Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc

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1 Overview

The joint Due Diligence Standard for Copper, Lead, Nickel and Zinc (the Standard) was established by The Copper Mark, the International Lead Association (ILA), the Nickel Institute (NI), the International Zinc Association (IZA) and the Responsible Minerals Initiative (RMI) to enable responsible global supply chain management in the copper, lead, nickel and zinc industries.

The Standard takes into account the risk profile of copper, lead, nickel and zinc (the *principal covered metals*) supply chains and is designed to enable effective due diligence for producers and/or traders of these metals. It intends to build on existing standards and looks to provide flexibility for multi-metal producers to include *materials* intended for the production of *metal products* other than of *principal covered metals* at their site(s) as needed.

The development of the Standard was made possible by the financial and in-kind support provided by the International Copper Association (ICA).

1.1 Standard Objectives

The Standard was developed to:

1. Enable the implementation of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Guidance) for producers and/or traders of copper, lead, nickel and zinc.
2. Enable compliance with market entry requirements, specifically the responsible sourcing policy requirement for Brand Compliance, Track A, Recognised Alignment-Assessed Standard Track, defined by the London Metal Exchange (LME) for LME Brands.
3. Enable conformance with Criterion 31: Responsible Supply Chains, from *The Copper Mark Criteria*. The Copper Mark uses the criteria defined by the Risk Readiness Assessment (RRA) developed and maintained by the RMI.
4. Encourage *companies* to source responsibly from *Conflict-Affected and High-Risk Areas (CAHRA)* and to not categorically exclude *suppliers*.
5. Complement other third-party assurance programmes and allow for the recognition of other standards that have been found to be OECD-aligned.
6. Provide flexibility for multi-metal producers to include *materials* intended for the production of *metal products* other than of *principal covered metals* at their site(s) (*see Annex I: Guidance on Companies Producing Multiple Metals*).

1.2 Principles

The Standard requires *companies* to implement the five-step *due diligence process* defined in the OECD Guidance (*due diligence process*) and is built on the following principles:

- **Continual process:** The *due diligence process* is ongoing and implemented by *companies* proactively and in reaction to *changes of circumstances* and to *risks of adverse impacts* and *actual adverse impacts* as they emerge in the supply chain.
- **Good faith:** *Companies* make good faith and *reasonable efforts* in their implementation of the *due diligence process*, recognising and making accommodation for the differing size, complexity, circumstances, capacity, location, sectors and the nature of products or services.
- **Risk-based:** *Companies* are guided by their own risk assessments covering, at a minimum, the *risks of adverse impacts* listed in the OECD Guidance Annex II (*Annex II risks)*: serious human rights abuses, direct or indirect support to non-state armed groups, risks associated with the contracting of public or private security forces, bribery and fraudulent misrepresentation of the *origin* of *minerals*, money laundering, non-payment of taxes, fees and royalties due to governments. *Companies* are not precluded from including additional social, environmental, and governance risks in their *due diligence process*.
- **Proportionality:** *Companies* implement the *due diligence process* through measures that are commensurate to the severity and likelihood of the identified *risks of adverse impacts* and their ability to manage and mitigate such risks and *actual adverse impacts*.
- **Fit for Purpose:** The *due diligence process,* including the risk assessment, should be carried out with due consideration to the *company's* position in the supply chain.
- **Continual improvement:** The *due diligence process* is dynamic and *companies* progressively improve their due diligence activities and risk management performance over time, including through constructive engagement with *suppliers*.
- **Accountability:** *Companies* retain ultimate responsibility for the scope and quality of their due diligence activities, for the actions taken to respond to identified *risks of adverse impacts* and *actual adverse impacts*, and for reporting on the *due diligence process* undertaken in their supply chains.
- **Engagement:** Where *risks of adverse impacts* or *actual adverse impacts* are identified, *companies* are encouraged to engage with *suppliers* where consistent with the appropriate risk mitigation strategy, and exercise their *influence* over the *companies* that can most effectively and directly mitigate risks in their supply chains, as a way to catalyse positive change.

- **Inclusivity:** The *due diligence process* is global and implemented internationally by *companies* throughout their supply chains. Where *artisanal* and/or *small-scale mining* operations are identified in the supply chain, *companies* are encouraged to engage their *suppliers* to minimise the risk of marginalisation of the *artisanal* and *small-scale mining* sector.
- **Transparency:** *Companies* publicly report on the *due diligence process* undertaken in their supply chains, with due regard to *business confidentiality and other competitive concerns*.

2 Disclaimers

Assurance of this Standard does not result in a certification of the *material* assessed nor does it determine that the *material* is free of association with any *Annex II risks*.

The Standard adopts general terms relevant to the mining and metals industry. Please refer to the Glossary for the definitions and the Annexes for the specific industry terms in the copper, lead, nickel and zinc industries.

The Standard encourages collaboration between *companies* where doing so reduces risk, improves due diligence practices and increases efficiency. It is the responsibility of *companies* when working together to ensure compliance with all relevant antitrust and competition laws at all times.

The Standard's requirements stipulated in section 5.1.6. System of Control and Transparency do not preclude *companies* from establishing additional types of control and transparency systems or approaches, including *chain of custody* or *traceability systems*. In doing so, *companies* should take due consideration of the burden of implementation on all *suppliers* and ensure such systems do not exclude smaller *suppliers* from the supply chain.

3 Applicability/Scope

3.1 Companies Within the Scope of the Standard

The Standard applies to all *companies* extracting, producing and/or trading copper, lead, nickel or zinc (the *principal covered metals*) *materials* from mine sites, including producers of refined *metal products*, which are generally referred to as the *refiner*. For the avoidance of doubt, *companies* in the exploration phase are not covered by the Standard.

The Standard also applies to producers of nickel chemical compounds and all nickel raw *intermediate materials* (including ferro-nickel, nickel pig iron, and nickel oxide sinter) entering production of stainless steel, alloys, batteries, and plating, and where no refining takes place.

Conformance with this Standard is determined at the *site* level.

All *company* activities, policies, procedures and processes used to implement the *due diligence process*, including management systems, red flags identification, risk assessment, management of *risks of adverse impacts* and *actual adverse impacts*, and reporting are in scope for the *assessment*.

3.2 Materials Within the Scope of the Standard

The Standard covers all *materials* extracted and physically received, held, and/or processed at an in-scope *company site* during the *assessment period*, intended for the production of *metal products*.

Regarding *toll* agreements, all *materials* received under such agreements are included in the scope of the *assessment*.

Where the *site* extracts, receives, holds and/or processes *materials* intended for the production of *metal products* other than of *principal covered metals*, these can be included in the scope of the *assessment*.

Companies should note that there are existing or emerging standards designed specifically for several *metal products* and that may be applied to the *site. Companies* may refer to Annex I: Guidance on Companies Producing Multiple Metals for guidance on sites that produce multiple metals and the applicable standards.

For *materials* that contain multiple metals, those metals that are in sufficient amounts to have commercial value attributable to them can be included in the scope of the *assessment*.

For the avoidance of doubt, the following are not included in the scope of the *assessment:*

- *Other inputs* used at the *site*, such as chemicals, electrodes, energy inputs, industrial gases, lubricants and oils.
- *Material samples*.

The final determination of the *materials* included in the *assessment* scope will be agreed between the *Standard owner*, the *company* and the assessor. The scope applied for the *assessment* shall be clearly stated in the assessment report and any other communication on the *assessment* and its results.

3.3 Geographical Scope of the Standard

The Standard is global in scope.

4 Collaboration

4.1 Collaboration for the Implementation of This Standard

Where appropriate, *companies* may collaborate to implement one or more requirements of the Standard, as listed below. It is the responsibility of *companies* when working together to ensure compliance with all relevant antitrust and competition laws at all times.

Collaboration may include, but is not limited to:

- Establishment of a grievance mechanism (*see 5.1 Step 1 Criteria: Management System*).
- Implementation of systems of control and transparency, including facilitating the flow of information between *companies* along the supply chain (*see 5.1 Step 1 Criteria: Management System*).
- Desk research to inform the *companies'* identification and assessment of *risks of adverse impacts* and *actual adverse impacts* within specific red-flagged locations and/or the due diligence practices of any red-flagged *suppliers* (*see 5.2 Step 2 Criteria: Red Flags Identification and Risk Assessment*).
- On-the-ground assessments, where deemed necessary, to collect, generate and retain information on the circumstances of *minerals* extraction, *transport*, trade, handling, processing and export, where two or more *companies* may source from, or operate in, the same area and/or *site(s)* (*see 5.2 Step 2 Criteria: Red Flags Identification and Risk Assessment*).
- Recommendations for and implementation of a management plan to respond to *risks of adverse impacts* and *actual adverse impacts*, including the monitoring of *mitigation* measures (*see 5.3 Step 3 Criteria: Risk Management*).
- Independent third-party *assessments* at *identified points* in the supply chain (*see 5.4 Step 4 Criteria: Independent Third-Party Assessment at Identified Points in the Supply Chain*).

Companies' ways of collaborating on one or more of the activities listed above may include, but are not limited to, the following:

- Direct collaboration between two or more *companies* through the creation of joint teams of the *companies*' representatives, with due regard to *business confidentiality and other competitive concerns*.
- Collaboration through the joint appointment of a third-party entity.
- Engagement in, or support of, *Joint Initiatives* or *Institutionalised Mechanisms*, as appropriate, including the Copper Mark and/or other third-party assurance

programmes or initiatives recognised as meeting the principles and requirements set out in this Standard.

Companies involved in any collaborative activity shall review the results of the collaboration efforts and integrate them in their *due diligence process. Companies* remain responsible for the scope and quality of their *due diligence process* and should ensure that all joint work duly takes into consideration circumstances specific to the individual *company*.

4.2 Recognition of Other Schemes and *Assessments*

Other third-party assurance programmes may be recognised as meeting the principles and requirements set out in this Standard. Criteria for recognition include a review of the results of other third-party assurance programmes alignment assessment against the OECD Guidance.[1] Information and criteria on recognised programs can be found on the *Standard owner's* website.

Where a *company*'s *due diligence process* has already been assessed by another recognised third-party assurance programme, the *assessment* undertaken against this Standard will verify that the other *assessment* included the *materials* in scope as agreed in section 3.2 Materials Within the Scope of the Standard.

Where the *materials* in scope of the *assessment* have been included in the other *assessment*, the results of the other *assessment* will be recognised.

Where the *materials* in scope of the *assessment* have not been included in the other *assessment*, further *assessment* activities will be necessary to determine the full implementation of the *due diligence process* at the *site* undertaking the *assessment*.

Where a *company*'s management system and practices needed to meet the requirements of this Standard are applied across multiple *sites* of the *company,* and one of the *sites* has been assessed against this Standard*,* the parts of the management system and practices that are common across all *sites* need not be reassessed*.* Further *assessment* activities will be necessary to determine the full implementation of the *due diligence process* at the *site* undertaking the *assessment*.

[1] Alignment assessment against the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition as per the OECD Methodology for the Alignment Assessment of Industry Programmes with the OECD Minerals Guidance.

5 Conformance Criteria

The requirements defined in this Standard form the basis for an independent third-party *assessment* to determine the *company site*'s conformance with Criterion 31 of the RRA and the OECD Guidance, in accordance with the Copper Mark Assurance Process.

Conformance criteria for *recycling companies*:

Companies that receive, hold and/or process 100% *recycled material* inputs in the *assessment period* shall both:

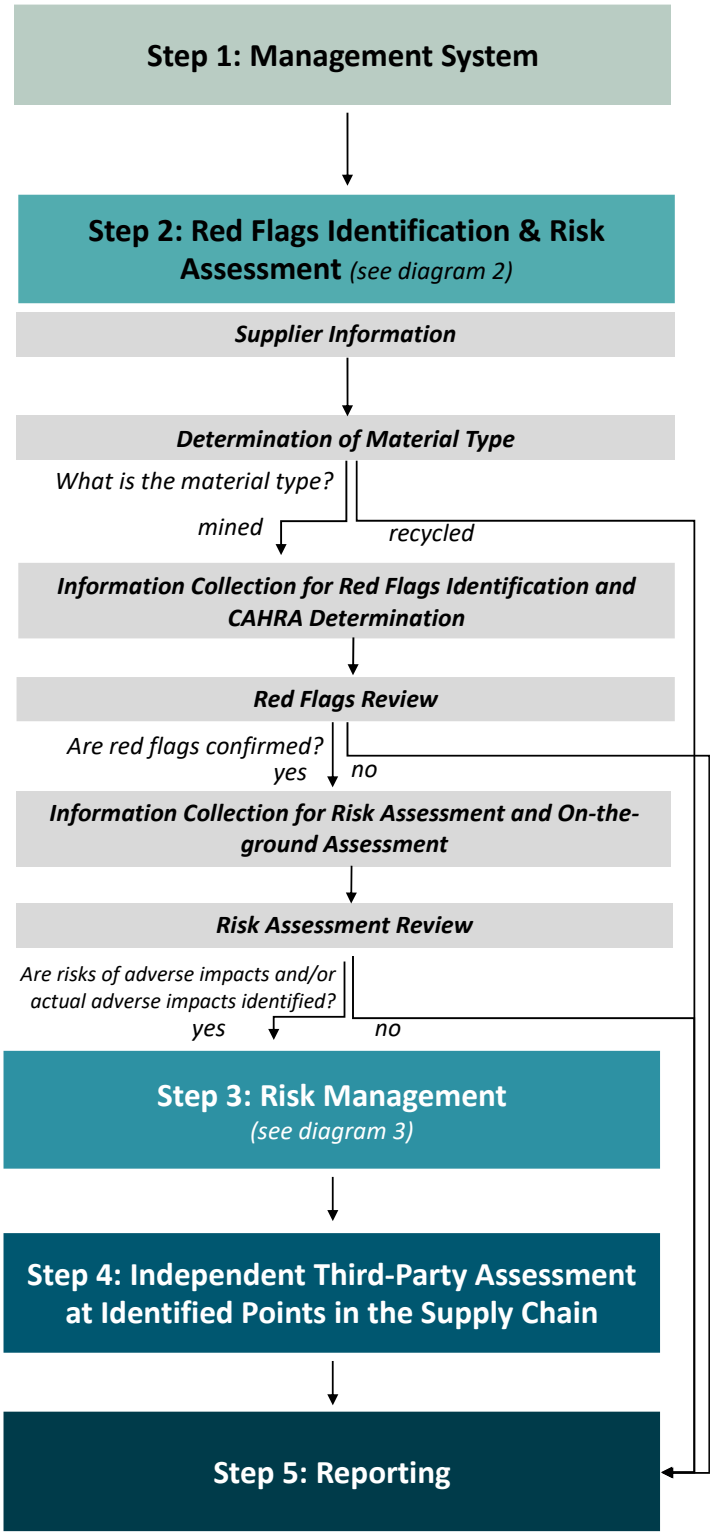
- Obtain and retain information to demonstrate that the *material* is *recycled;* and
- Obtain and retain information to determine the identity, nature and legality of the *immediate suppliers*' business operations. Such information may be obtained through the company's *Know Your Counterparty (KYC)* process.

Such *companies* are encouraged to also implement a due diligence management system (*see 5.1 Step 1 Criteria: Management System*) and to publicly report on their *due diligence process* (*see 5.5 Step 5 Criteria: Reporting*).

Conformance criteria for all other *companies*:

Companies that extract, receive, hold and/or process any combination of *mined* and *recycled material* or 100% *mined material* inputs in the *assessment period* shall conform with all criteria covered by section 5 Conformance Criteria.

Diagram 1 The Due Diligence Process



5.1 Step 1 Criteria: Management System

Guidance on Step 1 of the *due diligence process*: Management System

Objective: To maintain a strong management system to support supply chain due diligence.

Explanation: A management system is a set of documented policies, processes and procedures that set out the tasks required by a *company* to achieve its objectives and improve performance over time by carrying out repeatable steps to be implemented by management and staff. The level of complexity of the system varies depending on each *company's* specific context. Key features of an effective management system include:

- **Leadership**, which is key to establishing unity of purpose and direction through clear commitments and accountability.
- People engagement, to ensure that people at all levels contribute to their *company's* objectives through their abilities and clear **roles, responsibilities and accountabilities**.
- A process approach to activities and **resources management**.
- A continuous cycle of **evaluation and improvement** of operations and processes.
- A **grievance mechanism** to collect and resolve *stakeholder* concerns.
- Evidence-based decision-making through the analysis of data and information collected through a **system of control and transparency**.
- Relationship management with *stakeholders*, and in particular **supplier engagement**, to enhance the ability of both *companies* and *suppliers* to achieve shared objectives.

The *company* shall design and implement a management system to govern their *due diligence process* on *mineral supply chains*. The management system shall include, at a minimum, the core elements described in this section. It may be established as a stand-alone system or integrated into the *company*'s existing management systems.

5.1.1. Leadership

The *company*'s *senior management* shall commit to the effectiveness of the management system by:

- Assuming accountability for its implementation and maintenance and the achievement of intended results.

- Ensuring its requirements are integrated into the *company*'s business processes.
- Allocating resources for building and maintaining internal capacity to implement the management system.
- Ensuring continual improvement of the management system.

The *company*'s *senior management* shall adopt a policy or policies on responsible *mineral supply chains* (hereafter, *policy*) that is:

- Appropriate to the nature, scale and operational context of the *company*.
- Retained as documented information.
- Communicated, understood and applied within the *company*.
- Publicly available.
- Stand-alone or incorporated into operational policies such as a human rights policy, a community engagement policy, or other policies on corporate social responsibility and sustainability; supplier standards or codes of conduct; or other appropriate documents.

The *company*'s *policy* shall include, at a minimum:

- A commitment of the *company* to implement the five-step *due diligence process* defined in the OECD Guidance Annex I.
- A commitment to identify, assess and respond to *risks of adverse impacts* and *actual adverse impacts* in *mineral supply chains* including, at a minimum, *Annex II risks*.
- A description of a clear and coherent management process for managing *risks of adverse impacts* and *actual adverse impacts*.
- The date when the *policy* became effective.

The *company* shall assess its own activities and the activities of its *suppliers* against the *policy*, using its management system.

The *company* shall support the principles of the Extractive Industry Transparency Initiative (EITI) and, in EITI implementing countries, implement the criteria of the EITI.

5.1.2. Organisational Roles, Responsibilities and Accountabilities

The *company* shall assign the responsibility and accountability to *senior management* with the necessary competence, knowledge and experience to:

- Oversee the management system.
- Make decisions for its implementation, including for responding to *risks of adverse impacts* and *actual adverse impacts* identified through the *due diligence process.*
- Regularly review the effectiveness and the performance of the management system, and take necessary action for its improvement.

5.1.3. Resources Management

The *company* shall:

- Determine and provide the resources needed to support the implementation, maintenance and continual improvement of the management system, taking into account *company* size, location and circumstances.
- Define the competences needed to manage and implement the management system and ensure that the staff managing and implementing the management system has these competences, on the basis of education, training and/or experience.
- Define the subject matter expertise needed for the effective implementation of the *due diligence process* and ensure that such expertise is available.
- Provide training on the *company*'s due diligence management system and process to relevant employees, and maintain training records.

5.1.4. Performance Evaluation and Improvement

The *company* shall evaluate the effectiveness of the management system at pre-determined intervals and determine:

- The scope of the evaluation.
- The methodology of the evaluation.
- The timing of the evaluation.

The *company* shall use the results from the evaluation to plan for continuous improvement of the management system.

5.1.5. Grievance Mechanism

The *company* shall design and implement a grievance mechanism. The grievance mechanism shall:

- Allow internal and external *stakeholders*, including whistle-blowers, to voice concerns, including anonymously, without fear of retaliation regarding the circumstances of *mineral* extraction, *transport*, trade, handling, processing and export of *minerals*, including in *CAHRA*.
- Cover the *risks of adverse impacts* listed in the *policy*.
- Include a process to investigate any concerns or grievances received and determine and implement an appropriate and effective remedy. It is acknowledged that the *company's* ability to provide effective remedy is limited where a concern is raised anonymously. In such case, the *company* shall make *reasonable efforts* to provide effective remedy.

The *company* may use an already established grievance mechanism that covers the requirements in this section. The grievance mechanism may be provided by the *company* directly or through collaborative arrangements with other *companies* or organisations or affected communities, or by facilitating recourse to an external expert or body (i.e. ombudsman).

5.1.6. System of Control and Transparency

The *company* shall design and implement a system of control and transparency to:

- Maintain control of the *materials* in its possession. Mining *companies* that do not source *external material inputs* during the *assessment period* shall identify the risk of and prevent the actual entry of *external material inputs* into the *company*'s operations. The *company* shall be able to demonstrate the implementation of the material control system.
- Identify *suppliers* in the *mineral supply chain*.
- Collect and retain information necessary to implement all applicable steps of the *due diligence process*, as described throughout the following sections.

Information necessary to implement all applicable steps of the *due diligence process* may be collected through different methods, including, but not limited to:

- *Supplier* engagement, for example, through consultation or negotiation processes, through questionnaires and/or in-person meetings or remote interviews.
- Desk research conducted by the *company*, including, but not limited to, through a review of the information available on the Internet and/or through relevant reports issued by international bodies and civil society or by media and activist organisations.
- Reports issued by external parties or institutions, external experts, governmental agencies or research organisations.
- Information collected through the *company*'s grievance mechanism.
- Information generated through the *company*'s system of internal control.
- For *companies* that do not source *external material inputs* during the *assessment period*, information collected or generated under the activities of their operational *policy* and procedures for managing *Annex II risks*.

The *company* shall avoid cash transactions were practicable. Where cash transactions are used, the *company* shall ensure these are supported by verifiable information.

The *company* shall collect and retain information, including documents and records, required by the management system for at least five years.

5.1.7. *Supplier* Engagement

Companies shall aim to establish, where practicable, long-term relationships with *suppliers*, in order to build *influence* over *suppliers*.

The *company* shall engage *immediate* and *other known suppliers*. As part of such engagement, the *company* shall:

- Communicate its *policy* and its expectation that *suppliers* implement a *due diligence process* in conformance with the Principles and Criteria of this Standard.
- Incorporate the requirement to comply with the *company*'s *policy*, or where materially comparable, the *immediate supplier*'s *policy*, into contracts and/or agreements with *immediate suppliers*, in a way that can be readily applied and monitored.
- Assist *immediate suppliers* in building due diligence capacities and providing training as appropriate on the *company*'s *policy* and its practical application.
- Collect the necessary information to implement the *company's due diligence process* (*see 5.2.1. Supplier Information*, *5.2.2. Determination of Material Type* and *5.2.3. Information Collection for Red Flags Identification*).

In addition, the *company* shall engage all *suppliers* in supply chains where red flags are confirmed during 5.2.3.2. Red Flags Review to:

- Seek to incorporate within contracts and/or agreements with *immediate suppliers* the requirement for suppliers to provide data required to conduct a risk assessment.
- Collect the necessary information to determine the presence of *risks of adverse impacts* or *actual adverse impacts* (*see 5.2.4. Information Collection for Risk Assessment* and *5.2.4.1. On-the-ground Assessments*).
- Develop and implement a risk management plan.

Such requirements for *supplier* engagement do not apply to *companies* that do not source *external material inputs* during the *assessment period*.

The *company* shall make *relevant information* available to *downstream companies* and assessors, and to any *Joint Initiative* or *Institutionalised Mechanism* with the mandate to collect and process information for risk assessment and/or Step 4 third-party assessments, with due regard to *business confidentiality and other competitive concerns*.

5.2 Step 2 Criteria: Red Flags Identification and Risk Assessment

Guidance on Step 2 of the *due diligence process*: Red Flags Identification and Risk Assessment

Objective: To identify *risks of potential adverse impacts* and *actual adverse impacts* covered by a company's *policy* along the supply chains for the *materials* in scope of the *assessment*.

Explanation: *Companies* involved in the extraction, *transport*, trade, handling, processing and export of *materials* generate income for workers and economic growth of communities, sustain livelihoods and foster local development. However, for *companies* operating in *CAHRAs* the risk of contributing to or being associated with significant *adverse impacts*, including serious human rights abuses and conflict, is greater.

First, *companies* should gather information on the *suppliers* in order to identify allegations of misconduct and to avoid sanctions violations, and on the *material,* in order to determine the *material* type, *mined* or *recycled,* and whether it triggers further due diligence.

Second, *companies* should gather information that alerts *companies* to *risks of potential adverse impacts* or *actual adverse impacts* in their supply chain. This is achieved by first using *reasonable efforts* to identify any 'red flags'. 'Red flags' are risk warnings linked to the location of a *material*'s *origin* and its *transport* route, for example whether the *material* comes from or passes through a *CAHRA*. 'Red flags' can also be associated with a *supplier's* sourcing practices where that *supplier* is known to, or potentially may, have sourced *materials* in scope of the *assessment* from a *CAHRA* or with a *supplier's shareholder interest* or *other interests* in *companies* that supply *materials* from or operate in a *CAHRA*.

Where *companies* identify anomalies, unusual circumstances or other risks that give rise to a reasonable suspicion that there are any *Annex II risks* in their supply chains, *companies* should gather further information to confirm the presence of such risks.

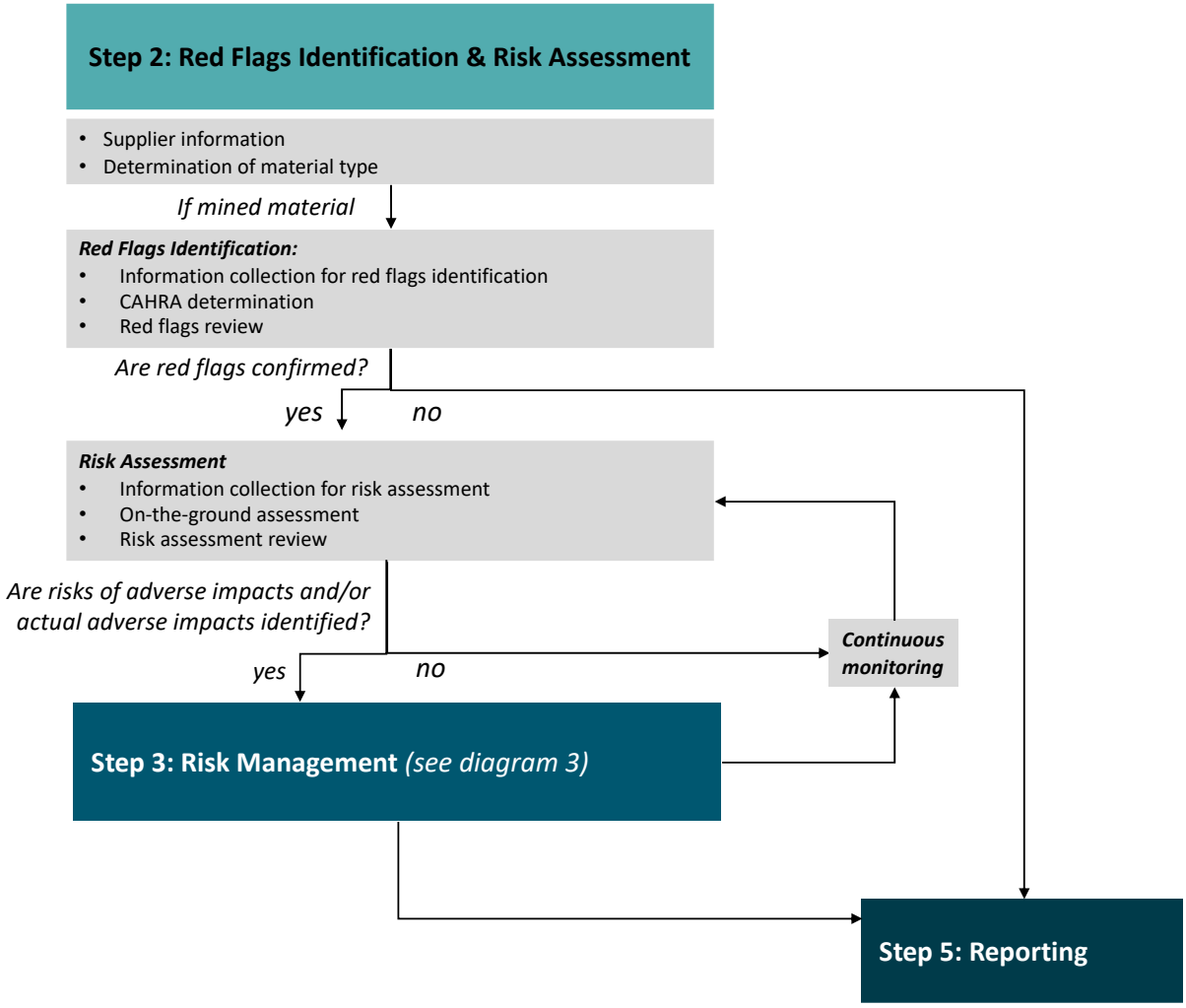
A 'red flag' **does not automatically confirm** that there is an *actual adverse impact*, rather it alerts *companies* that there is a higher likelihood of such risks along the supply chain. The next activity, therefore, is to carry out a risk assessment to ascertain the likelihood of being associated with *risks of adverse impacts* and the presence of *actual*

adverse impacts through desk research, supplier engagement and an on-the-ground assessment.

On-the-ground assessments can help a company collect and/or generate information on the factual circumstances of *mineral* extraction, *transport*, trade, handling, processing and export, in particular where relevant data gaps need to be addressed.

On-the-ground assessment may also be a useful tool to strengthen engagement with *suppliers*, providing an opportunity to share *relevant information*, promote responsible sourcing practices and build capacity for the successful implementation of the *due diligence process*.

Diagram 2 Red Flags Identification and Risk Assessment



5.2.1. Supplier Information

For each *immediate and other known supplier,* the *company* shall collect and retain information to determine the identity, nature and legality of the *suppliers*' business operations and review such information against relevant *national and international sanctions lists.* Such information may be collected through the *company*'s existing *KYC* process and should be collected in line with the Financial Action Task Force (FATF) recommendations in relation to criminal liability and sanctions violations.

The *company* is responsible for collecting such information when entering into a business relationship with a *supplier* and for updating such information and monitoring changes throughout the business relationship.

5.2.2. Determination of *Material* Type

The *company* shall determine, record and confirm the type (i.e. whether it is *mined* or *recycled*) and weight for each *material* received.

For *recycled material* received in the scope of the *assessment*, the *company* shall collect and retain information to demonstrate that the *material* is *recycled*.

***Recycled material* is excluded from further due diligence. The following criteria apply to *mined material*.**

5.2.3. Information Collection for Red Flags Identification

The *company* shall make *reasonable efforts* to identify potential red flag locations of *material origin* and *transit* and/or *supplier* red flags. The red flags are:

- Red flag locations of *material origin* and *transit* prior to delivery to the *company*:
  - The *minerals* originate from or have been transported via a *CAHRA*.
  - The *minerals* are claimed to originate from a country that has limited known reserves, likely resources or expected production levels of the *mineral* in question (i.e. the declared volumes of *mineral* from the country are out of keeping with its known reserves or expected production levels).
  - The *minerals* are claimed to originate from a country in which *minerals* from *CAHRAs* are known to *transit*.
- *Supplier* red flags:
  - The *company*'s *suppliers* have *shareholder interest* or *other interests* in *companies* that supply *minerals* from or operate in one of the above-mentioned red flag locations of *material origin* and *transit*.

- The *company*'s *suppliers* are known to have sourced *minerals* from a red flag location of *material origin* and *transit* in the last 12 months.

To determine the presence of red flags, the *company* shall make *reasonable efforts* to collect *sufficient* and *credible information* for all *mined material* received in scope of the *assessment*, including, at a minimum:

- Country of *origin* of the *material*.
- Countries through which the *material* has been *transported* or *transited* prior to delivery to the *company*.
- Quantities, expressed in volume or weight of *materials* received. *Companies* shall undertake a *plausibility assessment*.
- The *immediate* or *other known suppliers*' sourcing practices and forms of control, meaning:
  - Whether they have a *shareholder interest* or *other interests* in *companies* that supply *materials* within the scope of the *assessment* from or operate in a *CAHRA*.
  - Whether they have sourced *materials* within the scope of the *assessment* from a *CAHRA* over the last 12 months.

Where *artisanal* and/or *small-scale mining* operators are present in the supply chain, the *company* is encouraged to engage with the operators for the purpose of building capacity and mitigating potential *risks of adverse impacts* and *actual adverse impacts* covered by the *policy*. *Companies* should consider the level of control and formalisation of the operators to assess their capacity to effectively manage potential *Annex II risks* and orient capacity building efforts accordingly.

5.2.3.1. *CAHRA* Determination

To identify red flags, the *company* shall design and implement a reasonable process to determine *CAHRAs*. As part of the *CAHRA* determination process, the *company* shall:

- Adopt and consistently implement a methodology or process to make the *CAHRA* determination, including establishing the frequency at which the *CAHRA* determination is reviewed and updated.
- Adopt and record *credible sources* of information and resources used to make the *CAHRA* determination. The *company* may refer to resources provided by a *Joint Initiative* or *Institutionalised Mechanism*, or indicative list of *CAHRA*s issued by governments.
- Document the *CAHRA* determination process and its findings.

5.2.3.2. Red Flags Review

To confirm the presence of red flags, the company shall:

- Review the information collected during 5.2.1. Supplier Information, 5.2.2. Determination of Material Type and 5.2.3. Red Flags Identification.
- Compare the information collected with the results of its *CAHRA* determination and the *plausibility assessment*.
- Review the information collected for discrepancies or inconsistencies.

Where a *supplier* red flag is raised but the *material* does not appear to have entered the *company*'s *external material input*, the *company* shall undertake the following measures:

- Undertake additional checks to verify that the *supplier's external material input* is in fact segregated.
- Verify through the information collected during 5.2.1. Supplier Information and public sources including, where available, the *supplier*'s due diligence (*see 5.5 Step 5 Criteria: Reporting*) report or other public reports, that the *supplier* has company-wide due diligence management systems in line with the *company*'s *policy.*
- Participate in bilateral engagement where disclosures from a *supplier* are unsatisfactory and/or information conflicts with such disclosures, in order to better understand the *supplier*'s sourcing and due diligence practices and improve the quality and completeness of the *supplier*'s disclosures as an integral part of the *due diligence process* in the future.

The *company* shall determine and report to *senior management* whether red flags have been identified and confirmed in its supply chains, triggering 5.2.4. Risk Assessment.

The *company* shall also determine and report to *senior management* whether the operating *site* is located in a red flag location of *material origin* and *transit* or is associated with a *supplier* red flag.

Where red flags are confirmed, the company shall proceed with carrying out the risk assessment (*see 5.2.4 Risk Assessment*).

Where no red flags are confirmed, the company shall proceed with reporting on its due diligence (*see 5.5 Step 5 Criteria: Reporting*).

5.2.4. Information Collection for Risk Assessment

Where red flags are confirmed during the red flags review, the *company* shall take additional steps to generate, collect and retain detailed information on the factual circumstances of extraction, *transport*, trade, handling, processing and export within the red-flagged supply chains.

The *company* shall determine and report to *senior management* whether there are *risks of adverse impacts* and *actual adverse impacts* covered by the *policy* which include, at a minimum, *Annex II risks*. *Annex II risks* are summarised below:

- Serious human rights abuses including:
  - Any forms of torture, cruel, inhumane and degrading treatment.
  - Any forms of forced or compulsory labour.
  - The worst forms of child labour.
  - Other gross human rights violations and abuses such as widespread sexual violence.
  - War crimes or other serious violations of international humanitarian law, crimes against humanity or genocide.
- Direct or indirect support to non-state armed groups.
- Risks associated with the contracting of public or private security forces.
- Bribery and fraudulent misrepresentation of the *origin* of *materials*.
- Money laundering.
- Non-payment of taxes, fees and royalties owed to governments.

The *company* shall make *reasonable efforts* to collect *sufficient* and *credible information* to determine the presence of *risks of adverse impacts* and/or *actual adverse impacts.* The information depends on the type of red flag raised and includes:

- Information for red flag locations of *material origin* and *transit:*
  - The exact location of *origin* of the *material*, from the mine site, and the in-country *transportation* routes.
  - The *suppliers* and the location where the *materials* were processed, consolidated, blended, upgraded and exported prior to delivery to the company.
  - The context of the area (local or regional) of *material origin*, *transit* and/or export, including:
    - The local governance and rule of law.

        - The potential presence of human rights issues, including grievances voiced by interested parties on-the-ground and mediation action.
        - The potential association of the area with illicit trade.
        - The potential association of the area and/or *site* with armed conflict.
    - The collection, and for supply chain actors up to and including the point of export, the disclosure of:
        - Payments made at points of access to mine sites, along transportation routes or at points where the *materials* are traded.
        - Payments made to government or governmental officials, including taxes, fees or royalties.
        - Any other payments made to public or private security forces or other armed groups.[2]
        - Export, import and re-export documentation including the identification of the exporter.

- Information for *supplier* red flags:
    - The *supplier*'s adherence to and/or participation in international frameworks and multi-stakeholder initiatives with the mission to promote human rights, business integrity and transparency, including, but not limited to:
        - The United Nations Global Compact.
        - The United Nations Guiding Principles for Business and Human Rights.
    - The policies and procedures adopted by the *suppliers* to identify, assess and respond to *risks of adverse impacts* and *actual adverse impacts* listed in the OECD Guidance Annex II. Relevant supplier's policies may include, but are not limited to, policies on:
        - Responsible supply chains of *minerals*.
        - Business integrity, including but not limited to anti-bribery, anti-corruption and anti-money laundering.
        - Human rights.
    - Evidence of the implementation of the *supplier's* policies. Such evidence may include:
        - Documents submitted by the supplier.
        - Second-party or third-party certification or *assessment* reports.
        - Responses to allegations and adverse media reports on relevant *risks of adverse impacts* or *actual adverse impacts* which the *company* determines to be factual.

- Where the *supplier* is a mining *company* engaging public and/or private security forces, whether it commits to and implements the Voluntary Principles on Security and Human Rights.
- The *supplier*'s social, environmental and governance reporting practices.
- The *supplier*'s disclosure of its ownership, including beneficial ownership, and of the corporate structure.
- Where the *supplier* is a mining *company* operating in an Extractive Industries Transparency Initiative (EITI) implementing country, whether it commits to and implements the EITI Principles and Criteria.

If the *company's* operating *site* is located in a red flag location of *material origin* and *transit,* the *company* shall:

- Take steps to map the factual circumstances of the presence of *Annex II risks* at its operations using social impact assessment, security and human rights risk assessment, or other risk assessments relevant to the scope of this Standard (*see 5.2.3. Information for red flag locations of material origin and transit*). These assessments may be informed by a combination of sources and activities, including:
  - Consultation with local and central governments and civil society organisations.
  - Baseline social, security and human rights reports and other relevant studies.
  - Media and external research reports.
  - Internal and local incident reports.
  - An on-the-ground assessment (*see 5.2.4.1. On-the-ground Assessments*).
- Effectively implement the relevant policies and procedures adopted to identify, assess and respond to *risks of adverse impacts* and *actual adverse impacts* covered by the *company*'s *policy*.

5.2.4.1. On-the-ground Assessments

The *company* shall conduct on-the-ground assessments where data gaps result in a lack of *sufficient* and *credible information* to determine the presence of *Annex II risks and adherence to national laws and other relevant legal instruments in the scope of this standard*. All *Annex II risks* need to be considered during the on-the-ground assessments; however, the *company* shall prioritise those risks for which data gaps have been identified during 5.2.4. Information Collection for Risk Assessment.

Where the *supplier* has been assessed by an independent third party against this Standard or a recognised third-party assurance programme, the results of the *assessment* shall be accepted by *companies* in the supply chain.

The *company* may consider the following factors when prioritising the on-the-ground assessments that are carried out during the *assessment period:*

- The lack of adherence to, and/or participation in, international frameworks and multi-stakeholder initiatives; the lack of policies and/or management systems at the supplier; and/or a lack of evidence of their effective implementation by the *supplier*.
- The presence of allegations or adverse media reports which the *company* determines to be factual, or for which an on-the-ground assessment is required to determine whether they are factual, and which may raise concerns over the ability by the supplier to respond to risks. The *company* shall engage the *supplier* to provide an opportunity to respond to allegations before determining the need for an on-the-ground assessment.
- Whether a *change in circumstances* occurred in relation to the *supplier*, including, for example, changes to a supplier's business nature or ownership structure, or to the local context or supply chain, which may result in data gaps.
- Whether the *supplier* and/or the information shared by the *supplier* has not been independently assessed or validated.

When planning an on-the-ground assessment, the *company* shall:[3]

- Define the scope of the *assessment* and capacities of the *assessment team*, based on the stated objectives for the *assessment.*
- Use an evidence-based approach, through the collection of verifiable, reliable, up-to-date evidence.
- Preserve the reliability and quality of the on-the-ground assessment, through ensuring that company assessors are independent from the activity being assessed and free from conflict of interests. *Company* assessors shall commit to reporting truthfully and accurately and upholding the highest professional ethical standards and exercise due professional care.
- Ensure the appropriate level of competence, through employing experts with knowledge and skill in the following areas: the operational contexts assessed, the

[3] Adapted from OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. Appendix: Guiding Note for Upstream Company Risk Assessment. p.54.

substance of risks covered by the *policy*, the nature and form of the *mineral supply chain* (e.g. *mineral* procurement), the OECD Guidance, this Standard and *assessment* principles, procedures and techniques.

- Facilitate the work of the *assessment team*, by allowing access to information gained by the *company* throughout the *due diligence process*.
- Ensure that the *assessment team* consults with relevant, including affected, *stakeholders*.

The *company* may share information collected, generated and retained by the *assessment team* with the *supplier(s)* that are the subject of the *assessment* as a way to strengthen engagement and build capacity for supply chain due diligence. Information may be shared with *companies* in the supply chain and *stakeholders* with due regard to *business confidentiality and other competitive concerns*.

5.2.4.2. Risk Assessment Review

The *company* shall determine and report to *senior management* whether *risks of adverse impacts* or *actual adverse impacts* have been identified in its supply chains.

To confirm the presence of *risks of adverse impacts* or *actual adverse impacts*, the *company* shall review the information collected during 5.2.4. Information Collection for Risk Assessment and 5.2.4.1. On-the-ground Assessments.

5.2.4.3. Continuous Monitoring

The *company* shall maintain ongoing risk monitoring at planned intervals and account for *change in circumstances* in relation to the red-flagged supply chain.

Where the presence of risks of adverse impacts or actual adverse impacts is identified, the company shall proceed with the design and implementation of a strategy to respond to such risks (*see 5.3. Risk Management*).

5.3 Step 3 Criteria: Risk Management

Guidance on Step 3 of the *due diligence process*: Risk Management

Objective: To design a strategy and implement a risk management plan to respond to *risks of adverse impacts* and *actual adverse impacts* identified during the risk assessment.

Explanation: *Companies* have a responsibility to respond to *risks of adverse impacts* and *actual adverse impacts* by designing a strategy and implementing a risk management strategy plan.

A risk management plan is intended as a procedural framework that *companies* implement to take actions to *mitigate risks of adverse impacts* and *actual adverse impacts* identified during the risk assessment process in accordance with their strategy.

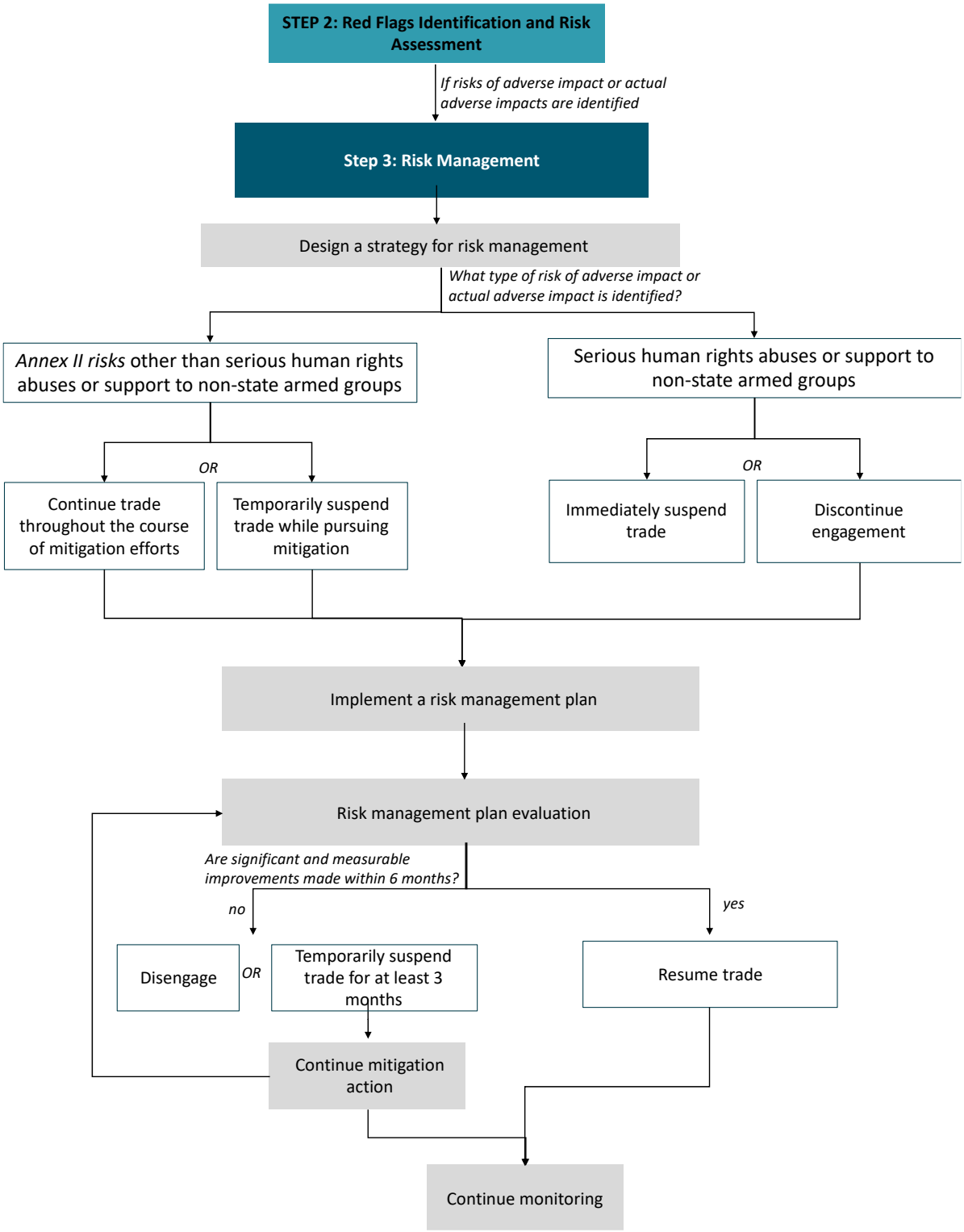
To implement the risk management plan successfully, it is important that the *companies* engage constructively with *suppliers* and other *stakeholders*.

Companies may manage risks directly or by exercising their *influence*, through:

- Engaging with *suppliers*, as a way to consequently affect the supply chain further upstream.
- Business associations and multi-stakeholder initiatives.
- Engaging with the local or central government.

A successful risk management plan is one that leads to *significant improvem*ents and whose effectiveness can be tracked through appropriate qualitative and quantitative indicators and/or by drawing on feedback from *stakeholders*.

Diagram 3 Risk Management



5.3.1. Design a Strategy and Implement a Risk Management Plan

The *company* shall review the information collected during Step 2 in order to design a strategy in response to identified *risks of adverse impacts* and *actual adverse impacts,* consistent with the *policy* and appropriate to the type and scale of the *risks of adverse impacts and actual adverse impacts* and the company's position along the supply chain.

Risk mitigation strategies include:

- Continuing trade or temporarily suspending trade while pursuing ongoing *mitigation* of the risk.
- Immediately suspending trade or disengagement with the *supplier* where the *company* identifies a reasonable *risk of adverse impacts* or *actual adverse impacts* that are deemed too severe (these include serious human rights abuses and support to non-state armed groups).

The *company* shall, as appropriate, take steps to build and/or exercise *influence* over *the actors in the supply chain* who can most effectively prevent or mitigate the identified *risks of adverse impacts* or *actual adverse impacts*.

The *company* shall record the decision taken and implement a risk management plan that is:

- Complete with *mitigation* actions including clear performance objectives and qualitative and/or quantitative indicators to measure and promote *significant* improvements within reasonable timescales.
- Developed in consultation with *suppliers* and *stakeholders*, to agree on the strategy for measurable *mitigation* actions as part of the risk management plan.
- Retained as documented information.

Where the *risk of adverse impact* or *actual adverse impact* sits within a *company*'s own operating *site*, the *company* shall implement effective measures to mitigate the *risk of adverse impact* or the *actual adverse impact* identified. *Companies* are encouraged to adopt internationally recognised frameworks, such as the United Nations Guiding Principles on Business and Human Rights.

5.3.2. Evaluation of the Risk Management Plan

The *company* shall evaluate the effective implementation of the risk management plan at planned intervals and report findings to *senior management*.

Depending on the type and scale of the *risks of adverse impacts and actual adverse impacts* addressed by the risk management plan and the company's position along the

supply chain, the *company* shall, as appropriate, implement, monitor and track performance of risk mitigation in cooperation and, where possible, consultation with local and central authorities and other *stakeholders.*

If there is no significant measurable improvement within six months the *company* shall review the risk management plan and consider the option of suspending or discontinuing trade with the *supplier* for a minimum of three months after failed attempts at *mitigation*.

Where appropriate, the *company* should remain engaged and continue to exercise its *influence* to effectively prevent or mitigate the identified *risks of adverse impacts* or *actual adverse impacts*.

The determination of the appropriate risk mitigation strategy should take into consideration the impacts on the community.

The company shall undertake additional fact and risk assessments (*see 5.2 Risk Assessment)* ***for risks requiring mitigation or after a change in circumstances.***

5.4 Step 4 Criteria: Independent Third-Party *Assessment* at *Identified Points* in the Supply Chain

Guidance on Step 4 of the *due diligence process:* Independent Third-Party *Assessments* at *Identified Points*

Mineral supply chains can be long, highly complex and characterised by low visibility. For *companies*, this can make it difficult to determine which *suppliers* to assess and conducting multiple *suppliers' assessments* of their *due diligence process* can be a costly endeavour.

For this reason, undertaking *assessments* at strategic points in the supply chain may help to avoid assessment fatigue and increase efficiency. Such strategic points are referred to as *identified points,* meaning, points in the supply chain meeting the following criteria:

- Key points of *transformation* in the supply chain.
- Stages in the supply chain that generally include relatively few actors that process a majority of the commodity.
- Stages in the supply chain with visibility and control over the circumstances of production and trade *upstream*.
- Greatest points of leverage of *downstream* enterprises.

In complex supply chains characterised by a high level of dis-integration, more than one point in the supply chain may constitute an *identified point* known as additional *identified points*. *Companies* that are additional *identified points* are encouraged to undergo an *assessment*. *Downstream companies* of the additional *identified points* are encouraged to exercise their *influence* to have *suppliers* at additional *identified points* in their supply chains undergo an *assessment*.

Companies at *identified points* in the supply chain shall have their due diligence management systems and practices assessed against this Standard by an approved assessor to assess conformance with the criteria defined herein.

For the *principal covered metals*, the *refiner* is an *identified point*. For this reason, the *refiner* shall have its due diligence management system and practices assessed by the *Standard owner* or a recognised programme.

Additional *identified points*:

It is acknowledged that in specific circumstances the *principal covered metals*' supply chain may consist of more than one *identified point*. In such a case, the *refiner* may request the additional *identified point* to have their due diligence management systems and practices assessed by an independent third party to demonstrate conformance with this Standard.

Specifically, in the *principal covered metals* supply chains, stand-alone copper, lead, nickel, or zinc concentrate *blending companies* and/or stand-alone *smelters* can be an additional *identified point*.

Alternative *identified points*:

It is also acknowledged that, in specific supply chains, a *material* can follow an alternative production route that does not include a company meeting the definition of a *refiner*. In such cases, an alternative *identified point* may be determined. The alternative *identified point* shall have their due diligence management systems and practices assessed by an independent third party in order to demonstrate conformance with this Standard.

Specifically, producers of nickel chemical compounds and all nickel raw intermediates (ferro-nickel, nickel pig iron, nickel oxide sinter and other nickel intermediaries) entering production of stainless steel, alloys, batteries and plating, where refining is not part of the *transformation* process, are alternative *identified points*.

Companies undergoing a Step 4 *assessment* as outlined in this section shall publish a summary of their assessment reports, with due regard taken of *business confidentiality and other competitive concerns*.

5.5 Step 5 Criteria: Reporting

Guidance on Step 5 of the *due diligence process:* Reporting

Objective: To report on supply chain due diligence policies and practices.

Explanation: Reporting is a fundamental step in the *due diligence process*, as it promotes transparency and accountability. Reporting allows stakeholders to understand the steps taken by *companies* in respect of responsible sourcing. As a consequence, reporting is intended to motivate *companies* to improve their due diligence practices and risk management performance over time and to generate public confidence in the supply chains of the *principal covered metals.*

Through reporting, *companies* provide a description of their *due diligence process* and the *risks of adverse impacts* and *actual adverse impacts* identified.

To this end, it is recommended that reporting is undertaken in line with internationally recognised principles for reporting, including:

- **Accuracy**: The reported information is sufficiently accurate and detailed for *stakeholders* to assess a *company's* due diligence performance.
- **Clarity**: *Companies* make information available in a manner that is understandable and accessible to *stakeholders*.
- **Comparability**: *Companies* select, compile, review and report information consistently, in a manner that enables *stakeholders* to analyse performance trends over time.
- **Reliability**: *Companies* collect, retain, compile, review and report information and processes used in the preparation of the report in a way that can be subject to examination.
- **Timeliness**: *Companies* report on a regular schedule.

All *companies* shall annually report information on supply chain due diligence, with due regard *for business confidentiality and other competitive concerns*.

The *company* report shall include, at a minimum:

- The *company*'s *policy.*
- A description of the management system designed and implemented for implementing the *company*'s *policy*.

- The system of control and transparency designed and implemented to collect and retain information necessary for red flags identification and explain how the information collected for red flag review has strengthened the *company*'s due diligence efforts.
- A summary of the methodology adopted and the results of the red flags review process obtained during the *assessment period*.

Where red flags are raised during the red flags identification process, the *company* report shall describe the methodology adopted and the results of the risk assessment obtained in the *assessment period*, including information on the methodology and results of the on-the-ground assessment.

Where *risks of adverse impacts* and/or *actual adverse impacts* are identified during the risk assessment, the *company* report shall describe the strategy adopted to respond to such risks, including:

- The risk management plan and the actions taken during the *assessment period* to mitigate *risks of adverse impacts* and/or *actual adverse impacts* identified, including, where relevant, the involvement of *stakeholders*.
- A summary of the methodology for monitoring and evaluating the risk management plan.
- Whether improvement was made towards eliminating the *risks of adverse impacts* and/or *actual adverse impacts*.

If the *company* is a mining company operating in an EITI implementing country, the *company* shall describe how it meets the expectations for EITI supporting *companies* as set out by the EITI.

Such information may be integrated into sustainability, corporate social responsibility or other annual reports.

6 Glossary

Actual adverse impact(s): An *adverse impact* that has already occurred or is occurring.[4]

Adverse impact(s): Negative consequences associated with the occurrence of *Annex II risks*. Such consequences may include harm to people (i.e. external impacts), or reputational damage or legal liability for the *company* (i.e. internal impacts), or both. Such internal and external impacts are often interdependent, with external harm coupled with reputational damage or exposure to legal liability.[5]

Annex II risks: *Risks of adverse impacts* as listed in the OECD Guidance Annex II.

Artisanal mining: Artisanal mining operations include operations run by men and/or women working on an individual basis as well as those working in family groups. Artisanal operations may also include operations organised in varying degrees of formality as partnerships, associations or cooperatives. Artisanal operations do not rely on permanent hired labour. They utilize simplified forms of extraction, processing and transportation with little mechanization.[6]

Assessment: An evaluation of the performance of a *site* against the Standard. For the purpose of this Standard, the term is used to indicate either an assessment or an audit.

Assessment period: The period (one year) covered by the *assessment*. The assessment period ends on the assessment period end day of a given calendar year. For example, if the assessment period end day is 31 March, then then [year] assessment period shall be the period from 1 April [previous year] through 31 March [year]. If the assessment period end day is 31 December, then the [year] assessment period shall be the period from 1 January [year] through 31 December [year].[7]

Assessment team: The on-the-ground assessment team which may be established by a *company*, where needed, as part of the risk assessment process.

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[4] United Nations Human Rights Office of the High Commissioner (2012), The Corporate Responsibility to Respect Human Rights – An Interpretative Guide, United Nations, New York and Geneva. p. 5.
[5] OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 13.
[6] Working definition as of date of publication from Responsible Minerals Initiative (RMI) Artisanal and Small-Scale Mining (ASM) Risk-Readiness Assessment (RRA) Methodology.
[7] Adapted from The London Metals Exchange (LME). LME Policy on Responsible Sourcing of LME-Listed Brands. p. 26.

Blending company: A *company* performing blending activities with the purpose to blend different *materials*, such as *mineral* ore or concentrate, without altering the chemical or metallurgical composition.

Business confidentiality and other competitive concerns: Price information and supplier relationships without prejudice to subsequent evolving interpretation. [8] Confidential information could include, for example, information on the *company suppliers*, customers, contract terms, tonnage and capacity.

Chain of custody: A system of control and transparency, specifically the documented record of the sequence of *companies* and individuals that have custody of *minerals* as they move through a supply chain.[9]

Change in circumstances: A modification, usually substantial, unanticipated and/or involuntary, related, for example, to a *supplier*'s business nature or ownership structure, or to a local context or supply chain.

Company: A legal entity formed by a group of individuals or companies to engage in and operate a business. For the purpose of this Standard, the term is used to indicate a business of any business and ownership structure including a partnership, proprietorship, corporation or cooperative.

Conflict-Affected and High-Risk Area (CAHRA): Areas identified by the presence of armed conflict, widespread violence, including violence generated by criminal networks, or other risks of serious and widespread harm to people. Armed conflict may take a variety of forms, such as a conflict of international or non-international character, which may involve two or more states, or may consist of wars of liberation, insurgencies or civil wars. High-risk areas are those where there is a high risk of conflict or of widespread or serious abuses as defined in paragraph 1 of Annex II of the OECD Guidance. Such areas are often characterised by political instability or repression, institutional weakness, insecurity, the collapse of civil infrastructure, widespread violence and violations of national or international law.[10]

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[8] OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 40.
[9] Adapted from OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 65.
[10] OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 66.

Collaborating company(ies): The other company(ies) sourcing from, or operating in, the same areas and/or *site*(s), with whom the *company* collaborates for due diligence purposes.

Credible information: Information that, considering its source and the surrounding circumstances, supports a reasonable belief that an event has occurred or will occur.

Credible source: Generally, a credible source is one that has been recently published (3–5 years); is extracted from an academic peer-reviewed database; or, from a website registered by government or educational institution (.gov, .edu, .ac); is written by respected and well-known authors or institutions such as the UN, think-tanks, or research institutions.

Downstream: The *minerals* supply chain from *smelters*/*refiners* to retailers.[11]

Downstream companies: These include metal traders and exchanges, component manufacturers, product manufacturers, original equipment manufacturers (OEMs) and retailers.[12]

Due diligence process: For the purpose of this Standard, the five-step due diligence process defined in the OECD Guidance Annex I.

Equivalent: For the purpose of this Standard, materially comparable in scope and intent.

External material input(s): *Material* received from a *supplier* in the *assessment period*.

Identified point: Point in the supply chain meeting the following criteria:[13]

- Key points of *transformation* in the supply chain;
- Stages in the supply chain that generally include relatively few actors that process a majority of the commodity;
- Stages in the supply chain with visibility and control over the circumstances of production and trade *upstream*;
- Greatest points of leverage of *downstream* enterprises.

[11] Ibid. p. 33.
[12] Adapted from Ibid.
[13] Adapted from OECD (2018), OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector, OECD Publishing, Paris. p. 13 and OECD/FAO (2016), OECD-FAO Guidance for Responsible Agricultural Supply Chains, OECD Publishing, Paris. p. 38.

Companies at such points are subject to third-party *assessment* of their due diligence practices.

Immediate supplier(s): The *supplier* which has a contract with and supplies *material* to the *company* and is immediately before the *company* in the supply chain.[14]

Influence: For the purpose of this Standard, the ability of a *company* to effect changes in, and/or prevent the wrongful practices of, another *company* that is or may be causing or contributing to an *adverse impact.*

Institutionalised mechanism: For the purpose of this Standard, an institutionalised mechanism is an organisation created by and composed of representatives of governments, industries and civil society with a mandate to support and advance some or all of the recommendations of the OECD Guidance.[15]

Intermediate material: A partially processed substance in unalloyed, alloyed or chemical form that requires further refining prior to sale by a *refiner* to *downstream* customers. *Intermediate material* may result from the processing of either *mined material* or *recycled material.*

Joint initiative(s): An industry-wide initiative enabling cooperation between companies, on responsible supply chain management meeting the due diligence principles, standards and processes of the OECD Guidance which may assist in establishing a system of controls over the supply chain to build *influence*, overcome practical challenges and effectively discharge the due diligence recommendations contained in the OECD Guidance.[16]

Know Your Counterparty (KYC): A process to collect, verify and monitor the identity of a counterparty and to establish the facts to have a clear understanding of the nature and legality of the business.

Material(s): For the purpose of this Standard, the term is used to indicate all *mined*, and/or *recycled material* received, held and/or processed during the *assessment* period,

[14] Adapted from Adapted from International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p. 29.
[15] OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 69.
[16] Adapted from International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p. 29.

and intended for the production of *metal products*. The term includes *minerals* and *metal products*.

Material sample(s): Small quantities taken as samples from any *material* in order to test the precise chemical composition.

Metal product(s): Metals in any unalloyed, alloyed or chemical form which may be used as a semi-finished or finished good.[17]

Mined material(s): Copper, nickel, lead, or zinc bearing ore or primary processed *material* which has never been previously refined.

Mineral(s): *principal covered metals*-containing ore in any physical form, extracted through mining of geological deposits, processed to higher grade mineral concentrate, and used in a primary smelter to produce *metal products* for refining.[18]

Mineral supply chain(s): For the purpose of this Standard, copper, nickel, lead, or zinc supply chains from mine sites to, and including, production of *metal products*.

Mitigation: The mitigation of an *adverse impact* refers to actions taken to reduce its extent. The mitigation of *risks of adverse impacts* refers to actions taken to reduce the likelihood of a certain *adverse impact* occurring.[19]

National and international sanctions lists: These include the United Nations sanctions lists and relevant government-issued lists, such as the U.S. List of Specially Designated Nationals and Blocked Persons ("SDN List"); the U.S. Foreign Sanctions Evaders List ("FSE List"); the UK Consolidated List of Targets; the Consolidated List of Persons, Groups and Entities subject to EU Financial Sanctions.[20]

Origin: The country, or regional mining area within a country, from which the *mined material* was extracted from the ground.[21] For *materials* resulting from the processing of

[17] International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p.30.
[18] Adapted from International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p.30.
[19] United Nations Human Rights Office of the High Commissioner (2012), The Corporate Responsibility to Respect Human Rights – An Interpretative Guide, United Nations, New York and Geneva. p. 7.
[20] Adapted from International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p.30.
[21] International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p.30.

another metal ore, the origin is the point of separation from the other metal ore.[22] For *recycled material,* the origin is the point in the supply chain where the *recycled material* is returned to the *immediate supplier* of the *recycler.*[23]

Other inputs: Inputs other than *materials* used for the production of *metal products,* such as chemicals, electrodes, energy inputs, industrial gases, lubricants and oils.

Other interests: Controlling interests achieved through a route other than a *shareholding interest* including, but not limited to, ownership of voting rights, contractual associations, management control (right to appoint or remove directors), other ability to exert significant *influence* on the *company* (e.g. veto rights, decision rights, right to profit, etc.).

Other known supplier(s): Any known *supplier* further upstream that is identifiable through general business dealings or public reports (or other publicly available information) to the extent necessary to enable a red flag review.

Plausibility assessment: A reasonable understanding by the *company* of the known reserves or expected production levels of the countries from which it sources *materials*, and the steps taken to investigate and address any higher-than-expected volumes of *materials* supplied from any area compared to the potential for production in that area.

Policy: The policy on responsible *mineral supply chains.* The *policy* may be stand-alone or incorporated into existing operational policies such as a human rights policy, a community engagement policy, or other policies on corporate social responsibility and sustainability; supplier standards or code of conduct; or other appropriate documents.

Principal covered metals: Copper, lead, nickel, and zinc.

Reasonable effort(s): Effort that is rational, sensible, and fair, while considering relevant limitations.

Recycling company(ies): For the purpose of this Standard, a *company* that uses 100% *recycled material* inputs in the *assessment period*.

Recycled material(s): Recycled *materials* are reclaimed end user or post-consumer products, or scrap processed metals created during product manufacturing. Recycled

[22] Ibid. p. 28.
[23] Adapted from OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 68.

metal includes excess, obsolete, defective, and scrap metal *materials* which contain refined or processed metals that are appropriate to recycle in the production of copper, lead, nickel and zinc. Minerals partially processed, unprocessed or resulting from the processing of another metal ore are not recycled metals.

Refiner(s): For the purpose of this Standard, a *company* performing a process of purification to produce refined copper, lead, nickel and zinc metal. In these industries, such metals would be:

- Grade A copper cathode;
- 99.97% refined lead;
- Nickel metal class 1;
- Special High Grade (SHG) zinc.

Relevant information: Information needed by a *company*'s *downstream* purchasers for its own due diligence purposes.

Risk(s) of adverse impacts(s): For the purpose of this Standard, risks are defined in relation to the potentially *adverse impacts* of a *company's* operations, which result from a *company's* own activities or its relationships with third parties, including *suppliers* and other entities in the supply chain. Such risks cover, at a minimum, *Annex II risks.*

Senior management: The person or group of people within the *company* with the authority to allocate resources and make decisions on behalf of the *company*, including its *due diligence process*.

Shareholder interest(s): The shareholder's rights to a share of the profits and losses of the *company*, to receive distributions (liquidating or otherwise), to obtain information and to consent to or approve actions by the *company*.

Significant improvement(s): Substantial ongoing positive change that leads to the prevention, *mitigation* or remedy of *adverse impacts*.

Site: Operations involved in the mining, refining, or other intermediary steps for copper, lead, nickel or zinc production, including, but not limited to, mining, solvent extraction and electrowinning (SX/EW), concentration, blending, washing, roasting, smelting, alloying or refining. A site may comprise several activities in different locations in the same geographic area (e.g. mines, wastewater treatment facilities, refineries, ports and associated infrastructure), and under the same management control. Integrated sites,

where the point of extraction and *transformation* or processing are critical operations to the output of the site, will generally be treated as one site.[24]

Small-scale mining: Small-scale mining operations may be run by partnerships or members of cooperatives or other types of associations and enterprises with more formal organisational structures than *artisanal mining*. Small-scale operations may rely on permanent or temporary hired labour and may use some sophisticated equipment and/or partial mechanization for extraction, processing or transportation.[25]

Smelter: A *company* treating *minerals* or *intermediate materials* in order to produce *metal products* for refining. A *smelter* may treat *intermediate material* resulting from the processing of either *mined material* or *recycled material.*

Stakeholder(s): Any individual or organization that may affect or be affected by a company's actions and decisions. The primary focus is on affected or potentially affected stakeholders, meaning individuals whose human rights have been or may be affected by a company's operations, products or services. Other particularly relevant stakeholders are the legitimate representatives of potentially affected stakeholders, including trade unions, as well as civil society organizations and others with experience and expertise related to business impacts on human rights.[26]

Standard owner: The entity or entities having the intellectual property or other ownership rights in respect of a standard.[27] The *standard owners* of this Standard are the Copper Mark Company, the International Lead Association (ILA), the Nickel Institute (NI), the International Zinc Association (IZA), and the Responsible Business Alliance, Inc.

Sufficient information: Information that includes all information needed to carry out the relevant step of the *due diligence process* as listed by this Standard.

Supplier(s): All *companies* from which the *company* received *materials* during the *assessment period*. These include *immediate suppliers* and *other known suppliers*.

The Copper Mark Criteria: The Copper Mark Criteria for Responsible Sourcing. The Copper Mark uses the Risk Readiness Assessment (RRA), developed and maintained by

[24] Adapted from The Copper Mark (2020). The Copper Mark Assurance Process. p. 26.
[25] Responsible Minerals Initiative (RMI) Artisanal and Small-Scale Mining (ASM) Risk-Readiness Assessment (RRA) Methodology.
[26] Adapted from the United Nations Guiding Principles Reporting Framework.
[27] The London Metals Exchange (LME). LME Policy on Responsible Sourcing of LME-Listed Brands. p. 26.

the RMI, as the basis for evaluating Copper Producers' performance against the Copper Mark Criteria. The RRA condenses over 50 international standards and guidelines into 32 issue areas covering environmental, social and governance aspects of mining, smelting and refining operations.

Toll/tolling: An arrangement where *materials* are processed by a *company* on behalf of a client who retains ownership of the agreed to metals and/or volume of those *materials*.

Traceability: A system of control and transparency, specifically, the physical tracking of *minerals* at all points of the supply chain, from their mine of *origin* to their point of export.[28]

Transformation: A point in the supply chain where the physical or chemical properties of a *material* are changed, in order to produce something else.

Transit: Shipping of *materials* between *origin* and final destination (prior to delivery to the *company)*, including through countries and across international borders, without discharging the cargo.[29]

Transport: The movement of *materials* from one location to another.[30]

Upstream: The *mineral* supply chain from the mine to *smelters/refiners*.[31]

Upstream companies: Miners, local traders or exporters from the country of *mineral origin*, international concentrate traders, *mineral* re-processors and *smelters/refiners*.[32]

7 Revision History

The first version of the Standard is published for consultation on 27 August 2020. The first version of the Standard is adopted and published on 9 February 2021.

The second version of the Standard is adopted and published on 1 January 2022.

[28] Adapted from OECD Due Diligence Guidance: towards conflict-free mineral supply chains. p. 4.
[29] International Tin Association (ITA) and Responsible Minerals Initiative (RMI) (2019), Assessment Criteria for Tin Smelting Companies. p.32.
[30] Ibid.
[31] OECD (2016), OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition, OECD Publishing, Paris. p. 32.
[32] Adapted from Ibid.

8 Annexes

The following Annexes have been developed by The Copper Mark, the International Lead Association (ILA), the Nickel Institute (NI), and the International Zinc Association (IZA), to provide further information on the *principal covered metals*' supply chains.

Annex I: Guidance on Companies Producing Multiple Metals

The *principal covered metals* are commonly found in combination with one or multiple other metals. *Companies* in the *principal covered metals* supply chains are therefore often multi-metal operations producing *metal products* from two to over a dozen metals at one *site.*

This Standard looks to provide flexibility for multi-metal *companies* to include any metals produced at their *site(s)* in the scope of the *assessment,* as needed. This Annex provides an **indicative, non-exhaustive** list of common metals associated to the production of the *principal covered metals.* It also provides a list of existing standards that may be applicable and relevant to such metals at *companies*' operations. The list includes standards that are formally or known to be seeking to be aligned with the requirements of the OECD Guidance.

The guidance provided in this Annex is informative only and is not regularly updated. New standards may emerge that are not captured in this Annex, including to enable compliance with upcoming regulatory requirements and market entry requirements on responsible sourcing and due diligence. It is the *company's* responsibility to determine the appropriate standard(s) to enable it to meet regulatory and market expectations.

This guidance makes no representation as to the content, alignment with the OECD Guidance or ability to meet regulatory requirements of any of the standards included in this Annex. *Companies* are encouraged to contact the *standard owners* directly for information on their applicability to the *principal covered metals* and other metals, alignment with the OECD Guidance, and their specific compliance requirements.

The standards referenced in this guidance do not automatically coincide with those recognised by the Standard. *Companies* shall refer to section 4.2.: Recognition of other schemes to check their ability to use any standards to demonstrate conformance with this Standard.

Principal Covered Metal	Metals Associated with the Production of the *Principal Covered Metal*	Metals (and Companies) Coverage and Due Diligence Schemes							
		Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc	LBMA Responsible Gold Guidance	LBMA Responsible Silver Guidance	Responsible Jewellery Council Code of Practices	RMI Responsible Minerals Assurance Process, Gold Standard	DMCC Rules for Risk Based Due Diligence in the Gold and Precious Metals Supply Chain	CCCMC, RCI and RMI Cobalt Refiner Due Diligence Standard	ITA-RMI Assessment Criteria for Tin Smelting Companies
Copper (Cu)	Gold (Au)*	yes	yes (LBMA Good Delivery gold refiners)		yes (RJC members)	yes (gold refiners)	yes (gold refiners)		
	Molybdenum (Mo)*	yes							
	Silver (Ag)*	yes		yes (LBMA Good Delivery silver refiners)	yes (RJC members)				
	Zinc (Zn)*	yes							
	Bismuth (Bi)**	yes							
	Cobalt (Co)**	yes						yes (cobalt refiners)	
	Iridium (Ir)**	yes							
	Nickel (Ni)**	yes							
	Osmium (Os)**	yes							
	Palladium (Pd)**	yes			yes (RJC members)				
	Platinum (Pt)**	yes			yes (RJC members)				
	Rhodium (Rh)**	yes			yes (RJC members)				
	Ruthenium (Ru)**	yes							
	Selenium (Se)**	yes							
	Tellurium (Te)**	yes							

	Tin (Sn)***[33]								yes (tin smelters)
Lead (Pb)	Gold (Au)*	yes	yes (LBMA Good Delivery gold refiners)		yes (RJC members)	yes (gold refiners)	yes (gold refiners)		
	Silver (Ag)*	yes		yes (LBMA Good Delivery silver refiners)	yes (RJC members)				
	Zinc (Zn)*	yes							
	Bismuth (Bi)***	yes							
	Cadmium (Cd)**	yes							
	Cobalt (Co)**	yes						yes (cobalt refiners)	
	Indium (In)**	yes							
	Gallium (Ga)**	yes							
	Germanium (Ge)**	yes							
	Tellurium (Te)***	yes							
Nickel (Ni)	Copper (Cu)*	yes							
	Gold (Au)*	yes	yes (LBMA Good Delivery gold refiners)		yes (RJC members)	yes (gold refiners)	yes (gold refiners)		
	Silver (Ag)*	yes		yes (LBMA Good Delivery silver refiners)	yes (RJC members)				
	Cobalt (Co)**	yes						yes (cobalt refiners)	
	Iridium (Ir)**	yes							

[33] Tin associated with the production of the *principal covered metals* cannot be included in scope of an *assessment* against this Standard pending the results of the OECD Alignment Assessment of the Standard.

	Osmium (Os)**	yes							
	Platinum (Pt)**	yes			yes (RJC members)				
	Rhodium (Rh)**	yes			yes (RJC members)				
	Ruthenium (Ru)**	yes							
	Selenium (Se)**	yes							
	Tellurium (Te)**	yes							
Zinc (Zn)	Gold (Au)*	yes	yes (LBMA Good Delivery gold refiners)		yes (RJC members)	yes (gold refiners)	yes (gold refiners)		
	Lead (Pb)*	yes							
	Silver (Ag)*	yes		yes (LBMA Good Delivery silver refiners)	yes (RJC members)				
	Cadmium (Cd)*	yes							
	Indium (In)**	yes							
	Germanium (Ge)**	yes							
	Antimony (Sb)***	yes							
	Bismuth (Bi)***	yes							
	Cobalt (Co)***	yes						yes (cobalt refiners)	
	Tellurium (Te)***	yes							
	Tin (Sn)***[34]								yes (tin smelters)

* Typical metals associated with the *principal covered metals*

** Rare cases

*** Exceptional cases

[34] Tin associated with the production of the *principal covered metals* cannot be included in scope of an *assessment* against this Standard pending the results of the OECD Alignment Assessment of the Standard.

Annex II: Copper Industry Key Facts and Supply Chain

Copper Industry Key Facts

- World identified copper resources are predominantly distributed in the Americas, which accounts for 64% of world resources, followed by Asia, with over 20%, and with comparatively small deposits in Africa and the Middle East, Europe and Oceania.
- A range of copper-bearing products, from various stages of production, are traded domestically and internationally. These include copper concentrate, copper blister, copper anode, copper cathode and copper scrap. Trade volumes (measured by the total content of pure copper traded as different types of *material*) are approximately 5–6 times greater for concentrate and cathode than for anode and blister forms of copper.[35]
- Copper mine production is dominated by South America, in particular Chile (which accounts for about one third of world copper mine production) and Peru (over 10%), followed by China and the United States.[36]
- Copper smelter production is dominated by Asia, specifically China (which accounts for over 40%) and Japan, followed by Chile and Russia. Copper is purchased by *smelters* in concentrate form, so China is a major importer of copper concentrate.[37]
- Refined copper production is also dominated by Asia, specifically China (which accounts for approximately 40%) followed by Chile, Japan, and the United States.
- Approximately 99% of world copper is produced through large-scale mining (LSM) and, in some regions, *small-scale mining* operators. Research conducted for the development of this Standard referred to the Democratic Republic of the Congo (DRC) as a producer of *artisanally mined* copper.

In the DRC, the production share of artisanal copper remains extremely low in comparison to the total annual Congolese production of industrially mined copper, slightly more than

[35] International Copper Study Group (2019), The World Copper Factbook 2019. p. 31 (Visual estimate)
[36] Ibid. p. 12.
[37] Ibid. p. 19.

1%.[38] Overall, the DRC accounts for 5–6% of world copper mine production.[39] Most of this copper is refined locally through the solvent extraction and electrowinning (SX-EW) process, and a small proportion is exported as concentrate for processing abroad.[40]

While the artisanal share of total copper production is very low and concentrated in the DRC, its importance for the livelihood of artisanal miners is significant. Although there are no studies to indicate the number of people involved in *artisanal mining* of copper specifically, an estimated 140,000 to 200,000 miners in the Lualaba and Haut-Katanga provinces of the DRC generate livelihoods from the extraction of copper and cobalt, where the two *minerals* are frequently co-located. Although it is unlikely that a significant proportion of these recover copper, it can be assumed that several thousand are involved in copper production.[41]

Copper Industry Supply Chain

The copper industry is characterised by two key routes to production: the pyrometallurgy and the hydrometallurgy (also referred to as SX-EW) production routes. The route employed to process copper ore is determined by the ore type. Sulphide copper ores (which account for approximately 72% of copper processing worldwide) are generally processed using pyrometallurgy, while oxide ores (account for approximately 15%) are processed through SX-EW. The remaining 13% of production input is from recycled scrap.[42]

The end product of both pyrometallurgy and hydrometallurgy processes is copper cathode, a 99.99% pure form of copper also referred to as Grade A. For the purpose of this Standard, copper cathode producers are referred to as the *refiner* and they are the *identified point.*

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[38] The Federal Institute for Geosciences and Natural Resources (2019), Mapping of the Artisanal Copper-Cobalt Mining Sector in the Provinces of Haut-Katanga and Lualaba in the Democratic Republic of the Congo, Hannover. p. 25.
[39] Ibid. (Visual estimate) pp. 12-14.
[40] C. Radford, A. Hunter, and J. Luck, 'DRC U-turns on cobalt, copper concentrate export ban; says could reimpose', *Fastmarket MB,* (2019), https://www.fastmarkets.com/article/3865124/, accessed 27 April 2020.
[41] OECD (2019), Interconnected supply chains:a comprehensive look at due diligence challenges and opportunities sourcing cobalt and copper from the Democratic Republic of the Congo. https://mneguidelines.oecd.org/Interconnected-supply-chains-a-comprehensive-look-at-due-diligence-challenges-and-opportunities-sourcing-cobalt-and-copper-from-the-DRC.pdf, accessed 21 January 2021
[42] Wood Mackenzie (2019) Global Copper Long Term Outlook, Q4 2019, and various industry sources.

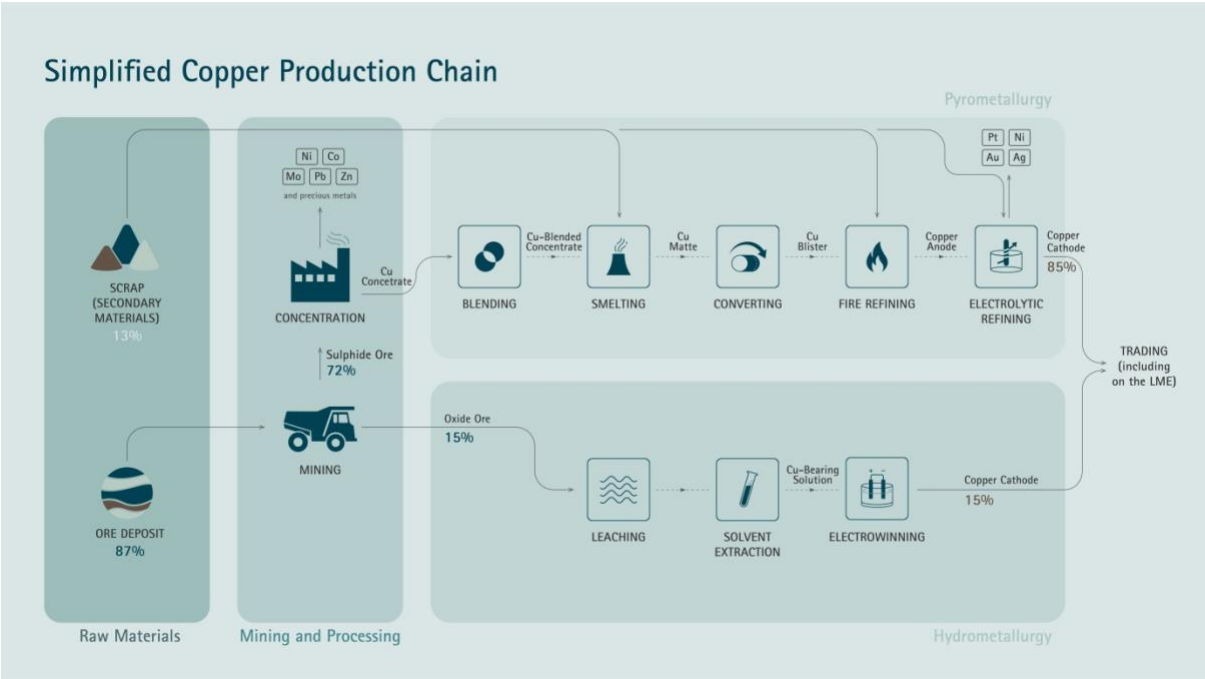

Figure 1 Pyrometallurgical and hydrometallurgical routes to copper refining

In the hydrometallurgical (SX-EW) process, production is vertically integrated. Copper cathode is produced at facilities attached to mine *sites*, through leaching, solvent extraction and electrowinning.

In the pyrometallurgical process, production can be fully or partially vertically integrated, or consist of multiple stand-alone steps. Fully vertically integrated production incorporates all stages of *transformation*, from mining to cathode manufacture, in a single location owned by one *company*. When the supply chain is not vertically integrated, the stages of *transformation* can be geographically separate and/or owned by different *companies*. In such a supply chain, intermediate forms of copper are transported between *sites*, and traded domestically and internationally.

The first stage in the pyrometallurgical transformation of copper ore is the production of copper concentrate. This happens at mine sites[43], or sometimes at nearby facilities, and the concentrate produced generally contains around 30% copper.[44]

Copper concentrates from multiple mine sites are typically blended together prior to smelting, for a number of reasons, such as to ensure that impurity levels within the blend fall within an acceptable range, or to meet legal requirements.

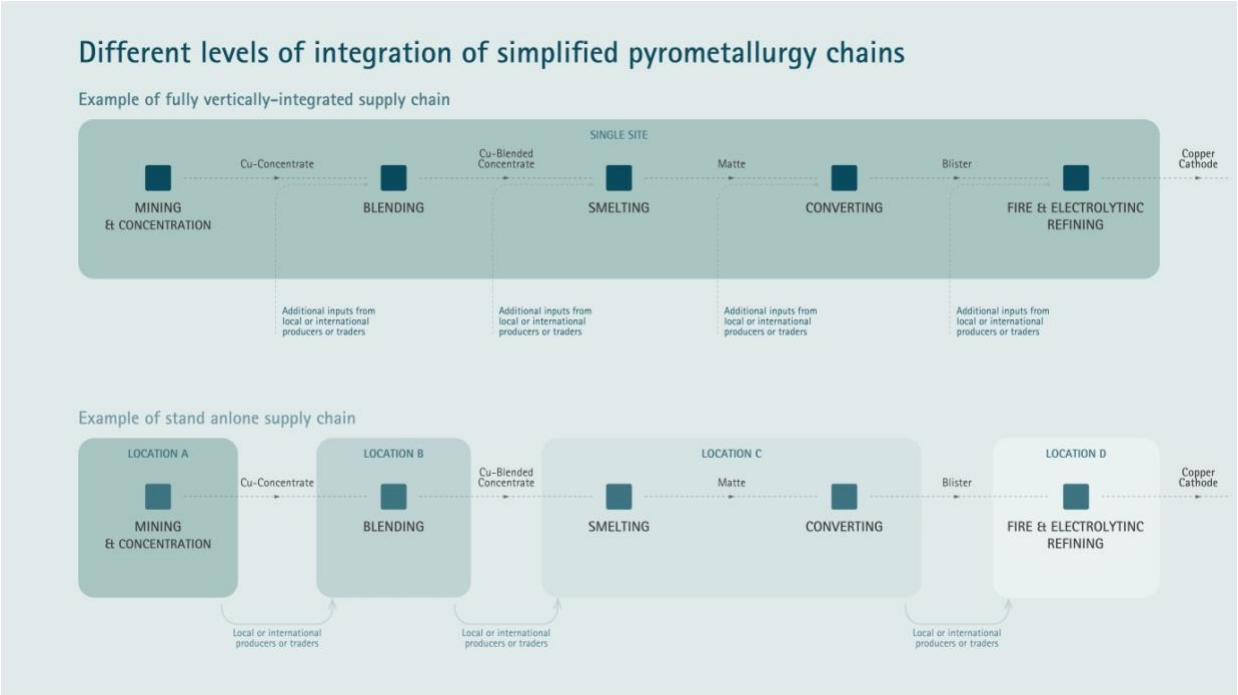

Figure 2 Examples of different levels of integration in the pyrometallurgy chain

Stand-alone *smelters*, or combined smelting and refining plants that do not have integrated copper mines, will typically source their concentrate from a diverse range of mines, traders and blending facilities around the world.

[43] Excerpt from Ullmann's Encyclopaedia of Industrial Chemistry (2001), https://svn.eeni.tbm.tudelft.nl/Education/ta3290/assignments/Copper_Economics.pdf,accessed 21 January 2021.

[44] Schlesinger, Mark & King, Matthew & Sole, Kathryn & Davenport, William. (2011). Production of Cu Concentrate from Finely Ground Cu Ore. 10.1016/B978-0-08-096789-9.10004-6. https://www.researchgate.net/publication/285175189_Production_of_Cu_Concentrate_from_Finely_Ground_Cu_Ore, accessed 21 January 2021.

Vertically integrated smelting and refining plants that have copper mines may still source concentrate externally, for example in order to make up production shortfalls.

Concentrate supplies can be obtained by a *smelter* through spot purchases, or medium- or long-term supply contracts, depending on the needs of the *smelter*.

Blending facilities are not always co-located at the *sites* where copper is mined, concentrated or smelted.

Some international *mineral* trading *companies* operate stand-alone blending plants, which can be in copper-producing countries, in countries where *smelters* are located, or in third countries for logistical reasons or in order to blend copper concentrate to meet the specific requirements of legislations of importing countries. It should be noted that blending can also take place along with other intermediate forms of copper.

Copper concentrate *blending companies* and/or *smelters* can be an **additional** *identified point*.

Where the *refiner* receives 100% of its *materials* from one *smelter* (i.e. a single source) during the *assessment period*, the *smelter* is an **additional** *identified point* and should be considered for an *assessment*, whether that *smelter* is stand-alone or part of an integrated operation. In this case, the *assessment* scope of the *refiner* (the *identified point*) may be combined with the *smelter* (the additional *identified point*). In such cases, emphasis of the *assessment* activities should be placed at the *site* where the *relevant information* for the *due diligence process* is collected and retained in order to enable a determination of the *companies* level of visibility and control over the circumstances of production and trade *upstream*.

Annex III: Lead Industry Key Facts and Supply Chain

Lead Industry Key Facts

- Lead is usually found in ore with zinc, silver and copper and is extracted together with these metals. Galena (PbS) is the main ore of lead along with cerussite ($PbCO_3$) and lead sulfate ($PbSO_4$). According to the International Lead and Zinc Study Group (ILZSG), lead ores are mined at a rate close to 5 million tonnes (calculation based on lead contained in concentrate) a year.[45]
- The world´s lead resources are mainly distributed in Siberia, Russia; the central and western regions of China; Queensland, New South Wales in Australia; the southeastern area of Missouri and the Mississippi River valley area in the United States; Zacatecas and San Luis Potosi in Mexico; Cerro de Pasco and Morococha in Peru.
- Lead mine production is carried out in over 40 countries and is dominated by Asia (which accounts for approximately half of world lead mine production), followed by the Americas (20%), and, in minor quantities, Oceania, Europe and Africa. [46]
- According to industry sources, up to 3% of the lead mined globally may be mined in *artisanal* and *small-scale mining* operations.[47] This is particularly relevant for South American sourced ores.
- Lead concentrate import trade is dominated by Asia and Europe (which together account for over 90% of the world concentrate import trade volume). In particular, key importers are China (which accounts for over 40% of world trade volumes), followed by South Korea (over 20%) and Japan. In Europe, key importers are Germany, Bulgaria, Spain and Belgium[48].
- Lead concentrate export trade is dominated by the Americas, Europe and Oceania (Australia). Peru is the world's largest exporter (approximately 18% of world lead concentrate export trade), followed by the USA (approximately 16%) and the Russian Federation (approximately 15%)[49].

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[45] International Lead Zinc Study Group (ILZSG) (2019), The World Lead Factbook 2019.
46 Ibid.
47 Ulrike Dorner, et al., (2012) Artisanal and Small-Scale Mining (ASM), POLINARES working paper n.19, http://pratclif.com/2015/mines-ressources/polinares/chapter7.pdf, accessed 21 January 2021.
[48] International Lead Zinc Study Group (ILZSG) (2019), The World Lead Factbook 2019.
[49] Ibid. p.41 (visual estimates).

- Primary lead represents approximately 40% of refined metal production with over 60% being sourced from recycled or secondary *material* (mainly used lead batteries and other lead containing scrap). Lead is also recovered from residues or as a by-product resulting from other metal ore processing operations (such as copper production drosses, flue dust and zinc plant residues) and is generally recovered by the primary smelter. In some primary lead smelters, zinc plant residues may make up as much as 25% of their input feed.
- Refined lead production is dominated by China (accounting for approximately 47% of world production), followed by the United States (11%), South Korea (8%) and India (6%).[50]
- Informal lead battery recycling is recognised as being a significant issue in low and middle income countries leading to substantial environmental pollution and adverse impacts on human health.[51]
- Over 85% of refined lead is used in the production of automotive and industrial batteries, 7% in rolled and extruded products, 5% in the production of lead compounds (most for use in batteries), 1% in ammunition and remainder in alloys and solders. World refined lead import is dominated by seven countries which account for 60% of total imports; USA (approximately 25%), Germany (7%), China (6.5%), India (5.7%), Turkey (5.4%), South Korea (5%) and Spain (4.6%).

Lead Industry Supply Chain

The most important mineable lead ore is galena (lead sulfide), which occurs chiefly in association with other *minerals*, but particularly zinc in the form of sphalerite. Other lead containing ores are cerussite (lead carbonate) and anglesite (lead sulfate).

In world mining output, mixed lead–zinc ore deposits are important and account for approximately 70% of total production of both metals. In second place are deposits that contain predominantly lead ores (approximately 20% of total production) and the remainder (approximately 10%) is obtained as a by-product from zinc, copper–zinc, and other deposits.

Common impurities in lead minerals are zinc, copper, arsenic, tin, antimony, silver, gold and bismuth.

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[50] International Lead Zinc Study Group (ILZSG) (2019), The World Lead Factbook 2019. p. 16 (estimate based on Refined Lead Metal Producing Countries With Output Above 100,000 Tonnes in 2018).
[51] World Health Organisation (2017),. Recycling used lead-acid batteries: health considerations. Switzerland,

An important by-product of primary lead production is silver, which is incorporated into the lattice of galena, and is recovered in the lead bullion in the smelting process. Some 70% of the world's silver production comes from the smelting of lead concentrates.

The first step in lead mining is the separation of lead-rich ore from the other elements and *materials*. The most common method of ore/element concentration is the process of flotation, which allows lead to be separated from other *materials*. In a typical lead–zinc mining operation, the individual metals/compounds are usually separated in a two-stage process. First, the lead sulfide floats and is removed and then second, the zinc sulfide, which was prevented (or depressed) is then allowed to float and be collected. Each of the individual "froths" are then broken down by water sprays and then filtered to remove the water. The resulting *material*, termed "concentrate", is typically a sulfidic lead product containing an average of 50–60% lead.

The basic concept of primary lead smelting involves removing sulfur from the lead ore by roasting it in air (sintering). The second stage involves reducing the lead oxide formed by roasting to lead metal by using carbon (coke) as the reducing agent. There are two basic pyrometallurgical processes utilized across the world to produce lead bullion from lead sulfide, or from mixed lead and zinc sulfide concentrates:

- Direct smelting, which is by far the dominant technology
- Sintering/smelting in a blast furnace or Imperial Smelting Furnace (ISF)

In each of the processes, the smelting operation produces a lead bullion that must be further refined. This is typically conducted on the same *site* as the primary smelter, although there are a few stand-alone refineries in operation.

During refining, both valuable and deleterious impurities are removed so as to produce a pure commercial lead metal that is suitable for the end user. Typically, refining produces a commercial quality lead that can be up to 99.99% pure (4 nines Pb). The Electro-refining method or the Betts Process, is the dominant primary refining process (>80%) to achieve "99.994 lead". For the purpose of this Standard, producers of minimum 99.97% grade refined lead are referred to as the *refiner* and they are the *identified point*.

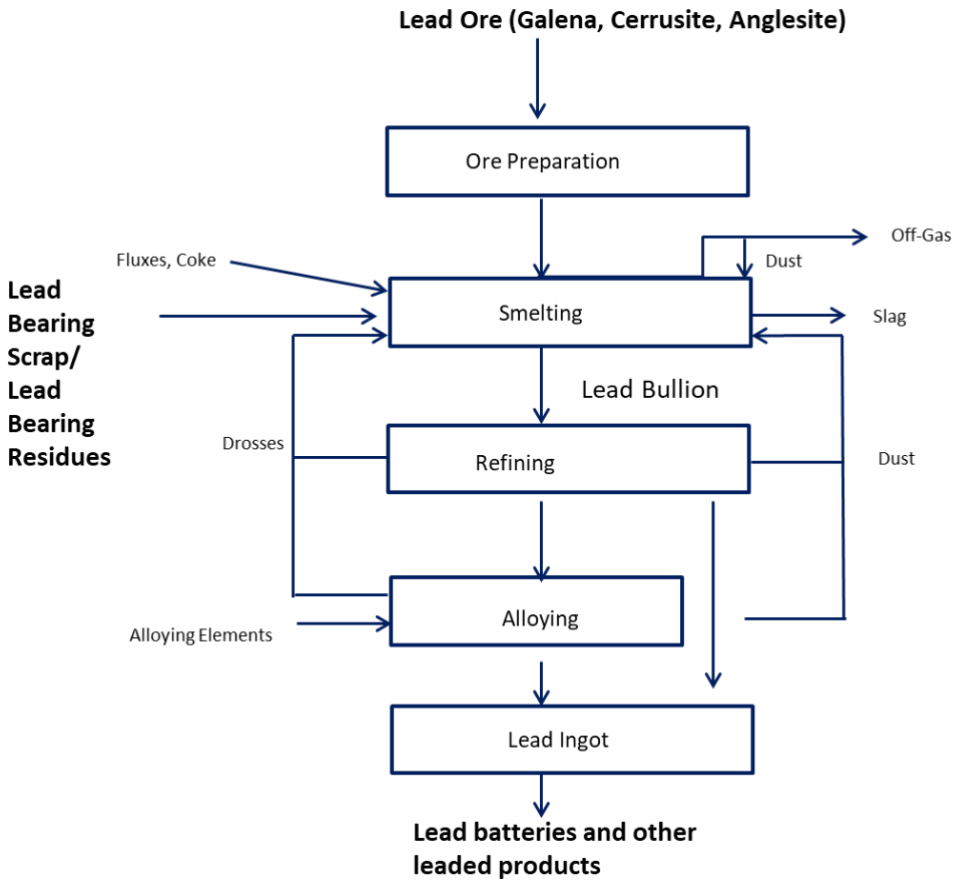

Figure 3 Routes of lead production

In primary lead supply chains, *material* generally comes directly from mines, but there are supply chains where it may come from several blenders that accumulate concentrates from different mines often too small to sell directly to the *smelter*.

Stand-alone lead concentrate *blending companies* and/or stand-alone *smelters* can be an **additional** *identified point*.

Annex IV: Nickel Industry Key Facts and Supply Chain

Nickel Industry Key Facts

- A range of nickel products are produced by the nickel industry and used to satisfy the nickel demand globally. They comprise high purity nickel to LME grade nickel metal, non-LME grade nickel metal, ferro-nickel, nickel oxide sinter, nickel pig iron and nickel chemicals. These raw *materials* mainly differ in their metal content. While nickel metal class 1 is defined to have a nickel content of at least 99%, the nickel content of nickel pig iron can be as low as 3%.
- The nickel industry is characterised by sizeable trade flows of ore, concentrates and intermediates including hydroxides, sulphides, oxides and mattes, as well as recycled streams.
- Stainless steel is the major first use of nickel, accounting for 70% of all nickel uses. Nickel metal, nickel pig iron, ferro-nickel and nickel oxide sinter are all used in stainless steel production, whereas nickel metal and nickel chemicals are also used for a broader range of first uses, including alloy steel and non-ferrous alloys, plating and batteries.
- Nickel mine production is dominated by South-East Asia (which accounts for over 40% of world nickel mine production), in particular Indonesia and the Philippines, followed by Russia and New Caledonia.[52]
- The volume of nickel occurring as by-product of precious metals and copper production are relatively small.
- Primary nickel production is also dominated by Asia, in particular China (which accounts for approximately 30% of primary nickel production), followed by Indonesia (13%), Japan (9%) and Russia (7%). China is a major importer of nickel intermediates in different forms.[53]
- According to a literature review conducted for the purpose of this Standard, there are no cases of ASM reported in nickel production. In general, mining and production of nickel is capital intensive, requiring significant mining and metallurgical equipment. Moreover, the concentrations of nickel and its by-

[52] International Nickel Study Group (2019). World Nickel Statistics Yearbook. Vol. XXVIII November 2019. ISSN 1022-2561. www.insg.org
[53] Ibid.

products in the ores are at low levels. The combination of both factors prevents ASM in nickel to take place.

- Given the high economic value, nickel is recycled at high efficiency levels. Only 15% of nickel from end of life products is not recycled. Approximately 33% of the nickel demand is satisfied by recycled nickel. Unlike other metals industries, the vast majority of nickel recycling takes place *downstream* in stainless steel mills, where nickel-containing stainless steel and nickel-containing alloy steel scraps are used as input into stainless steel production. In the future, more recycling is expected to take place within the nickel industry with increasing use of nickel in emerging markets such as batteries. Primary and recycled nickel production are in some cases blended, either within the nickel industry or in stainless steel production.

Nickel Industry Supply Chain

Nickel is produced from lateritic and sulphidic ores. Lateritic ores are normally found in tropical climates where weathering, with time, extracts and deposits the ore in layers at varying depths below the surface. Lateritic ores are excavated using large earth-moving equipment and are screened to remove boulders. The metal bearing *minerals* derived from lateritic ores are usually of oxidic nature. Sulphidic ores are mostly mined from underground. The metal bearing *minerals* derived from sulphidic ores are usually of sulphidic nature.

The nickel mining stage of nickel production includes all processes to extract nickel ore up to the point of delivery to beneficiation or ore preparation.

After it has been mined, the ore passes through ore preparation or beneficiation. The ore is then either crushed, screened and dried (ore preparation), or it undergoes beneficiation, where the ore is crushed, ground and undergoes flotation or magnetic separation to obtain a nickel concentrate.

Sulphidic ores usually undergo beneficiation, while lateritic ores usually undergo the so-called ore preparation. As lateritic ore generally has a high moisture content, the principal component of the ore preparation processes is therefore drying of ore. In specific cases, however, lateritic ore can undergo further processing resulting in an increased concentration of nickel in the ore and higher than the concentration obtainable only through drying. These processes are very distinct from the processes that occur during the beneficiation of sulphidic ore.

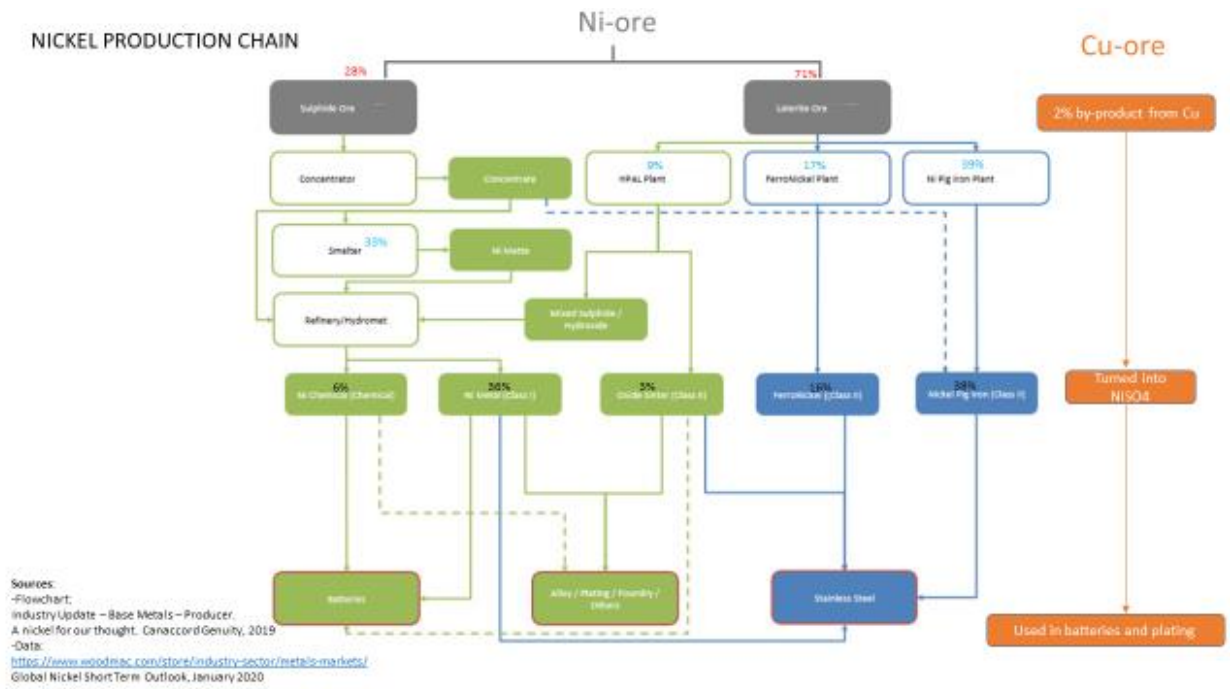

Figure 4 Nickel production chain

Prepared ore and nickel concentrate are then converted into nickel matte, nickel oxide, ferro-nickel, nickel intermediates, and other nickel and non-nickel co-products. There are two extraction processes, hydrometallurgical and pyrometallurgical, and both are used with lateritic and sulphidic ores.

Sulphidic ores have been typically processed using pyrometallurgy, though, in recent years, hydrometallurgical processing has become mainstream; whereas lateritic ores are typically processed using hydrometallurgy based on ammonia or sulphuric acid leaching such as High Pressure Acid Leaching (HPAL) which represents around 20% of nickel supply and is typically the solution for the lower grade lateritic ores. Typically, in this case a mixed nickel sulphide or a mixed nickel hydroxide intermediate product is produced for further refining.

Various processes are then used to refine nickel mattes, nickel mixed sulphides, nickel mixed hydroxides and nickel oxides into nickel metal or nickel salts. Use of electrical cells equipped with inert cathodes is the most common technology for nickel refining. Electrowinning, in which nickel is removed from solution in cells equipped with inert anodes, is also common. Refining often involves the separation of nickel and cobalt,

which occurs as a by-product. An alternative process of nickel refining is the carbonyl process. In this process, nickel oxides are converted into nickel metal.

For the purpose of this Standard, producers of nickel metal class 1 are referred to as the *refiner.* These producers are an *identified point.*
Producers of nickel metal class 1, may be:

- Vertically integrated to the mine sites.
- Partially vertically integrated *companies*, which process *material* from their own mines and *material* from external sources.

Stand-alone nickel concentrate *blending companies* and/or stand-alone *smelters* can be an **additional** *identified point*.

Producers of nickel chemical compounds and all nickel raw intermediates (ferro-nickel, nickel pig iron, nickel oxide sinter and other nickel intermediaries) entering production of stainless steel, alloys, batteries and plating, where refining is not part of the *transformation* process, are **alternative** *identified points*.

Annex V: Zinc Industry Key Facts and Supply Chain

Zinc Industry Key Facts

- Zinc bearing products involved in primary zinc production (Special High Grade (SHG) zinc) that are traded domestically and internationally are:[54]
    - Zinc concentrates.
    - Secondary zinc oxide bearing raw *materials*, mostly waelz oxide and electric arc furnace dust (EAF dust) originating from the recycling of galvanized steel scrap.
    - SHG zinc in various formats and tonnages.
    - An additional ca. 4 million tonnes are recycled from zinc metal scrap, brass and zinc containing wastes and by-products annually without passing through zinc smelters. Technologies applied are re-melting and other metallurgical processes.
- Zinc mine production is dominated by Asia, specifically China (which accounts for approximately one third of world zinc mine production) followed by Peru, Australia and the United States.[55]
- Zinc refined production is also dominated by Asia, specifically China (which accounts for over 45% of world zinc refined production), followed by South Korea, India, Spain, Australia and Japan.[56]
- It is estimated that approximately 1% of zinc mined globally is mined in *artisanal* and *small-scale mining operations* (ASM). This leaves about 99% of the zinc mined globally coming from large-scale mining operations.[57] The International Lead and Zinc Study Group (ILZSG) lists about 1000 tonnes of zinc being mined in DRC.[58]

[54] Monthly Bulletin of the International Lead and Zinc Study Group, Vol 60 No 2, February 2020.
[55] Ibid.
[56] Ibid.
[57] Ulrike Dorner, et al., (2012) Artisanal and Small-Scale Mining (ASM), POLINARES working paper n.19, http://pratclif.com/2015/mines-ressources/polinares/chapter7.pdf, accessed 21 January 2021.
[58] Monthly Bulletin of the International Lead and Zinc Study Group (2019) and International Lead and Zinc Study Group, Lead and Zinc Statistics, http://www.ilzsg.org/static/statistics.aspx?from=1, accessed 21 January 2021.

Zinc Industry Supply Chain

Zinc is usually found in zinc sulfide ores, and it is typically associated with lead, silver, copper and/or cadmium.

These metals are separated from zinc during the smelting process, enriched in concentrates or by-products and sent to their respective industries for recovery. Zinc is also found together with indium, germanium and cobalt. These elements are concentrated and recovered during zinc smelting if their concentration in the zinc concentrate and their price are sufficiently high.

Zinc oxide bearing ores do exist and are used for SHG zinc production, but the majority of the ores mined today are sulfide ores.

The first stage in the *transformation* of zinc ore is the production of zinc concentrate. This happens at mine sites, or sometimes at nearby facilities, and the concentrate produced generally contains around 50–60% zinc.

Zinc concentrates usually are processed for zinc recovery together with oxidic secondary raw *materials*. Mostly these are waelz oxide, which is enriched electric arc furnace dust (EAF dust) originating from the recycling of galvanized steel scrap. The global average of SHG zinc being recovered from secondary raw *materials* is 10–15%. In extreme cases, the recycled content in primary zinc (SHG quality) can rise to 30% or even 100%.

Concentrate supplies can be obtained by a *smelter* through spot purchases, or medium- or long-term supply contracts, depending on the needs of the *smelter*. Zinc concentrates can be traded directly between mines and *smelters* or via traders. Traders may blend concentrates in stand-alone blending facilities to adjust their composition.

Zinc concentrates from multiple mine sites or traders are typically blended (again) prior to smelting.

There are two general routes of zinc production: the Roast-Leach-Electron Process (RLE) and the Pyrometallurgical Process.

For well over 95% of the zinc produced from ores the RLE in technical variations is applied, which reacts very sensitive on changes in the chemical composition of the feed *materials*. Very small variations in feed composition can result in disturbances of the process lowering its efficiency. Receiving concentrates from various sources requires a

sophisticated blending process to ensure the feed composition is kept within strict and tight limits.

The remainder is produced via pyrometallurgical processes such as the Imperial Smelting Process. Often, zinc and lead *refiners* and in some cases also copper *refiners* are operated by one *company*, thus maximising efficiency and recycling potentials of metals from by-products and wastes.

The end product of both pyrometallurgy and the RLE processes is Special High Grade (SHG) zinc, a 99.995% pure form of zinc.

For the purpose of this Standard, producers of SHG zinc are referred to as the *refiner.*

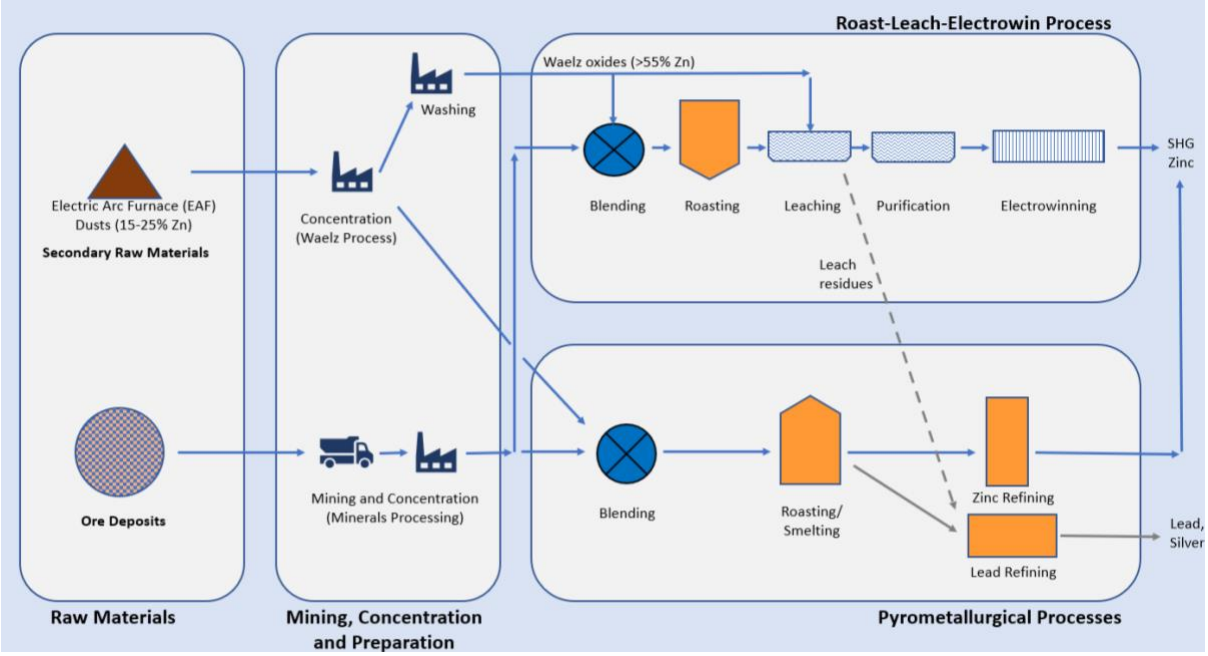

Figure 5 Simplified and generalised routes of zinc production (SHG)

Zinc production can be fully vertically integrated, meaning that SHG zinc is produced by *refiners* integrated to the mine site. Larger, internationally acting entities may operate mine sites and refineries in different countries. At the same time, SHG zinc production can consist of stand-alone operations, such as mining/concentrating and smelting/refining. Preparation of secondary raw *material* feed can be a stand-alone operation, or it can be integrated in the smelting/refining process. When the supply chain is not vertically integrated, the stages of *transformation* can be geographically separate and owned by different *companies*, with diverse operating practices. In such a supply

chain, intermediate forms of zinc are transported between *sites*, and traded domestically and internationally.

Stand-alone *smelters*, or combined smelting and refining plants, that do not have integrated zinc mines, will typically source their concentrate from a diverse range of mines, traders and blending facilities around the world. A *smelter* that does not have an integrated mine will generally have relationships with between 10 and 30 concentrate *suppliers* of these types.

Stand-alone zinc concentrate *blending companies* and/or stand-alone *smelters* can be an **additional** *identified point*.