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Guidance principles for the sustainable management of secondary metals

*Principes directeurs pour la gestion durable des métaux de seconde
fusion*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

International Workshop Agreement IWA 19 was approved at a workshop hosted by the World Resources Forum (WRF), in association with the Swiss Association for Standardization (SNV), held in Davos, Switzerland, in October 2015.

The idea to develop guidance principles for the sustainable management of secondary metals was proposed by the Sustainable Recycling Industries (SRI) Roundtable¹⁾, which is an initiative of the World Resources Forum (WRF) and the Swiss Federal Laboratories for Materials Science and Technology (EMPA). The development process was assisted by the Swiss Association for Standardization (SNV) and funded by the Swiss State Secretariat for Economic Affairs (SECO). The guidance principles draw on existing key research and sustainability standards, e.g. from the Responsible Jewellery Council (RJC, 2012^[41]; RJC, 2013^[42]), the Aluminium Stewardship Initiative (ASI, 2014),^[10] and the European Committee for Electrotechnical Standardization (via the CENELEC standards).

This document was developed between July 2015 and December 2016, and was reviewed and agreed through a public and transparent process encompassing in-country consultations, and involving the private sector, governments, inter-governmental organizations, practitioners, civil society organizations and researchers working in the field of secondary metals. The International Social and Environmental Accreditation and Labelling (ISEAL) Alliance Codes of Good Practice ^{[28][30][31]} were also used in the process of developing the guidance principles.

1) www.sustainable-recycling.org

Introduction

0.1 Metal recycling and impacts

Recycling metals such as aluminium, copper and gold found in waste, e.g. resulting from electronic and electrical equipment, cars, ships, packaging materials or construction activities, is a rapidly growing economic activity worldwide. In Latin America alone, the amount of electronic waste generated annually is expected to grow from 2,84 million tons in 2009 to 4,79 million tons in 2018 (Magalini et al., 2015[34]).

In developing and emerging economies recycling is mainly done through the informal sector (e.g. in India this sector recycles more than 90 % of all generated e-waste), which plays a critical role in the recycling of secondary metals.

These uncontrolled metals recovery activities release pollutants into the air, soil and water, which, combined with poor working conditions and poor health and safety practices, create significant negative impacts on workers, communities and the environment (Robinson, 2009[43]; International Labour Office, 2012[24]; SRI, 2015[44]). Most critical are the impacts on vulnerable workers in the informal sector.

While formal stakeholders handle metallurgical processing more efficiently than the informal sector, the latter has proven to be more efficient at collecting and preparing waste that contain metals (e.g. through manual processing). Thus, the informal sector plays a critical role in recycling.

Furthermore, a growing number of formal recyclers want to tap into the potential of increasing secondary metals recovery, both in volume and quality. As a consequence, competition on waste streams is emerging between the informal and formal sectors. More and more waste is flowing from the informal sector to formal recyclers. However, this does not happen in a structured and organized way due to a lack of guidance and authoritative supporting frameworks.

0.2 Vision

The vision behind the guidance principles is to leverage the circular economy approach to ensure social equity, environmental justice and optimal recovery in metal recycling worldwide, for present and future generations.

Key pathways for the implementation of the guidance principles will be through:

- compliance with the guidance principles by economic operators involved in secondary metal value chains;
- integration of the guidance principles into government policy, sustainability standards systems and other organizations that would put in place supporting mechanisms.

0.3 Aims

The aim of the guidance principles is to provide a credible global framework for the sustainable management of secondary metals.

More specifically, the guidance principles aim to:

- improve practices of economic operators (see [Figure 4](#)) by complying with sustainability requirements based on principles and objectives (see [Clause 6](#));
- ensure a credible traceability of recovered metals by complying with traceability requirements for those who wish to demonstrate so (see [Clause 7](#));
- promote the formalization of economic operators involved in subsistence activities (SA) and unofficial business activities (UBA) by constituting themselves as legal entities or joining existing ones.

The overarching values that inform the development and implementation of the guidance principles are shared responsibility, transparency, engagement, continuous improvement and equity.

It is envisaged that there will be a number of beneficiaries of improved practices resulting from the compliance with the principles and objectives and implementation of traceability schemes by economic operators. The guidance principles aim to primarily benefit economic operators involved in SA in developing and emerging economies, who are highly vulnerable to environmental and socio-economic impacts, including child labour and occupational hazards due to uncontrolled practices (see [Annex A](#)) and poor working conditions.

Anticipated benefits for economic operators involved in collection, manual and mechanical processing, metallurgical processing, as well as transportation/trade and storage, are:

- improved safety at work and improved health outcomes for workers and their families;
- improved access to funding and credit from financial institutions willing to mitigate risks by requiring compliance with the guidance principles;
- reduced risk of non-compliance with legal requirements; applicable laws and regulations may require that recycled metals fulfil environmental and social criteria in line with the guidance principles.

Potential benefits for economic operators involved in official business activities (OBA), such as product manufacturers and other purchasers of secondary metals, include:

- increased revenue through improved market access and securing longer-term contracts “business to business” and “business to consumer”, who may give preferential treatment to enterprises providing materials and products that are compliant with the guidance principles;
- improved and more transparent management systems;
- secured access to secondary metal resources;
- demonstrated commitment to sustainability along their value chains.

0.4 Structure

[Figure 1](#) illustrates the structure of this document. [Clause 5](#) describes the elements that fall within the sphere of application. [Clause 6](#) introduces the sustainability requirements based on five principles and 17 objectives. Each objective is accompanied by a set of explanatory notes, steps and timeframe. It also has recommendations for supporting mechanisms to be adopted by governments and civil society organizations, as well as the private sector or in public-private partnerships. [Clause 7](#) describes the traceability requirements. [Clause 8](#) the path towards a robust assurance system. [Clause 9](#) provides guidance for an efficient and credible implementation of the guidance principles. [Annex A](#) identifies a set of worst practices in metals recovery and good practices as options, wherever feasible. [Annex B](#) introduces an example of a monitoring and evaluation (M&E) plan.

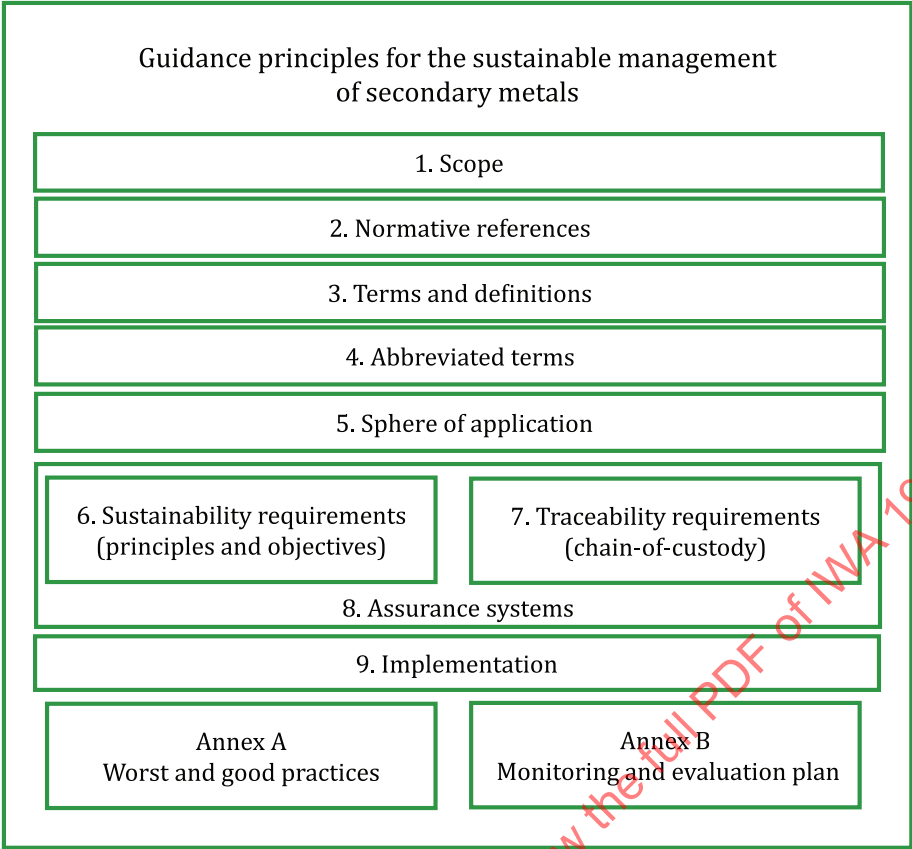


Figure 1 — Structure of this document

In this document, the following verbal forms are used:

- “shall” indicates a requirement;
- “should” indicates a recommendation.

Guidance principles for the sustainable management of secondary metals

1 Scope

This document provides a global framework for the sustainable management of secondary metals. The framework includes sustainability and traceability requirements for metals recovered.

This document guides economic operators of secondary metals value chains, including those engaged in the informal sector, in the efficient and credible implementation of improved recycling practices, in particular in emerging and developing economies.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

affected community

community that is directly impacted by the consequences of activities related to metal *collection* (3.6), manual and mechanical processing, *metallurgical processing* (3.24), *disposal* (3.7) and/or use of residues

Note 1 to entry: These communities are usually located near operations and may be impacted either positively (e.g. through job creation, infrastructure development and enhanced livelihoods) or negatively (e.g. through pollution, noise disturbance and human rights violations).

[SOURCE: Prospectors and Developers Association of Canada, 2009,^[40] modified]

3.2

assurance system

combination of verification mechanisms used to demonstrate compliance with a set of requirements and that are based on regular and systematic monitoring of the performance of *economic operators* (3.9)

Note 1 to entry: Monitoring results can be used for external communication via *claims* (3.5).

3.3

chain-of-custody

CoC

chain of responsibility for or control of materials as they pass from one *economic operator* (3.9) to another through each step of the process or product system under assessment

[SOURCE: ISO 13065:2015, 3.7, modified]

3.4 child labour

work that deprives children of their childhood, their potential and their dignity, and that is mentally, physically, socially or morally dangerous and harmful to children

Note 1 to entry: Child labour interferes with their schooling by:

- depriving them of the opportunity to attend school;
- obliging them to leave school prematurely; or
- requiring them to attempt to combine school attendance with excessively long hours and heavy duties.

Note 2 to entry: In its most extreme forms, child labour involves children being enslaved, separated from their families, exposed to serious hazards and illnesses and/or left to fend for themselves on the streets of large cities, often at a very early age.

Note 3 to entry: Children's participation in work that contributes to their development and the welfare of their families can be considered as positive in the context of the guidance principles if this provides them with skills and experience, helps to prepare them to be productive members of society during their adult life and does not affect their health and personal development or interfere with their schooling. These activities include helping their parents around the home, assisting in a family business or earning pocket money outside school hours and during school holidays.

[SOURCE: ILO, 2016,^[25] modified]

3.5 claim

statement used for communication purposes about compliance with the sustainability and traceability requirements, and about the main characteristics of a batch of recovered materials, waste or *end-of-waste* (3.11) that contain metals

Note 1 to entry: Claims are of two types:

- On-product claims are attached to a specific batch of physical product, along with product documentation, following the successful completion of a *chain-of-custody* (3.3) assessment based on *third-party auditing* (3.38). They guarantee that a given batch of physical product is compliant.
- Off-product claims indicate that a company or a facility was verified following *second-party auditing* (3.32) and deemed compliant. Off-product claims are primarily used in general communications to the public (e.g. annual reports and marketing documents).

3.6 collection

gathering of waste, including the preliminary sorting and preliminary *storage* (3.36) of waste, for the purposes of transport to storage, manual or mechanical processing, *metallurgical processing* (3.24) or the next *economic operator* (3.9)

Note 1 to entry: Collection can be done through waste collectors involved in *subsistence activities* (3.37), curbside collection services and *recycling* (3.29) centres.

[SOURCE: CENELEC, 2014,^[13] modified]

3.7 disposal

final or temporary placement of waste that is not salvaged for further metal reuse or *recovery* (3.28) purposes

3.8

due diligence

detailed assessment conducted by an *economic operator* (3.9) to evaluate a supplier's compliance with the guidance principles

Note 1 to entry: In the context of the guidance principles, due diligence is conducted through *second-party audits* (3.32) or *third-party audits* (3.38) and, wherever feasible, regularly monitored through government inspections and oversight.

3.9

economic operator

individual, enterprise, association, cooperative or organization involved in the *collection* (3.6), manual or mechanical processing, *metallurgical processing* (3.24), transportation, trading, *storage* (3.36), consumption/manufacturing and/or *disposal* (3.7) of waste that contains metals (3.43) and/or of materials produced as part of *subsistence activities* (3.37), *unofficial business activities* (3.40) or *official business activities* (3.25)

3.10

ecosystem services

benefits that people derive from ecosystems such as goods (e.g. food, fresh water, wood, fibre and fuel, and other raw materials like plants, animals, fungi and micro-organisms), essential supporting services (e.g. nutrient cycling, pollination of crops, soil formation and primary production), regulating services (e.g. climatic, flood and disease regulation, water purification) and cultural services (e.g. recreational, aesthetic, spiritual, educational and a sense of place)

[SOURCE: The Millennium Ecosystem Assessment, 2003^[42]]

3.11

end-of-waste

fractions or materials that have ceased to become waste, following a *recovery* (3.28) or *recycling* (3.29) operation in compliance with the criteria in Article 6 of Directive 2008/98/EC, and which are sometimes also termed secondary materials

[SOURCE: Directive 2008/98/EC^[14]]

3.12

environmental and social impact assessment

ESIA

instrument whose purpose is to identify and assess the potential environmental and social impacts of a proposed project, evaluate alternatives and design appropriate mitigation/enhancement, monitoring, consultative and institutional strengthening measures

[SOURCE: African Development Bank, 2001^[8]]

3.13

exporter

person under the jurisdiction of the state of export who arranges for material, products and/or waste to be exported

[SOURCE: Basel Convention,^[11] modified]

3.14

extended producer responsibility programme

EPR programme

programme by which the producer's liability for a product is extended to the safe and sustainable *collection* (3.6), *storage* (3.36), *recycling* (3.29) or *disposal* (3.7) of a product

Note 1 to entry: In the context of the guidance principles, the main objective of an EPR programme is to support compliance with the sustainability requirements.

Note 2 to entry: An EPR programme is implemented through a mix of the following instruments whose implementation is regularly audited and monitored:

- Product take-back systems. Their primary aim is to increase collection of end-of-life products and, hence, recycling that requires producers to collect the product at the post-consumer stage. This can be achieved through collection and recycling targets of the product or materials and through incentives for consumers to bring the used product back to the selling point.
- Economic and market-based instruments. They aim to provide economic incentives to producers to comply with EPR programmes. These instruments include measures such as deposit-refund schemes, advanced disposal fees (ADF), material taxes and upstream combination taxes/subsidies (UCTS).
- Regulations and performance standards. Their purpose is to establish a level playing field for producers. Regulations and performance standards include, for example, minimum recycled content in products, which can be mandatory or applied through voluntary initiatives.
- Information-based instruments. They aim to indirectly support EPR programmes by raising public awareness and include, for example, reporting requirements about the producer responsibility as well as product content and labelling.

[SOURCE: OECD, 2016,[\[37\]](#) modified]

3.15 extended responsible sourcing programme ERS programme

supply chain responsibility programme through which companies commit to monitor (e.g. through audits) social and environmental impacts of suppliers in addition to the traditional aspects of cost and quality, in order to identify areas of risk and improvement

[SOURCE: ICC, 2008,[\[27\]](#) modified]

3.16 first-party audit

verification tool that is implemented by an *economic operator* ([3.9](#)) to assess progress of compliance with the principles and objectives, and/or *traceability schemes* ([3.39](#)) on its own practices and activities, and is conducted by an internal auditor

Note 1 to entry: First-party audits are simpler than *second-party audits* ([3.32](#)) and *third-party audits* ([3.38](#)), as the sample of interviewed people and processes tends to be smaller, which reduces the administrative burden (e.g. non-disclosure agreements, contracts, rigid audit schedule) and therefore the verification costs. First-party audits and associated compliance *claims* ([3.5](#)) are also considered less robust than third-party audits as they are not performed by independent auditors.

3.17 forced labour

work or service that is exacted from any person under the menace of any penalty and for which the said person has not offered himself/herself voluntarily

[SOURCE: ILO Convention 29, 1930[\[16\]](#)]

3.18 hazardous waste

waste that is potentially flammable, combustible, ignitable, corrosive, toxic, reactive or injurious to people or the environment

Note 1 to entry: Non-hazardous waste includes recovered materials consisting of only metals or alloys with non-hazardous characteristics

[SOURCE: ISO 15190:2003, 3.13, modified — Note 1 to entry has been added.]

3.19 importer

person under the jurisdiction of the state of import who arranges for material, products and/or waste to be imported

[SOURCE: Basel Convention,[\[11\]](#) modified]

3.20**informal sector**

sector that includes *economic operators* (3.9) involved in *unofficial business activities* (3.40) or in *subsistence activities* (3.37) that are not constituted as legal entities

3.21**independent review**

review performed by individuals or organizations technically, managerially and financially independent from the *economic operators* (3.9) who are interested in assessing the level of compliance of these economic operators with the guidance principles

3.22**living wage**

remuneration received for a standard work week by a *worker* (3.44) in a particular place, sufficient to afford a decent standard of living for the worker and her or his family, that includes food, water, housing, education, health care, transport, clothing and other essential needs, including provision for unexpected events

[SOURCE: ISEAL Alliance, 2013^[29]]

3.23**manual and mechanical processing**

process to separate and concentrate metals from waste materials into different waste and *end-of-waste* (3.11) fractions for further *metallurgical processing* (3.24)

Note 1 to entry: This includes manual processes done by skilled and adequately equipped *workers* (3.44), e.g. sorting, separating, cleaning, emptying, dismantling, depollution and segregation.

Note 2 to entry: This also includes mechanical processes that can replace or complement manual operations, such as shredding, milling and grinding, as well as segregation by, for example, eddy current or air stream classifiers.

Note 3 to entry: The equivalent term used in *primary metal* (3.26) extraction is “mineral processing” which involves sizing, separation and concentration processes to segregate commercially valuable minerals from ore.

[SOURCE: Directive 2008/98/EC,^[14] modified]

3.24**metallurgical processing**

processing of fractions that contain metals to obtain fractions of higher metal content and to separate and refine metals with specified properties

Note 1 to entry: This includes hydro-, pyro- and electro-metallurgical processes that involve chemical reactions, e.g. pyrolysis, smelting, chemical leaching, alloying and cementation.

Note 2 to entry: Generally, metallurgical processing follows the manual and/or mechanical processing of waste and *end-of-waste* (3.11) fractions or materials that contain metals.

Note 3 to entry: The equivalent term used in *primary metal* (3.26) extraction is “extractive metallurgy”.

3.25**official business activities****OBA**

economic activities that are conducted by *economic operators* (3.9) constituted as legal entities and are therefore subject to government regulation, taxation and observation

Note 1 to entry: Such legal entities are not necessarily deemed fully legally compliant with existing national and local laws and regulations.

[SOURCE: The World Bank Group, 2013,^[48] modified]

3.26**primary metal**

metal extracted from minerals and free of reclaimed metal scrap

[SOURCE: American Society for Metals International, 1992^[9]]

3.27

protected area

clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated *ecosystem services* (3.10) and cultural values

[SOURCE: IUCN, 2008^[33]]

3.28

recovery

operation the principal result of which is waste or *end-of-waste* (3.11) fractions serving a useful purpose by replacing other materials that would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy

[SOURCE: Directive 2008/98/EC^[14]]

3.29

recycling

process by which *secondary metals* (3.33) are extracted from waste and *end-of-waste* (3.11) fractions or materials that contains metals and used in products, materials or fractions, whether for the original or other purposes

Note 1 to entry: In the context of the guidance principles, waste and end-of waste materials are those “that contain metals”.

Note 2 to entry: It includes the reprocessing of organic material but does not include energy *recovery* (3.28) and the reprocessing into materials to be used as fuels or for backfilling operations.

[SOURCE: Directive 2008/98/EC,^[14] modified]

3.30

restoration

process of returning an area to a state that corresponds as much as possible to its pristine condition which may include revegetation, soil enrichment, land and water depollution, and proactive conservation processes

3.31

retailer

seller of goods or services directly to consumers

[SOURCE: The Free Dictionary, 2016^[46]]

3.32

second-party audit

verification tool that is implemented by an *economic operator* (3.9) seeking to assess progress of compliance by its supplier(s) with the principles and objectives, and/or *traceability schemes* (3.39) relating to *secondary metals* (3.33) resulting from the concerned *value chains* (3.41)

Note 1 to entry: Second-party audits and associated *claims* (3.5) are generally seen as less robust than *third-party audits* (3.38), due to potential conflicts of interest between an economic operator and its suppliers and/or customers.

3.33

secondary metal

metal that does not directly originate from a primary mineral but from a *recycling* (3.29) process or from the processing of waste streams from primary production

3.34**self-assessment**

evaluation conducted by an *economic operator* (3.9) over its own activities for the purpose of showing compliance with sustainability requirements

[SOURCE: ISO/IEC/TS 17027:2014, 2.73, modified]

3.35**severe degradation**

severely degraded area of land and/or water that no longer provides a range of ecosystem functions and services, with a consequent loss of goods and many other potential environmental, social, economic and non-material benefits that are critical for society and development

[SOURCE: Oldeman, LR, et al., 1990[38]]

3.36**storage**

depository of metals in various forms, including waste and *end-of-waste* (3.11) materials or fractions that contain metals, collected *secondary metals* (3.33) for further processing, and processed metals for further trading or processing

3.37**subsistence activities****SA**

activities that can be found in both the formal and the *informal sectors* (3.20), and are conducted by *economic operators* (3.9) (mostly individuals and families) who earn a wage that is barely sufficient to support or maintain themselves and is below the minimum tax threshold required per national laws and regulations to pay taxes

Note 1 to entry: In the context of this document, the informal sector includes economic operators involved in SA that are not constituted as legal entities as long as this is required by local or national laws and regulations, and therefore they remain hidden from monitoring by local or national authorities. Economic operators involved in SA can work independently or as part of an enterprise involved in *official business activities* (3.25)/*unofficial business activities* (3.40).

3.38**third-party audit**

verification tool that is implemented by an independent organization (i.e. assurance providers such as certification bodies) that assesses whether an *economic operator* (3.9) complies with the principles and objectives, and/or *traceability schemes* (3.39) it committed to comply with

Note 1 to entry: Third-party audits are generally accepted as the most robust type of *assurance system* (3.2).

3.39**traceability scheme**

system of procedures and management applied to trace compliant waste, *end-of-waste* (3.11) and *secondary metals* (3.33) throughout the *value chain* (3.41)

3.40**unofficial business activities****UBA**

activities that are conducted by *economic operators* (3.9) not constituted as legal entities, with income above the *living wage* (3.22) as well as the minimum tax threshold and that purposely desire to bypass national and/or local laws and regulations

Note 1 to entry: In the context of this document, unofficial business activities are part of the *informal sector* (3.20) and are not monitored by any government.

3.41

value chain

sequence of activities and operations leading to the delivery of a valuable product

Note 1 to entry: In the context of the guidance principles, the value chain covers the circular flow which starts with the *disposal* (3.7) of *waste that contains metals* (3.43) or collection of waste and *end-of-waste* (3.11) fractions that contain metals to the purchase of products made from *secondary metals* (3.33) by final consumers.

[SOURCE: Porter, 1985,[39] modified]

3.42

vulnerable worker

worker (3.44) at risk of having workplace entitlements denied, or who lacks the capacity or means to secure them

[SOURCE: UK Health and Safety Executive, 2016[49]]

3.43

waste that contains metals

hazardous or non-hazardous material that is disposed of, intended or required to be disposed of, and that contains metals or metal compounds with the potential to be recovered

[SOURCE: Basel Convention,[11] modified]

3.44

worker

full-time, part-time or seasonal working person working in *subsistence activities* (3.37), *unofficial business activities* (3.40) and *official business activities* (3.25)

Note 1 to entry: Workers include labourers, administrators, supervisors, executives and contractor workers, as well as self-employed contractors and subcontractors

[SOURCE: ILO Convention C155, 1981,[21] modified]

3.45

worst practice

practice that is known or suspected to have severe (typically multiple) negative impacts on the environment, *workers* (3.44)/community health and safety, and the quality and quantity of recovered *secondary metals* (3.33)

4 Abbreviated terms

CoC	chain-of-custody
CSO	civil society organization
EPR	extended producer responsibility
ERS	extended responsible sourcing
ESIA	environmental and social impact assessment
M&E	monitoring and evaluation
OBA	official business activities
OHS	occupational health and safety
PPE	personal protective equipment

PRO producer responsibility organization

SA subsistence activities

UBA unofficial business activities

5 Sphere of application

5.1 General

The guidance principles apply to the entire secondary-metals value chain. They primarily address the most critical environmental, social and economic impacts occurring over the collection and manual and mechanical processing of waste that contains metals, as well as the metallurgical processes used to extract and refine secondary metals. They also enhance the recovery potential while ensuring a safe end-of-life disposal when recycling is not possible.

5.2 Materials

The sphere of application of the guidance principles covers any hazardous or non-hazardous waste and end-of-waste that contain metals. This includes, but is not limited to, used computers, phones, electric appliances, batteries, accumulators, cars ships and packaging materials as well as waste and end-of-waste from construction activities and other industrial processes.

5.3 Processes

The processes covered by the guidance principles are illustrated in [Figure 2](#).

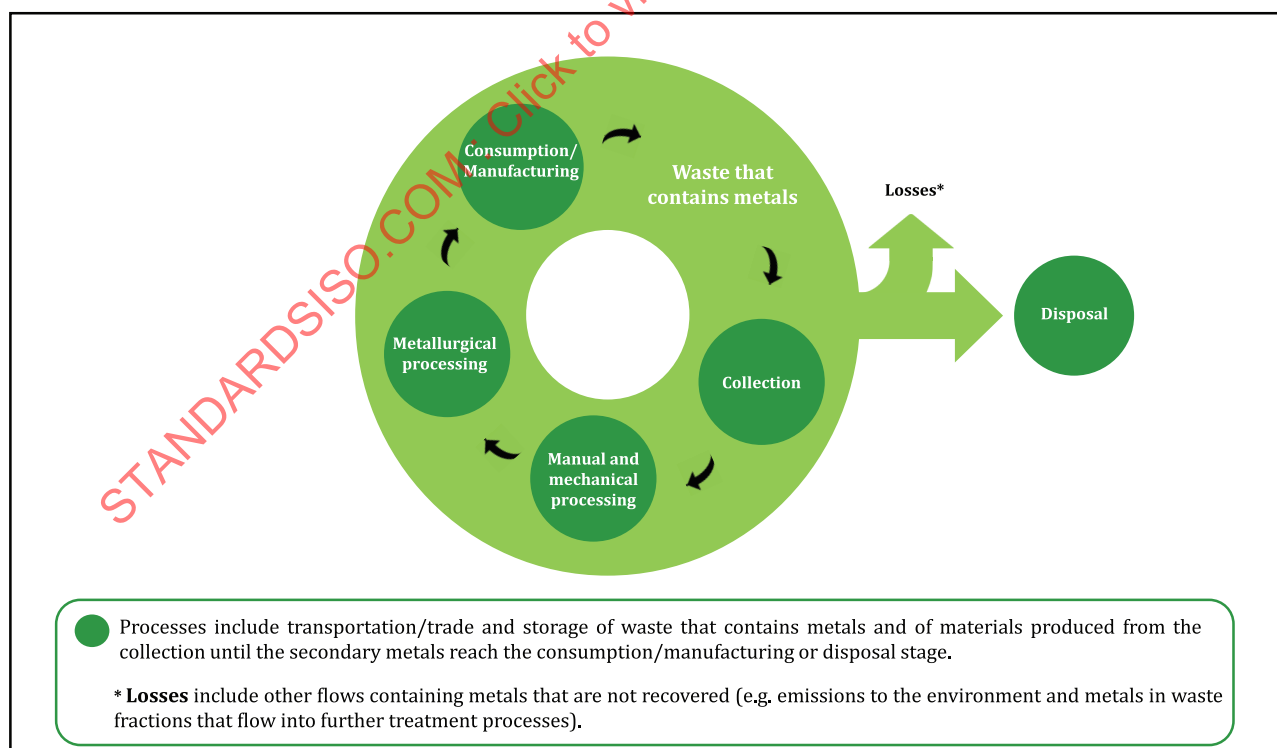


Figure 2 — Processes

5.4 Economic operators

Compliance with principles and objectives (sustainability requirements) described in [Clause 6](#) only applies to economic operators involved in the collection, manual and mechanical processing, as well as metallurgical processing of waste and end-of-waste that contain metals (see [Figure 4](#)). Economic operators are grouped in different activities:

- subsistence activities (SA);
- unofficial business activities (UBA);
- official business activities (OBA).

To minimize negative impacts, economic operators involved in SA are recommended to prioritize proper waste collection and physical segregation and avoid metallurgical processing.

The guidance principles also include requirements for traceability for those who wish to ensure a credible traceability of recovered metals (see [Clause 7](#)). Compliance with these requirements allows full traceability of secondary metals throughout the value chain and the use by economic operators of on-product and off-product claims.

5.5 Users

Users of the guidance principles include:

- a) economic operators that wish to demonstrate that their recovered metals, secondary metals sourced or products manufactured from secondary metals are compliant with the guidance principles; economic operators also include generators of waste that contains metals (such as industrial processes) and producer responsibility organizations (PROs) initiatives usually composed of product manufacturers, importers, exporters and retailers willing to implement extended producer responsibility (EPR) programmes;
- b) national or local governments and inter-governmental organizations willing to develop treaties, conventions, laws, regulations or policies based on the guidance principles;
- c) standardization/certification initiatives involved in the sustainable management of metals willing to integrate specific requirements on metal recycling into their sustainability requirements, chain-of-custody (CoC) and/or assurance systems;
- d) public/private organizations, financial institutions and development organizations using the guidance principles as a framework to evaluate the impact and risks associated with projects related to secondary metals;
- e) civil society organizations (CSOs) and specialists conducting awareness raising and capacity building activities on environmental and socio-economic impacts of secondary metal production, as well as better practices on the basis of the guidance principles.

5.6 Supporting mechanisms

Stakeholders outside the secondary metal value chain are strongly encouraged to support economic operators involved in SA, UBA and OBA and facilitate the implementation of the sustainability (see [Clause 6](#)) and traceability requirements (see [7.3](#)) through their “supporting mechanisms”. These include national and local governments, policymakers, CSOs, research institutes, trade unions, workers’ association, industrial/trade association, sustainability standard organizations and private companies/corporates.

The implementation of supporting mechanisms is optional, but it is expected to significantly enhance the impact of the guidance principles and make the implementation by economic operators easier, more consistent and cost-effective.

6 Sustainability requirements

6.1 Overview

The framework proposed for the sustainable management of secondary metals is based on five key principles (see [Figure 3](#)) and 17 objectives. The principles provide the basis for defining sustainability requirements through 17 objectives to be complied with by economic operators (involved in SA, UBA and OBA) that are engaged in the collection, manual and mechanical processing, metallurgical processing, transportation/trade as well as storage of waste and end-of-waste that contains metals and of materials produced (see [Figure 4](#)).

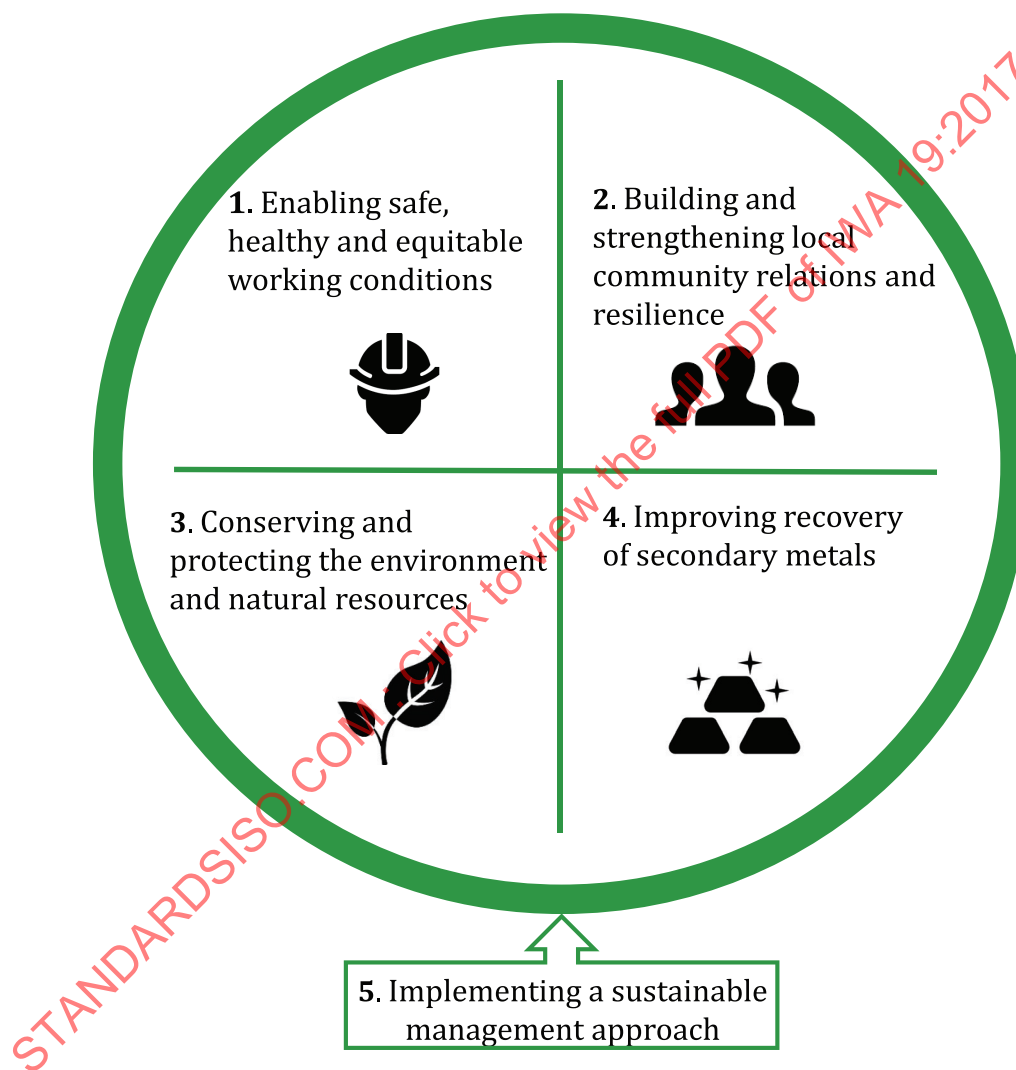


Figure 3 — Five principles for the sustainable management of secondary metals

PRINCIPLE 1 – Enabling safe, healthy and equitable working conditions — Objective 1.1 – Enable safe and healthy workplaces. — Objective 1.2 – Establish working terms and conditions that are decent and equitable. — Objective 1.3 – Eliminate child labour, forced labour, harassment and all forms of discrimination. — Objective 1.4 – Ensure freedom of association and the right to collective bargaining. — Objective 1.5 – Provide clear channels for communication, transparency and dialogue with workers.
PRINCIPLE 2 – Building and strengthening local community relations and resilience — Objective 2.1 – Respect and foster local communities' rights. — Objective 2.2 – Enable the social inclusion of workers in the community. — Objective 2.3 – Establish clear channels for communication, transparency and dialogue with local communities and affected stakeholders.
PRINCIPLE 3 – Conserving and protecting the environment and natural resources — Objective 3.1 – Conserve and protect water, air and soil resources. — Objective 3.2 – Restore severely damaged areas from metals recovery operations. Objective 3.3 – Conserve and protect biodiversity, ecosystems and ecosystem services.
PRINCIPLE 4 – Improving recovery of secondary metals — Objective 4.1 – Develop, implement and promote technologies and strategies to increase secondary metals recovery related to quantity and quality.
PRINCIPLE 5 – Implementing a sustainable management approach — Objective 5.1 – Document and evaluate the existing baseline conditions of secondary metals operations in the areas addressed by the principles and objectives. — Objective 5.2 – Mitigate negative impacts and strengthen positive impacts of secondary metals operations through the development, implementation and continuous improvement of a management plan. — Objective 5.3 – Strengthen the organizational capacity of economic operators involved in secondary metals operations. — Objective 5.4 – Ensure compliance with local and/or national laws and regulations. — Objective 5.5 – Eliminate bribery, money laundering and corruption.

From 6.2 to 6.6, objectives are presented per principle. Each objective is accompanied by explanatory notes, steps and timeframe, as well as supporting mechanisms.

Explanatory notes further develop each objective and provide additional details about the sustainability requirements and recommendations to be implemented by economic operators.

Steps and timeframe provide recommendations for economic operators to progress towards fulfilling the objectives.

Economic operators involved in SA will need additional support to implement certain steps. Apart from support provided by governments, CSOs and other stakeholders (see supporting mechanisms below), support is to be provided twofold by local and international economic operators involved in OBA that recycle and/or manufacture products that contain secondary metals (see specific roles in 9.4).

Supporting mechanisms describe additional actions that will facilitate the implementation of the principles and objectives.

Figure 4 presents in the green boxes the economic operators that are required to comply with the principles and objectives.

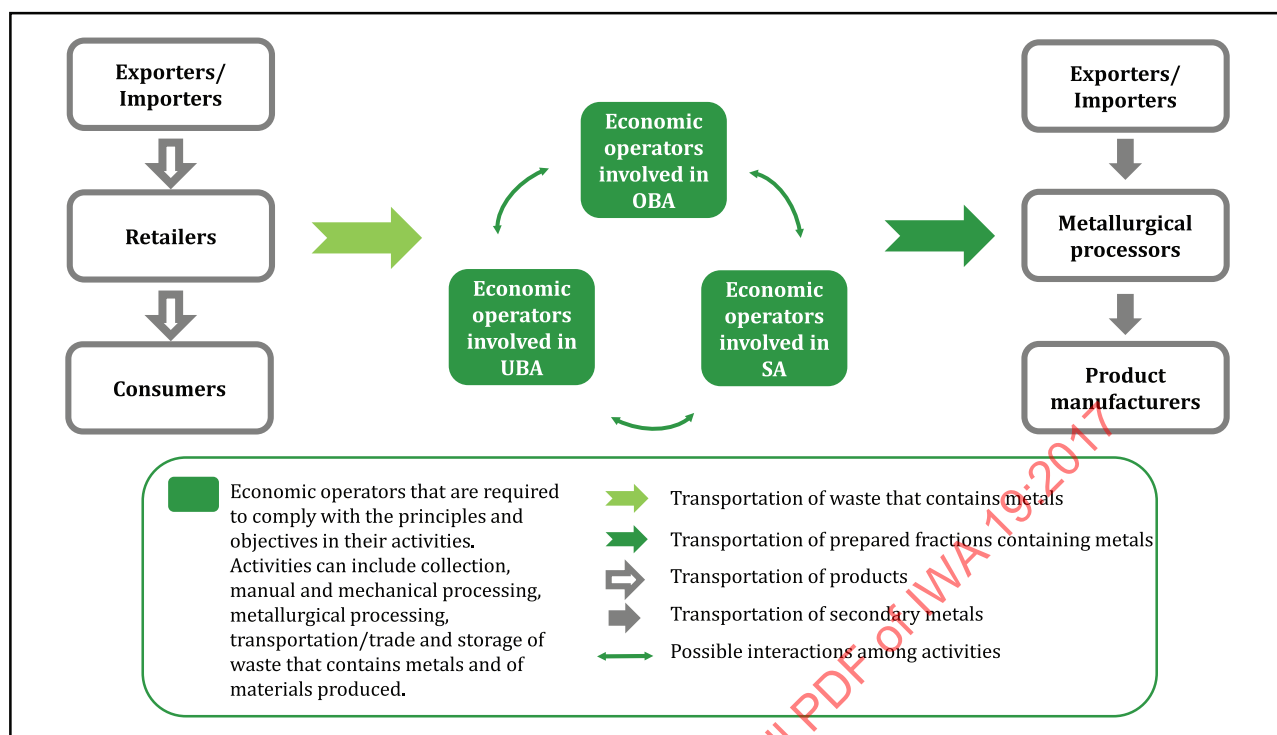


Figure 4 — Economic operators

6.2 Principle 1: Enabling safe, healthy and equitable working conditions

Principle 1 aims to improve the working conditions of workers involved in the collection, manual and mechanical processing, metallurgical processing, transportation/trade and storage of waste and end-of-waste that contains metals and of materials produced.

OBJECTIVE 1.1			
Enable safe and healthy workplaces			
Explanatory notes			
Identification, awareness raising and training in occupational health and safety (OHS) issues			
Economic operators shall identify existing OHS risks in secondary metals operations and implement mitigation measures.			
Training of workers in OHS, emergency response and first aid at work shall be provided by economic operators in an appropriate form, manner and language(s).			
Workers' training materials and information, including technical guidance documents (e.g. waste electrical and electronic equipment disassembly procedures) detailing the nature of risks (physical, chemical or biological), risk assessments, safety statements, photos or examples, and safety data sheets for hazardous chemical components, shall be available and easily accessible at all times in the workplace.			
Training shall cover safe handling, management, use and disposal of hazardous waste, components and substances. Workers shall be able to demonstrate awareness of all OHS procedures and risks.			
Equipment and facilities			
Personal protective equipment (PPE) shall be used, e.g. masks, goggles, gloves, safety helmets, safety equipment and clothing to protect workers from hazards and hazardous waste, components and substances. PPE shall be provided by economic operators involved in UBA and OBA at no cost to workers. Economic operators involved in SA shall seek support from governments, CSOs and/or other economic operators involved in OBA to obtain PPE.			
First aid equipment shall be available to all workers.			
Toilet and sanitary facilities shall be provided and made known to workers. Primary hygiene practices to be encouraged include handwashing. Clean, potable water to be provided to workers.			
Specific measures shall be in place to address specific issues in relation to women's health (e.g. pregnancy, maternity).			
A clean designated space for eating shall be provided by economic operators. Whenever workers are housed on site, housing and accommodation shall be in line with ILO Recommendation R115 (1961) ^[23] .			
Economic operators shall provide clearly marked emergency exits, escape routes, firefighting equipment and fire alarms for every indoor workplace, according to industry standards. Fire exits and escape routes are to be kept clear of obstacles, allowing for swift and safe exit.			
Emergency exits shall be made known to all workers.			
Monitoring			
Economic operators shall maintain records of all incidents and accidents, occupational injuries and work-related diseases. Records shall be made accessible to workers and relevant authorities, in line with medical confidentiality.			
Economic operators shall monitor workers' exposure to hazardous waste, components and substances and ensure it remains within acceptable levels. Exposure may be measured directly (e.g. air sampling) or through medical examination of workers (e.g. blood samples). Economic operators shall follow acceptable levels (thresholds) set by national authorities. In the absence of national thresholds, international references (e.g. World Health Organization [WHO]) shall be used.			
Medical checks shall be provided at least once per year for workers exposed to health hazards, and shall be paid for by economic operators.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify OHS risks/issues and affected workers.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan towards improvement of OHS-related issues.	2	1	1
Organize awareness raising and training activities with active participation of workers in the process of identifying and monitoring issues of concern related to OHS.	2	1	1
Provide the required equipment and facilities to enable safe and healthy workplaces.	2	1	1

Regularly monitor workers' health and exposure level.	3	2	2
Monitor incidents and accidents on OHS issues and assess evolution over time.	3	3	2
Supporting mechanisms			
Governments are encouraged to provide support for economic operators willing to put in place OHS procedures, e.g. training, equipment and financial incentives. Trade unions and workers' associations are encouraged to provide workers with information about their labour rights, as well as advice and support for the enforcement thereof. Governments are encouraged to establish the maximum levels allowed of exposure to hazardous waste, components and substances; to recommend the appropriate PPE; and to support economic operators with measuring and monitoring safe and acceptable levels of exposure. Governments are encouraged to develop a programme of enforcement, financial incentives and financial penalties in this regard. Governments are encouraged to develop affordable facilities and standard protocols for the testing and monitoring of workers' exposure to hazardous waste, components and substances.			

OBJECTIVE 1.2			
Establish working terms and conditions that are decent and equitable			
Explanatory notes			
Employment contracts Economic operators shall ensure that all workers are aware of the terms and conditions of their contract. Economic operators shall provide workers with a written contract that covers all terms related to working conditions and employer's/worker's rights and responsibilities. Terms include but are not limited to: — Working hours and overtime — Remuneration — Holidays — Notice period — Social benefits Working hours and overtime For economic operators involved in OBA, applicable laws and regulations shall prevail for working hours and rules for overtime. Based on ILO Convention 1 (1919),^[15] the recommended maximum number of hours per week is 48. Overtime shall be negotiated with workers on a voluntary basis and shall not exceed 60 h per week (including regular hours). Economic operators involved in UBA and SA shall strive to keep working hours within the above-mentioned conditions. Remuneration Economic operators shall apply the applicable living wage, wherever applicable. Otherwise, remuneration shall be negotiated and agreed by both parties. Whenever possible, payment per hour shall be preferred over payment by unit (e.g. by weight or piece work). If payment by unit is applied, a minimum remuneration equivalent to a payment per hour for a similar amount of time shall be ensured. In line with ILO Convention 100 (1951),^[18] economic operators shall ensure there is equal remuneration for men and women for work of equal value. Rates of remuneration are established without discrimination based on gender. Holidays All paid holiday leave and national holidays shall be due as per the law. Paid sick leave to be provided as prescribed by law or in compliance with workers' unions or other guidance. Social benefits In case of sickness or injury at the workplace, the economic operator shall provide medical assistance.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify issues of major concern including non-compliances and affected workers.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan towards improvement of working conditions.	2	2	1

Organize awareness raising activities on working-terms-related topics.	2	2	1
Organize advisory service, e.g. a helpdesk focal point for workers to discuss issues in relation to working terms and conditions.	3	3	2
Monitor evolution of the status of the issues of concern and non-compliances and assess the evolution over time.	3	3	2
Supporting mechanisms			
Governments are encouraged to contribute to an enabling environment to improve working conditions by supporting, for example, awareness raising activities, information, helpdesk focal points, sharing of equipment and provision of tax credits. Governments are encouraged to develop and enforce laws and regulations and policies to ensure all workers are provided with a legal written contract. Controls and inspections may be put in place to verify that the terms and conditions in workers' contracts are respected. Governments are encouraged to implement measures to facilitate the legal registration of workers in the social security system, payment of workers' wages and general administrative processes. Governments in partnership with businesses and CSOs are encouraged to support the establishment of a living wage, which allows workers and their families to fulfil their basic needs (e.g. nutrition, health, shelter, education and transport). Trade unions and workers' associations are encouraged to provide workers with information about their labour rights as well as advice and support for their enforcement.			

OBJECTIVE 1.3			
Eliminate child labour, forced labour, harassment and all forms of discrimination			
Explanatory notes			
Child labour In the absence of national applicable laws, application of the ILO Conventions and Recommendations on child labour is recommended. In line with ILO Convention 138 (1973),^[20] child labour shall be phased out: no child under 15 years of age shall be employed, except in support of his/her family and outside of schooling hours. In line with ILO Convention 182 (1999),^[22] the worst forms of child labour (i.e. hazardous work) shall be eliminated: children under 18 years of age shall not be employed in any activity that is likely to jeopardize children's physical, mental or moral health. Forced labour In line with ILO Convention 29 (1930),^[16] no work or service shall be exacted from any person under the menace of any penalty and for which the said person has not offered himself/herself voluntarily. Workers shall be free to leave the operation site at all times, and the freedom of movement of those who live on the site shall not be restricted. Harassment Economic operators shall put in place measures to prevent harassment and corporal punishment, with a specific focus on vulnerable and disadvantaged workers, women and migrant workers. Discrimination Economic operators shall put in place measures to ensure workers are free from discrimination. Discrimination includes: a) any distinction, exclusion or preference made on the basis of gender, ethnicity, nationality, religion, political opinion, disability, age, language, sexual orientation and sexual identity; b) such other distinction, exclusion or preference that has the effect of nullifying or enrolment impairing equality of opportunity or treatment in employment or occupation as may be determined by the State concerned after consultation with representative employers' and workers' organizations, where such exist, and with other appropriate bodies (ILO Convention 111, 1958^[19]).			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify issues of concern regarding child labour, forced labour, harassment, discrimination and affected workers.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan to phase out child labour (including worst forms of child labour), forced labour, harassment and discriminatory practices.	2	1	1

Organize awareness raising and training activities to enforce the elimination and prevention of child labour, forced labour, harassment and discriminatory practices.	2	2	1
Implement programmes to promote children's enrolment in school, in partnership with their families, local authorities and CSOs.	3	3	2
Organize advisory or helpdesk services for workers to be able to consult on potential or current child labour, forced labour, harassment and discriminatory practices.	3	3	2
Monitor the status of the issues of concern and non-compliances and assess their evolution over time.	3	3	2
Supporting mechanisms			
Governments are encouraged to develop and implement education and income-generation programmes to compensate families for children not working. CSOs are encouraged to support governments (Formal Education) and/or develop Non-Formal Education programmes for children supporting their family. CSOs are encouraged to organize awareness raising activities and workshops to feed into education and income-generation programmes. Governments are encouraged to ratify and enforce ILO Convention 29 (1930)^[16] and put controls and inspections in place to verify that no forced labour occurs. Sanctions may be developed and enforced against offenders, appropriate to the size and nature of the economic operator. Governments are encouraged to ratify and enforce ILO Convention 138 (1973)^[20] and 182 (1999)^[22] and put controls and inspections in place to verify that no child labour occurs. Capacity building programmes may be developed and enforced to support economic operators with the phasing out of child labour. Sanctions may be developed and enforced against offenders, appropriate to the size and nature of the enterprise. Governments are encouraged to ratify and enforce ILO Convention 111 (1958)^[19] and put controls and inspections in place to verify that no discrimination occurs. Sanctions may be developed and enforced against offenders, appropriate to the size and nature of the enterprise. Trade unions and workers' associations are encouraged to provide workers with information about their labour rights as well as advice and support for their enforcement.			

OBJECTIVE 1.4			
Ensure freedom of association and the right to collective bargaining			
Explanatory notes			
Freedom of association and collective bargaining Workers shall be free to form or join workers' associations of their choice, as per ILO Convention 87 (1948)^[17] and to collectively bargain with their employer over working conditions. Economic operators shall inform workers of their right to collectively bargain, join associations or unions, and/or to facilitate their creation. Economic operators shall inform workers of any existing collective bargaining agreement at workplace site(s). If the formation of workers' associations or unions is prohibited in the country of operations, economic operators shall provide other legally compliant mechanism(s) to engage with workers, such as a health and safety committee with representatives from workers and management. In the case of economic operators with few workers, other mechanisms are possible as long as they allow dialogue with and among individual workers.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify issues of major concern including non-compliances and affected workers.	1	1	1
Identify applicable laws and regulations.	1	2	1
Develop and implement an action plan to ensure freedom of association and the right to collective bargaining.	2	3	1
Organize awareness raising and training activities to inform workers of their right to collectively bargain, join associations or unions, and/or to facilitate their creation.	2	3	1

Facilitate the activities of workers' associations and unions, i.e. by providing the space and time for meetings and by providing representatives of workers' associations and unions with required information to implement their activities.	5	3	2
Supporting mechanisms			
Governments are encouraged to work to enforce ILO Convention 87 (1948) ^[17] and authorize the creation of workers' associations and unions and ensure their right to collectively bargain with employers.			
Governments are encouraged to implement measures to support local communities, workers and enterprises throughout grievance processes, e.g. by providing legal support or facilitating mediation processes.			
Trade unions and workers' associations are encouraged to provide workers with information about their labour rights as well as advice and support for their enforcement.			

OBJECTIVE 1.5			
Provide clear channels for communication, transparency and dialogue with workers			
Explanatory notes			
Grievance mechanism A grievance mechanism shall be developed by economic operators together with workers' associations/unions to resolve conflicts or grievances involving employers, workers, contractors, subcontractors, local communities and/or others. The system shall be made easily accessible and shall explain how to file a grievance, how it is being handled, length of time to receive a response, how the results are communicated and how to file an appeal.			
Communication with workers Regular meetings and communication platforms shall be organized by economic operators and/or unions or workers' associations to inform workers and obtain feedback from them on relevant issues.			
Communication with external stakeholders Dialogue between stakeholders from SA, UBA and OBA shall be promoted by economic operators and workers' association/unions from OBA to inform and get feedback on key issues of concern.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify issues of major concern regarding communication with workers and external stakeholders.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan to improve communication with workers and external stakeholders.	2	1	1
Facilitate and support regular meetings between management and workers to discuss workplace issues and make them aware of their rights and obtain feedback from them on related issues.	2	2	1
If a grievance mechanism has not yet been created and/or implemented, organize a helpdesk focal point or other similar options for workers to raise, discuss and resolve issues of concerns or requirements, whenever needed.	3	3	2
Monitor the number of complaints and cases resolved and assess trends over time.	5	3	2
Supporting mechanisms			
CSOs are encouraged to support economic operators and workers in their efforts to establish and maintain regular communication channels.			

6.3 Principle 2: Building and strengthening local community relations and resilience

Principle 2 aims to ensure that secondary metals operations uphold local communities' rights and help to build social inclusion and resilience.

OBJECTIVE 2.1			
Respect and foster local communities' rights			
Explanatory notes			
Community rights Economic operators shall identify existing local communities' rights and concerns, respecting local cultures and traditions. Where relevant, focus shall be on the following, but not limited to: — Right to health and security; — Access to natural resources; — Land rights, land tenure rights and land use rights; — Water rights.			
Strengthening and improving community relations Improvements shall be identified in consultation with the community, implemented wherever feasible and monitored to assess the uptake and intended benefits. In consultation with the community, mechanisms and activities shall be developed to reduce negative impacts on the local community and enhance benefits. This shall be done by taking different cultural backgrounds into account.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify issues of major concern regarding the rights of local communities.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan to build respect and foster local communities' rights.	2	1	1
Organize awareness raising activities with the local communities and jointly identify issues of concern in relation to health and security and access to resources, among others.	2	2	2
Organize a helpdesk focal point to support local community representatives to be able to ask questions and raise concerns.	3	3	2
Monitor the number of complaints and cases resolved and assess trends over time.	4	3	2
Supporting mechanisms			
Governments are encouraged to monitor transactions between economic operators and local communities and make sure that operations do not infringe on the rights of local communities. CSOs are encouraged to support joint activities and facilitate the resolution processes towards the improvement of local community conditions.			

OBJECTIVE 2.2			
Enable the social inclusion of workers in the community			
Explanatory notes			
Baseline and continuous improvement Economic operators shall be aware of the issue of social exclusion of workers (e.g. workers not accepted by neighbours and/or local community). They shall assess the situation and propose and implement measures to overcome the problem, in collaboration with governments, local authorities, public entities and CSOs. Measures could include hiring people from the local communities, wherever feasible. The process and measures shall be supported by the economic operator(s) and take the sensitivities and potential different backgrounds of the workers into account.			
Monitoring Cases of social exclusion shall be documented, monitored and evaluated annually in a manner that establishes the fulfilment of economic operators' responsibility towards the rights of communities.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year

Identify and assess the risks of social exclusion of workers with support of local specialists.	1	1	1
Develop and implement an action plan to enhance social inclusion.	2	1	1
Organize regular awareness raising events with workers at risk of social exclusion with the aim to jointly identify ways and measures to minimize the risks.	2	2	2
Organize opportunities, such as a helpdesk focal point, for concerned workers to raise, discuss and resolve issues of concerns or requirements whenever needed.	3	2	2
Monitor the number of social-exclusion-related cases resolved and assess the evolution over time.	5	3	2
Supporting mechanisms			
Governments may support economic operators with the identification and assessment of cases of social exclusion and help by proposing measures and actions to improve their situation.			

OBJECTIVE 2.3			
Establish clear channels for communication, transparency and dialogue with local communities and affected stakeholders			
Explanatory notes			
Awareness raising Economic operators shall inform affected communities and authorities about any risks to the environment or the community, as well as measures to be taken into account and to implement to enable healthy and safe living conditions. Grievance mechanism Economic operators together with local authorities shall develop and implement a grievance mechanism for local communities. Affected communities and appointed authorities acting on their behalf shall have the right to contact the economic operator using post, telephone, email, website, and/or an in-person visit. Economic operators shall ensure that a written response is provided to stakeholder(s) within one month of initial contact. Emergencies Economic operators shall provide local communities with a clear communication procedure in case of emergency (e.g. explosion, fire, contamination or accident).			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify issues of major concern regarding communication with local communities and affected stakeholders.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan to improve communication with local communities and affected stakeholders.	2	1	1
Organize regular meetings with the local communities, affected stakeholders and economic operators to establish a relationship based on trust, as well as to identify possible concerns and/or complaints and thus ensure fruitful agreements.	2	2	2
Facilitate the resources and infrastructure needed for engaging with the local community in a proper way.	3	2	2
Develop and implement a grievance mechanism for local communities jointly with the economic operators and local authorities.			
Monitor the number of complaints and cases resolved and assess trends over time.	4	3	2
Supporting mechanisms			
CSOs are encouraged to facilitate communication between economic operators and local communities and support the resolution of complaints related to the environmental and/or socio-economic impacts of secondary metals.			

6.4 Principle 3: Conserving and protecting the environment and natural resources

Principle 3 aims to minimize and mitigate the impact of secondary metals operations on the environment and natural resources. As most environmental issues regard activities undertaken in an

urban context, additional requirements in relation to biodiversity and natural areas might be limited to certain cases defined under Objective 3.3.

OBJECTIVE 3.1			
Conserve and protect water, air and soil resources			
Explanatory notes			
Baseline and reporting Economic operators shall map and produce a baseline report with potential risks and current impacts of their activities on water, air and soil in the surrounding area(s). Economic operators shall identify the source of the water used for operations, e.g. public water transportation network, rainwater harvesting, recycled water, water well, borehole, rivers and lakes. Economic operators may conduct their own water footprint calculation, in line with ISO 14040 and ISO 14046. Economic operators shall be aware of existing water shortages, droughts and other difficulties related to fulfilling local water needs. Economic operators shall be aware of other users of the same water resources. Economic operators shall identify the amount and kind of land used for operations and impacts on soils. Economic operators shall identify the overall processes, components and outputs of the operations that consume energy, water and/or resources (both renewable and non-renewable) and the sources of greenhouse gas emissions, effluents and waste (by type and volume), as well as other emissions including particulate, thermal, odour, noise and vibration pollution. Conservation and protection measures Economic operators shall not pollute air, soil, surface water, ground water or other water sources. No evidence of water or soil pollution shall be found on site or downstream. Air quality is a major concern in relation to secondary metals recovery. Economic operators shall introduce alternative practices and avoid worst practices, such as open burning of waste material. Economic operators shall eliminate sources of waste during operations, and if this cannot be avoided waste shall be minimized or recovered for reuse or recycling before processing (by manual, mechanical and/or metallurgical means) or disposal. Economic operators shall put measures in place to prevent potential negative impacts of any waste generated through their own activities on the surrounding areas and local community. Hazardous substances and components shall be removed from waste before processing (by manual, mechanical and/or metallurgical means) or disposal. Disposal of waste and hazardous materials shall be handled without damaging air, soil or water resources. All chemicals and/or waste shall be stored in a safe environment following the manufacturer's instructions. Water conservation measures shall be in place, including but not limited to water recycling and reuse practices that encourage improvements in the mechanical, chemical or physical processing of collected metals, to use less water per unit of output. In areas with water shortage issues, economic operators shall not contribute to water depletion, i.e. withdrawal of water beyond the replenishment capacity of the water basin, catchment areas, river or watershed. Economic operators shall be able to demonstrate that wastewater is appropriately treated through either the municipal water treatment system (sewage) or an alternative process. Economic operators shall remove and depollute the waste from hazardous components or substances and dispose them in line with the guidance principles and any applicable law. Monitoring Economic operators shall put measures in place to monitor identified environmental risks of their activities.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify potential environmental risks and current impacts of activities on the surrounding areas and on the local community.	1	1	1
Identify applicable laws and regulations.	1	1	1
Prepare a water flow and land use needs map and identify main issues of concern.	1	2	1
Identify all polluting substances/mechanisms that might contaminate the water/land/air resources. This concerns air emissions and leakages from the operations, service areas and bad practices, such as dumping of hazardous and non-hazardous waste, wastewater and chemicals in watersheds and soils.	1	1	1
Implement water conservation and protection measures.	2	2	2

Provide training to workers concerned with the implementation.	2	2	2
Implement wastewater treatment solutions. No polluting chemicals/toxic substances shall be emitted into water sources.	3	3	2
Implement measures to avoid soil pollution (such as improved waste management practices, leakage control and soil protection by means of geotextiles).	4	3	2
Implement practical measures to avoid air pollution (such as mechanical and chemical filters).	4	3	2
Develop a system to monitor the results of improvement measures implemented.	4	3	2
Supporting mechanisms			
Governments are encouraged to monitor and assess the baseline report produced by economic operators.			
Governments , in collaboration with CSOs and specialists from universities and research institutes , are encouraged to evaluate the state of air, water and land resources within their jurisdiction and make this information available to economic operators. Training programmes on air, water and soil conservation, as well as recommendations for improved practices and monitoring tools, may be proposed to economic operators.			
Governments , in collaboration with economic operators, are encouraged to build and maintain sewage and water treatment systems to ensure that industrial operations do not contaminate local water resources. Such system may be made available to economic operators at a reasonable cost.			
Governments , in collaboration with economic operators, are encouraged to put a system in place whereby industrial waste and chemicals are safely collected, stored, reused, recycled or disposed. Such systems may be made available to economic operators at a reasonable cost.			
Governments are encouraged to build and maintain facilities for the identification, measurement and monitoring of air quality.			
Governments are encouraged to promote the integration of clean technologies through financial incentives (e.g. tax exemptions, low interest loans and subsidies).			

OBJECTIVE 3.2			
Restore severely damaged areas from metals recovery operations			
Explanatory notes			
Baseline and reporting Economic operators shall map and produce a baseline report of severely degraded areas in consultation with local communities and CSOs to jointly determine whether operations and third parties' activities conducted prior to their implementation of the guidance principles led to the severe degradation of natural or protected areas. The report shall assess the types of use of the concerned areas and whether the activities are legally allowed to continue. Severe degradation may include but is not limited to: — Change in land use (e.g. conversion from forest to industrial area); — Contamination of surface water or depletion of ground water; — Soil degradation (e.g. compaction, erosion and contamination).			
Restoration measures Whenever it is established that the economic operator is responsible for severe degradation, and as long as local or national regulations allow the activities to continue, measures shall be implemented to restore severely degraded areas to a situation as close as possible to their initial state, original function, productivity, and environmental and ecological integrity. Economic operators shall restore areas severely degraded as a result of their own previous and current metals recovery operations as agreed with affected stakeholders. If areas have been severely degraded by previous third parties' activities, the economic operators in consultation with the local community shall demand from the government and local authorities the restoration of the concerned areas and seek support and resources from other organizations (e.g. industrial associations, donor agencies and universities) to implement this measure.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify severely degraded areas within operation sites(s) and surrounding area and the cause of the degradation.	1	1	1
Identify applicable laws and regulations.	1	1	1
In consultation with the local community, identify environmental risks or negative impacts on their population and options for mitigation and remediation.	1	1	1
If the current economic operator is responsible for the severely degraded areas, implement effective restoration measures.	3	2	2

If the current economic operator is not responsible for the severely degraded areas, actively seek support and resources to restore the areas concerned within the operations site and in the surrounding area.	3	2	2
Provide training to workers concerned with the implementation of the restoration activities.	2	2	2
Develop a system to monitor the results of improvement measures implemented.	4	3	2
Supporting mechanisms			
CSOs and research institutes are encouraged to provide information and documentation to inform previous land uses and the occurrence of conversion, as well as expertise to support economic operators with the development and implementation of effective restoration measures.			
Governments and CSOs are encouraged to provide support and, if possible, resources to identify, map and restore areas with severe degradations.			
Governments are encouraged to develop and enforce regulatory frameworks for restoration of areas on a “polluter pays” basis.			
Governments and CSOs are encouraged to demand that those responsible for damaging the concerned areas restore them and/or provide expertise for their restoration.			

OBJECTIVE 3.3			
Conserve and protect biodiversity, ecosystems and ecosystem services			
Explanatory notes			
The following requirements apply to economic operators for operations started after the publication of this document.			
Baseline and reporting			
Whenever secondary metals operations occur near natural areas, economic operators shall:			
— Identify and map ^a all legally protected or conserved areas (e.g. World Heritage Sites) adjacent to and/or in close proximity to secondary metals operation site(s);			
— Identify all threatened species ^b and ecosystem services ^c ;			
— Produce a baseline report.			
Protection measures			
Whenever secondary metals operations occur near natural areas, economic operators shall:			
— Protect threatened species and their habitats, taking into account the geographic range and ecological requirements of threatened species beyond the boundaries of the operation site;			
— Put measures in place to avoid causing damage to the protected or conserved natural area(s) surrounding the operation site(s). Measures include but are not limited to the containment of any hazardous waste, component or substance, and the creation of buffer zones between the operation site(s) and the protected and/or conserved natural areas;			
— Ensure that ecosystem services within and around the operation site(s) are maintained or improved.			
For operation sites (e.g. storage sites, factories and landfills) established or extended over natural areas after the date of publication of the guidance principles, previous land use types shall be documented.			
New operations or extension of existing operations shall not lead to the conversion of any protected or natural area after the date of publication of the guidance principles.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify and map all legally protected or conserved areas, threatened species and existing ecosystem services.	1	1	1
Identify applicable laws and regulations.	1	1	1
If surrounding areas foster biodiversity, ecosystem services and other high conservation values, buffer zones shall be created between operations and surrounding areas.	2	2	1
Identify the sources of negative impact on biodiversity, ecosystems and ecosystem services and implement measures to avoid negative impacts on the protected or conserved natural area(s) surrounding the operations, including an emergency procedure in case of contamination, fire and other damages.	2	2	1

Record any damage (e.g. contamination and fire) to legally protected or conserved areas and ecosystem services surrounding its operation site(s) and make information about these available to the relevant protected area management authority.	2	2	2
Provide training to workers concerned with the implementation.	3	2	1
Develop a system to monitor and evaluate baseline and ensure improvements are implemented.	4	3	2
Supporting mechanisms			
Governments, CSOs and specialists are encouraged to ensure that economic operators are aware of conservation issues by providing biodiversity expertise; they are encouraged to conduct ecological assessments of areas that have not been mapped or documented.			
Governments are encouraged to support economic operators by providing expertise on the identification and mapping of legally protected or conserved areas and threatened species and to monitor and assess the baseline report.			
^a Maps are available from United Nations Environment Programme (UNEP)-WCMC International Union for the Conservation of Nature (IUCN) World Database on Protected Areas at www.protectedplanet.net/884			
^b Threatened species to be identified in accordance with IUCN Red List of Threatened Species available at www.iucnredlist.org/search			
^c Ecosystem services to be identified in accordance with ARIES at aries.integratedmodelling.org/ or HCV Resource Network at www.hcvnetwork.org			

6.5 Principle 4: Improving recovery of secondary metals

Principle 4 aims to improve the recovery of secondary metals by recommending economic operators to move away from worst practices and implement technologies that increase the amount and quality of secondary metals recovered from processes along the value chain.

OBJECTIVE 4.1			
Develop, implement and promote technologies and strategies to increase secondary metals recovery related to quantity and quality			
Explanatory notes			
Baseline Economic operators shall document the quantities and operational composition of material flows entering into and generated from their operational processes. They shall aim over time to continually improve the quality and quantity of secondary metals recovered in terms of non-metallic impurities and non-target metals fractions.			
Improvement practices Economic operators shall identify and implement improved practices based on the following criteria: recovered metal amount and quality-output criteria, cost- and resource efficiency and minimization of emissions. Economic operators shall carry out depollution (and any other processes listed under the definition of “manual and mechanical processing”) of the collected end-of-life goods, waste and scrap to prevent hazardous components and substances entering subsequent recycling processes and being used in products made of secondary metals. Economic operators shall refrain from worst practices (e.g. open burning and amalgamation) and gradually implement improvements in their activities (see Annex A).			
Monitoring Economic operators shall monitor the secondary metals recovery rate and ensure that the quality and quantity of secondary metals recovered increase over time while pollution (e.g. emissions, effluents and waste) decreases with regard to both quantity and toxicity.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Establish baseline conditions regarding the quality and quantity of secondary metals recovery in existing processes.	1	1	1
Identify and implement technological improvements.	1	2	2
Identify applicable laws and regulations.	1	1	1
Select priority improvements, e.g. to refrain from worst practices.	2	2	1
Provide training to workers concerned with the implementation.	3	2	2

Monitor the results based on the criteria established.	4	3	2
Create a platform for economic operators with the aim to promote the exchange of experiences.	5	3	2
Supporting mechanisms			
Governments are encouraged to support the development of a monitoring system to understand material flow in metals, their by-products and residues as well as resulting waste, effluents and/or emissions. Governments are encouraged to fund research in science, technology and innovation to facilitate the implementation of improved technologies for disassembly and recycling. Research outcomes and improved processes should remain in the public domain and be made available to economic operators. Governments are encouraged to develop financial incentives to promote the optimal recovery of metals through upstream separation of waste and EPR policies and programmes (see also 9.3). Industrial associations are encouraged to develop and implement EPR as well as ERS programmes and form PRO initiatives (see also 9.3).			

6.6 Principle 5: Implementing a sustainable management approach

Principle 5 is an overarching principle that recommends to develop and implement a sustainable management plan, appropriate to the size and nature of operations, following the results of the baseline environmental and socio-economic conditions.

OBJECTIVE 5.1			
Document and evaluate the existing baseline conditions of secondary metals operations in the areas addressed by the principles and objectives			
Explanatory notes			
Baseline Baseline conditions describe the initial level of performance and, for some indicators and parameters, compliance of the economic operator. This should be part of the management plan as the basis for continual improvement. Appropriate to the size and intensity of operations, the baseline conditions should be established through an assessment of operations against the principles and objectives. A self-assessment is also possible. If risk assessments are developed, they should follow the guidelines in ISO 31000. The baseline conditions should provide an assessment on the status of health and safety conditions (Objective 1.1); contractual agreements (Objective 1.2); child labour, forced labour, harassment and discrimination (Objective 1.3); existing workers' unions or associations (Objective 1.4); internal and external communications (Objectives 1.5 and 2.3); community relations (Objective 2.1); proper inclusion of workers (Objective 2.2); impacts on ecosystems and biodiversity (Objective 3.1); impacts on protected areas and natural resources (Objective 3.2) and severely degraded areas (Objective 3.3); technologies used (Objective 4.1); organizational capacity and training needs (Objective 5.3); legal compliance (Objective 5.4); and corruption risks (Objective 5.5). The baseline should also include an assessment of the level of legal compliance, technical capacities and equipment and facilities availability, as well as a definition of roles and responsibilities of stakeholders along the secondary metals value chain. The identification of potential impacts of secondary metals operations on the environment and local communities can be done through either an environmental and social impact assessment (ESIA) (existing operations) or a risk assessment (new operations or expansion of existing operations). ESIA and risk assessment report(s) are to be made publicly available. Documentation and communication The baseline conditions should be documented and a summary report be made publicly available, within the limits of non-confidential or business-sensitive information. The full version should be made available to workers.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Document and keep records of the baseline conditions.	1	1	1
Develop an executive summary of the baseline report.	2	1	1
Communicate the executive summary broadly.	3	2	2
Make available the full version of the management plan to workers.	2	2	1
Provide training to workers to enhance their understanding of their role in improving performance according to the results of the baseline report.	2	2	2

Monitor the baseline results regularly, considering different periods for different indicators (e.g. some indicators will require annual and others bimonthly monitoring).	5	3	2
Supporting mechanisms			
As part of the development of a management plan, governments and product manufacturers (e.g. through their EPR and ERS programmes) are encouraged to provide support (e.g. training, tools and assistance) to economic operators performing due diligence, risk evaluation, monitoring and mitigation of impacts. CSOs and specialists are encouraged to support economic operators towards a better understanding of the principles and objectives and how to assess secondary metals operations against them. Governments are encouraged to provide support for conducting ESIA and risk assessments, for example by: — Maintaining a list of environmental/social experts able to assist; — Making environmental and social resources and statistics (e.g. maps of protected areas, population census data and earth observation data) available; — Developing financial incentives measures (e.g. tax exemptions) to offset the cost of the ESIA; — Publishing the results of ESIA's, within the limits of commercial confidentiality. Governments, in collaboration with universities, research institutes and CSOs, are encouraged to maintain maps, inventories and land records to support enterprises with the evaluation of past and present land uses and land use changes. Governments, in collaboration with universities, research institutes and CSOs, are encouraged to support the evaluation, inventory and mapping of existing ecosystem services. Programs may be developed to support enterprises with the preservation of ecosystem services.			

OBJECTIVE 5.2
Mitigate negative impacts and strengthen positive impacts of secondary metals operations through the development, implementation and continuous improvement of a management plan
Explanatory notes
Scope of the management plan Using the baseline report results, economic operators should develop, implement, regularly review and update a management plan, which includes: — The setup of a coordinating group or focal point to lead its development and implementation; — The identification of priority areas to be improved related to Principles 1–4 (reflecting the impacts for dedicated activity areas) as well as risk-based issues identified (e.g. non-compliances with the law require immediate reaction), strategic decisions and resources available; — A waste control hierarchy whereby waste is reduced, reused or recycled over disposal; — The identification of the degree of feasibility, i.e. what is doable by economic operators involved in SA and what can be implemented only through OBA support and/or via supporting mechanisms; — The identification of the degree of feasibility, i.e. what is doable by economic operators involved in UBA and OBA and what can be implemented only via supporting mechanisms; — Measures to be implemented by the economic operator, including the timeline and responsible persons within the operation; — A feedback mechanism for stakeholders towards the improvement of the management plan; — A monitoring and evaluation plan (see Annex B) to measure progress and continuously improve the management plan to achieve compliance with the guidance principles; — Indicators on the progress of compliance (e.g. percentages as proxy values) and the description of the estimation method, which should be sound and well-founded. The management plan should be developed according to ISO 14001 or equivalent.

New operations, closure, decommissioning and restoration

New operations or expansion of existing ones include any situation where infrastructure building or a modification of the production processes is required.

When developing new operations, economic operators should identify risks of environmental and/or socio-economic impacts and implement mitigation actions, in line with the principles and objectives.

The management plan should describe how economic operators plan to undertake closure of an operation, decommissioning and/or restoration plan and include the financial provisions to implement the site(s) closure, decommissioning and/or restoration plan.

Training

Workers should be aware of the management plan and receive training on how to implement specific tasks. Workers shall be aware of their rights regarding exposure to accidents, death, permanent disabilities or health care and costs caused by exposure to metals and hazardous waste, components and substances across the secondary metals value chain.

Monitoring

Management plans should be monitored, reviewed and revised on a regular basis.

Corrective actions

Following regular reviews of the management plan, deviations identified should lead to corrective actions.

Steps and timeframe	SA: Year	U B A : Year	O B A : Year
Designation of a coordinating group or focal point to lead the development and implementation of the management plan.	1	1	1
Identification of what is doable by economic operators involved in SA and what can be implemented only through OBA support and/or via supporting mechanisms.	1	a	a
Identification of what is doable by economic operators involved in UBA and OBA and what can be implemented only via supporting mechanisms.	a	2	1
Identification of areas that need attention, if needed, in consultation with concerned stakeholders (e.g. with workers if linked to health and safety issues).	2	1	1
Identification of measures on the areas identified including responsible persons, resources needed and timelines to be respected.	2	1	1
Implement training programmes for all involved stakeholders.	2	2	2
Implement the management plan as well as the monitoring and evaluation plan and corrective actions in continued cycles.	4	2	2
Set up a feedback mechanism towards the improvement of the management plan.	5	3	2
Supporting mechanisms			
Governments, CSOs and specialists are encouraged to provide support to economic operators with the implementation of management plans, e.g. by providing training, capacity building, tools and advice from experts on: — Human resources — Environmental impacts — Social impacts — Emergencies (fires, explosions, accidents and natural disasters) — Hazards related to the inappropriate recovery of metals from their products — Coverage of accidents, deaths, permanent disabilities and health costs related to the unsafe recovery of secondary metals.			
a Not applicable			

OBJECTIVE 5.3

Strengthen the organizational capacity of economic operators involved in secondary metals operations

Explanatory notes**Progress towards OBA**

Economic operators involved in SA or UBA should aim to progress towards OBA.

Economic operators involved in SA or UBA may create or join associations, cooperatives or enterprises, through which they may become a legal entity and be able to reach compliance with this objective.

Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify the legal aspects in the country for legal registration as well as challenges, needs and advantages for SA and UBA of becoming OBA.	1	1	a
Develop and implement an action plan to support the transition of economic operators involved in SA and UBA towards OBA.	2	1	a
Organize training activities on organizational aspects and options to strengthen the organization.	2	2	3
Assess potential pathways as well as resources required towards the legal registration of the activities, including immediate, short-term and mid-term steps.	3	2	a
Gradually implement the actions needed to make progress towards OBA and monitor the evolution over time.	4–5	2–3	a
Become a legal entity or join an existing one.	5	3	a
Supporting mechanisms			
National and local governments are encouraged to put measures in place to support the recognition of individual workers and/or families working under structures with no legal commercial activity status. Local authorities are encouraged to implement mid-term and long-term planning at the city level to improve the organization of recycling activities and incorporate informal workers into the value chain. CSOs and governments are encouraged to support groups of workers with the creation and management of associations and cooperatives and to put accessible financial mechanisms in place.			
a Not applicable			

OBJECTIVE 5.4			
Ensure compliance with local and/or national laws and regulations			
Explanatory notes			
Regulatory compliance Economic operators shall respect all applicable laws and regulations of the country in which they occur, as well as international treaties and agreements to which the country is a signatory. Whenever laws are credibly enforced, it is not necessary to demonstrate compliance with each applicable law and administrative requirement of the country, the absence of judiciary or penalties records in relation to relevant laws being deemed sufficient.			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Identify and consolidate applicable laws, regulations and other relevant obligations.	1	1	1
Assess compliance with legal and administrative requirements, as well as with recommendations (non-legally binding).	1	1	1
In case of non-compliances, determine the severity (major or minor non-compliance) to determine the priority corrective actions and allocate corresponding resources.	2	1	1
Develop an action plan to achieve compliance with all legal and administrative requirements.	2	1	1
In case of non-legally binding requirements, evaluate how their compliance could support the continual improvement of the system and the activities of the economic operator and develop a plan to achieve compliance.	3	2	2
Establish systems that maintain awareness and provide training on legal obligations and controls to comply with.	3	3	2
Establish systems that maintain compliance with local, national and international laws.	4	3	2

Monitor the evolution of non-compliances cases (closure of old ones and the emergence of new ones) over time.	5	3	2
Supporting mechanisms			
Governments are encouraged to put measures in place to support economic operators towards legal compliance, appropriate to the size and intensity of operations, i.e. through the creation of a health insurance system for workers.			
Governments are encouraged to introduce EPR standards, laws and guidelines and establish monitoring systems to evaluate progress.			
Industrial associations are encouraged to develop and implement EPR as well as ERS programmes and to form PRO initiatives (see also 9.3).			
CSOs and trade associations are encouraged to provide support with the setup of web-based sources of legal information and legal subscriptions.			

OBJECTIVE 5.5			
Eliminate bribery, money laundering and corruption			
Explanatory notes			
Non-participation Economic operators shall combat bribery, money laundering and corruption in all its forms. Economic operators shall not directly or indirectly offer, promise, give or demand a bribe or other undue advantage to obtain or retain business.			
Prevention Economic operators shall develop and adopt adequate internal controls to prevent and detect bribery and corruption, including a system of financial and accounting procedures that are regularly monitored and assessed (adapted from OECD, 2011 ^[36]).			
Steps and timeframe	SA: Year	UBA: Year	OBA: Year
Assess potential risks of corruption, money laundering and bribery and identify the most vulnerable areas and workers within the scope of activities of the economic operator.	1	1	1
Identify applicable laws and regulations.	1	1	1
Develop and implement an action plan to eliminate corruption, money laundering and bribery.	2	1	1
Organize awareness raising activities to enforce non-participation and prevention of bribery and corruption practices. Provide the workers with tools to identify the concerned cases and how to denounce them, as well as clear explanations on legal consequences for involved persons.	3	2	2
Avoid economic relationships with other economic operators that are or might be related to bribery and/or corruption.	3	2	2
Monitor the number of corruption and bribery cases identified and assess the evolution over time.	5	3	2
Supporting mechanisms			
Governments are encouraged to develop and enforce strong anti-corruption policies and support economic operators implementing measures to eliminate bribery and corruption.			
CSOs are encouraged to support governments with the implementation of anti-corruption policies, campaigns, and the public reporting of bribery and corruption cases.			

7 Traceability requirements

7.1 Overview

Product manufacturers, metallurgical processors and other purchasers of secondary metals that wish to ensure a credible traceability of metals recovered in compliance with the sustainability criteria need to follow traceability requirements. These apply to all economic operators in the secondary metals value chain, which would guarantee:

- the origin of these metals;

— that compliance claims in relation to the guidance principles are accurate.

Without such a guarantee, no credible claim can be associated with the end product.

The use of the CoC is recommended as this provides a comprehensive set of traceability requirements (see 7.2) already applied in other sectors (e.g. coffee, palm oil, gold, platinum products and conflict minerals).

It is expected that traceability requirements will not be implemented across the entire value chain in the early implementation phase of the guidance principles, especially by economic operators involved in SA and UBA.

The supporting mechanisms described in 7.3 include legal assistance, capacity building and support to any economic operator willing to implement the traceability requirements and use on-product or off-product claims.

It is worth noting that the traceability scheme proposed (CoC) is indicative and may be considered fulfilled if another existing traceability scheme is used (e.g. if the guidance principles are integrated in an existing certification system), provided this is considered equivalent by third parties, such as third-party auditors.

7.2 Description of the requirements

7.2.1 General

The traceability requirements include the development of policies and procedures throughout the secondary metals value chain. Such policies and procedures should ensure the accuracy and verifiability of records of entering and leaving material at facilities, product documentation management and product claims.

7.2.2 Policy and procedures

Economic operators seeking compliance with the guidance principles should develop, implement and publish CoC policy and procedures in line with at least one of the following three material accounting models:

- a) Physical segregation. This model allows the direct measurement of amounts of secondary metals produced and the physical tracking of the materials concerned up to their origin. To ensure this, consignments of waste and end-of-waste that contain metals, or secondary metals with demonstrated origin and compliance with the guidance principles, are kept physically separated from other waste, end-of-waste and secondary metals consignments of unknown origin and from primary metals.
- b) Mass balance. A mass balance ensures that the amount of outgoing secondary metals compliant with the guidance principles does not exceed the amount of incoming material compliant with the guidance principles by taking conversion factors or other calculation methodologies into consideration. This material accounting model can be used when consignments of waste and end-of-waste that contain metals, or secondary metals with demonstrated origin and compliance with the guidance principles, are physically mixed with other waste, end-of-waste and secondary metals consignments of unknown origin and primary metals.
- c) Book and claim. Economic operators in compliance with the guidance principles may create certificates up to a volume corresponding to the actual production of compliant material and trade them on a dedicated platform. Product manufacturers using secondary metals may buy such certificates and the compliant sustainability claims with the guidance principles associated with them.

7.2.3 Responsibilities

A dedicated CoC manager should be appointed by the economic operator seeking compliance with the guidance principles. The appointed manager should be responsible for the correct implementation of the CoC policy.

Workers involved in the acquisition, processing and delivery of compliant waste or end-of-waste that contain metals or compliant secondary metals should be adequately trained and monitored by the CoC manager. This should also include workers involved in SA.

If economic operators involved in SA and UBA have already initiated their formalization process to create or join cooperatives, associations or enterprises, it is possible for them to nominate a dedicated CoC manager.

7.2.4 Product documentation and records

Any economic operator acquiring, processing or delivering batches of compliant waste, end-of-waste, materials or fractions that contain metals or secondary metals, and seeking compliance with the guidance principles, should document and record important characteristics, including but not limited to:

- a) name and address of supplier;
- b) unique reference number;
- c) date of receipt of goods and date of release/shipment of goods;
- d) origin (address) of batch;
- e) shipment address;
- f) metal(s) recovered;

NOTE A colour code can be used to differentiate among metal types.

- g) nature or state (i.e. concentration of metal(s) in an alloy, part of waste, etc.) of metal;
- h) materials accounting model used;
- i) weight;
- j) proof of compliance with the guidance principles, with details of how the verification was conducted (e.g. based on third-party audits to issue on-product claims or second-party audits to issue off-product claims);
- k) name and details of the assurance provider or second-party organization concerned with issuing the proof of compliance;
- l) name and address of all supplier(s), contractor(s) and subcontractor(s) involved in the acquisition, processing and delivery of the batch or products.

If the concerned compliant batches include waste that contains metals, local laws and regulations for waste management need to be fully adhered to. If an international transboundary shipment of waste is planned, according to the Basel Convention Guidelines (2004),^[12] it first needs to be determined whether the batch is hazardous waste or non-hazardous waste.

Correspondingly, specific documentation should be attached to the shipment according to the Basel Convention Guidelines (2004)^[12].

Recorded material without appropriate documentation should be considered of unknown and uncontrolled origin and therefore not in compliance with the guidance principles.

7.2.5 Compliant claims

Claims of compliance with the guidance principles can be used for internal or external communication purposes. The latter could include audiences such as consumers or local and national government authorities. For this purpose, a communication and claim policy should be developed by the economic operators wishing to ensure the credible traceability of metals recovered.

Only economic operators sourcing compliant material and having been verified against traceability requirements through a third-party-based assurance system (see [8.4.3](#)) are allowed to issue and use on-product claims.

In case the concerned batches of recovered metals have been verified through second-party-based verification mechanisms, the use of claims is limited to off-product ones (see [8.3.4](#)).

Examples of compliance claims include the following.

- On-product claim: A brief text such as “This batch of secondary/recycled [metal name] was produced in compliance with the guidance principles for the Sustainable Management of Secondary Metals.”
- Off-product claim: “Enterprise X supports the implementation of the guidance principles on Sustainable Management of Secondary Metals and is sourcing up to X % of compliant secondary metals as of [date].”

7.3 Supporting mechanisms for the implementation of traceability requirements

As in the case of sustainability requirements (see [Clause 6](#)), national and local governments, policymakers, CSOs, research institutes, trade unions, workers' associations, industrial/trade associations, sustainability standards organizations and private companies/corporates are also encouraged to support economic operators with the implementation of traceability requirements by providing:

- related legal assistance on regulations and laws on product claims and advertising;
- training and capacity building on good management practices for product tracking, documentation and communication;
- wherever feasible, resources (to cover the second- and third-party-based verification mechanisms, monitoring equipment and field visits) and financial support.

8 Assurance systems

8.1 Overview

The implementation of the guidance principles by economic operators requires a robust assurance system whereby their compliance is fairly, regularly, consistently and transparently monitored, evaluated and reported.

Assurance systems refer to a combination of verification mechanisms used to assess and monitor the progress of compliance with the sustainability requirements (self-assessment, due diligence [for assessing an ERS programme] and EPR programme monitoring) and the traceability ones (CoC assessment). See [Figure 5](#).

During the verification process, relevant information is obtained through first-party, second-party and third-party audits.

To cope with the different capacities and needs of economic operators, the flexible and gradual implementation of assurance systems is recommended, i.e. considering a progressive implementation that initiates the process in the short term and finalizes the assurance system in the medium- and long-term (see [Figure 5](#) as well as [8.2](#), [8.3](#) and [8.4](#)).

Note that the timeline progression proposed (see [Figure 5](#)) is merely indicative as verification mechanisms are sometimes implemented earlier than indicated (i.e. due diligence can start in the short term) or later or for a longer period than foreseen (i.e. the self-assessment can start later or continue through the medium and long-term).

Assurance systems based on third-party verification mechanisms are considered the most robust ones. Independent reviews to monitor compliance with sustainability and traceability requirements are also desirable to enhance the credibility of the results (see [8.5](#)).

In case of gaps in compliance raised during the verification process, corrective actions should be put in place and should be fully documented by the audited economic operator to demonstrate full compliance.

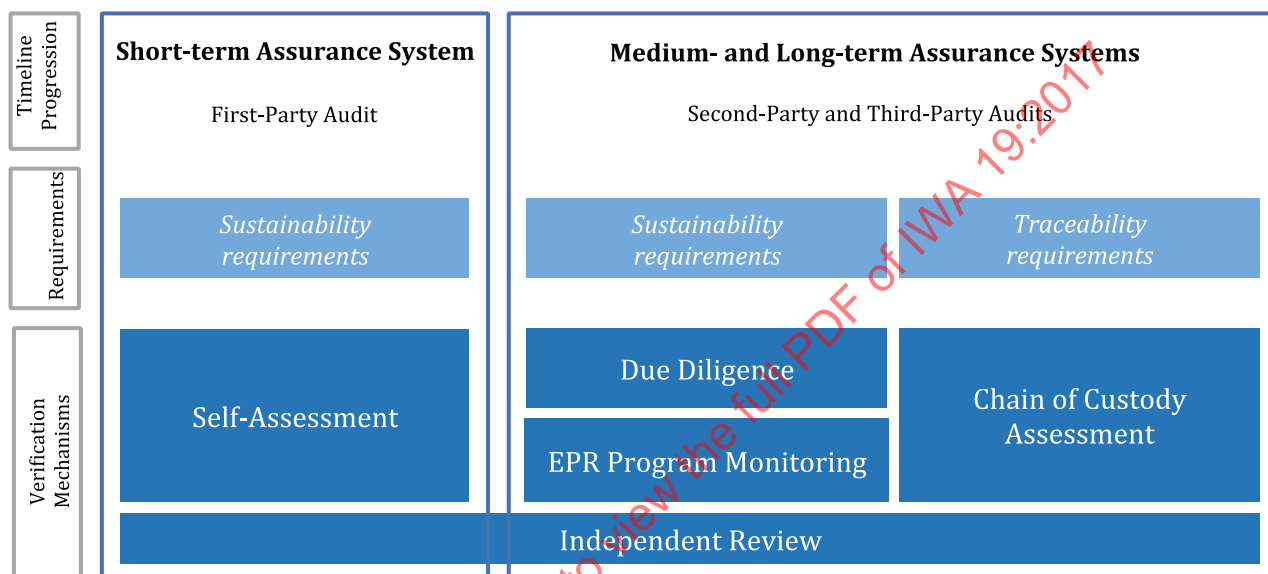


Figure 5 — Short-, medium- and long-term assurance systems

The implementation of the guidance principles is also possible via an existing assurance system (e.g. another sustainability certification scheme) with demonstrated compliance with the ISEAL Alliance Assurance Code^[32] and that is considered equivalent to the requirements described in this document (see [8.6](#)).

8.2 Short-term assurance systems

8.2.1 General

Short-term assurance systems are based on first-party audits and aim to provide a basis for the gradual implementation of the assurance system as well as to monitor progress of compliance focusing on the sustainability requirements.

8.2.2 Self-assessments: first-party audits

First-party audit (via self-assessment) results should be communicated to metallurgical processors, importers, exporters and/or product manufacturers.

8.3 Medium-term assurance systems

8.3.1 General

Medium-term assurance systems aim to offer a reasonable level of assurance over the early implementation of the guidance principles. This system should monitor the progress of compliance,

focusing on both the sustainability requirements and the traceability requirements while recognizing that the latter might be at an early stage of implementation or not yet in place.

Self-assessments (via first-party audits) are followed in the medium-term by due diligence, an EPR programme monitoring and a CoC assessment, which can be implemented via second- or third-party audits. They support the gradual implementation and strengthening of the assurance system.

Before second- or third-party-based verification mechanisms are in place to address sustainability requirements, no CoC assessments should be implemented.

Third-party-based verification mechanisms are preferable options as they are the most robust ones. However, considering the nature of SA, their lack of resources and their need for support, second-party-based verification mechanisms to assess the progress of compliance with both the sustainability and traceability requirements are considered as acceptable.

8.3.2 Due diligence in the medium-term

Due diligence should be implemented among a selected sample of suppliers, contractors and subcontractors of materials (i.e. collectors, waste processors and other metallurgical processors, as in the green arrow in [Figure 6](#)) to verify compliance with the guidance principles and/or to confirm the findings of self-assessments (see [8.2.2](#)). If an ERS programme is in place, this verification mechanism supports both the assessment and monitoring of concerned economic operators.

In case of second-party-based due diligence, metallurgical processors, product manufacturers, importers or exporters are the verifiers of the compliance of their suppliers, contractors and subcontractors of materials. Third-party-based due diligence requires third-party auditors as verifiers of the secondary metals value chain concerned.

To share the burden among all economic operators during the due diligence implementation, each economic operator in the secondary metals value chain concerned should be in charge of checking its first-tier suppliers; the latter do the same, and so on and so forth.

Valid certificates owned by suppliers, contractors and subcontractors through second- or third-party audits (e.g. due diligence assessments addressing equivalent sustainability criteria) should be considered as acceptable, and no additional audits should be required.

8.3.3 EPR programme monitoring in the medium-term

If an EPR programme is in place through, for example, a product take-back system, regular monitoring should be carried out by product manufacturers, importers, exporters or PRO initiatives that hold the responsibility for the product. The monitoring of economic operators involved in collection, manual and mechanical processing, and metallurgical processing aims to verify the responsible management of products once they become waste (see grey arrow in [Figure 6](#)) and can be second- or third-party-based verification mechanisms.

Provided sufficient resources are available, some organizations may decide to implement a monitoring system themselves. Another option is to join metal-related EPR initiatives led by private sector associations with running monitoring systems.

8.3.4 CoC assessment in the medium-term

Depending on the type of claim aimed for and the value chain concerned (i.e. on-product or off-product claim), the corresponding CoC assessment will be implemented: based on either a third-party audit or a second-party audit, correspondingly.

An achievable objective in the medium-term is the successful implementation of second-party-audit-based CoC assessments, which typically require fewer resources and less implementation time than those based on third-party audits. This leads to the issuing of an off-product claim to the economic operator.

8.4 Long-term assurance systems

8.4.1 General

In the long term, the aim is to have a robust assurance system to monitor compliance with both the sustainability and traceability requirements, which should be at an advanced level of implementation if not already fully implemented.

A long-term assurance system also supports the maintenance and continual improvement of the sustainable management approach implemented.

This system should involve the development and implementation of a monitoring and evaluation plan (see example in [Annex C](#)) that includes well-founded monitoring and compliance indicators as well as impact indicators.

8.4.2 Due diligence and EPR programme monitoring in the long term

In the long term, the implementation of due diligence (i.e. an ERS Program) and EPR programme monitoring focus on continual improvement and on closing identified non-compliances, which are reduced over time and after several rounds of audits. Furthermore, findings more clearly demonstrate the impacts of implementing the guidance principles.

8.4.3 CoC assessment in the long term

A more reasonable objective in the long term is the implementation of a CoC assessment based on third-party audits. Following successful compliance with the traceability requirements, the on-product claims issued should be communicated for the scope of the certification following the CoC policy.

Economic operators liable for the on-product claims issued should hold the responsibility for the implementation of a CoC assessment along the value chain.

8.5 Independent reviews

To enhance the credibility and robustness of the verification mechanisms (e.g. self-assessments, due diligence to evaluate ERS, and EPR programme monitoring), independent reviews are also recommended. In this regard, governments, CSOs and industrial associations can provide at any time an independent review of the evaluation conducted regarding economic operators implementing the guidance principles. This independent review and subsequent publication of results (“name and shame” or “Report Cards”) can be a powerful incentive to drive change. This can also incentivize economic operators to develop a mechanism for continuous improvement. Governments, CSOs and industrial associations can also publicly report any use of false claims in relation to the guidance principles.

8.6 Integration into an existing assurance system

An assurance system could also be implemented through its integration into an existing sustainability standard/certification system (e.g. stewardship initiatives and standards on mining, metals and jewellery) with demonstrated compliance with the ISEAL Alliance Assurance Code^[32].

9 Implementation

9.1 Overview

This clause provides recommendations for the effective and efficient implementation of the guidance principles (see the steps and timeframe towards compliance in [9.2](#)) that are based on shared responsibility across the entire value chain. Therefore, the recommendations described in this clause apply to the entire secondary metals value chain.

From the mid- and long-term view, the establishment and implementation of EPR and ERS Programs (see 9.3) should be promoted and, as far as possible, considered for implementation by local and international economic operators involved in OBA.

It is acknowledged that implementation duties and responsibilities are differentiated according to the capacity of economic operators. In this context, local and international economic operators involved in OBA are expected to play a critical role in assisting economic operators involved in SA. Hence, more detailed guidance is provided in this clause on how economic operators involved in OBA can support them (see 9.4).

Through supporting mechanisms, a broader set of stakeholders, including national and local governments, policymakers, CSOs and sustainability standard organizations, may help not only economic operators involved in SA but also those involved in UBA and OBA with the implementation of the sustainability requirements (see Clause 6) and traceability ones (see 7.3).

9.2 Steps and timeframe towards compliance and trading considerations

Table 1 presents a summary of the steps and a timeframe for gradual implementation and progressive compliance with the sustainability requirements (see Clause 6) and traceability requirements (see Clause 7). Steps and timeframe have been adapted to the type of activity the economic operators are involved in (SA, UBA or OBA).

It is expected that at the end of the proposed timeframe, economic operators without a legal entity (involved in UBA or SA) are legally constituted, e.g. by organizing themselves into cooperatives, associations and enterprises or joining existing ones, which will give them the status of OBA in the context of these guidance principles. It should be noted that such economic operators can enrol in the compliance process without immediately starting with their formalization.

Table 1 — Summary of steps and timeframe

Timeframe ^a	Summary of steps
Economic operators involved in SA	
Year 1	Partially comply (approximately 10 % ^b) with specific principles and objectives (see steps and timeframe under each objective in Clause 6). In particular, focus on baseline development and improve working conditions to reduce impacts on health; Prioritize waste collection and physical segregation and avoid metallurgical processing including any end-of-life treatment; Identify requirements for the formalization process to become a cooperative, association, or enterprise or join an existing one (see ILO (2016)[26] on Freedom of Association Helpdesk)
Years 2–3	Partially comply (approximately 40 % ^b) with specific principles and objectives. In particular, identify and eliminate worst practices with the most damaging impacts on the environment (e.g. disposal of chemicals into rivers or groundwater) and/or health and safety in consultation with affected workers and communities; Start (or continue if initiated before) with the formalization process; Establish internal communication channels; Implement procedures to advance towards full compliance with the principles and objectives. In particular, start with the implementation of a verification mechanism such as self-assessment (see Figure 5).
Years 4–5	Become a legal entity, e.g. on a cooperative/association/enterprise level, or join an existing one; Reach full compliance (100 % ^b) with the principles and objectives; Implement second-party-based verification mechanisms with the support of economic operators involved in OBA wishing to issue off-product claims, or third-party-based ones if aiming for on-product claims (see Figure 5)
Economic operators involved in UBA	
^a The suggested timeframe is flexible and may be adjusted according to the context. ^b Percentages are proxy values. The guidance principles do not recommend a unique method but require the proposal of a well-founded and sound estimation method in the management plan.	

Table 1 (continued)

Timeframe ^a	Summary of steps
Year 1	Partially comply (approximately 30 % ^b) with specific principles and objectives (see steps and timeframe under each objective in Clause 6). In particular, focus on baseline development and identify and eliminate worst practices with the most damaging impacts on the environment (e.g. disposal of chemicals into rivers or groundwater) and/or health and safety in consultation with affected workers and communities; Identify requirements for and start the formalization of becoming a cooperative, association¹⁵ or enterprise or join an existing one; Start with the implementation of a verification mechanism, such as self-assessment (see Figure 5).
Year 2	Partially comply (60 % ^b) with specific principles and objectives. In particular, identify areas of non-compliance with local, national and regional environmental laws and regulations and implement corrective actions to bring each of these into compliance; Establish internal communication channels; Implement procedures to advance towards full compliance with the principles and objectives and with the traceability requirements, e.g. through second-party-based verification mechanisms.
Year 3	Become a legal entity, e.g. on a cooperative/association/enterprise level, or join an existing one; Reach full compliance (100 % ^b) with the principles and objectives; Implement an assurance system (see Clause 8) with second-party-based verification mechanisms if interested in issuing off-product claims or third-party-based ones if aiming for on-product claims.
Economic operators involved in OBA	
Year 1	Partially comply (approximately 50 % ^b) with specific principles and objectives (see steps and timeframe under each objective in Clause 6). In particular, focus on baseline development and identify and eliminate practices with the most damaging impacts on the environment (e.g. disposal of chemicals into rivers or groundwater) and/or health and safety in consultation with affected workers and communities; Implement first- and second-party-based verification mechanisms.
Year 2	At the beginning of the year: — Implement procedures to achieve full compliance; — Identify areas of non-compliance with local, national and regional environmental laws and regulations and implement corrective actions to bring each of them into compliance; — Establish internal communication channels. At the end of the year: — Reach full compliance (approximately 100 % ^b) with the principles and objectives; — Implement a second- or third-party-based assurance system for the verification of compliance (see Clause 8). If interested in issuing off-product claims, introduce second-party-based verification mechanisms; if concerning on-product claims, implement third-party-based ones.
^a The suggested timeframe is flexible and may be adjusted according to the context.	
^b Percentages are proxy values. The guidance principles do not recommend a unique method but require the proposal of a well-founded and sound estimation method in the management plan.	

The trading of compliant materials and associated claims generally require economic operators to be legally constituted, which is not the case for economic operators involved in SA and UBA. During the transition period, the following needs to be taken into account.

- Economic operators involved in SA are allowed to deliver material to economic operators involved in OBA, provided that they are engaged in the processes of complying with the guidance principles and of becoming a legal entity. In return, Economic operators involved in OBA are expected to support them towards compliance and constitution of the legal entity and can claim their engagement through off-product claims. On-product claims for material delivered by economic operators involved in SA during this period will not be possible, considering that their issuing typically requires that economic operators are legally constituted.

- Economic operators involved in UBA cannot be part of any formal trading process until they become a legal entity and have a plan towards full compliance.

9.3 EPR and ERS programmes

EPR and ERS programmes are key to the overall implementation of the guidance principles in the medium and long-term. The effective application of EPR and/or ERS programmes is intrinsically linked to the existence of a coherent framework at the governmental or private sector level (e.g. the creation of PRO initiatives), which ensures that there is a level playing field for economic operators holding responsibilities.

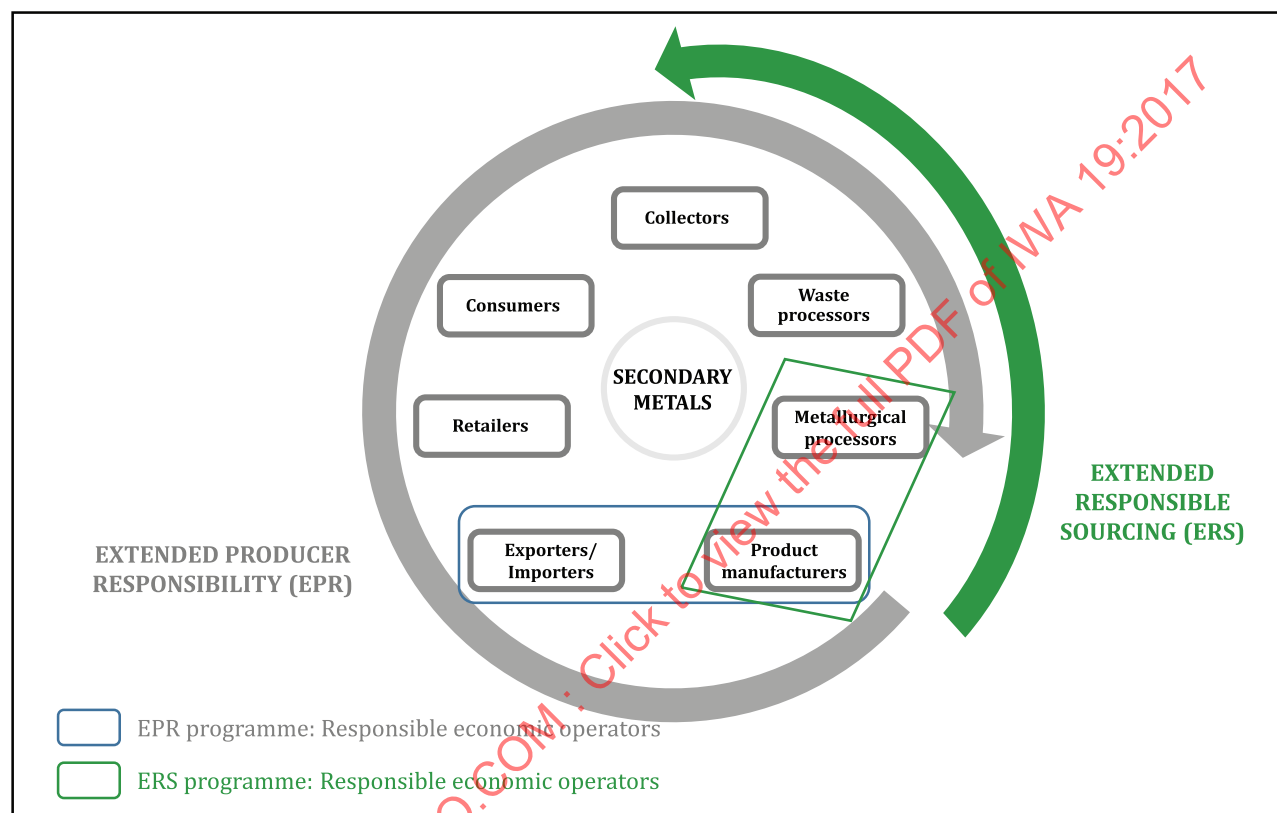


Figure 6 — Overlapping responsibilities of EPR and ERS programmes

Figure 6 illustrates the following:

- who the economic operators holding the responsibility within EPR and ERS programmes are (see inside the dotted rectangles);
- which segments of the value chain they are required to cover when implementing either or both programmes (see green and grey arrows);
- overlapping control domains over metals (see the economic operators covered by the green and grey arrows).

In an ERS Program, metallurgical processors and product manufacturers are held responsible for ensuring the compliance of their suppliers with the sustainability requirements along the life cycles back to the origin of the waste that contains metals (see Figure 6, green arrow).

An EPR programme is a middle- to long-term activity led by governments or PROs through which product manufacturers, importers, exporters and retailers are held responsible for ensuring that the end-of-life product is collected (e.g. via take-back systems) and treated (e.g. by metallurgical processors) or disposed of in line with the guidance principles (see Figure 6, grey arrow).

With a view to fulfil the EPR programme obligations, generators of waste will be required to return the waste via the take-back systems.

Results from EPR programme monitoring reports could be used to cross-check due diligence and CoC assessment results and identify mistakes and inconsistencies or confirm relevant compliances or non-compliances.

Revenues raised through EPR Programs should be ring-fenced. Economic operators involved in the recycling and/or disposal of products that contain metals should be paid directly by the obligated party, based on evidence, and after manual and mechanical processing, metallurgical processing as well as disposal take place.

9.4 Roles of economic operators involved in OBA in support of SA

Local and international economic operators involved in OBA willing to (a) source materials compliant with the guidance principles or (b) ensure that their end-of-life products are collected, treated or disposed of in line with the guidance principles are encouraged to assist concerned economic operators involved in SA throughout the implementation and compliance process.

To share the burden among all economic operators during the implementation and compliance process, it is recommended that each economic operator of the secondary metals value chain concerned is in charge of checking its first-tier suppliers; the latter do the same, and so on and so forth.

This support includes but is not limited to:

- a) technical assistance through:
 - 1) identification of worst practices and how to move away from them;
 - 2) prioritization of the most suitable practices, such as collection and physical segregation;
 - 3) identification of what is not doable towards compliance with the sustainability and traceability requirements without external support;
 - 4) support with compliance verification processes;
 - 5) inclusion in the EPR and/or ERS programmes' activities (e.g. product take-back systems managed by collectors), if required along the value chain;
 - 6) development and implementation of a CoC or incorporation in an existing one;
- b) wherever feasible, resources and financial support through:
 - 1) provision of PPE;
 - 2) establishment of verification mechanisms;
 - 3) provision of grants, loans or investment capital for the establishment of upgraded recycling facilities, purchase of advanced technologies and/or laboratory tools, and setup or improvement of commercialization channels;
- c) training and awareness raising on OHS, social and environmental impacts, and good management practices;
- d) legal assistance related to:
 - 1) identification of requirements to become a legal entity or create/join an association/cooperative, as well as support during the formalization process;
 - 2) enforcement of existing laws and regulations on secondary metals, e.g. take-back schemes and frameworks for EPR;
- e) improvement of trade conditions and/or access to the market of recovered metals.

Annex A

(informative)

Worst practices of secondary metals recovery and steps towards improvement to good practices

A.1 General

The aim of this annex is to provide a summary of identified worst practices linked to the recovery of secondary metals, in order to develop fact sheets for each identified worst practice as stand-alone information resources.

The fact sheets aim to guide the prioritization of measures to eliminate, reduce or mitigate the resulting environmental, health and safety impacts as a consequence of secondary metals recovery.

A cluster of worst practices is recommended to be banned if legal requirements or international agreements exist to prohibit their application or when impacts to health or the environment are severe and irreversible. If this is not the case, measures are proposed for improvement of processes and process steps with regard to the worst practices concerned.

A.2 Conditions and reasons for worst practices

Undesirable practices typically occur in economic environments and political climates with an absence of control mechanisms (such as legislative enforcement of minimum standards to ensure the protection of both human health and environmental systems integrity). Despite the frequent tangibly negative impacts on human health, individuals as well as local communities without other income opportunities may be forced to engage in worst practices in SA and UBA linked to secondary metals recovery. Poor education and lack of training also contribute to risky practices without sufficient protection for workers or the receiving environment.

A third distinct type of economic operator is concerned with OBA in a formal environment with some of those also known to apply some of the described worst practices merely for reasons of ill-gotten economic gains.

While prevalence can be observed in the informal sector in developing and emerging economies, all worst practices described are such operations that can also be occasionally found in otherwise formal sector, e.g. if control mechanisms are not in place.

A.3 Target audience

The target audience includes economic operators, users and other stakeholders who wish to gain full insight into the nature and complexity of the problems (from both human health and environmental perspectives) associated with worst practices in secondary metals recovery.

A.4 Generic structure of the fact sheets

The fact sheets are structured as follows:

- a) description of the worst practice;