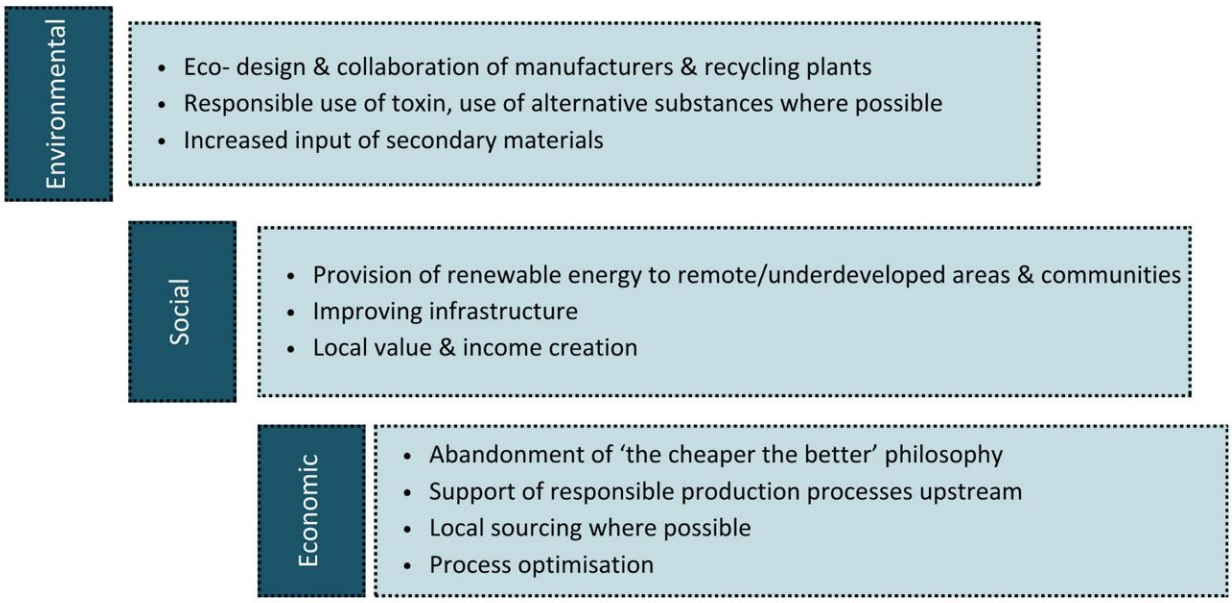
Source: (Kügerl & Tost, 2021) (Betz, Degreif, & Dolega, 2021) (González & Schipper, 2021)

Figure 7 RE-SOURCING Project: Vision for responsible sourcing in mining & processing



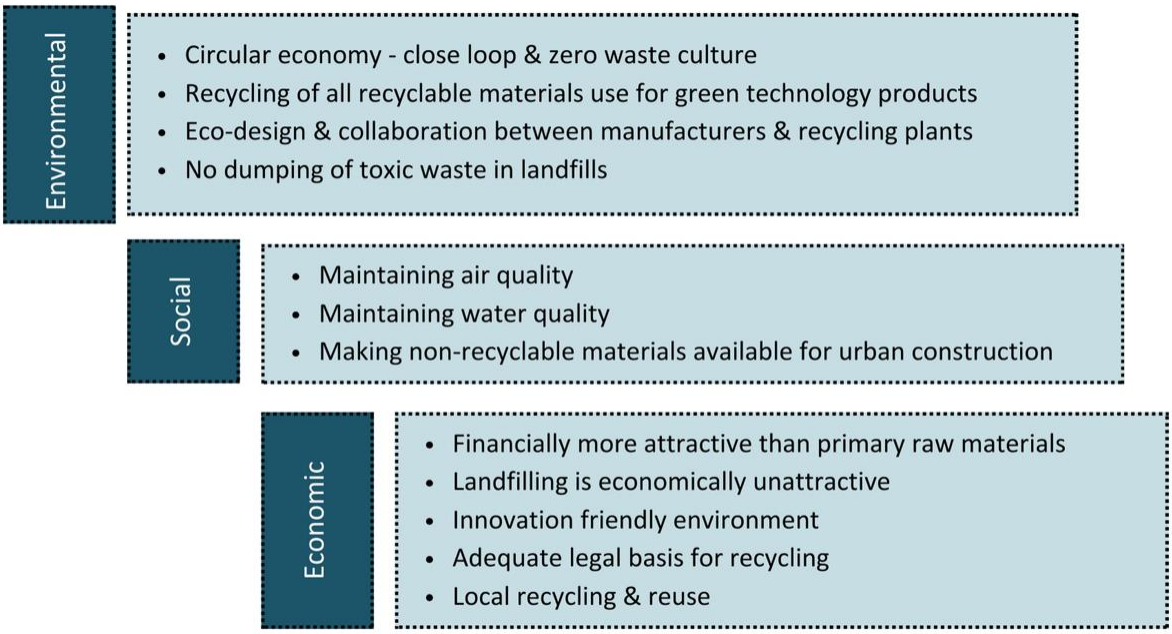
Source: (Kügerl & Tost, 2021) (Betz, Degreif, & Dolega, 2021) (González & Schipper, 2021)

Figure 8 RE-SOURCING Project: Vision for responsible sourcing in manufacturing



Source: (Kügerl & Tost, 2021) (Betz, Degreif, & Dolega, 2021) (González & Schipper, 2021)

Figure 9 RE-SOURCING Project: Vision for responsible sourcing in recycling



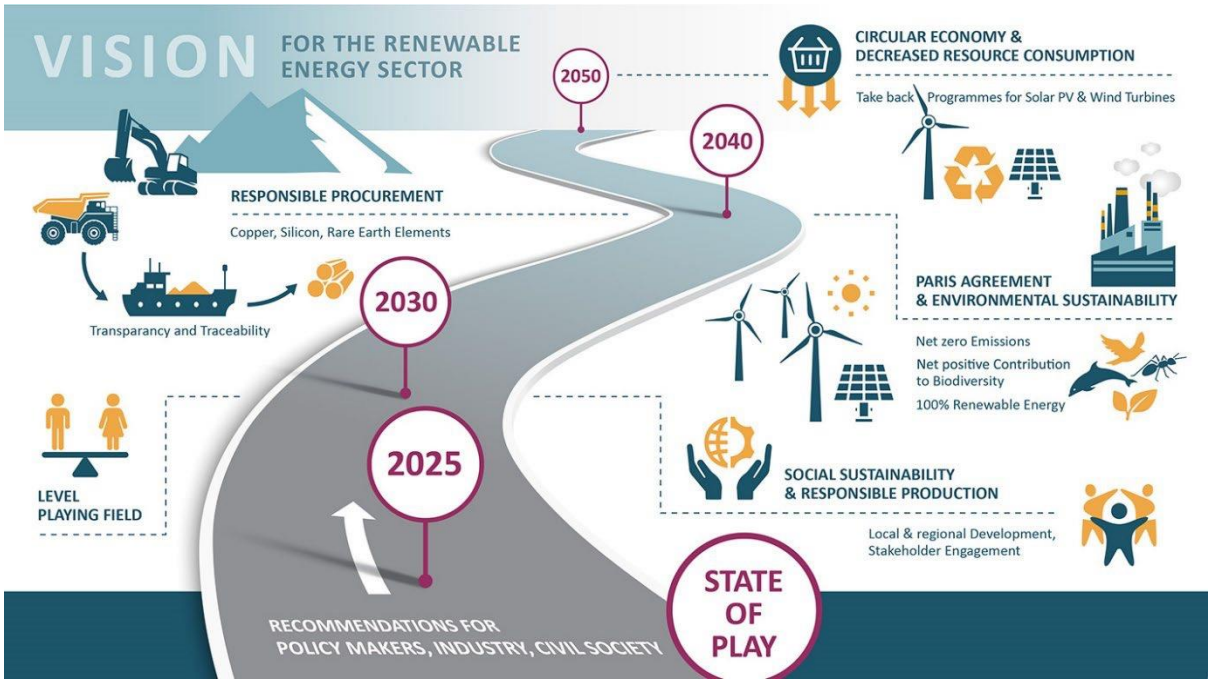
Source: (Kügerl & Tost, 2021) (Betz, Degreif, & Dolega, 2021) (González & Schipper, 2021)

3.2 The renewable energy sector roadmap

The renewable energy sector is growing exponentially – a necessary requirement for successfully achieving the transition from fossil fuels to clean energy sources and mitigate climate change. Two of the main technologies driving this growth are wind and solar PV energy. While these two technologies are considered sustainable energy sources, the production of the raw materials and equipment that are used for them, are associated with strong environmental and social impact concerns. To ensure a just transition, the implementation of high social and environmental standards in production and sourcing along the entire supply chain is crucial.

The renewable energy set out five major targets to achieve the Vision by 2050. For a detailed account of targets by each milestone, please see Kuegerl & Tost (2021).

Figure 10 The roadmap for the renewable energy sector



Target 1: Circular economy & decreased resource consumption

Target 1 addresses the need for changes in behaviour and the economic system to stay within planetary boundaries. While the transition from fossil-fuel based energy generation to renewable energy sources is associated with positive effects, the negative impacts of the ever-increasing energy demand cannot be ignored. A successful transition to 100% renewable energy can only be achieved if we significantly increase energy and resource efficiency. This requires the introduction of new systems for both consumption and production to satisfy human needs and universal well-being without permanently damaging climate and environment.

Target 2: Paris Agreement & environmental sustainability

Target 2 focuses on the expansion of renewable energy itself, the reduction of GHG emissions, biodiversity conservation, and land-use. Wind and solar PV are seen as the two main pillars carrying the energy transition and recommendations are based on currently available technologies. Technological advances and other technologies like hydrogen are also considered important for the transition but are out of scope of the roadmap.

Target 3: Social sustainability & responsible production

For target 3, a fair distribution of benefits and burdens derived from renewable energy sector supply chains and inclusive decision-making processes are the main objectives. This target includes considerations regarding occupational health and safety, meaningful stakeholder engagement, and the introduction of social life cycle assessments in product development and production processes.

Target 4: Responsible procurement

Target 4 focuses on the implementation of the other targets along the entire supply chain. It includes transparency as a prerequisite for supply chain due diligence. Responsible procurement includes the support for sustainable development as well as the development of resilient and risk-proof supply

chains. It also requires engaging with and supporting suppliers and countries that do not adhere to adequate social and environmental standards, to improve their performance.

Target 5: Level-playing field & international cooperation

Target 5 aims at harmonizing requirements for companies operating and trading across supply chains and sectors, in and with the EU. Creating a level playing field also implies supporting companies, regions, and countries in improving their practices and achieving the required standards. Creating a level playing field and improving international cooperation is paramount for achieving all other targets.

One of the key observations in the drafting of this roadmap and targets was the necessity to simultaneously address all five targets in a coordinated manner. Falling behind on only one target will compromises the achievement of the others. Significant and systemic changes are needed now and over the next decade to achieve climate targets and make the renewable energy sector roadmap more responsible and sustainable.

Another crucial finding of the roadmap and the consultation process is the importance to engage the public in decision-making processes. The energy transition can only be successful if all actors are collaborating on this goal and the populations' active support is key. This can only be achieved if politics, industry, and civil society realize their responsibility on openly discussing with and informing affected communities to create trust. The roadmap also recognizes the need for further research critical for advancing consumption reduction, resource, and energy efficiency where crucial information is still missing.

3.2.1 Recommendations for policy makers

Mining:

- Strengthen international cooperation to develop harmonised mining standards for responsible extraction.
- Enable responsible mining in Europe – no more 'burden-shifting'.
- Update mining regulations based on existing (voluntary) certification schemes.

Manufacturing:

- Introduce eco-design policies for solar PVs and wind turbines.
- Goods manufactured with higher social and environmental standards should be preferred over others (through lower taxes etc).
- Review occupational health and safety regulations to incorporate specific issues of wind turbine and solar PV manufacturing.

Recycling:

- Support recycling activities and create markets for secondary raw materials.
- Require life cycle assessments (LCAs) for all new technologies/products.
- Develop and implement environmental regulations for wind turbine and solar PV manufacturing and recycling.
- Facilitate the transition to renewable energy sources in manufacturing/recycling plants.
- Recycling plants need to fulfil similar Environment, Health & Safety (EHS) guidelines as manufacturing plants.

Wider Policy:

- Improve harmonisation of environmental policies of EU Member States and coordinate the implementation RS reporting criteria.

- Protect human rights' defenders and support capacity building by CSOs.
- Implement supply chain due diligence law, making it mandatory for all international players; ensure the policy is implemented through respective control mechanisms.
- Raw materials and products imported from outside the EU need to fulfil the same sustainability requirements as operations inside the EU.

3.2.2 Recommendations for industry

Mining:

- Continuous fleet modernisation for electrification and decreased energy intensity.
- Include planning for mine closure from the very beginning of project development.
- Support local procurement.

Manufacturing:

- Include eco-design considerations from the very beginning of product development to improve recyclability.
- Include social LCAs in product development.
- Take decisive actions against modern slavery and forced labour in the supply chain of solar PV and wind turbines.

Recycling:

- Improve collaboration between supply chain stages, research, and academia to substitute non-recyclable materials.
- Cooperation with other sectors to improve reuse of non-recyclable materials.

Corporate strategies:

- Implement environmental and climate reporting, including GHG accounting and reporting for the entire supply chain.
- Decrease GHG emissions along the company's supply chain by introducing tailor-made climate protection projects.
- Assess and understand strategic RS vulnerabilities of company's supply chains.
- International application of environmental and social standards

For detailed recommendations for policy makers, industry and CSOs, please see Kuegerl & Tost (2021).

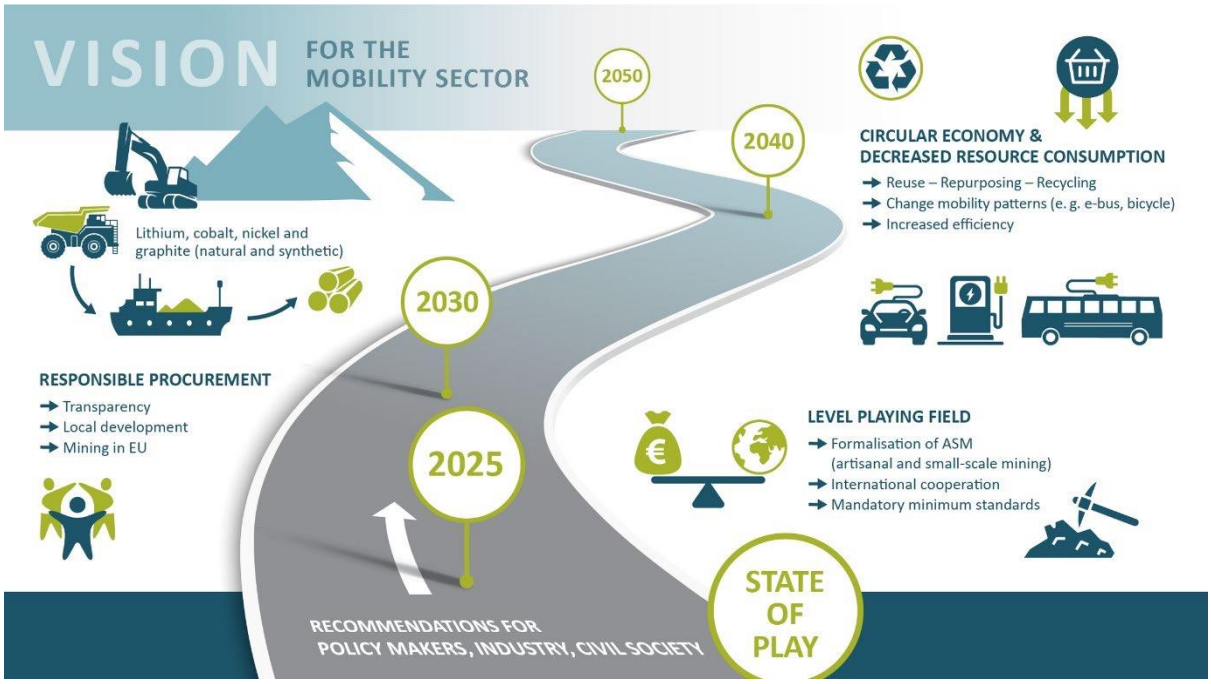
3.3 The mobility sector roadmap

The transformation of the mobility sector is essential to meet the Paris Agreement's goals. According to various studies, passenger cars will need to run on battery power, as other fuel solutions are neither economically nor technologically feasible. Furthermore, a reduction in the number of cars and the use of public transport is needed to reduce the mineral resource use in car manufacturing and to be able to reduce emissions as soon as possible. The RE-SOURCING Project has developed a Vision for the Mobility Sector with a focus on battery electric vehicles. It is structured to achieve three overarching targets that are interlinked and need to be pursued simultaneously to achieve the Vision:

1) Circular Economy & Decreased Resource Consumption
2) Responsible Procurement
3) Level Playing Field

For a detailed account of targets by each milestone, please see Degreif & Betz (2022).

Figure 11 The roadmap for the mobility sector



Target 1 Circular economy & decreased resource consumption

Target 1 addresses the need for **changes in behaviour and economic systems** to stay within planetary boundaries. There is a need of fundamental changes in transport behaviour and systemic changes for the recycling and use of secondary raw material. Resource efficiency in battery production must be significantly increased; a greater number of batteries must be collected for recycling; and the recovered raw materials must be used to a higher extent in new batteries. In addition, battery and vehicle efficiency must be increased. A circular economy is a framework based on three principles:

- Eliminate waste and pollution.
- Keep products and materials in use.
- Regenerate natural systems.

Target 2 Responsible procurement

Target 2 focuses more on the organisations themselves, considering the entire supply chain. It includes **transparency** as a prerequisite for **supply chain due diligence.** Responsible procurement includes the support for **sustainable development** as well as the fair distribution of benefits and burdens, stakeholder engagement, and finding a European and worldwide common understanding of a sustainable product. The six main sub-targets for policy makers to achieve responsible procurement are:

- Define a 'sustainable product'.
- Support positive impact on the ground (SLO, local development, sector alliance).
- Widen the view and efforts to all three pillars of sustainability.
- Implement responsible public procurement.
- Ensure transparency along the EU supply chain (aiming at improving it globally) and implement strong mandatory standards.
- Keep supply chain due diligence at highest priority.

Target 3 Level playing field.

Target 3 aims at **harmonizing requirements** for companies operating and trading across supply chains and sectors, in and with the EU. Raw materials or products that are produced with lower standards

should be disadvantaged in the future or no longer allowed. However, creating a level playing field also implies **supporting companies, regions, and countries** in improving their practices and achieving the required standards. In the discussion about a level playing field, seven main issues are of relevance:

- Quality over price.
- International cooperation.
- Producer responsibility.
- Polluter pays and border-tax adjustment.
- Harmonisation of mining and production policies.
- Harmonisation of sustainability and reporting criteria.
- Formalisation of ASM.
- Mandatory minimum standards.

One of the key results of the Mobility sector roadmap is the necessity to simultaneously address all three targets. Therefore, there is the importance of communication and cooperation between stakeholders along the whole supply chain: None of the targets can be achieved by only one stakeholder group. All stakeholder groups need to pursue a shared goal. Frontrunners and role models are needed in all stakeholder groups where others can follow and for peer learning to take place. Significant and systemic changes are needed now and over the next decades to achieve climate targets and make the lithium-ion battery chain more responsible and sustainable. There is no time to waste - we need to act now! Changes are needed and cannot be postponed to the next generation or next legislation period.

Another crucial finding of the roadmap and the consultation process is the importance of a change in thinking. All actors – policy makers (e.g., by setting overarching regulations with concrete criteria), industry (e.g., by implementing quality over price), civil society (e.g., by promoting good practice cases) and the public (e.g., by a change in transport behaviour) - need to understand, support, and embrace the new way of thinking. The roadmap also recognizes the need for further research to set ambitious but realistic targets and be as precise as possible to define the necessary measures.

3.3.1 Recommendations for policy makers

Mining:

- Develop an overarching EU regulation with sustainability criteria for mining in the EU.

Manufacturing:

- Implement supply chain due diligence law, mandatory for all international players; implement respective control mechanisms.
- Make transparent of supply chains mandatory in the EU.
- Intensify support for purchasing recycled material and increase minimum recycled content and implement mandatory labelling of lithium-ion batteries.
- Mandatory EU Due Diligence for all raw materials used.

Recycling:

- Consider Extended Producer Responsibility (EPR), giving the producers the financial or physical responsibility for treatment of post-consumer products. The producer needs to think about the end of a product and how to collect and treat these end-of-life products in a sustainable way.
- Legislation for reuse/repurposing and recycling with ambitious rates for batteries.
- Implement minimum design-for-recycling standards.

Wider Policy:

- Introduce policies for sustainable consumption, production, resource efficiency and waste.
- Incentivise and facilitate sustainable and responsible corporate & consumer behaviour.
- Create an overarching binding legislative framework for a circular economy by implementing a law at the highest level (EU regulation preferred to EU directive).
- Develop and implement a set of social and environmental criteria for sustainable practices and associated payment for non-compliance with the criteria.
- Find common understanding within the EU and G7 on Supply Chain Due Diligence Criteria and Schemes and include this in the trade agreements.

3.3.2 Recommendations for industry

Mining:

- Support local procurement and ensure compliance with worker's rights.

Manufacturing/Recycling:

- Use as much recycled material as possible and consider reuse/refurbishment/recycling from the very beginning.
- Use the power the automobile market to strengthen the demand for sustainable and recycled products and responsible sourcing in the lithium-ion battery supply chain.
- Sustainability strategy including binding requests for certified materials and use of supply chain reporting for all minerals.
- Open exchange and discussion between actors on mining and responsible recycled materials.

Corporate Policy:

- Optimise resource and energy efficiency and reduce waste streams.
- Implement reporting for sustainability in your company.
- Initiate a transparent approach in the firm's supply chain and provide transparency for the firm's own production sites.
- Develop a common understanding of minimum and high-level standards, to be improved over time.

For detailed recommendations for policy makers, industry and CSOs, please see Degreif & Betz (2022).

3.4 The electronics sector roadmap

Transformation of the Electrical and Electronic Equipment (EEE) sector is essential to meet the Paris Agreement's goals, to ensure a just energy transition and to meet the UN SDGs, including fulfilment of their critical human rights dimension. Electronics is one of the world's largest and fastest growing industries, employing millions of workers. The sector is defined by innovation and evolution of components and end-use products, and largely a business model that consequently relies heavily on obsolescence and consumers purchasing new versions of products and technologies every few years.

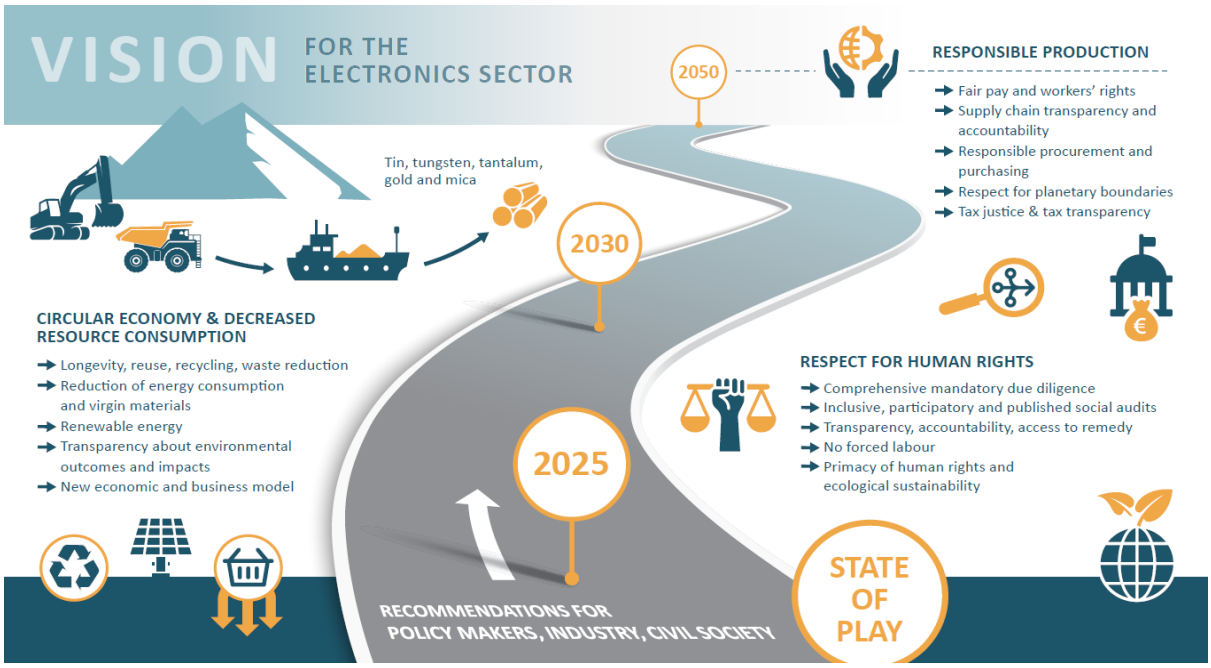
While some efforts have been made to recycle or reuse some raw materials that go into electronics production, the growth of the sector means that it is currently evolving away from sustainability goals as its demand for virgin materials continues to increase, accompanied by many negative impacts. The global consumer electronics market is forecast to grow at a compound annual rate of 5.1% to 2030 (Precedence Research 2022). To ensure a just transition and to achieve the SDGs, the implementation of high social and environmental standards in production and sourcing along the entire supply chain is crucial.

The RE-SOURCING Project, together with actors from different stakeholder groups, regions, and nodes in the supply chain, developed a sectoral roadmap, which is structured to achieve three overarching targets that are interlinked and need to be pursued simultaneously to achieve the Vision.

1) Respect for human rights.
2) Circular economy and decreased resource consumption.
3) Responsible production.

For a detailed account of targets by each milestone, please see González, Schipper and Litvinoff (2023).

Figure 12 The roadmap for the electronics sector



Target 1 Respect for human rights

Target 1 focuses on addressing major identified gaps in human rights protection in relation to current EU legislation and voluntary industry initiatives for the electronics sector. These gaps involve inadequate due diligence, limitations of scope, loopholes and low thresholds, insufficient sanctions, a lack of consistent implementation, inadequate rights holders' avenues for protection and remedy, and poor-quality and non-transparent implementation of due diligence. For the successful implementation and enforcement of human rights, due diligence laws are a way to achieve a level playing field.

Target 2 Circular economy and decreased resource consumption

Target 2 concerns the need for changes in electronics production, product design, efficiency, public expectations, consumer behaviour, the business model, incentives, and the economic system. Transition to climate neutrality requires major improvements in energy efficiency, comprehensive use of renewable energy and substantially decreased demand; biodiversity impacts also need to be addressed. Technological innovation should extend product lifetimes and reduce hardware replacement frequency. Aggressive novelty-value-based marketing should end, with EU-wide warning labels on short-lifespan goods and dramatically reduced waste generation. An accessible, affordable, and effective right to repair is crucial, with improved collection and recycling of end-of-life equipment and as a source of raw materials.

Target 3 Responsible production

Target 3 encompasses the electronics supply chain's impacts on people, communities, the environment and climate, workers, and host countries' wellbeing. It requires a fairer allocation of costs and benefits and a major reduction of unequal outcomes. Worker protection and work conditions must improve. Mineral extraction, refining and processing and the actions of major companies and brands should not cause, exacerbate, or benefit from conflict or abuse. Supply chain transparency, unitary taxation, and responsible procurement are also key elements.

All the responsible sourcing targets, milestones and recommendations for the electronics sector need to be addressed simultaneously in a coordinated manner. Falling behind on any one target will compromise achievement of the others. Civil society has a critical role alongside policy makers and industry in contributing to achievement of the intersecting targets and milestones, as described in the roadmap. Informing and engaging the public in decision making is equally important.

The RS challenge is extremely urgent if humanity is to avert global climate and biodiversity disaster and to prevent further destruction of human life chances. There can be no environmental responsibility without corresponding obligations towards universal human rights, and vice versa. Only fully transformative change across all sectors of the economy and society will ensure wellbeing for all people and communities within planetary boundaries. The EU, its policy makers, industries, civil society, and citizens can be standard bearers and trailblazers for the changes needed, but only by genuinely "walking the talk" of social, environmental, and economic sustainability.

3.4.1 Recommendations for policy makers

Mining:

- Engage with third countries on workers' rights in the electronics supply chain.
- Put in place public procurement guidance on electronics that reflects responsible sourcing.

Manufacturing:

- Enact the right to repair with meaningful standards of accessibility and affordability.
- Set up mandatory take-back schemes allowing customers to return electronic goods at end of life.
- Require companies to disclose their supply chains, including gaps in their knowledge.
- Develop plans to introduce a system of unitary taxation for multinational businesses.
- Make transparency of supply chains mandatory in the EU.
- Put in place strong EU standards for tracing raw materials.

Recycling:

- Set strong reuse, recovery, and recycling targets.
- Improve and expand e-waste collection and require more action by industry.
- Strengthen the prevention of uncontrolled and illegal e-waste exports to third countries.

Wider Policy:

- Enact effective corporate human rights due diligence legislation.
- Require corporate human rights due diligence to extent downstream and upstream (to the mining of raw materials)
- Require human rights due diligence and transparency from mineral importers.
- Support CSOs in their human rights monitoring and reporting and involve them in the development of policies and auditing.
- Include human rights supply chain due diligence requirements in all trade agreements.

- Enact effective legislation to ban goods made using forced and child labour, including provisions for remediation and disclosure requirements on all levels of suppliers.
- Protect human rights defenders.
- Reform EU Conflict Mineral Regulation to cover more minerals and close loopholes.
- Adopt a revised Energy Efficiency Directive with ambitious targets (at least 14% from 2020 levels by 2030) for lowering energy consumption.

3.4.2 Recommendations for industry

Mining:

- Commit to reduction in use of virgin raw materials and full respect for human rights, including the right to fair pay and good working conditions, and environment in the supply chain.
- Develop, implement, and report on sustainability strategies.

Manufacturing:

- Commitments to reduce use of virgin raw materials and fully respect planetary boundaries across the supply chain.
- Provide more information on energy and raw materials used in products including their packaging to reach consumers.
- Public commitments to shift product design to prioritise longevity, enable repair and facilitate reuse and recycling.
- Make public commitments to embrace due diligence beyond tier 1 and strengthen supply chain transparency.
- Publish due diligence action across the supply chain.
- Develop, implement, and report on sustainability strategies.

Recycling:

- Offer customers and clients repair, reuse and recycling options and services based on clear and realistic commitments backed up by funds that will remain available even if the company is no longer in operation.

Corporate Policy:

- Map and increase transparency of the electronics supply chain.
- Increase credibility of social audits through multi-stakeholder involvement; publish full audit reports and acknowledge that positive audit results do not equate to human rights due diligence.
- Strengthen human rights assessments of the supply chain using investigative approaches that fully respect the health and safety of workers, communities, and human rights defenders.
- Secure the expertise of relevant CSOs and individuals in human rights, intersectional identity and justice who are independent and can “speak truth to power”.
- Strengthen company human rights management systems, with continual participatory auditing, reassessment, and improvement, actively involving trade unions and CSOs, regular publication of audit results, and worker-led monitoring.
- Integrate the UN Guiding Principles on Business and Human Rights in company policies and implement them.
- Implement the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.
- Seek and follow authoritative country-specific guidance on human rights and business (e.g., from the Danish Institute for Human Rights).

- Publish plans to move to 50% renewable energy by 2030 in the EU, with targets for all stages of production (mining, smelting, transport of materials, manufacture) and to 100% by 2050 globally.

For a detailed recommendations for policy makers, industry and CSOs, please seen González, Schipper and Litvinoff (2023).

3.5 Conclusion

The roadmaps, and the targets and milestones that they entail, set out a path for achieving a sustainable future. The recommendations for policy makers, industry actors and CSOs are only successful if they come from a collaborative effort from all actors. The recommendations are not hierarchical either, they must operate in parallel, with overlap, as one set influences the success of the other. Some of the actions noted in the roadmaps are already underway. However, the RE-SOURCING Project team encourages all actors to be ambitious and to go further and faster!

In the next chapter, the report outlines some of the best practices by companies and CSOs and shows where they have gone further than their peers in implementing RS practices.

Suggested Readings from the RE-SOURCING Project

Renewable energy sector

Presentation: Click through the Roadmap to learn about Key Recommendations (download here)
Briefing document: Towards Responsible Sourcing – What's Next for the Renewable Energy Sector?
Report: Roadmap for Responsible Sourcing of Raw Materials until 2050
Roadmap Workshop – Presentations (download)
Briefing document: Roadmap Targets & Recommendations for Policy Makers – Renewable Energy
Briefing document: Roadmap Targets & Recommendations for Industry – Renewable Energy
Briefing document: Roadmap Targets & Recommendations for CSOs – Renewable Energy

Mobility sector

Presentation: Click through the Roadmap to learn about Key Recommendations (download here)
Briefing document: Towards Responsible Sourcing – What's Next for the Mobility Sector?
Report: Roadmap for Responsible Sourcing for the Mobility Sector
Roadmap Workshop – Presentations (download)
Briefing document: Roadmap Targets & Recommendations for Policy Makers – Mobility
Briefing document: Roadmap Targets & Recommendations for Industry – Mobility
Briefing document: Roadmap Targets & Recommendations for CSOs – Mobility

Electronics sector

Presentation: Click through the Roadmap to learn about Key Recommendations . (Download here)
Briefing document: Towards Responsible Sourcing – What's Next for the Electronics Sector?
Report: Roadmap for Responsible Sourcing for the Electronics Sector
Briefing document: Roadmap Targets & Recommendations for Policy Makers - EEE
Briefing document: Roadmap Targets & Recommendations for Industry - EEE

4 Best practices in responsible sourcing

There are several reasons for businesses to comply with Responsible Sourcing (RS) standards and practices. The first and foremost reason is to meet legal obligations. For example, EU businesses which may have conflict minerals in their supply chains are required to comply with EU Regulation on Conflict Minerals that involves importers to adhere to the due diligence recommendations of the OECD Guidance (European Commission, n.d.). Reporting requirements are also emerging under regulations, such as the EU Non-Financial Reporting Requirements (European Commission, n.d.) necessitating companies to disclose information on their operations and management of social and environmental challenges. Most comprehensive and well drafted environmental legislation cover aspects of emissions, water management and protecting biodiversity. Tax laws are increasingly addressing transparency concerns, while labour laws will cover issues related to treatment of labour unions, minimum wage rates and gender equality.

Second, voluntary commitments by companies to international principles (such as the UN Human Rights Principles) or industry association standards (such as the Automobile Association) encourage compliance from their members. A business that has committed to sustainability and RS principles is deemed responsible to its shareholders to meet these commitments (Eccles & Klimenko, 2019).

Third, given the integration of firms within global supply chains, inclusion in these chains is becoming increasingly linked to compliance with standards set out by lead firms. For example, Apple publishes a list of cobalt refiners involved in its supply chain that have been verified by third-party auditors. Refineries that do not meet its standards have been removed from its supply chain (Kelly, 2019).

Fourth is the emergence of accessing finance based on RS performance. This refers to the standards being set by financial institutions as the basis of providing equity or debt financing for projects. These include the International Finance Corporation's (IFC) Performance Standards, The Equator Principles and The European Investment Bank's (EIB) Environmental & Social Standards for its funding (Crawford, 2021). Investors are increasingly moving towards not only setting sustainability standards for the projects they finance, but also withdrawing funding from companies that do not meet these standards. For example, the Norwegian Government Pension Fund withdrew its investments from Vale over its successive tailings dam failure in 2019 "due to an unacceptable risk that the company is contributing to or is itself responsible for serious environmental damage" (Freitas Jr. & Andrade, 2020).

As legal, industry and voluntary requirements for businesses to meaningfully adapt RS practices increase, the cost of non-compliance can impact a firm's ability to generate finance, meet customer requirements, access markets, and remain competitive.

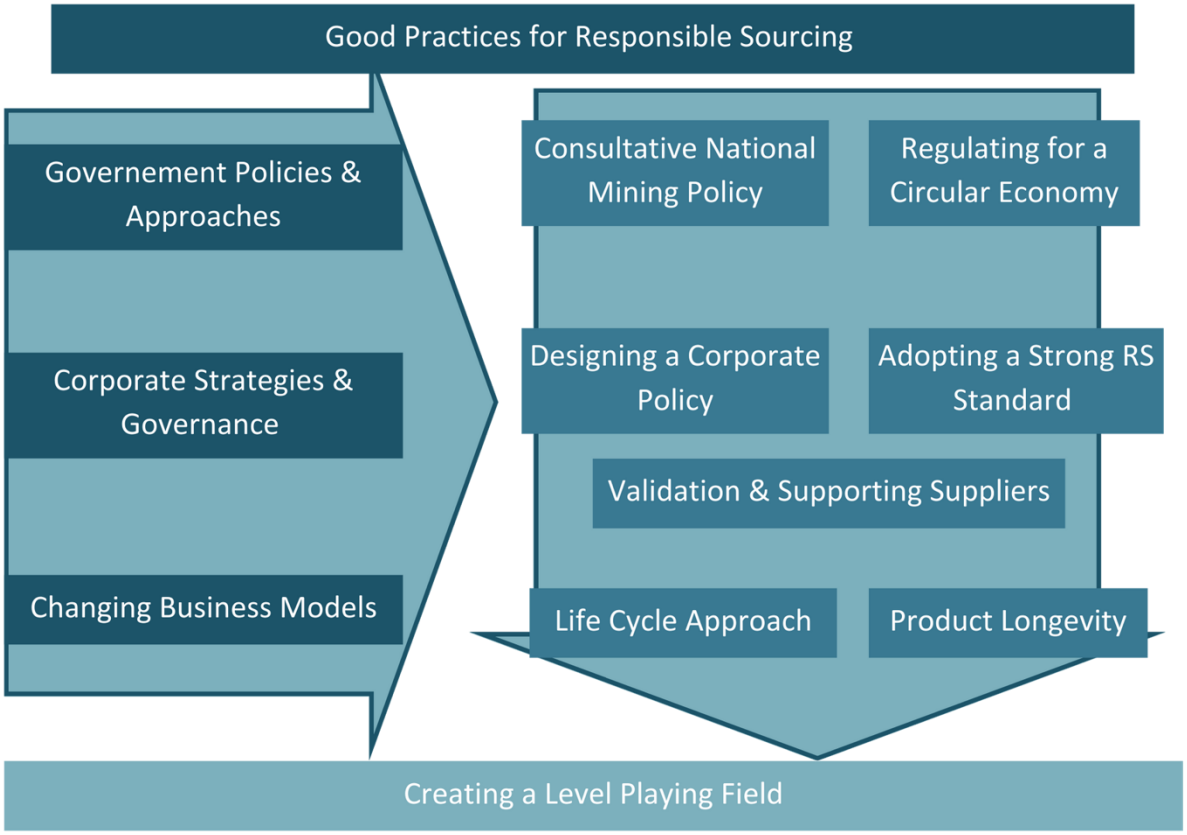
A business may choose to only commit to RS principles and not follow through in practice, may find its competitiveness lessened. Moving towards compliance and implementation is not an easy task in this still fragmented and evolving RS landscape. While guidelines and standards have been created, practices and reporting remain a key challenge for many firms.

4.1 How have companies responded to RS approaches?

Companies participating in mineral supply chains have been a major focus for the required changes in codes of behaviour, to secure a sustainable future. Large scale companies in the extraction and manufacturing and recycling sectors have been driven by internal and external factors to adapt their policies, operations, and supply chain management to reflect RS practices.

A part of the RE-SOURCING Project objective to promote a better understanding of RS practices was identifying good practice cases in three key transitional sectors in the EU: The Renewable Energy Sector, the Mobility Sector and the Electronics sector. The research team identified best practices in each sector, documenting these as Good Practice Guidelines. The synthesis report provides an overview of good practice recommendations (as illustrated in Figure 13) based on the major elements of the selected good practices shared in the sector guidelines. The report decontextualizes and condenses them to promote cross-sectoral good practice learning.

Figure 13 From good practices to creating a level playing field

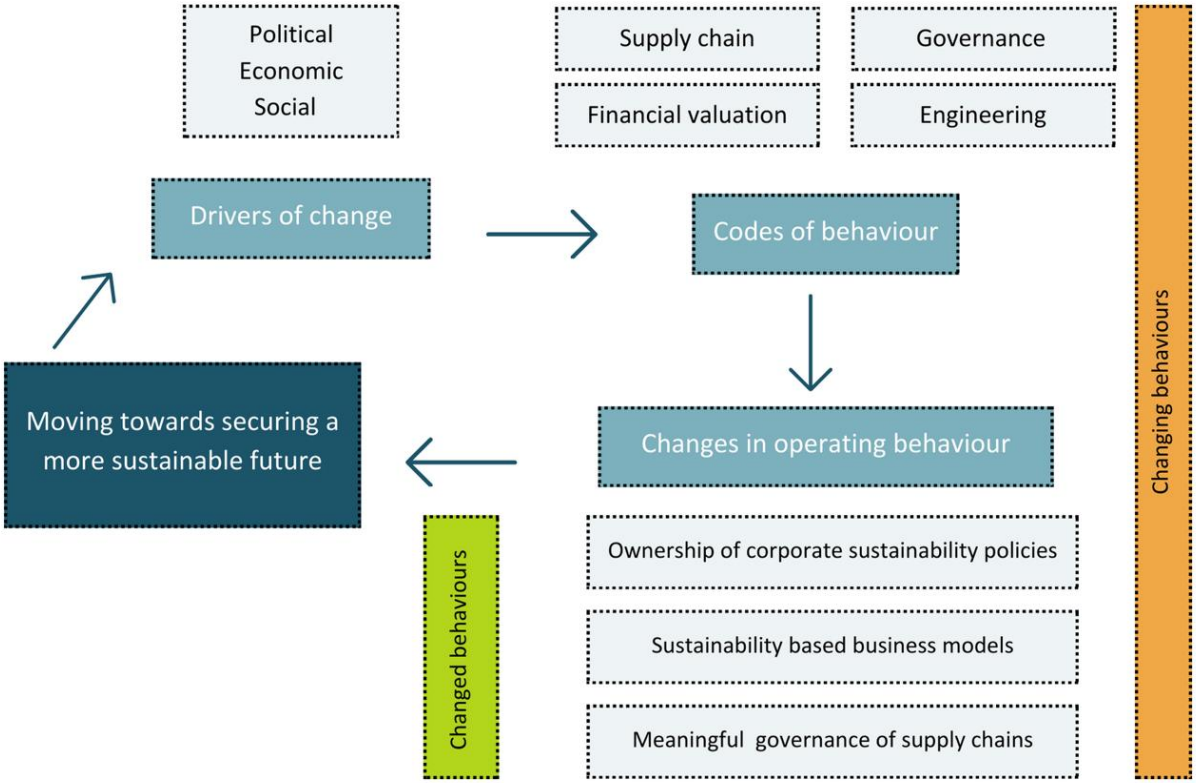


In this chapter, we focus on corporate practices, undertaken by European firms in the renewable energy (Farooki, Kügerl, & Barriere, 2021), mobility (Degreif, Betz, & Farooki, 2022) and electronics sector (Farooki, Gonzalez, & Schipper, 2023), to understand how firms have responded to the requisite RS demand[2]. This included extractive, processing, manufacturing, and recycling firms. Three common good practices are summarised here, with more detailed case descriptions available in the good guidance reports for each sector:

1) Taking ownership of corporate sustainability policies.
2) Moving towards resource efficiency and circularity-based business models; and
3) Undertaking meaningful collaboration along supply chains and industry clusters.

[2] For a broader coverage of case studies, please see Cross-Sectoral Good Practice Guidelines for Responsible Souring (2023)

Figure 14 Driving change in operating behaviour.



4.2 Taking ownership of corporate sustainability policies

A corporate sustainability policy outlines the firm's commitment towards sustainability and is seen as a precursor to executing a sustainability programme. The policy establishes the general principles and organisational structures that guide all business activities and responsibilities to shareholders and stakeholders. The RS approaches require businesses to incorporate environmental, social, and governance considerations in their operations, often outlining guidelines and standards they must respect. The translation of these 'external' outlines to 'internal' commitments are reflected in the corporate sustainability policy. Some firms that have only paid lip-service to sustainability commitments have been accused of 'green washing' (EBA, 2023). Other firms complain about challenges of too many competing requirements, causing confusion on what their sustainability policies need to incorporate (Murray, 2021).

RE-SOURCING Project research and consultations indicated that the firms that have done well on developing and implementing their sustainability strategies, have relied on both internal and external resources.

They recognised that the development of a clear sustainability strategy helps to align a company's internal efforts and bring different groups and departments on the same page. They also acknowledge that a sustainability strategy is becoming corporate standard and RS is not limited to the procurement departments. The engineering, marketing, production, and finance departments are increasingly equally involved in implementing sustainability policies. By committing to sustainability at the corporate level, the firm is communicating to all internal employees the objectives of the business – it is taking ownership.

A strong corporate sustainability policy is also used to communicate to external stakeholders the firm's understanding of RS opportunities and risks and how it will address them. Given that external

stakeholders have become a major force for corporate accountability, the corporate sustainability policy has become a tool to engage with these stakeholders.

Firms have also found that a strong sustainability strategy can become a competitive advantage. A cohesive policy indicates to shareholders, clients, and investors that the company has a credible, 'fit-for-future', strategy in place. A clear and transparent sustainability strategy reflects a company's compliance with national legislation and alignment with sector/industry standards. Such a strategy is also becoming a pre-requisite to attract investments, access certain markets and attract a skilled labour force. With future legal requirements for RS practices expected to become more stringent, early voluntary incorporation of RS practices signals to markets the firm's competence.

4.2.1 The development of a corporate sustainability strategy

The process for developing a strong corporate sustainability strategy is like any other corporate policy: It starts with creating a vision; setting goals and objectives; designing an implementation strategy and finally a reporting mechanism to measure performance. The difference from other corporate policy development is the factors under consideration are largely focusing on the firm's external impacts – such as carbon emissions, impacts on local communities, fair wage considerations, etc. The following outlines the main caveats of the best practice approaches used by companies in developing a corporate sustainability strategy.

Understanding RS to create a vision: Through internal and external consultations, the company articulated a sustainability vision which was clear and meaningful and did not rely on vague or overly ambitious sustainability terminology. Terminologies such as 'human rights', 'protecting the environment', 'safeguarding communities' were identified at a functional level of the operations of the firm. The company collected data and information at different levels of the organisation (from senior management to on-site workers) in understanding these terms and how they are applied. Thus, the process of creating a vision for sustainability started with the firm's own understanding of what sustainability entailed.

One aspect in creating this understanding was the use of a materiality analysis. The firm recognised that it had limited human, financial and other resources to devote to its sustainability approach. By conducting a materiality analysis, the firm was able to prioritise some issues over others, based on their importance to the firm and its stakeholders.

Defining RS objectives: Having understood what RS and sustainability meant for the firm, the next step was to access external expertise, to assist in defining the objectives to be achieved. Again, the effort was to move away from vague terminology and establish clear understandable objectives that were neither too open nor too narrow. Three key features were noted in the identification of these objectives:

1) Objectives outlined the individual steps or milestones of achieving an outcome.
2) Objectives were outlined after consultations with national authorities, CSOs and other stakeholders such as employees, business partners and specialized associations such as Responsible Business Alliance/Responsible Mining Initiative, European Partnership for Responsible Minerals, and Corporate Sustainability and Responsibility Europe.
3) Objectives were aligned with internationally recognised standards/approaches to sustainable business practices (UN Global Compact, OECD Due Diligence Guidelines) and industry standards.

Drafting a policy & setting target: Having defined the objectives, the next step was to create a set of guidelines and tools to govern and inform the employees about the actions required from them. The policies defined the scope of action and decision making as well as the role and responsibilities at different managerial levels. The policy development took a bottom-up approach for target and action

setting, with targets appropriate for each node of business operations. There was a clear understanding that the targets/actions were not required to be uniform across the business but reflect the context of the business node. Therefore, as required, they reflected quantitative targets (such as emission levels), qualitative targets (such as processes to be undertaken) and those requiring external validation of company performance (such as gaining and maintaining certifications). A second part of this target setting was identifying and providing the appropriate tools for employees, to achieve set targets and implement actions. The firm consulted existing external tools and templates produced by industry associations, CSOs and other think tanks before drafting them for internal use.

Reporting & communication on sustainability performance: The company focused on designing a clear communication strategy for its sustainability policy for both internal and external stakeholders. An internationally accepted reporting template (such as the GRI) was used. To strengthen the assurance of its reporting, the information was audited by an independent third-party.

As part of its communication strategy, the firm outlined the difference between its communication and its engagement strategy. Communication focused on content being delivered to a defined audience while engagement was considered as a learning and discussion process. Therefore, the communication strategy focused on defining what information the company wanted to convey and whether this was the information that stakeholders required. A second part focused on the process and means of communication, how the communication would take place. This could then feed into the engagement strategy with stakeholders.

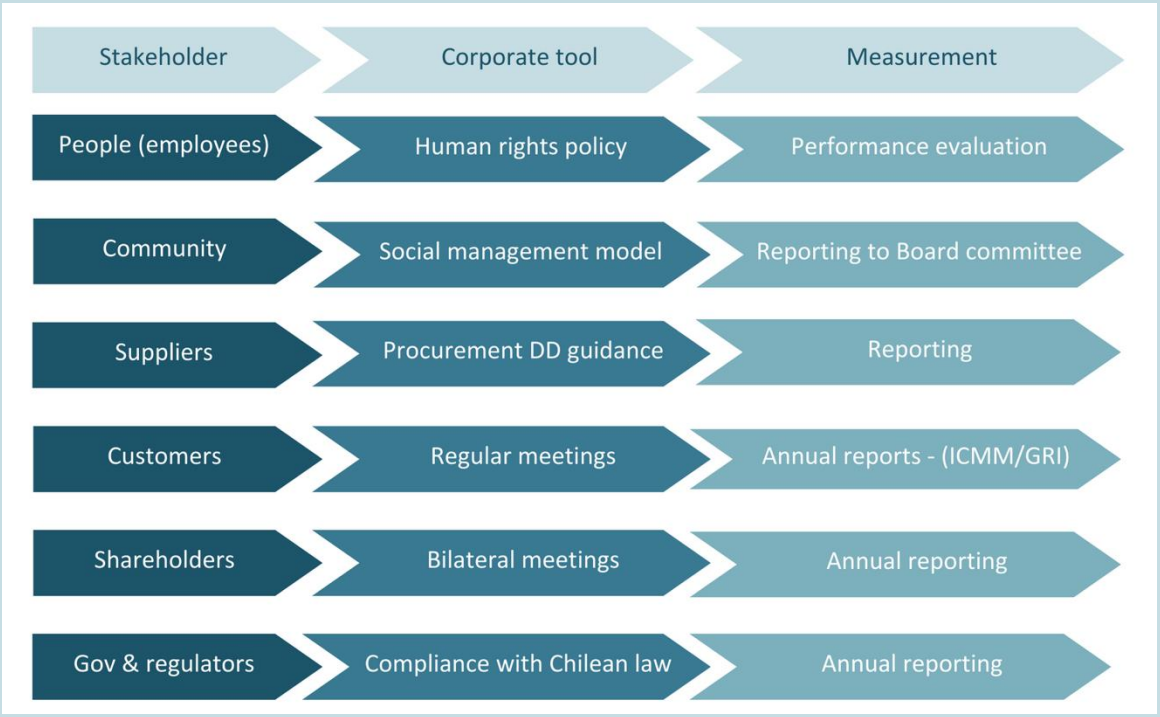
Case Study: Antofagasta mining company

Antofagasta is a major Chilian mining company, providing copper to a diverse international market, including European clients. The company developed a cohesive approach to address its sustainability commitments that encompass environmental, social, governance and economic standards. It developed an overarching sustainability matrix to focus its corporate sustainability strategy.

One approach in the development of this matrix was the identification of key stakeholders together with the tools to reflect their sustainability commitments and measuring their performance. The figure below summarises the strategy developed by the company. For example, in dealing with suppliers, the main corporate tool used was the procurement due diligence guidance, the results from which would be used for reporting purposes.

The importance of the matrix approach was connecting identified stakeholders, with the corporate tools and how measurement of performance would be undertaken.

Figure 15 Stakeholder mapping with corporate policy & measurement



For a more detailed discussion please see (Farooki, Kügerl, & Barriere, 2021)

4.2.2 Aligning with an internationally established responsible sourcing standard

For individual firms that are located upstream, designing a corporate sustainability policy was found to be largely limited to its own corporate structures. However, downstream firms, particularly lead firms, were noted to use established RS standards for their suppliers as a means for implementing a corporate sustainability strategy.

Lead firms, in responding to RS requirements, found they had several layers of suppliers, some not even visible to them at first instance (Betz, Degreif, & Dolega, 2021). In contrast, small and medium sized suppliers found that in providing goods and services to several clients, they were subject to a multitude of RS requirements, sometimes from entirely different industrial sectors. The practical implication of providing RS information across chains became extremely challenging for both sides.

To tackle this challenge, the RE-SOURCING Project noted the use of an international RS standard(s) by lead firms to standardise the RS requirements for their suppliers/clients in an effective manner. The

use of these international standards became part of the company's corporate sustainability policy. Large companies (whether manufacturing or mining) were able to communicate their corporate sustainability requirements through an established standard, while suppliers by meeting one standard were able to address multiple clients.

Such a strategy was only considered to be successful if a strong RS standard was chosen. While there can be multiple characteristics that defines a strong standard, RE-SOURCING Project found three elements to be essential:

1) The standard is based on engagement and a seat at the table with local stakeholders such as workers and communities.
2) The standard includes mandatory transparency of the audit and results for public disclosure; and
3) The standard is based on a consultative approach to corrective actions required from suppliers.

For lead firms, selecting a strong standard came with its own challenges, given the number of options available (Degreif, Betz, & Farooki, 2022). The lead firm based its choice on identifying a standard that was best aligned with its own sustainability strategy and was advanced enough to be embedded in its processes.

Most lead firms found that a single standard was unable to achieve this, as none covered all issues in complex supply chains. For example, promoting use of recycled material was addressed by one standard and raw material procurement by another. Certification schemes tend to be mineral specific, such as those for copper (The Copper Mark), aluminium (Aluminium Stewardship Initiative Performance Standard) and steel (Responsible Steel International Standard).

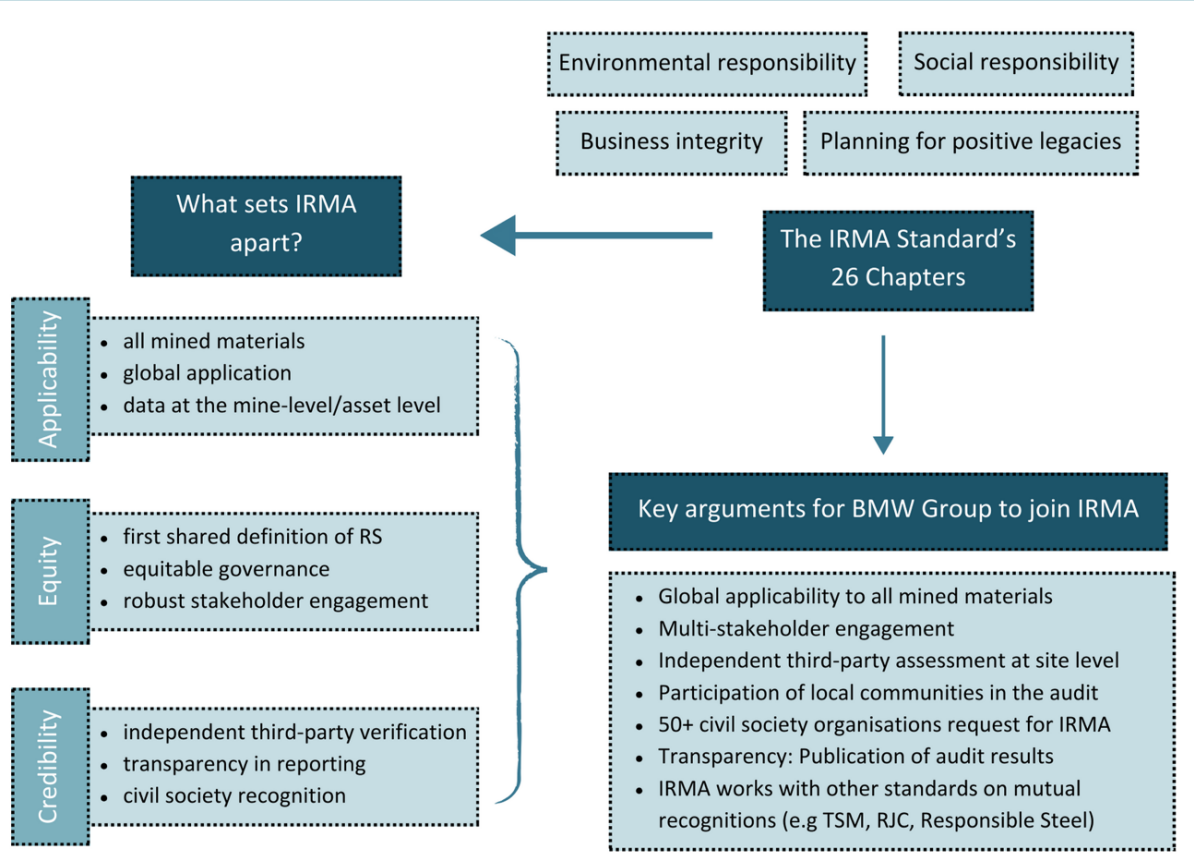
To address this, the lead firm undertook an internal due diligence exercise to benchmark different standards and certification schemes. A standard that offered greater coverage took precedence over others if the quality was otherwise equal. This benchmarking was not considered as a one-off proposition. With standards changing and evolving in scope and criteria over time, the company maintains a matrix of changes in standard compliance requirements.

Once a set of standards was internally agreed, the requirements were clearly communicated to the suppliers, starting from the pre-award stage. The company's purchase contracts, service agreements and code of conduct for suppliers included references to the selected RS standards. Where available, the reporting templates accompanying the chosen standards were also provided to the suppliers. Additionally, the lead firm began increasing awareness of their selected standard within the larger industry. It was hoped that as other lead firms selected the same/similar standard it would encourage compliance and greater uptake amongst their shared suppliers.

Case Study: IRMA Standard & BMW

The automobile industry has been criticized for not paying sufficient attention to environmental and social challenges in battery production with the transformation to e-mobility. To address this Automobile companies like BMW, Daimler, (2020), Ford and General Motors (2021) have joined IRMA, with some pledging to source from IRMA-certified mines (including in purchasing contracts).

IRMA offers a comprehensive global standard covering all industrial mined materials (except energy fuels) including social responsibility, environmental responsibility, business integrity and planning for positive legacies. IRMA was developed by including different stakeholders including NGOs and communities (equal voices) in a public consultation process and gives equal voice and vote to all stakeholders at the table.



For more details, please see (Degreif, Betz, & Farooki, 2022)

4.3 Business models improving resource-use efficiency & circularity

Most RS drivers have focused on improving the way minerals are extracted and processed in the supply chain. Within the RS agenda, we also find responsible practices that focus on the reduced consumption and resource-use efficiency (González & Schipper, 2021). This has led to several manufacturing companies to adapt their operating models to be more inclusive of circular and efficient resource-use business models.

The role of government policies in this has been central. For example, one of the strategic priorities in the EU's Green Deal Roadmap is to put industrial modernisation at the centre of a fully circular

economy. In addition, government policies looking at securing critical raw material supplies, also require greater recycling and circularity of these minerals, rather than reliance on virgin raw materials, to secure supply. Some of these policies are reflected in legislation. Under the EU WEEE Directive a recycling mandate exists in European member states. The EU legislation has set a recovery target of 85% and a preparation for reuse and recycling target of 80% for solar panels in place. In Switzerland, companies bringing batteries to market must either pay a fee to an existing recycler or organise their own recycling facilities. For the latter, companies in Switzerland must prove that they achieve an equal or even better recycling performance. The EU has a recovery target of 50% by weight for lithium-ion batteries (LIBs) in place (Degreif, Betz, & Farooki, 2022).

In response to increasing policy, legal and industry requirements for supporting the circular economy and resource-use efficiency, the RE-SOURCING Project noted the following best practice cases amongst EU manufacturing companies:

1) Using a life cycle assessment (LCA) business model.
2) Product designing to incorporate end-of-life management; and
3) Production aimed at increasing product longevity.

4.3.1 Life cycle assessment model & designing for recycling

The circular economy has gained traction over the last decades, with the EU setting ambitious goals to transition towards a circular economy (European Commission, 2020). Circular economy considerations, at the firm level, can be assisted by several approaches, one of which is the life cycle assessment (LCA) approach. The LCA assesses the environmental impacts of all stages of product manufacturing; from the supply of inputs to the production process and managing the product once it has completed its life cycle. Firms, pursuing a LCA based business model found they can meet the RS agenda on two fronts: 1) By lowering demand for virgin raw materials and reliance on non-EU regions for critical materials supply; and 2) Decreasing the waste and material in landfills.

In one of the LCA best practice cases explored by the RE-SOURCING Project (Farooki, Kügerl, & Barriere, 2021) , the firm had to fully understand the environmental impacts of its production cycle, from mine site to end-of-life. To do this it needed to identify and incorporate the following elements in its business model:

1) Material sourcing: Fully utilising the raw materials for the product.
2) Product design: Designing for high value recycling.
3) Manufacturing: Manufacturing with less energy, water and GHG emissions; and
4) High-value recycling: High material recovery rates at end-of-life.

As the first step in developing an LCA based business model, the firm found assistance in using eco-design process and environmental hotspot analysis for both the inputs for the product as well as where the product will be deployed/consumed. The analysis was able to indicate the more critical hotspots that could be linked to the material footprint of the product. A number of these hotspots were then addressed through extended producer responsibility and through implementing high volume recycling.

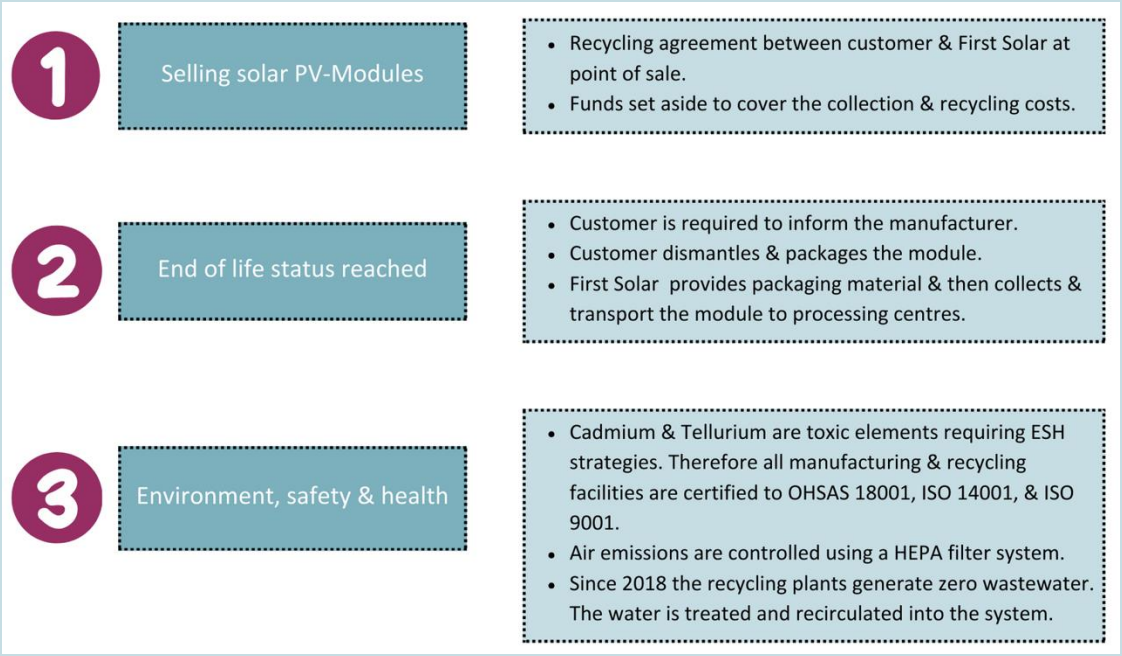
A second step was for the firm to consider lowering the intensity of primary raw material use by incorporating secondary materials in its manufacturing process. To achieve a reduction in primary material-use intensity, high recycling rates were required and hence the product design incorporated recycling. The manufacturing process was designed to incorporate recycled materials. To ensure the manufacturing process that relied on recycled materials feed was stable, the firm established its own commercial scale recycling facilities at their major manufacturing sites. To further improve their

environmental footprint, these recycling facilities generated their own renewable energy and the water used for the separation process was treated and reused.

One challenge noted in the recycling sector is the high financial cost of collection, transport, and recycling. To address this, the firm provides its clients two options at point of sale. The first allows the client to recycle the product themselves – under the specifications set by the firm. For the second, they can have the company recycle it. Under either choice, the firm offers its customers and clients fully costed recycling options, that are based on realistic and clear commitments and are backed up by funds that will continue to be available even if the firm is no longer in operation. Apart from financing, the firm has also put in place a process whereby the return of the product to the company is a manageable process for the customer.

Case Study: First Solar & Recycling as part of business model

First Solar is an American solar technology company with clients across the globe. It provides responsibly produced photovoltaic (PV) cells that are used to generate solar energy. As part of its offering, First Solar collects and recycles its solar PV modules at end of life, as part of its sustainable products strategy. It uses a pre-financing model, where the sums for recycling are set aside at time of sale. The products are recycled at First Solar sites and to achieve high recycling rates, design for recycling is considered in the product design and manufacturing processes.



For more details, please see (Farooki, Kügerl, & Barriere, 2021)

4.3.2 Increasing product longevity

One approach towards improved resource-use has been to extend the lifespan of a product, as the fewer new products manufactured - the lower is the use of virgin and recycled minerals. This was found to be particularly important in the electronics sector where new products are launched regularly, usually on an annual basis (González & Schipper, 2021). One firm approached the concept of increasing product longevity, starting at the design phase and carrying this throughout the life of the product. It identified three key product design requirements:

Reliability: The construction of the product needed to be robust, allowing for minimal damage in everyday use.

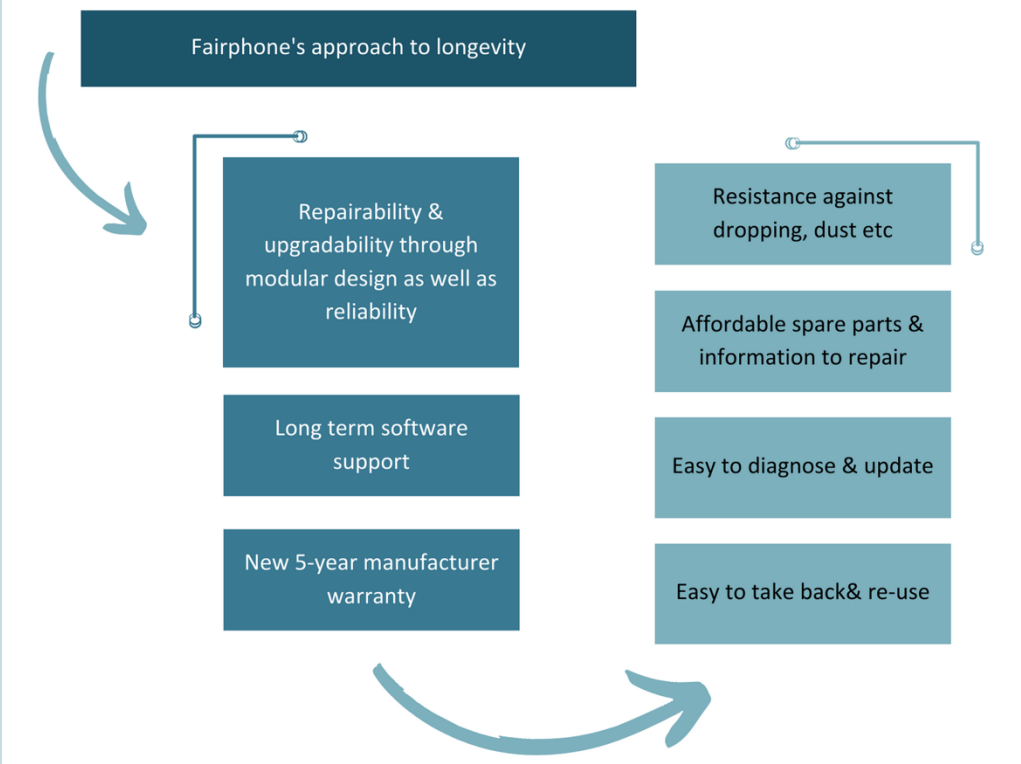
Diagnosis & update: A modular product design was needed, allowing for easier diagnosis of which component is failing. This allows for components to be replaced as needed and the entire product does not need to be replaced.

Affordable spare parts & repair services: When parts are to be replaced, the cost of the replacement is not prohibitive nor encourages consumers to buy new products. This can also be aided by providing a manufacturing warranty, to encourage users to repair rather than replace a product.

Case Study: Fairphone & product longevity

Fairphone was founded in 2010 as an awareness campaign about conflict minerals. By 2013, the organisation evolved from campaigning to manufacturing ethically sourced smartphones. In 2021, the company brought its fourth-generation smartphone to markets. The company believes that the longevity of a device is established by two principles: First is the attitude of the consumer towards the device; Second is the consumer's trust in the provider of the device. Based on this, the philosophy of the company is to produce an electronic device, that creates a positive impact on four areas: fair materials; fair factories; longevity and take-back of electronic waste.

Figure 16 Fairphone's approach to creating product longevity.



For more details, please see (Farooki, Gonzalez, & Schipper, 2023)

4.4 Strengthening oversight & governance within supply chains

RS practices have called upon lead firms to improve the oversight and governance of their supply chains. The ignorance of human, social and environmental rights abuse because it occurred 'elsewhere' is no longer considered acceptable. This created several challenges for lead firms, as they had multiple tiers of suppliers, often located in jurisdictions around the world. However, stakeholders

felt that with the power held by lead firms, they are ideally placed to 1) Increase the uptake or RS practices across the sector; and 2) Create a level playing field within the supply industry such that a minimum (higher) RS practice standard could be met.

Given the complexity and numerous tiers of suppliers, this was a challenging task. In the research and consultations under the RE-SOURCING Project, two approaches were identified under best practice:

1) Procurement companies came together to establish a supplier assessment system, operated, and administered by a neutral third-party; and
2) Civil society led monitoring and validation for procurement contracts.

Both approaches have three common elements:

1) The use of an independent third-party to determine the RS practices.
2) A range of assessment mechanisms to monitor and report RS performance.
3) Instead of a pass/fail audit approach, use assessments as a diagnostic tool to plan and implement corrective actions.

4.4.1 Shared supplier assessments for multi-sectoral lead firms

One best practice approach noted in the RE-SOURCING Project was for lead firms to share their resources and collectively agree on the RS practices to be addressed within their supply chains. This was implemented by creating a single initiative that would, through a consultative process, formulate an assessment criterion for suppliers and conduct assessments on behalf of all parties. Where required, it would also work in improving the practices of suppliers that failed to meet the set standards. For multiple sector supply chains, for example those that feed into the renewable, chemical and infrastructure sectors, where multiple sector standards exist, a combined approach was found to capitalise on economies of scale.

The firms involved found that with limited cross-sector equivalence across RS schemes, compliance and resource efficiency could be improved by designing a systematic RS assessment tool, such that all involved actors could benefit from a streamlined and standardised process. Centralising the assessment process and sharing results amongst lead firms carried an economic advantage rather than each individual firm undertaking an assessment exercise with its suppliers. It also reduced the administrative burden for individual businesses, while providing third-party assurance for sustainability performance. The suppliers are also reported to find this more beneficial, as being part of one assessment scheme allowed them to access a larger pool of potential customers.

The initiative was started by consultations with peers to establish the needs of the lead firms. Part of the consultation was done through existing industry alliances and chambers as well informal conversations with procurement managers from other firms. A working group was formed to discuss ideas and take decisions on next steps.

The working group identified several third parties that were assessment specialists within their sector and had the experience in auditing and assessing suppliers in their industry. These potential suppliers demonstrated capacity in carrying out standardised assessments and had the administrative capacity to construct and manage a large supplier database. It was important that the database was hosted by a third-party to ensure protection of commercial interests and avoid any conflict of interest between the assessors and the suppliers being assessed.

Once the appropriate party had been selected, the working group began to identify and prioritise the assessment criteria, informed by their own internal reporting requirements as well as compliance requirements of the external standards they were committed to. The key in drafting these performance indicators was to take a balanced approached, such that it would not become

burdensome for the suppliers to follow. This was done by classifying some indicators as essential and others as optional. The working group also built a process by which the assessment criteria could be revised as required, in response to changes in legislation or RS programme compliance.

The working group then moved towards agreeing on assessment mechanism that included options for self-reporting, audits, and equivalence to existing certifications (such as ISO certificates). The working group also needed to agree on how these assessments would be analysed, ensuring that the audit did not take a pass/fail approach, but work towards creating corrective action plans and increasing supplier compliance with the performance standards.

Various options were considered for funding the initiative, such that a financial burden was not borne by either the lead firms or the suppliers to be assessed. This included looking at establishing the initiative as a not-for-profit entity. In the end, a combination of funding options was used, with suppliers paying part of the cost of assessment and lead firms paying a membership and usage-based fee. Another approach to sharing costs was to increase the number of firms joining the initiative. Both formal and informal communication channels were used to encourage suppliers and other firms to join.

4.4.2 Civil society driven monitoring

A second approach documented by the RE-SOURCING Project was where lead firms collaborated with civil society led programmes. One good practice focused on empowering the workforce to drive compliance by employers on worker rights (Farooki, Gonzalez, & Schipper, 2023). Led by an independent entity, it supported buyers to safeguard and improve worker rights and working conditions in their supply chains. The not-for-profit entity moved away from social audits and third-party verifications and certifications, instead putting workers at the centre of the monitoring and remediation process. The approach works on two fronts: 1) It allows workers to raise issues and violations faced in their workplace; and 2) moves towards a collaborative process to address and remedy these violations. The approach has found to be successful as it focuses on the betterment of working conditions and not just reporting challenges faced by the workforce. The continuous monitoring methodology employed provides for long term worker rights and protection systems to be established and a compliance mechanism for the lead firm to monitor its suppliers.

A second approach, also led by a civil society organisation, worked with lead firms that operate in different industrial sectors, but source the same minerals. The focus is on driving responsible practices at the extraction level, regardless of which supply chain the mineral feeds into. By ensuring on the ground implementation of responsible practices, every supply chain benefits. To enact such change, the CSO identified, advocated, and worked with several downstream and upstream actors from the different sectors. On the ground, it is working with local mineral processors addressing on gradually closing the gaps between expected workplace standards and workplace practices (rather than focusing on audits alone). Using training and support to achieve these ends brings practical (and long lasting) impacts on the ground. The lead firms who are part of this collaboration, rely on the initiative to improve the conditions for workers in their supply chain, instead of approach the issue as merely one of compliance or certification.

Box 3 Civil society led responsible sourcing implementation.

Electronics Watch is an independent monitoring organisation, bringing together public sector buyers and civil society organisations in electronics production regions. The mission of Electronics Watch is to help public sector organisations work together and collaborate with civil society monitors in production regions to protect the rights of workers in the electronics supply chain. The aim is to improve industry compliance with relevant labour regulations and internationally recognised codes and workers' rights standards.

The **Responsible Mica Initiative** provides a supportive approach towards upstream suppliers as part of a holistic program to improve workplace conditions in the mica supply chain (mining and processing) and to eradicate child labour. It does so by developing a holistic approach to improve working conditions and eradicate child labour. It uses a multistakeholder approach at the local level to work on formalisation of the mica industry. Additionally, it uses a block chain traceability tool, develops workplace standards specifically for mica processors and training materials and local staff for support.

4.5 Conclusions

In the research and consultations on best practices adopted by companies, the RE-SOURCING Project noted several common aspects in firms successfully adapting RS practices:

Clarity of objective is paramount: For the successful implementation of RS practices by a business, it is fundamental to have clear objectives of what the company/entity wants to achieve. These objectives should reflect the company's agenda and therefore be managed and formulated internally. This does not mean that external guidance should not be included, but the good practice cases point to an internalisation of the importance of RS, which is translated into company objectives. Companies that try to adopt external objectives without internalising them, will not take ownership of the RS process they initiate and hence success will be difficult.

Incorporate & use external guidance where appropriate: In the past decade, a large volume of guidance material in the shape of standards, guidelines, sustainability principles and reporting templates have been developed by technical experts, industry associations, civil society actors and governments. Those wishing to develop and refine their RS approaches should take full advantage of this expertise. While some stakeholders have raised the issue that there are too many guidance documents, both in terms of the number of standards and the number of issues to be covered, looking at established and upcoming externally developed RS approaches nevertheless saves resources.

Assigning responsibility for decision-making & actions: The decision to implement RS approaches must be taken at the highest level, usually the Board of Directors for a company. However, once the decision has been made, the responsibility for developing and implementing these approaches must be conveyed and assigned to all members of the organisation (including its sub-contractors). The best practices cases identified in this project assign the responsibility across the organisation. Those companies who only discuss RS at the senior level, without involving mid-level, junior-level and front-line workers run the risk of implementation failure.

Designing the right tools: Successful firms have given due consideration to the tools they provide their stakeholders in implementing RS practices. Sincere objectives but faulty policy hinders implementation. Best practice tools are cognitive of the firm's resources (human and financial) its operating context and environment. Designing complicated policies without the processes or tools to implement them leads to failure.

Reporting templates & processes should be well designed: With the growing demand from clients, investors, CSOs and communities, the RS performance needs to be reported. The more standardised format these reporting takes, the better the firm can communicate its commitment to RS. Reporting & communication are not considered an after-thought in the corporate sustainability strategy but considered when objectives are being designed. Successful companies also consider how progress and achievement of RS objectives will be measured and reported.

Communication strategies are important: Communicating what the firm wants to achieve, why and how they are pursuing RS agendas is important. Communication strategies on RS practices are most

successful when they target the correct audience in a meaningful manner. Bad communication strategies lead to labels of 'greenwashing' and promote mistrust among stakeholders. Too much emphasis on narratives and not on evidence can also cheapen the quality of communications. Successful firms consider their communication strategy at the same time as designing their RS objectives and reporting mechanisms.

Stepping away from silos in designing practices: One common theme noted across the best practice cases is a holistic approach to sustainability and RS. None of the best practice cases exhibit compartmentalisation – a focus only on the environment or on community issues. RS is an overarching agenda, and the approaches need to step away from silo thinking. While individual objectives and actions can focus on particular issues, the successful approaches were wider and illustrate inter-connectivity of processes and topics.

While different companies are moving at different paces to address climate change and sustainability issues, it is important to recognise that they are all moving in the same direction. RS approaches ingrained in business practices are becoming more common. While initially successful RS approaches may set a company apart, in the medium term these approaches are expected to become normal operating procedures. The better the uptake of RS practices, the more level the playing field.

Another factor impacting the creation of a level playing field is the uptake of RS practices in different countries and regions. In the next chapter, the report outlines how RS and sustainable development is understood in different regions, depending on their challenges and priorities.

Suggested Readings from the RE-SOURCING Project

Report: Cross Sectoral Good Practice Guidelines for Responsible Sourcing

Report: Good Practice Guidance - Renewable Energy Sector

- Coherent Sustainability Approach for an Extractive Company: Design, implement and report through a cohesive corporate sustainability approach.
- Using a Life Cycle Assessment Business Model: Develop a business model based around LCA, such that recycling, and EoL issues are incorporated from the design phase of the product.
- Supplier Assessment Through Shared Resources: Capitalise on the economies of scale by using a shared supplier assessment mechanism through an independently operated database.
- Consultative Approach to Designing National Mining Policy: Develop a consultative approach that takes stakeholder view- points into account before the drafting process begins.

Report: Good Practice Guidance Electronics Sector

- The Responsible Mica Initiative case shows how lead firms can sup-port improvements in working conditions for upstream supply chain workers.
- Electronics Watch brings together public-sector buyers, CSOs and human rights experts to support public buyers in following up contractual obligations with suppliers through worker-driven monitoring.
- Based on the smartphones designed and brought to market by Fairphone, the case examines personal electronic devices that create longer lifespans by relying on both product durability and consumer trust.

Report: Good Practice Guidance Mobility Sector

- Overarching regulation for a circular economy: Create an overarching legislative binding framework by implementing a law at the highest level. Combine different interests and create political support by using sustainability as a competitive advantage.
- Implement a circular economy for batteries: Include re-buying as part of the product offering and ensure the return and reuse of products.
- Chinese policy approach to sustainability: Policy promotion of sustainable practices in the LIB value chain e.g., through including measurement of performance as part of standards and taking lead in

5 Global perspectives on responsible sourcing

One of the key objectives of the RE-SOURCING Project was to engage with international stakeholders to foster the application of the RS concept in global agenda setting. Although the RS agenda is being commonly addressed by several global initiatives and institutions, its concept and implementation remains fragmented. This stems from the fact that these actors focus on different aspects of RS; some focus on governance, others on the environment; while still others on supply chain due diligence in general or on commodity specific approaches. They operate at different levels of complexity, reporting and operationalisation, and their engagement with varying stakeholders is not consistent across initiatives[1].

In pursuit of an effective dialogue around challenges associated with the implementation of RS practices in Latin America, Sub- Saharan Africa and China, the RE-SOURCING Project strategically built an open and balanced multi-stakeholder engagement process in each of these regions. Our understanding of stakeholders' priorities and challenges and how this influences RS approaches are summarised here.

5.1 Latin America

Latin America is an established producer of several Critical Raw Materials (CRMs) essential for a green transition involving the clean energy, mobility, and electronics sector. It can build on its well-established mining sector, which currently accounts for 40% of global production of copper and 35% of the world's lithium (Bernal, Husar, and Bracht 2023). It has also the potential to diversify into new minerals and help the global economy avoid the shortfalls and bottlenecks that could threaten a green transition. However, to tap on this potential, mining activities must adhere to high ESG standards and seek ways to generate tangible benefits for local communities. Priorities and challenges to allow for a sustainable mining future include a multitude of elements as discussed below.

5.1.1 **Challenges**

Latin America has seen a multitude of emerging initiatives to achieve sustainable development in the mining sector. On one hand side this is a positive trend, marking an increasing awareness and political will for RS policies. On the other hand, the Economic Commission for Latin America and the Caribbean (ECLAC) has raised concerns that the lack of coordination and divergent objectives of these initiatives could also be confusing and burdensome to the stakeholders and as such could become a hinderance in achieving these goals (Hoheisel et al. 2022). In addition, the Andean region, where the majority of copper mines are located, lacks infrastructure and national institutions that can provide accreditation and certification services. Furthermore, company reporting on sustainability is still voluntary, leading to different reporting metrics that lead to an inability to compare data and ESG performance (Hoheisel et al. 2022).

ECLAC has identified near-term challenges for the production of lithium that include regulatory delays for mine projects, inadequate infrastructure, and a lack of coordination in the lithium triangle (Argentina, Chile, and Bolivia). Special challenges were identified in establishing downstream value chains, a process exposed to fraught and further obstacles. This includes local technological production capacities that need to be developed and the lack of a large domestic market for batteries typically required for electric mobility and renewable energy.

5.1.2 Priorities

To tap the vast mining opportunities, future exploration projects would benefit from updated national geological surveys, as the current geological information does not always cover critical minerals related to the green transition (Bernal, Husar, and Bracht 2023). Although countries like Chile, Brazil and Colombia have made advances, more information alone will not be sufficient to trigger the investment needed to fully exploit these resources. Governments need to establish frameworks to attract increased investments in mining and processing activities, setting clear regulations, and creating incentives, while ensuring compliance with ESG standards.

Addressing the challenges described above, a key priority is to improve ESG performance in the sector, while maintaining existing production competitiveness. This is also to address the long-term complex issues, such as the water crisis in the region. For example, in the lithium triangle of Chile, Argentina and Bolivia, water scarcity is a particular challenge. ESG measures should be translated into comprehensive policies, new innovative business, and relationship models. Furthermore, supporting affected communities in their transformation and evolution are fundamental requirements for the Latin America mining sector (Hoheisel et al. 2022).

In Latin America, mining projects can face particularly strong opposition from local communities. According to the Environmental Justice Atlas (EJAtlas 2023), 45% of reported conflicts are located in Latin America, where activities are often located near sensitive and biodiverse ecosystems, many of which are home to vulnerable communities. Therefore, the strengthening of social capital and civil society trust in the mining sector, with focus on the local communities, is another key priority for the region.

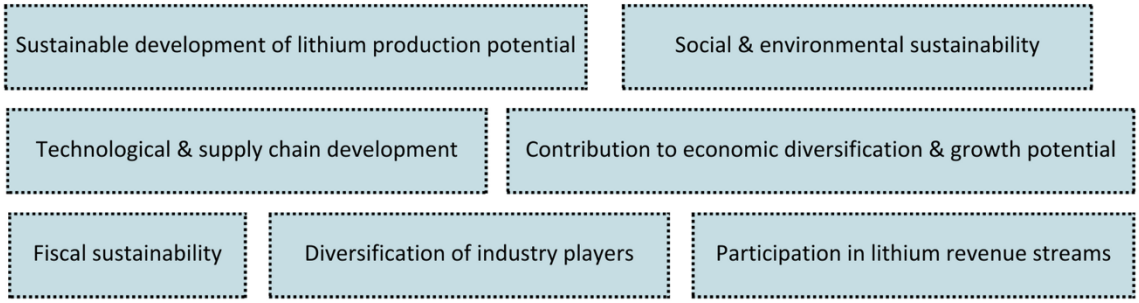
Related to sustainability standards, e.g., the government of Chile has acknowledged the need for driving forward digitalization and technological change to provide more robust and independent monitoring solutions, such as the use of mobile sensors or cameras that collect data and measure environmental impact (SONAMI 2021).

5.1.3 Good practice examples

An important recent development in Latin America, aimed at fostering responsible and sustainable mineral supply chains, is the Chilean National Lithium Strategy announced in 2023. This initiative has a primary goal of enhancing lithium production while concurrently addressing its environmental impacts, by fostering collaborations between the public and private sectors. More specifically, this strategy includes a comprehensive array of measures designed to integrate investment, advanced technology, sustainability practices, and value addition in the productive sector, all while maintaining a harmonious relationship with local communities (see

Figure 17).

Figure 17 The seven key objectives of the Chilean national lithium strategy



Chile National Strategy, 2023

With the promotion of public-private partnerships across the entire industrial cycle of lithium, the government aims to take a key role and stake in projects that are strategic for the country and be able to facilitate social equity and achieve economic development through fair distribution of revenue generated from lithium mining amongst its citizens (UNCTAD 2023). This strategy is in-line with the Chilean National Mining Policy (PNM) 2050, which envisions to establish the mining industry as a leading force for sustainable development in the country (NMP 2022).

On an industrial scale, large mining companies operating in Latin America are actively trying to comply with ESG best practices that have gained recognition in international markets, investors as well as local communities. For example, some of the large mining companies operating in Chile and Peru are members of the ICMM, IRMA, EITI standards and working towards meeting the requirements set by the LME Responsible Supply Chain initiative, The Copper Mark or GRI reporting standards. Several companies have tried to align with global objectives and principles for sustainable and responsible management of their activities in operating countries.

These initiatives include a range of actions, including establishing targets for incorporating renewable energy into their operations, effective water management, wastewater, and tailings, preserving biodiversity, engaging with local communities, and enhancing traceability efforts (Hoheisel et al. 2022). For example, in 2019, Antofagasta Minerals, a company from Chile, teamed up with various global mining enterprises to engage in the Blockchain Initiative for Mining and Metallurgy. Their objective was to create a platform that streamlines supply chain operations, enables traceability, and supports sustainable practices. In 2018, Codelco reached a notable achievement as the inaugural copper mining company worldwide to manufacture traceable cathodes. Moreover, they established partnerships with automobile manufacturers to advocate for sustainably labelled copper in accordance with the ISEAL guidelines (Hoheisel et al. 2022).

Given the importance of the ASM sector in Latin America, several initiatives have focused on improving RS practices for this sector. Among others, the Fairmined standard and certification scheme, established in Colombia (2014), can be mentioned. The Fairmined label guarantees that the gold originates from artisanal and small-scale mining organizations that adhere to the Fairmined standard. This label ensures that the gold has been extracted in a manner that respects nature, upholds human dignity, promotes sustainable development, and actively contributes to improving lives within these mining communities (FAIRMIND, n.d.).

5.2 Africa

Mining is one of the most important industries in Africa, being a key contributor to the GDP in various countries (Awases et al. 2023). Africa produces more than 70% of the world's cobalt, 60% of manganese, 34% platinum (USGS 2023), 25% of bauxite, nearly 15% of copper and a significant portion of graphite (Coetzee et al. 2023). Africa's overall share in global export of minerals containing CRMs of strategic importance to the EU for a green transition is so far limited. Though, Africa clearly is at the cusp of a generational opportunity to capitalize on the growing demand for these materials. Just as these raw materials are essential for the development of the EU, they are equally essential and even more so for Africa, considering the development needs of the continent. To ensure that the continent can benefit from the opportunity, it is important that the sector is aware of its priorities and challenges as summarized below.

The African Union (AU) formally adopted the Africa Mining Vision in 2009 (African Union 2009). It represents an African continental policy instrument made operational through national actors, policies, and mechanisms. An individual Country Mining Vision is the paramount instrument through which countries align their mining laws and policies to the tenets of the Africa Mining Vision.

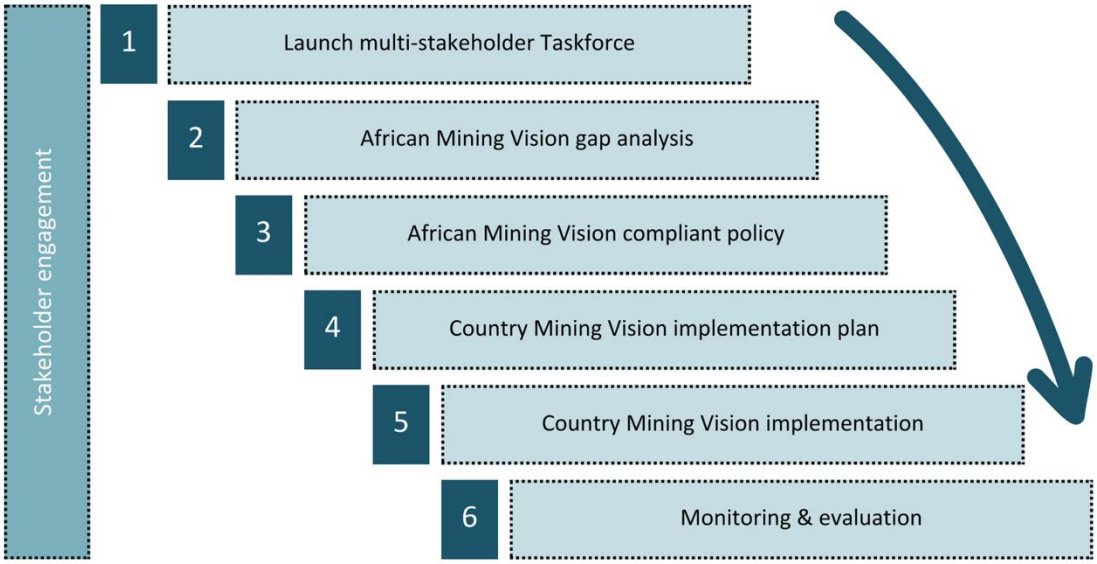
5.2.1 Challenges

Since 2009, when the AU formally adopted the African Mining Vision (AMV), there has been considerable progress in advancing its implementation throughout the continent. The weaknesses in the governance of Africa's mineral sector, however, have served to undermine the continent's aspirations for peaceful and inclusive societies based on the prudent and sustainable use of mineral resources (African Union 2017). New policy frameworks on national and local level must provide the right framework conditions to operationalize ESG initiatives effectively and sustainably. This requires a common understanding of the environmental and social impacts of mining operations; the economic impact on the continent; and needs to address the increased demand for supply chain transparency and sustainability. One of the key challenges to this is how to get from commitments to action. Trustful and transparent collaboration has proven to be challenging, but will be required with industry players, local governments, their supply chains, and even across industry. "If the mining sector, communities, supply chain and governments work together, the outlook for the industry on the continent will be bright" (Coetzee et al. 2023).

5.2.2 Priorities

Since the adoption of the AMV in 2009, two important support tools have been published, meant to set and implement priorities for African countries, namely "A Country Vision Guidebook" (AMDC 2014) and the "African Minerals Governance Framework" (African Union 2017). While the guidebook provides clarity and direction for the design and implementation of Country Mining Visions (see Figure 18), the framework has been designed to deepen the commitment in responding to the specific challenges facing Africa's mineral sector and serves as a monitoring and accountability tool to determine national progress with the transformative ambitions of the Vision. More specifically, these national policies aim to disrupt conventional silos and encourage connections between traditional institutions overseeing the extractive sector and those responsible for infrastructure, industrial development, agriculture, trade, education, research and development (Pedro 2016).

Figure 18 The African country mining vision process according to guidebook



Source: Africa Mineral Development Centre (2014)

The framework is structured around six thematic pillars, which can be read as the priority areas for the development and implementation of Country Mining Visions:

1) Develop legal and institutional framework for contracts and licensing with the aim for greater transparency in licensing and management of mineral rights.
2) Provide a geological and mineral information system to support comprehensive knowledge of geological and mineral endowment, leading to broad-based development.
3) Implement fiscal regimes and revenue management to optimize the share of revenue accruing from mineral resource extraction.
4) Allow for linkages, investment, and diversification, to spur a knowledge-driven minerals sector that is a key component of a diversified, vibrant, and globally competitive industrialized African economy.
5) Support artisanal and small-scale mining, with the objective of improving entrepreneurship in an environmentally and socially responsible manner, leading to sustainable livelihoods, growth, and development.
6) Address environmental and social issues, towards improved and sustainable quality of life for mining-affected communities and the country as a whole.

5.2.3 Good practice examples

As a follow up to the AMV, several relevant initiatives were developed at the continental and national level. For example, in 2013, the African Minerals Development Centre (AMDC) was formally launched to coordinate and oversee the implementation of the AMV and to translate its objectives into practical solutions. Furthermore, AMDC supports AU Member States in implementing the AMV, identifying gaps and areas of needs; and provides expertise, technical support, and guidance. This is done through the development of the Country Mining Vision and the supporting guidelines as mentioned above.

In line with the strategies being developed in other regions and countries, relevant African institutions[3] are currently developing an African Green Minerals Strategy. One of the key pillars of the strategy is to "promote mineral stewardship to responsibly guide the environmental, social and governance aspects of green minerals, together with increasing materials reuse and recycling" (ADB 2022). Alongside this strategy, several regional and national bodies are focusing on adopting mineral beneficiation-oriented policies as a method for achieving structural transformation (Mamina, Maganga, and Dzwiti 2020). As an example, under its Value Addition and Beneficiation Strategy, in 2022, the Ministry of Mines and Mining Development of Zimbabwe banned the export of unprocessed lithium to other countries and has required foreign investors to dedicate part of their investments to establishing and improving mineral processing and beneficiation capacities in the country (ZELA 2023). The effectiveness of such strategies needs to be further investigated.

At industry level, many large mining companies active in Africa have recognized the need for more accountability in their operations and have been trying to comply with ESG best practices by following international standards and initiatives such as the ICMM, IRMA, EITI, and ILO.

Considering the **key role of the ASM sector in Africa**, several initiatives have specifically targeted this sector and its key challenges. These issues are grouped into five main categories including lack of access to mineral rights, access to capital, access to market, technology and skills, and institutional support (Ledwaba 2017). The Artisanal Gold Council (Artisinal Gold Council, n.d.), ITSCI scheme (ITSCI, n.d.), and the Great Lakes Region's Mineral Certification Framework (BGR, n.d.) are some of these initiatives. The latter is a government led scheme against the illegal exploitation of natural resources

[3] The African Minerals Development Centre (AMDC), the African Legal Support Facility (ALSF), the UN Economic Commission for Africa (UNECA) and the UN Development Programme (UNDP)

and consists of related elements such as formalization of the ASM sector; a regional mineral certification mechanism; the EITI standard; a database on conflict mineral flows; a whistle blowing mechanism; and the harmonization of relevant national legislation across the Great Lake region (BGR, n.d.). Given the complexity and diversity of the sector, a coordinated and integrated approach including government departments and other relevant supporting institutions, is required to promote and develop the sector (Ledwaba 2017). One important fact about these initiatives is that in the absence of sustained public funding and efficient community development programs, the potential for scalability and sustainability of these initiatives is uncertain (Mancini et al. 2021).

Regarding the financial sector, the **African Tax Administration Forum (ATFA**) launched The Future of Resource Taxation project in 2020. This project seeks to rethink the financial gains that developing nations can derive from their mineral resources. It aims to foster a specialized conversation among governments, civil society, and industry, encouraging the exchange of ideas on enhancing the existing mining taxation system and discovering novel fiscal strategies. These approaches are designed to help resource-rich countries optimize their mineral wealth returns.

South Africa's Carbon Tax Act (2019) is another good example in this direction which is based on the polluter-pays-principle and helps to ensure that firms and consumers take these costs into account in their future production, consumption, and investment decisions. Furthermore, many companies in South Africa are reported to follow the IFRS (International Financial Reporting Standards) Accounting Standard and the IFRS Sustainability Disclosure Standards as well as the TCFD (Task Force on Climate Related Financial Disclosures) requirements. In response to increasing interest from the investors, the Johannesburg Stock Exchange (JSE) developed the Sustainability Disclosure Guidance and the Climate Change Disclosure Guidance[4] that provides guidance on topics that are essential for sustainable and responsible functioning of capital markets. Many large mining companies operating in SADC (South African Development Community) region are reported to follow and subscribe to these initiatives.

5.3 China

China is a major player in global mineral processing and currently controls most global Critical Minerals mining and refining. Crucially, it controls much of the world's EV battery manufacturing, as well as the manufacturing of wind turbines, solar panels, energy storage, and transmission, among other applications (Castillo and Purdy 2022). Currently, the world is highly dependent on sourcing from China to advance the energy transition and meet decarbonization goals. However, China still depends on securing raw materials from abroad. Chinese companies have increasingly invested in mining assets in developing countries as well as in other mining countries like Canada and Australia, hitting a record high in 2023.

China's investment in the sector includes copper, lithium and nickel projects, highlighting intensifying efforts by Chinese companies to secure access to key resources amid forecasts of booming long-term demand as the world fights climate change (Financial Times 2023).

5.3.1 Challenges

Due to the immensely large domestic mining industry one of the main challenges is addressing severe environmental damages and impacts on the traditional social functioning of local communities (Zhou et al. 2021). Another major challenge is related to the large number of small to medium scale mines. These lack the technical and financial capacity to improve their performance, often struggling with high production costs (Li et al. 2017). Little information is available for the ASM sector in China.

[4] This guidance document is specifically tailored to South African Context

Assessments in the early 2000s estimated near 4.3 million employees in the ASM sector, representing almost 55% of the total workforce in mining (Shen and Gunson 2006).

Given China's dominance in the Critical Minerals supply chains and its increasing investments abroad, related challenges are also associated with its mining activities abroad. In a recent report by "The Business & Human Rights Resource Centre" (BHRRC 2023), China has been associated with 102 violations over the past two years as the country extracts 'transition minerals' for green-energy technology abroad. The main affected countries, according to the report are Indonesia together with Peru, the DRC, Myanmar, and Zimbabwe. Most allegations involve human rights abuses against local communities, negative environmental impacts, and violation of workers' rights. It has to be noted that allegations of human rights violations, environmental harms and labour abuses are as much present in mining operations linked to Canadian, USA, UK, Australian and European companies and investors (Lakhani and Hawkins 2023). The findings just underline growing concerns that the green transition to renewable energy is repeating unjust business practices that have long dominated fossil-fuel and mineral extractions.

5.3.2 Priorities

To mitigate environmental pollution and control resource consumption, especially in the phase of fast economic development, China pledged to a series of rigorous environmental regulatory actions and goals at an early stage, where mining has been assigned a central role. For example, in 2010, the Ministry of Land and Resources launched the "green mines" standard and issued related guidance documents. The guidance document addresses both existing and new mines and aims to facilitate and improve the development of green mines (Dolega and Schüler 2018). Unfortunately, only scarce information is available in the English language, and only a few scientific papers by Chinese authors summarise the current status of the initiative and its requirements (Dolega and Schüler 2018). Other measures were introduced in the format of a "Guidance to Facilitate Development of Green Mines" and the "Strategic Alliance for Development of Green Mining" in 2017.

Related to the challenges of Chinas' foreign investment in mining activities and associated violations, it is important to understand that Chinese companies "do not inherently behave worse than their Western counterparts". As such a more differentiated debate on the topic is needed. Dolega points out that "the image of the sector needs to improve as a whole, regardless of the company's origins" (Dolega and Schüler 2018). Therefore, a key priority for China lies in a more collaborative approach relying on dialogue between all parties, sharing positive experiences and exchange of knowledge. China is also aware that compliance with in-country legislation only, is no longer the norm and that investors, lenders and consumers' requirements and expectations need to be met in a transparent way.

As a result, most Chinese mining companies, are working towards compliance with Good International Industry Practice (GIIP) – and this landscape keeps evolving, especially with the introduction of a range of lender safeguards, responsible mining and sourcing standards and improvements to international standards and guidelines (van Zyl and Jordaan 2023). Another priority is also seen to adapt to standards and frameworks relevant to the financial sector, such as the Equator Principles (Equator Principles Association 2020) and IFC Performance Standards (IFC 2012).

5.3.3 Good practice examples

The strong presence of China on other continents and more specifically in Africa's mineral supply chains and its role as an economic power in the region has led to many critiques related to socially and environmentally adverse practices (van den Brink et al. 2019; Buhmann 2017). In response, China has introduced several initiatives that could lead to improving its performance in RS of raw materials both at international and national level. Among others, two major initiatives developed by the China

Chamber of Commerce of Metals, Minerals and Chemicals (CCCMC) can be highlighted, the **Guidelines for Social Responsibility in Outbound Mining Investment** (2014) and the **Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains** (2015) (see Figure 19), which resulted from a close collaboration between CCCMC and the OECD.

The objective of these guidelines is to align Chinese companies' due diligence with international standards and allow for mutual recognition with existing international initiatives and legislation. The guidelines have a special focus on human rights (Buhmann 2017) and apply to all Chinese companies which are extracting and/or using mineral resources and their related products and are engaged at any point the supply chain of minerals. Companies engaged in the supply chain of other natural resources are also encouraged to use the guidelines as a reference.

One important aspect of the CCCMC guidelines is that it recognizes the key role of investors in contributing to local development and encourages them to deploy proper due diligence to ensure that companies within their investment chain conduct impact assessment and identify and effectively manage any harmful impacts (Buhmann 2017). While some critics question the effectiveness of these guidelines, pointing to their voluntary nature and underlying motivations (Buhmann 2017), these efforts have nonetheless been acknowledged as a significant step towards the RS of raw materials with the potential to kickstart the long-term integration of due diligence on an international scale (van den Brink et al. 2019; Dolega and Schüler 2018; Saegert and Grossman 2018).

Figure 19 The 5-step risk-based approach of the Chinese due diligence guidelines for responsible mineral supply chains

Source: CCCMC (2015)

Another important initiative developed by CCCMC and supported by OECD is the **Responsible Cobalt Initiative** (RCI) launched in 2016. The initiative aims at addressing environmental and social risks along the cobalt supply chain, increasing transparency, and improving supply chain governance. Furthermore, the initiative envisions to promote cooperation with the Government of the DRC and other involved stakeholders and develop an effective communication strategy to communicate progress and results to impacted communities and harmonize working objectives with other stakeholders (RCI, n.d.). Currently many international companies, from both up and downstream are implementing the RCI. Moreover, CCCMC has become a member of the Global Battery Alliance that addresses the environmental and social issues in the battery supply chains (Dolega and Schüler 2018).

Alongside these efforts, the Chinese financial industry has taken actions to enhance its global operations, emphasizing thorough management of environmental and social risks. Financial institutions are encouraged to actively consider the Equator Principles and other globally recognized

best practices. Moreover, numerous major financial institutions have established their own Corporate Social Responsibility (CSR) standards, aligning them with those of recognized international organizations such as the World Bank and International Development Bank (Dolega and Schüler 2018).

5.4 Why the global perspective matters

Mineral supply chains are inherently global in nature, and RS can only be achieved with a certain degree of mutual understanding, collaboration and a level playing field across all the actors involved. This interdependence underscores the importance of adopting a global perspective when addressing RS and sustainability issues. At a general level, there are three main dimensions on why the global perspective matters:

Global resource supply: As finite resources, supply disruptions in one region can have cascading impacts on global supply and production capacity. This has both economic and social implications and affects the speed at which clean energy technologies can be adopted around the world.

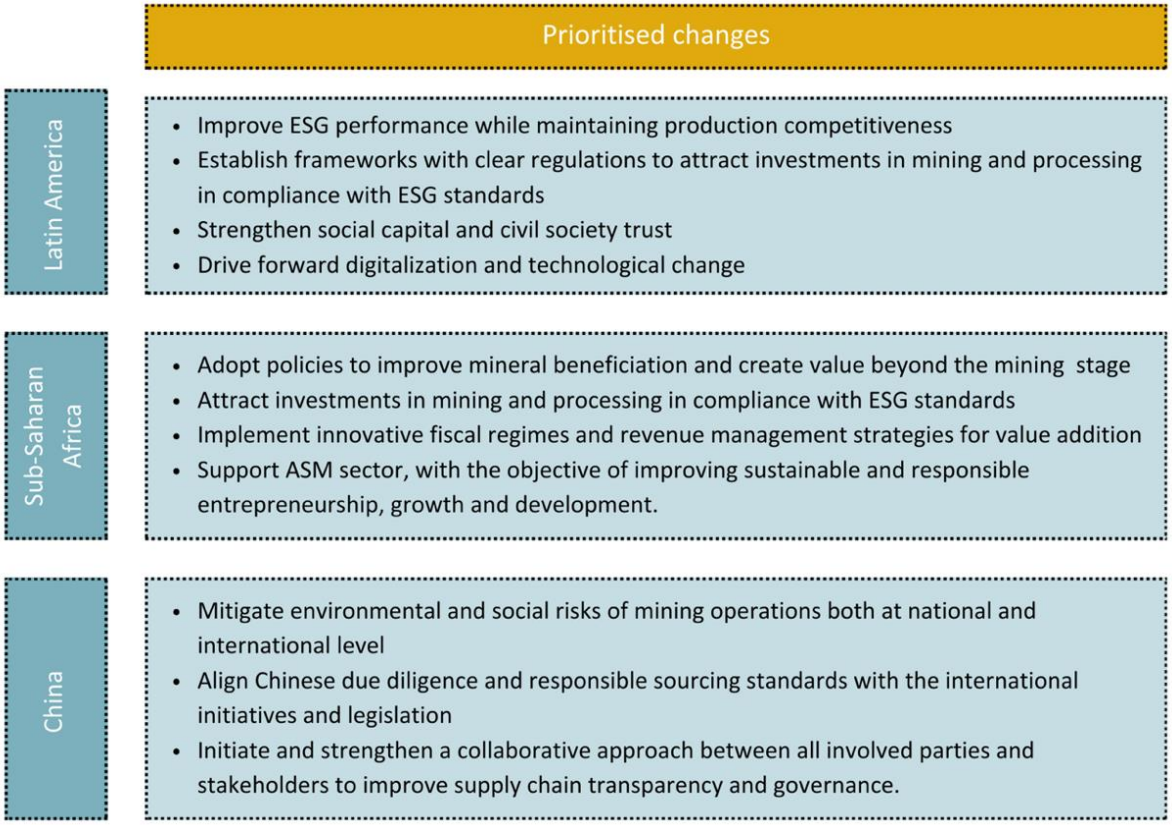
Environmental impact: Environmental challenges associated with mineral extraction and processing, such as carbon emissions, water pollution and biodiversity loss, go beyond national and regional borders. Solutions to these challenges require cooperation at the global scale.

Global demand and economic impact: The minerals industry is a significant contributor to national and global economies. Mineral supply chains play a pivotal role in the economic development and wellbeing of nations and continents. Countries reliant on mineral exports often face economic vulnerabilities when global demand fluctuates, impacting employment and livelihoods. This calls for a stabilisation of markets to ensure economic sustainability, including diversification of economies reliant on mining activities.

5.4.1 Common pathway, goals & objectives

Achieving sustainability in mineral supply chains hinges on the establishment of common goals, shared by local, national, and global stakeholders. These common objectives should serve as guiding principles to foster collaboration and drive RS efforts. What common pathways and goals can be noticed across the Latin American region, the African region and China (see Figure 20 for a summary).

Figure 20 Changes prioritised in each region.



Considering booming demand, the first priority for resource-rich countries is to leverage their mineral endowment to serve the economic and social development of the country. This involves the creation of economic value for the country, distribution to different segments of the population (e.g., via jobs along the value chain), and the attraction of domestic and foreign investments. Furthermore, in the case of resources required for key sectors as energy, electronics and mobility, an additional objective is to ensure that the national/regional supply can be also used to satisfy the domestic needs for development of these sectors. This last point varies depending on the degree of economic development and industrialisation already achieved.

An additional common objective which is becoming increasingly visible is the aspiration to contribute to mineral supply chains beyond the mining stage, going further downstream. While this is well developed in China, which is for instance a leading global manufacturer of clean energy technologies, the aspiration is far from being a reality in Africa and Latin America. Chinese refining, processing, and manufacturing capacity has actually increased thanks to its investments in mining in the African and Latin American continents. Despite different contexts, all the regions and countries state the same objective: Creating value beyond the mining stage. Further common goals include the attention towards job creation and infrastructure development in mining regions.

5.4.2 Divergence in responsible sourcing approaches and priorities

Divergences in how RS is understood, valued, and acted upon in Africa, Latin America and China depend on several dimensions that include those below. Table 4 provides a summary comparison of the three regions across these dimensions:

- Economic context
- Political and regulatory environment
- Environmental and social considerations
- International engagement
- Cultural and social factors
- International trade relationships

In summary, China, Latin America, and Africa exhibit distinct approaches, priorities, and challenges when it comes to RS. While all three regions share the overarching goal of balancing economic development with environmental and social responsibility, their specific economic contexts, political systems, market positions and institutional factors contribute to different approaches and pathways towards RS.

China's dominant market position in mineral supply chains, coupled with its rapid industrialisation and evolving trade agreements, makes it one-of-a-kind in the international landscape. Short-term economic gains may in some instances overcome social and environmental considerations, incentivising growth in mining activities domestically and abroad, without the urge to adhere to internationally agreed standards. Recent developments of well-established companies, however, show a moderate degree of increased engagement with international activities and standards. Lack of or fragmented information from mining operations in the country remains a challenge in a complete and transparent assessment of RS in China.

Both the Latin American and African regions show willingness to engage in international processes and contribute to the formulation and adoption of internationally agreed RS standards. This is often driven by the opportunities to attract foreign investments and access global markets for the export of mineral commodities. Furthermore, in both regions, different stakeholders, with civil society and local communities in the driving seat, have been advocating for RS practices and have contributed to the adoption of more stringent regulations and responsible practices.

Both in Latin America and Africa, however, implementation remains a challenge, requiring a strengthening of governance institutions and mechanisms to avoid negative social, environmental, and economic impacts. This also applies to the governance of the ASM sector, which provides livelihoods for local populations, but in many cases still lack adequate health & safety conditions, and institutional framework.

Table 4 Comparative regional context

Africa	China	Latin America
Economic Context		
Mining as significant contributor to many African economies Challenges such as resource dependency & efforts to diversify economies	Major global player in mineral extraction & processing Vast domestic mining industry & high investment capacity abroad Need for stable supply of raw materials to support rapid industrialisation & economic growth	Rich in mineral resources, mineral extraction plays a key economic role. Heavy reliance on minerals export, with vulnerability to market fluctuations Priority is to enhance long-term sustainability of mining industry
Political & Regulatory Environment		
Diverse regulatory landscape, from strong regulatory frameworks to governance failures impacting RS efforts	Centralised decision-making & regulatory control, with the authority to enforce policies & standards related to responsible sourcing.	Diverse regulatory landscape, some robust frameworks in place (e.g., Chile), while several countries struggle with enforcement due to political instability & corruption.
Environmental & Social Considerations		
Focal point for discussions about RS due to concerns about environmental degradation, social impacts & conflicts related to minerals.	Received widespread criticism for lax environmental & social standards. However, growing internal & global pressure to adhere to international RS standards.	Pressure from civil society organisations to adopt RS practices that prioritize environmental protection, social responsibility & community engagement (e.g., local & indigenous communities).
International Engagement		
Active engagement with international initiatives to promote RS & sustainable development in the mining sector.	Role as a global mineral supplier has led to international scrutiny of its sourcing practices. Growing interest from established companies to engage & adhere to international standards.	Engagement with international initiatives & organisations to demonstrate their commitment to RS & attract responsible investors.
Cultural & Social Factors		
Focus on addressing social & environmental concerns, especially in regions with large local communities.	Traditional values & the government's emphasis on economic development may sometimes prioritize short-term economic gains over environmental & social concerns.	Indigenous & local communities' values, along with concerns about l& rights & environmental impacts, can strongly influence RS practices in the region.
International Trade Relationships		
RS efforts often linked to international trade agreements, showcasing compliance with global standards to attract responsible investors & enhance trade relationships.	Bilateral & multi-lateral agreements & trade partnerships may influence its willingness to adhere to international standards.	Alignment of RS efforts with international trade agreements to gain access to global markets & enhance export opportunities.

6 Next steps and recommendations

The RE-SOURCING Project in its consultations and review noted the wide range and scope of RS approaches on 1) The challenges they address; 2) The pathways they choose; 3) The actors they target; 4) The processes they use and 5) The measurement of success they define.

Challenges: RS approaches identify challenges and negative impacts under environmental, social, economic and governance categories. Some approaches are focused on environmental impacts alone, whilst others combine environmental and social elements. RS approaches with more ambitious scope attempt to address all four.

Pathways: The pathways that RS approaches use to encourage the implementation of RS practices vary – some focus on advocacy campaigns, others work through collaboration in multi-stakeholder platforms to create guidelines or more stringent standards. Some focus on creating ESG related performance metrics and benchmarking to improve company/industry performance. Within these pathways, the transition from voluntary standards to mandatory regulatory and legislative requirements are gaining strength. Therefore, a variety of pathways to RS exist.

Actors: The stakeholders identified for RS practices also varies; some approaches focus on downstream actors and lead firms to enact change across their supply chains; others focus on individual nodes – such as extractive companies, or recycling companies. Some RS approaches consider the role of policy makers to be a priority, whilst others work with the most vulnerable upstream actors such as local communities and workers. In addition, some RS approaches are aimed at international actors whilst others can be very local and regional.

Process: The prescribed changes in behaviour by RS approaches differ – some require actors to change the process of how they operate; for example, including a Social Licence to Operate as a standard process in mining operations. Others require firms to change their business models; adapting a life cycle assessment approach rather than just focus on reducing GHG emissions. In general, RS approaches focus on some variation of reducing impact, creating net-zero impact or creating a net-positive impact.

Measuring success: One of the least well-defined areas is measuring the successful implementation of RS practices. Given the breadth of players and processes involved, this is challenging. Where there is no transparency, achieving self-reporting by companies can be considered successful. Where this self-reporting is based on an ill-defined template and the information cannot be verified, this can lead to accusations of green washing and a failure to implement RS. Some RS approaches take an audit approach, whilst others argue for a continuous monitoring mechanism. Performance is also being measured by ESG indices, which are not without controversy.

The term ‘herding cats’ comes to mind, when considering how RS approaches can be consolidated, given the above divergences. However, instead of approaching these individualities as challenges, they should be considered as opportunities - a guiding RS framework should accommodate rather than disregard the scope covered by RS approaches. Therefore, to establish a framework to guide RS approaches, the first step would be to identify the context in which such a framework would be used.

6.1.1 Setting context for a responsible sourcing framework

The first step is to acknowledge the context in which an RS framework will operate in. The following context setting statements were noted in the RE-SOURCING Project, and we acknowledge that these are not exhaustive:

1. Global mineral supply chains are themselves transitioning – moving from traditional models of operations to a new sustainability inclusive pattern of behaviour. This transition will take time and resources and will move at various speeds for different chains.
2. Minerals and metals are a resource for the current and future generations, as well as to be shared by generations across the Earth. These mineral resources are not limited to virgin raw materials, but also include recycled and recovered minerals and metals.
3. The benefits from mineral supply chains must be for the benefit of all and not the few - this applies within a region, country and between countries. This includes ensuring resilience in the benefits – at the first sign of political or economic global turmoil, the benefits should not be sacrificed.
4. While sustainability is best illustrated by the 17 UN SDGs, this concept will continue to evolve over time. Sustainability should not be understood as mitigating or annulling negative impacts only but also about creating positive impacts. Given the range of issues addressed under sustainability, the SDGs can have different priorities and meaning in different countries and for different stakeholders.
5. Prioritisation of sustainable development objectives must work in hand with harmonisation. Global implementation of RS requires a common understanding of 1) Grand societal challenges that can only be jointly addressed and 2) Commonly agreed basic frameworks and processes of how to understand and address the different priorities. Without such harmonization, RS implementation will struggle with scaling up and left to be managed by individual actors within global supply chains.
6. Any RS guidelines, standards or regulations that govern global mineral supply chains need to be clear, reasonable, and practicable. As these chains are a global phenomenon, the reasonability and practicable criteria may differ by country. However, this should not dissuade from establishing a level playing field for all actors.

6.1.2 Amalgamating existing responsible sourcing approaches

The second step is to acknowledge the contributions made by the plethora of existing RS approaches, some of which are already moving towards alignment and equivalence. It is practical to use their success factors to establish an RS framework – inventing a new wheel is of little benefit. In reviewing the RS standards and performance expectations for operators in the mineral supply chains, two success factors were noted. The first is that they recognise and address the issue of *power dynamics* between the strongest and weakest actors in the chain. This power largely stems from economic disparities between companies and investors and those impacted by their activities as well as power imbalances within local stakeholder groups. It also stems from geo-political disparities, largely resulting from the fact that mineral supply chains tend to start in developing countries and end in advanced economies (Degreif, 2020).

The second success factor is the approach defining *whose RS needs*. Given the global nature of mineral supply chains, the question of whose needs are reflected in RS practices is an essential one. Standards and performance metrics reflect the understanding and priorities of those who set them, even if these emerge from a multi-stakeholder process. The ability to enforce compliance with these principles is similarly linked to the capacities and jurisdiction of the standard setters. While there is general agreement for working towards a sustainable future, the pathways to this future are differently perceived across global stakeholder groups.

Given the context and principles of identification of power within chains, the next stage is identifying an existing framework principle, that could be adapted for constructing RS frameworks.

6.1.3 Adapting a rights-based approach

The sustainability discourse linking human actions with its impact on environment has been on-going since the 1940s (ADB, 2012). A major change in this policy discourse occurred in 1992 at the Earth Summit (UN, n.d.), where the focus shifted from a 'needs' to a 'rights-based' approach (Redclift, 2005). A Rights-Based Approach (RBA) considers 'All human beings are born free and equal in dignity and rights, and should be free to live their chosen life, thrive socially and economically, and participate in public affairs' (EC, n.d.). The UN SDGs reflect the realisation of these rights. Using a rights-based principle would allow future RS approaches flexibility on issues, actors, and processes to be included. It would not exclude or preclude existing sustainability concepts, such as planetary boundaries.

Keeping the requirements and limitations discussed previously in mind, using an RBA allows us to move from content-focused RS standards and addresses the power dynamics within the mineral supply chains. It highlights the duties of those who hold power to deliver the rights of those who do not. Given different states of empowerment and access to legal processes amongst rights-holders in different countries, the power dynamics between duty-bearers and rights-holders differ across the world. Therefore, the rights to be addressed by RS approaches should reflect the priorities and (empowerment) circumstances of the rights-holders. It remains for the duty-bearers and rights-holders to agree on pathways to delivering these rights.

6.1.4 Processes under a rights-based approach

The aim of an RS framework is to provide a common threshold for pathways and processes, that must be included in the RS approaches designed by organisations and policymakers. These pathways should be included when outlining RS standards, guidelines, best practices, and regulations. The RS framework proposes the following underlying principles as be part of any RS approach:

1) Meaningful and inclusive participation and equal access to decision-making.
2) Accountability and the rule of law for all; and
3) Transparency and access to information, supported by disaggregated data.

6.1.5 Actors under a rights-based approach

The RBA distinguishes three entities within its framework: Duty-bearers, rights-holders, and facilitators.

Duty-bearers are identified as those actors in supply chains that carry the obligation to deliver rights. These include actors in position of power such as extraction companies, smelters and refineries, manufacturers, and recyclers. A secondary set of duty-bearers include financial investors and governments. The RE-SOURCING Project has identified these as the two most influential entities that determine RS practices in mineral supply chains. Their obligations include protecting, promoting, respecting, and redressing violations of the rights of those impacted by their actions.

The **rights-holders** within mineral supply chains, are those impacted by the actions of the duty-bearers. These right-holders include impacted local communities and citizens, and those directly and through sub-contracts employed in mineral supply chains. We also include consumers within the rights-holder groups, as their consumption behaviour is impacted by the business and policy approaches undertaken by the duty-bearers. Depending on where they are located, the power available to rights-holders will differ. In regions of strong governance and legislation, they will have access to routes that allows them to influence decision-making. In regions of weak governance, the size of disenfranchised rights-holders will be larger.

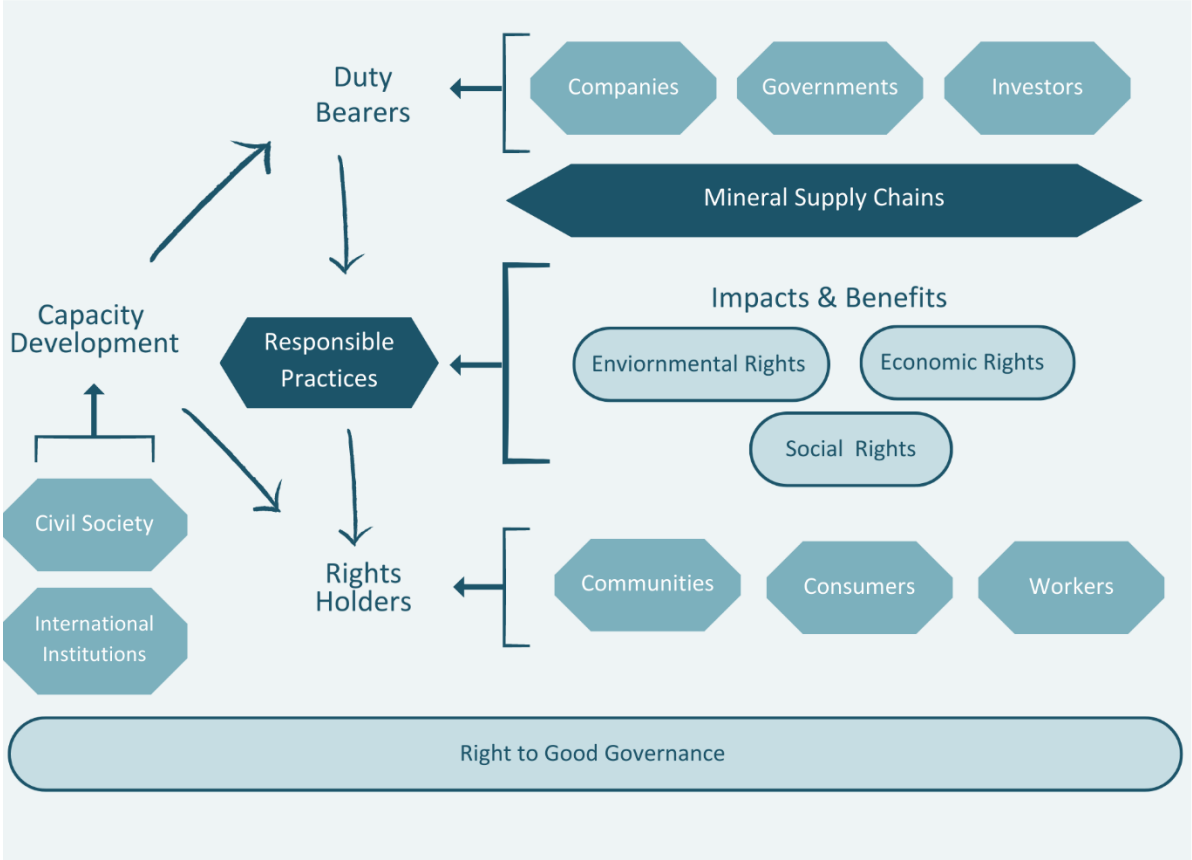
The **facilitators** form a third category that acknowledges the crucial role of Civil Society Organisations (CSOs) and international development organisations (such as the OECD, World Bank, GIZ) play in RS

approaches and practice. These actors build capacity for both the rights-holders and duty-bearers. This includes their crucial contributions and role in research, monitoring, communicating, and advocating, evaluating, reporting, certifying, and ensuring remedies are addressed by the duty-bearers.

6.2 A framework to construct responsible sourcing approaches

Taking these components, Figure 21 provides an overview of the RBA framework for mineral supply chains, indicating the interaction between duty-bearers and rights-holders and the use of RS practices to manage the impacts and benefits from mineral supply chains.

Figure 21 Rights-Based Approach to responsible sourcing in mineral supply chains



Companies, governments, and investors are identified as duty-bearers, whilst communities, consumers and workers are designated as rights-holders. These categories are not exhaustive and additional actors can be added to both. Similarly, civil society international development institutes are involved in the capacity development of both the duty-bearers and the rights-holders. Capacity development is used here as an all-encompassing term. It is meant to include awareness raising and advocacy, as well as monitoring and evaluation exercises. It allows for civil society actors to educate and campaign for better practices from companies as well as support local communities to rally for their rights.

Together, all three groups impact responsible practices that safeguard and promote the environmental, social, and economic rights of the disenfranchised. All these relationships are nested within the right to good governance, as the latter informs and supports all the other actors and processes in the RS ecosystem.

Based on this framework, the RE-SOURCING Project defined RS in mineral supply chains as a process where duty-bearers ensure policies, processes and compliance mechanisms exist to deliver the environmental, social, and economic rights, as prioritised by stakeholders who are impacted by the activities within a mineral supply chain.

The definition encapsulates two factors: First, it assigns responsibility for the delivery of responsible practices to include commitment and compliance (good governance) elements. Second, it supports the inter-dependence of environmental, social, and economic rights by indicating compliance is required with all three rights, caveated by the requirement that these should reflect the priorities of the rights-holders and not the duty-bearers.

It would be advantageous for stakeholders to have a common definition of RS as well as a RS framework to draft RS approaches. This allows for the same set of principles and parameters to be followed, regardless of the stage of the value chain or the geographical location of the operations. Alignment would be easier, where the underlying framework is comparable.

Those developing and refining their RS approaches can use the framework as guidance in outlining their objectives, processes, and achievements. It provides a scaffolding on which to build the details of their approaches, considering the power dynamics between the duty-bearers and the rights-holders. This underlying framework would be reflected in:

- National legislation and policy documents
- Worldwide corporate policy and behaviour
- National and international investor approach
- Consumer behaviour
- Civil society behaviour

6.2.1 Room for diverse pathways

Given the different priorities and challenges faced by different regions, the RS framework allows for diverse pathways to be undertaken. RS approaches, under a rights-based framework, can reflect the lead stakeholder priorities. The evolution of RS standards has also been noted to be 'Northern' centric, with many standards evolving from groups based in OECD countries. This is not to suggest that developing countries have not been invited to the consultation table, but that often the priorities set in these standards reflect Northern geo-politics and socio-economic cultures. For example, where standards are informed by largely European actors, these standards will include a focus on the use of green/renewable energy, while Asian standards will see a stronger weight on reducing their direct emissions to the environment or prioritise the improvement of socio-economic standards. Differences in regional priorities should be accepted, with each region supported in pursuing its own RS agenda. However, a rights-based RS framework is adaptable to incorporate this agenda, and still allow for alignment to take place.

A rights-based framework allows for the coordination (and perhaps consolidation) of various RS approaches, without losing their unique features. For example, some guidelines are general and refer to respecting human rights across the entire supply chain. Others can be very specific, such as those focused on community engagement protocols and requirements for obtaining a SLO. Instead of a hodgepodge of objectives and approaches, their intended impacts – the safeguarding or rights – can be aligned and incorporated together under a single RS approach/process.

This also holds true where the subject matter of these standards varies in coverage and depth. By coverage, we refer to the aspects of environment, economics, social and governance indicators they cover. By depth, we refer to applicability to primary actors, tier-1, tier-2 and so on. As each set of standards has a primary audience for its implementation, depending on the choice of the former, the

coverage and depth of the standard varies. While this was essential when RS standards were beginning to emerge, there is now the need to systematise this coverage. Using a rights-based approach allows these standards to be amalgamated under a uniformed approach.

With the uptake of RS practices by different actors, at different paces, some companies and countries are more advanced than others. Existing and future RS approaches will need to be flexible to ensure late starters are able to catch-up with frontier actors. Having a similar underlying framework can provide a pathway, where the speed of travel is different, but the pathway and destination are the same.

6.2.2 Where do we go from here?

The RE-SOURCING Project's objective was to consult, engage and conduct research for common narratives and practices across the plethora of RS practices in mineral supply chains. Based on its research and consultations, the project has proposed a framework that allows for aligning RS approaches and practices. It provides a starting point for companies, investors, governments, communities, and civil society actors to examine their existing policies, processes, and performance metrics to judge their performance on achieving responsible practices. The results of their assessment should indicate their strengths and weaknesses and areas where further capacity, policy and practices need to be developed.

The targets and milestones provided under the sector roadmaps provides direction for policy makers, industry, and civil society. Given the complexity of the supply chains feeding into these sectors, the RS challenge is not always simple to address. International cooperation and a globally agreed RS expectation is required in expanding practices beyond EU borders.

Pursuing international consensus in the form of collaboration and a common definition serves an important purpose; it helps creating a level playing field for RS compliant companies and countries that could otherwise be economically worse off compared to their non-compliant competitors. RS practices need not be limited to operationalisation by large firms alone. Medium and small businesses also need to have the capacity to meet such standards.

An international consensus on RS can also unlock the creation of enabling frameworks for firms, sectors, and industry. While larger firms may have the management and financial resources to pursue RS practices, medium and smaller firms may require more support in the uptake of these strategies. Aiming for a level playing field for businesses ensures that meaningful progress is made towards the global sustainability agenda, without compromising the competitiveness of firms.

Given how standards are implemented across value chains, actors in different countries (particularly non-EU countries), may require support in understanding and meeting such RS standards. Thus, there is a need for a better understanding the power relations, associated institutions and value systems that facilitate or block RS in the sustainability agenda. Much progress has been made on this front, but more remains to be done.

In conclusion, the RE-SOURCING Project underscores the common objectives of RS approaches while acknowledging the need for various pathways to address diverse challenges and engage different stakeholders. A common RS framework is essential to align practices toward sustainability goals and enhance responsible mineral supply chains across all sectors.

Annex: On-line Resources from RE-SOURCING Project

Video Title	Video Presenters/Participants	Sector
Responsible Sourcing for Sustainable Development: The RE-SOURCING Project Explained	André Martinuzzi (WU), Stefanie Degreif (Oeko-Institut), Patrik Nadoll (EIT), Alexander Graf (WU), Alejandro González (SOMO), Tobias Kind (WWF), Andreas Endl (WU), Annika Glatz (AHK Chile) Jan Rosenkranz (Lulea University), Masuma Farooki (MineHutte), Michael Tost (Montana University Loeben), Gerald Berger (WU), Veiko Karu (Talinn University of Technology) Mathias Schluep (WRF)	Cross Sector
RE-SOURCING Opening Conference 2021 - Drivers of Responsible Sourcing	André Martinuzzi (WU), Maija Luarila (EC DG JUST), Bruno Oberle (IUCN), Maruma Farooki (MineHutte), Andreas Endl (WU), Mark Dummet (Amnesty International), Emmanuel Umpula (AFREWATCH), Alexander Nick (BMX), Bardinath Veluri (Rare Earth Association), Tyler Gillard (OECD), Fiona Solomon (Aluminium Stewardship Initiative), Andreas Hoepner (University of Dublin), John Howchin (Swedish Pension Fund)	Cross Sector
RE-SOURCING Conference 2021 On the Road to Responsible Sourcing **Day 1** **Day 2** **Day 3**	Angela Jorns (Levin Sources), Telye Yurish (Terram), James Nicholson (Trafigura), Guy Muswil (Kamoa Copper), Jan Kosmol (UBA), Jane Joughin (SRK Consulting), Jorge Sanhueza (Codelco), Johanna Sydow (Germanwatch), Marie-Theres Kügerl (Montan University Loeben), Johannes Betz (Oeko-Institut), Jeff Geipel (Engineers without Borders), Amir Shafaie (Natural Resource Governance Institute), Jonas Astrup (International Labour Organisation), Sonia Valdivia (WRF), Tatiana Terekhova (UNEP), Susanne Karcher (African Circular Economy Network), Luca Marmo (EC, DG Environment), Martin Erkisson (Boliden) Pascal Leroy (WEEE), Olivier Groux (Kyburz), Thea Kleinmagd (Fairphone)	Cross Sector
RE-SOURCING Conference 2022 - Reality Check of Responsible Sourcing **Day 1** **Day 2**	Marie-Theres Kügerl (Montan University Loeben), Johannes Betz (Oeko-Institut), Cecilia Mattea (Transport & Environment) Richard Gloaguen (Helmholtz-Zentrum-Dresden-Rossendorf), Ahslin Ramlochan (Anglo America), Claudia Peña (International EPD System) Dániel Krámer (European Comission, DG Trade), Rafael Benke (Proactiva Results), Elizabeth Ana Bastida (University of Dundee), Rashad Abelson (OECD), Audrey Daluz (KPMG), Nathan Williams (MineSpider), Tanya Matveeva (KamniChain), Anna Stachner (Responsible Minerals Initiative), Niels Angel (BMW), Masuma Farooki (MineHutte), Amanda van Dyke (ARCH Emerging Markets Partner), Ângela Viana (VdA Vieira de Almeida), Andrew van Zyl (SRK Consulting), Mark Fellows (Skarn Associates)	Cross Sector
RE-SOURCING Closing Conference 2023		
Case Study - First Solar	Andreas Wade (First Solar)	Renewable Energy
Case Study - Chile's Mining Policy	Juan Carlos Jobet Eluchans (Minister for Mining Chile)	Renewable Energy
Case Study - Together for Sustainability	Jakob Smets (Together for Sustainability)	Renewable Energy
Overarching regulation for a circular economy that covers the entire product value chain	Cesar Santos (European Commission)	Mobility

Video Title	Video Presenters/Participants	Sector
Chinese standards: What can they achieve and where do they fail?	Masuma Farooki (MineHutte)	Mobility
Responsible procurement of minerals by using a strong standard	Rebecca Burton (IRMA), Claudia Becker (BMW)	Mobility
Case Study - How to implement a circular economy for batteries?	Olivier Groux (Kyburz)	Mobility
Case Study - Lessons from Fairphone's Longevity Score	Thea Kleinmagd (Fairphone)	Electronics
Case Study – Lessons from Electronics Watch	Björn Claeson (Electronics Watch)	Electronics
Case Study – Lessons from the Responsible Mica Initiative	Fanny Frémont (RMI)	Electronics
Case Study – Implementation of the Conflict Minerals Regulation	Marianne Moor (PAX)	Electronics
The Future of E-Mobility: Challenges & Solutions	André Martinuzzi (WU), Svetlana Ivanova (WU), Stefanie Degreif (Oeko-Institut)	Mobility
Unveiling the Feasibility of Renewable Energy Transformation: Possibilities & Challenges Explored	André Martinuzzi (WU), Michael Tost (Montan University Loeben), Marie-Therese Kügerl (Montan University Leoben)	Renewable Energy
Gain First-Hand Insight into Our Electronics Roadmap - A Comprehensive Video	André Martinuzzi (WU), Sabine Herlitschka (Infineon) Mariana Kovacic-Lukic	Electronics
Balancing Competitiveness and European Values in Chip Manufacturing	André Martinuzzi (WU), Sabine Herlitschka (Infineon)	Electronics
Building a Greener Future: Promoting Responsible Sourcing of Materials for E-Mobility	Patrik Nadoll (EIT), Julia Poliscanova (Transport & Environment)	Mobility
Leveraging the experiences of the automotive sector for responsible sourcing	André Ufer (EIT), Stefan Crets (CSR Europe)	Mobility
Shaping the Future of Mining: OECD Handbook on Environmental Due Diligence in Mineral Supply Chains	André Martinuzzi (WU), Sophia Gynch (OECD), Jan Kosmol (UBA), Rashad Abelson (OECD), Gudrun Franken (BGR)	Cross Sector
Africa: Vulnerable planet. Vulnerable people.	Leylia Mematso (Artisanal Miner), Jean-Claude Tshiwene (Artisanal Miner), Meschack Kabange (Artisanal Miner), Thabiso Macheoane (Large Scale Mining Stakeholder), Lungi Makgamatho (Large Scale Mining Stakeholder)	Cross Sector
From Africa – For Africa. Voices with solutions.	Georgette Barnes (Women in Mining Ghana), Shawn Paps Lethoko (National Association of Artisanal Miners), Giulio Airaga (DESCO)	Cross Sector
Africa: Already in my backyard - Voices of impact.	Georgette Barnes (Women in Mining Ghana), Thabiso Macheoane (Large Scale Mining Stakeholder), Johanna Mangoane (LIMPOPO)	Cross Sector

Video Title	Video Presenters/Participants	Sector
In pursuit of African Voices on Responsible Sourcing		Cross Sector

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