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Leveraging greater impact of mineral sustainability initiatives: An assessment of interoperability

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CSRM

The Centre for Social Responsibility in Mining (CSRM) is a leading research centre, committed to improving the social performance of the resources industry globally. We are part of the Sustainable Minerals Institute (SMI) at the University of Queensland, one of Australia's premier universities. SMI has a long track record of working to understand and apply the principles of sustainable development within the global resources industry.

At CSRM, our focus is on the environmental, social, economic and political challenges that occur when change is brought about by resource extraction and development. We work with companies, communities and governments in mining regions all over the world to improve social performance and deliver better outcomes for companies and communities. Since 2001, we have contributed to industry change through our research, teaching and consulting.

Contents

Acronyms

3T	Tin, tungsten, tantalum
ASI	Aluminium Stewardship Initiative
ASM	Artisanal and Small-Scale Mining
ASMO	Artisanal and Small-scale Miners' Organizations
CFGS	Conflict-Free Gold Standard
CFSP	Conflict-Free Smelter Program
CSRM	Centre for Social Responsibility in Mining
DFA	Dodd-Frank Act
DRC	Democratic Republic of Congo
EITI	Extractive Industries Transparency Initiative
EUSC	European Regulation on self-certification of responsible importers of tin, tantalum and tungsten, their ores, and gold originating in conflict-affected and high-risk areas
Fairmined	Fairmined Standard for Gold and Associated Precious Metals
Fairtrade	Fairtrade Standard for Gold and Associated Precious Metals
FPIC	Free, prior and informed consent
GHG	Greenhouse gases
GRI	Global Reporting Initiative
GRI-M	Global Reporting Initiative Mining and Metals Sector Supplement
ICGLR	Mineral Certification Scheme of the International Conference on the Great Lakes Region
ICMC	International Cyanide Management Code
ICMM	International Council on Mining and Metals
ICMM-S	International Council on Mining and Metals Sustainable Development Framework
IFC	International Finance Corporation
IMO	Institute for Market Ecology
IRMA	Initiative for Responsible Mining Assurance
ISO	International Organization for Standardization
ISO 14001	International Standards Organization 14001
IUCN	International Union for the Conservation of Nature
OECD	Organisation for Economic Co-operation and Development
OECD-D	OECD - Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD-D)
OIM	Organisational Interoperability Maturity Model
RINR	Regional Initiative Against Illegal Exploitation of Natural Resources
RJC	Responsible Jewellery Council
SA8000	Social Accountability SA 8000 (SA8000)
SDGs	United Nations Sustainable Development Goals
SEC	US Securities and Exchange Commission
SMI	Sustainable Mining Institute
UN	United Nations
UQ	University of Queensland

Executive summary

Interoperability is the degree to which diverse systems, organisations and individuals are able to work together to achieve a common goal (Ide and Pustejovsky 2010). This report presents findings of an applied research project looking into the interoperability of sustainability initiatives relevant to mining and metals supply chains. The research was undertaken by the Centre for Social Responsibility in Mining (CSRM) at The University of Queensland and funded by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

The project aims to assist civil society, business and governments to better co-ordinate and align efforts to ensure that their sustainability initiatives lead to improvements in the sustainability performance of the sector. A conceptual framework is outlined to identify different aspects of interoperability in the context of sustainability initiatives. 'Collaboration' describes the activity of stakeholders from different sustainability initiatives working together towards common goals. 'Harmonisation' refers to the alignment of texts to adopt similar language across different sustainability standards, eliminating major differences and creating common minimum requirements. 'Cross-referencing' is when a sustainability standard refers to and accepts provisions of another standard as its own. 'Shared process' is the mechanisms which sustainability standards are able to operate jointly, for example, by joint auditing and other assurance processes. A sample of 18 initiatives is mapped according to (1) type of initiative; (2) thematic scope; (3) assurance process; and (4) sanctions for non-compliance. Two case studies are then presented to explore examples of interoperability in greater depth.

Some of the key findings from this report are:

Initiatives tend to use different terms for the same concerns, reflecting how stakeholders differ about how best to address the issues at stake. Although interoperability requires far more than semantic alignment of the initiatives, commonly agreed terms play an important role in consensus-building.

Environmental sustainability is addressed by more than half of the initiatives sampled, with similar approaches taken to subthemes of waste, water, biodiversity and ecosystems, tailings, air emissions, addressing adverse environmental impacts, mine rehabilitation, climate change and energy. For example, all eleven initiatives include waste within their scope. They have very similar indicators or standards addressing waste management general practices, and seven of them have added specific waste indicators addressing best-practices of waste management, such as opportunities to recycle, recover, reduce, eliminate or reuse waste. A similar situation was observed within the topic water. However, there is no single, overarching initiative exclusively focused on environmental themes in mining or metals supply chains. Rather, the trend is to address environmental and social impacts of extractive industries in an integrated manner. This is positive, but leaves room for further alignment of initiatives on the detailed and industry-specific aspects of environmental management.

The majority of the initiatives address economic development and opportunities for mining to make a positive impact on local communities and host countries. Five explicitly require investment in community development; and four address poverty alleviation as a goal of the initiative. Beyond such general aspirations, the initiatives differ in their approaches to sustainable economic development. More concerted efforts to

define targets, indicators and evaluation of mining's economic linkages and community investment are needed under the umbrella of the UN SDGs.

All 18 initiatives cover social and human rights impacts within their standards and guidelines, including occupational health and safety considerations for the sector, as well as community health. Although general coverage of social themes suggests that there are groups of initiatives around certain topics, the devil is in the detail. Schemes with similar intentions and target groups use varying approaches to each of the topics. Some only make general statements where others give detailed instructions about how best to achieve targets. For others, it is sufficient to mention an aspect in a subclause or in a footnote.

The question about whether to pay to all employees at least a legal minimum wage, a living wage, an industry standard wage, the regional average wage, a wage based on collective bargaining agreements or simply a "fair" salary, as well as the hierarchy among them if there is a choice of preference, represents one of the striking issues around which the initiatives find little consensus. This showcases how an issue of importance to half of the initiatives needs to be harmonised, as there are a variety of terms used for the same issue.

Two thirds of the initiatives address bribery and corruption in some way, and the EITI is recognised and cross-referenced by most as the authoritative standard on transparency of payments. Similarly with respect to conflict minerals, many initiatives address this theme, but most also referred to the OECD-D as the overarching framework. What differed most about these initiatives was the actors driving them, rather than their thematic scope. For example, the inter-governmental organisations like the ICGLR and the OECD approach mineral certification and supply chain due diligence quite differently from the industry associations.

Eight initiatives suggest quality criteria that organisations looking for assurance providers should consider. Five have similar accreditation mechanisms in place combined with quality reviews to verify the quality and depth of the assurance before providing a certificate, claim or label. In these situations the initiative becomes the entity responsible to evaluate the quality of the assurance process.

The majority of the initiatives adopt a non-compliance classification method, require corrective action, conduct re-assessments and apply disciplinary sanctions. There is potential to further align non-compliance procedures and promote a common approach to risks of non-compliance, which enable trust among the initiatives. Less consensus among the initiatives was found in the types of disciplinary sanctions as well as in how information about non-compliance shall be disclosed.

Collaboration between the RJC and Fairmined provides a positive case study of opportunities and challenges of interoperability. Similarity between systems and goals, increased reach and reduced audit overlapping were the topics most often mentioned by participants as the drivers for the RJC and Fairmined interoperability project. In relation to the benefits, participants mentioned leadership, access to market, internal processes and systems improvement and cost reduction as the main benefits of such a project. A combined audit process can significantly reduce the audit costs – participants in the RJC and Fairmined pilot combined audit estimated a 20–50% reduction in audit fees, and a 50% decrease in travel costs. Notably, this combined audit approach also has a positive impact on audit fatigue, as the time required to attend to auditors was reduced, as was the quantity of repeated questions and tests.

There are opportunities for interoperability between initiatives with overlapping geographic reach, even when they differ significantly in thematic scope. In Africa's Great Lakes Region, recognition of the EITI as a

mechanism of the ICGLR's Regional Initiative Against Illegal Exploitation of Natural Resources (RINR) is a good example of this. Since the ICGLR's Regional Mineral Database and the expanded scope of the EITI's data reporting in each country are both in the 'design phase', this would be an opportune period for the two organisations to work on their compatibility. The role played by the EITI multi-stakeholder groups in certain ICGLR member states will be pivotal to these efforts.

Although the technical aspects of mineral certification are essential to the success of conflict-free minerals initiatives for the region, they cannot be implemented without acknowledging and engaging the complex political dynamics within and between member states. The ICGLR has an important legitimating role in both the transparency and the conflict minerals initiatives for the region, by ensuring the African governments of the region lead the process. Further, a potential value of the ICGLR's EITI platform within the RINR is to provide regional endorsement of the transparency initiative from African neighbours and peers.

The report concludes that the heterogeneity of sustainability initiatives is a symptom of the complex dynamics of global governance and norm-setting. Collaboration cannot be forced between stakeholders who may have competing or vested interests in diverse initiatives. However, the UN SDGs provide a focal point around which actors may coalesce, and there is sufficient common ground amongst mining and metals supply chain initiatives to enhance interoperability between them.

Recommendations:

- Sustainability initiatives should actively seek opportunities for **collaboration**, as a first step in building trust between their various stakeholders. International organisations and development cooperation agencies should continue to support collaborative activities and encourage sustainability initiatives to overcome competing and vested interests to achieve greater interoperability.

- **Working groups** should be established to harmonise sustainability initiatives in relation to specific themes, following the examples of the ISEAL living wages working group and the OECD working group on conflict minerals. Mutual recognition and **cross-referencing** of standards, indicators and certification wherever possible should be a guiding principle for the working groups. More mining and metals supply chain initiatives should be encouraged to **join umbrella organisations** like the ISEAL Alliance.

- **Shared processes and mechanisms** should be developed where possible, to save time and costs of compliance and encourage participation by companies. Sustainability initiatives relevant to mining and metals supply chains should share lessons learned and leading examples from their assurance processes, and pool resources for more efficient, cost effective assurance where possible.

- Generic **models for monitoring and evaluation** should be developed to measure the effectiveness of sustainability initiatives. Prior to implementing a new or revised validation process, sustainability initiatives should survey which other standards and schemes each member already reports against, to establish a baseline of their sustainability performance. A self-assessment (second party assurance) should be included as a stage of validation, to help track changes made within companies (or countries for the EITI), which they themselves would ascribe to joining the initiative. This would help in tracking the impact of sustainability initiatives individually and in relation to each other, as the causality between standards and observed changes in practice is difficult to establish.

1 Introduction

Since the Global Mining Initiative launched in 1998, the agenda for environmental and social responsibility in mining has grown rapidly in line with the movement for more sustainable business practices worldwide. Voluntary standards have been defined in increasing levels of detail, and some areas adopted in law and regulations. Certification schemes have grown in scope and specificity to verify compliance with these standards. As sustainability initiatives have proliferated, stakeholders have raised concerns about duplication of efforts and voiced the need for combined effectiveness.

This research project addresses how to achieve better application of mining and metals sustainability initiatives. The focus is on aligning and streamlining requirements of the multitude of mineral supply chain certification schemes, frameworks, legal provisions and broader resource governance standards, such as the Extractive Industries Transparency Initiative (EITI), the Global Reporting Initiative Mining and Metals Sector Supplement (GRIM), the Dodd Frank Act (DFA) and the United Nations Sustainable Development Goals (SDGs). In doing so, greater efficiency may be achieved across all of these initiatives, leveraging more positive effects from each. Aligning the requirements of the initiatives can lower the compliance costs of participation, particularly in developing countries. Identifying the similarities and differences between these initiatives may also facilitate comparison by procurers of metals and consumers of goods such as jewellery, electronic devices and automobiles.

The success of an initiative is enhanced if it is able to engage, recognise and collaborate with other standards, certification schemes, guidelines, frameworks and legal provisions. Interoperability of sustainability initiatives has the potential to reduce costs and can amplify the reach and outcomes achieved by individual initiatives, as they exchange knowledge and best practices.

For instance, the Global Reporting Initiative (GRI) is the most widely used standard on sustainability reporting and disclosure to date. It addresses a broad range of issues such as climate change, human rights, business ethics and environmental impacts. To date, thousands of sustainability reports have been issued according to the GRI standards in over 90 countries. To foster alliances and synergies with other international initiatives, frameworks, guidelines and standards is one of the GRI's global strategies. To do so, the GRI framework currently interacts with the guidance of the International Finance Corporation (IFC), the International Organization for Standardization's ISO 26000, the United Nations Conference on Trade and Development, and the Earth Charter Initiative[1]. The Responsible Jewellery Council (RJC), International Council on Mining and Metals Sustainable Development Framework (ICMM-S) and Aluminium Stewardship Initiative (ASI) also reference and require the use of the GRI's sustainability reporting guidelines by their members.

The Extractive Industries Transparency Initiative (EITI) is similarly widespread. Since 2003, the EITI has been localised within multi- stakeholder groups in over 50 countries around the world. In the area of resource revenue transparency, there is growing interoperability between the voluntary EITI and mandatory

[1] https://www.globalreporting.org/information/about-gri/alliances-and-synergies/Pages/default.aspx accessed in 28/07/2016.

payment reporting requirements of mining, oil and gas companies. The EITI Standard launched in 2016 has broadened its potential for interoperability with other initiatives in future.

The approach of this applied research project is to explore the specificities of selected initiatives and find areas of overlap and commonality between them. The potential interoperability between existing mining sustainability initiatives is examined to improve their effectiveness and application. The project aims to assist civil society, business and governments to better co-ordinate and align efforts to ensure that their sustainability initiatives lead to improvements in the performance of the sector and contributions on the ground.

The objectives of the project are to:

- Map and assess the potential interoperability among selected sustainability initiatives relevant to mining and metals supply chains;
- Identify and assess opportunities for greater interoperability between initiatives in two case studies;
- Develop recommendations to support sustainability initiatives, assurance providers, industry, civil society groups, investors, government agencies, and resource communities to better align their practice and outcomes for sustainable development.

The report is structured in five sections, including the introduction as Section 1. Section 2 outlines a conceptual framework for assessing interoperability between sustainability initiatives. Section 3 presents the findings of the desktop analysis of 18 initiatives, based on publically available sources. Section 4 investigates two case studies based on interviews with stakeholders of the Responsible Jewellery Council and Fairmined in the first case, and the EITI and ICGLR in the second. Section 5 provides a conclusion on enhancing the interoperability of sustainability initiatives.

1.1. Method

This applied research project uses a mixed-method approach, including two consecutive stages: (1) desktop analysis; and (2) case studies. The research method employed during the first stage of this applied research project combined literature review and desktop analysis. The literature review identified key design characteristics of sustainability initiatives that affect interoperability. The desktop analysis accessed publically available information (from documents, reports and official webpages) of 18 sustainability initiatives relevant to the mining sector and compared the content and approach of the initiatives in relation to each other. The key documents pertaining to each initiative are listed as primary sources in the bibliography.

The potentiality measurement approach, previously used to assess interoperability between enterprises and information systems (Chen, Vallespir, & Daclin, 2008; Daclin, Chen, & Vallespir, 2006), is employed to assess the level of interoperability among the selected sustainability initiatives. The conceptual framework develops a working definition of interoperability with a framework of indicators to assess its different aspects, which is presented in chapter 3.

A purposive selection technique was applied to identify and select sustainability initiatives to be assessed during the first stage of this applied research project. Purposive selection techniques are typically designed to select a small number of examples from a larger group, that will provide more information about a particular phenomenon and lead to greater depth of information about the whole group (Bloomberg & Volpe, 2012; Teddlie & Yu, 2007). This was intended to keep the mapping section of the study to a manageable size, which is still large and varied enough to explore the topic in sufficient detail. It is not a representative sample of all sustainability initiatives relevant to mining and minerals, but rather focuses on most of the initiatives pertaining to precious metals, and one specific to the whole supply chain of bauxite/ aluminium. The sample selection method prioritised internationally well-recognised initiatives with potential to impact the extractive sector globally. The focus on gold enabled us to consider the complex network of initiatives aimed at governing conflict minerals, as well as certification of the consumer-facing jewellery market; and compare them to the manufacturing supply chain schemes for other metals, broader mining and extractive industries initiatives and initiatives non-specific to the mining sector. As a result of the purposive selection technique the following 18 initiatives were selected:

- Aluminium Stewardship Initiative (ASI);
- Conflict-Free Gold Standard (CFGS);
- Conflict-Free Smelter Program (CFSP);
- Dodd-Frank Act – Sections 1502, 1503 and 1504 (DFA);
- European Regulation on self-certification of responsible importers of tin, tantalum and tungsten, their ores, and gold originating in conflict-affected and high-risk areas (EUSC);
- Extractive Industries Transparency Initiative (EITI);
- Fairmined Standard for Gold and Associated Precious Metals (Fairmined);
- Fairtrade Standard for Gold and Associated Precious Metals (Fairtrade);
- Global Reporting Initiative – Mining and Metals Sector Supplement (GRI-M);
- Initiative for Responsible Mining Assurance (IRMA);
- International Council on Mining and Metals – Sustainable Development Framework (ICMM-S);
- International Cyanide Management Code (ICMC);
- International Standards Organization 14001 (ISO 14001);
- Mineral Certification Scheme of the International Conference on the Great Lakes Region (ICGLR);
- OECD - Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD-D);
- Responsible Jewellery Council Code of Practices (RJC);
- Social Accountability SA 8000 (SA8000);
- UN Sustainable Development Goals (SDGs).

1.2. Limitations

This report is not a performance assessment nor an audit to test the veracity of the information obtained. All of the information was obtained from publically available documents and reports, and initiatives' official websites. Our analysis is limited to the documents referenced and listed as primary sources in this report. It does not include supplementary guidance documents on the seminal standards or frameworks of each

initiative. For example, the ICMM elaborates on its principles in a number of thematic guidelines, the EITI has a validation guide and other supporting documents to the EITI Standard, etc. The thematic scope discussed in the analysis refers only to the key documents for each initiative.

The mapping section of the report is not a ranking of initiatives, but a comparative analysis focusing on areas of overlap, existing and potential interoperability. We have endeavoured to be objective in our analysis to offer a useful resource to enhance practices in the field of sustainability initiatives in the extractive sector. In addition, due to the small sample used, statistical analyses in this report should be interpreted cautiously and could not be generalised to a broader context based on this applied research project alone. The statistical analyses provided aim to illustrate where the initiatives are in relation to each other rather than to develop statistically significant conclusions.

The sample excludes several important commodity-specific initiatives relating to diamonds, tin, coal and steel, as well as the many thematically specific initiatives targeting, for example, security and human rights, indigenous peoples, labour conditions, and so on. Further research would be valuable to expand the study to include some of these initiatives. A complementary study and profile of 42 mineral sustainability initiatives may be referred to for a wider understanding of the sector, in the reports commissioned by German Environment Agency in partnership with adelphi for the project, “UmSoRess: Approaches to reducing negative environmental and social impacts in the production of metal raw materials” https://www.umweltbundesamt.de/umweltfragen-umsoress

See also Kickler, K. and Franken, G. (2017), "Sustainability Schemes for Mineral Resources: A Comparative Overview", for a comparative profiling of 19 mineral sustainability initiatives, including eight which are not covered by our sample.

2 Conceptual framework for assessing interoperability

2.1 What is interoperability?

In simple terms, interoperability is the degree to which diverse systems, organisations and individuals are able to work together to achieve a common goal (Ide and Pustejovsky 2010).

Interoperability is considered an important business strategy that can bring benefits in terms of knowledge sharing, collaboration and integration. In addition, it is important for organisations to stay in business in a globalised and networked market, in which they need to use approaches and techniques to perform better and faster in the light of a highly competitive environment (Dassisti et al., 2013). Enterprise interoperability is considered a high-impact productivity factor affecting the quality, yield time, costs of transactions within the private and public sectors (Jardim-Goncalves, Popplewell, & Grilo, 2012). In the sustainability initiatives arena, interoperability has the potential to reduce costs, increase performance, amplify outcomes, minimise overlaps and unproductive information flow, and exchange knowledge and practices (Barry et al., 2012; Brockmyer & Fox, 2015; ISEAL Alliance, 2013; Main et al., 2014; Stark & Levin, 2011; WWF, 2013). According to Vlassenroot (2008), interoperability maximises synergies, reduce costs and bureaucracy, and increase legitimacy and reach. Furthermore, in avoiding duplication and overlapping among initiatives, interoperability can reduce costs and improve stakeholders' understanding on the credibility of such initiatives in the market place and their influence.

Interoperability has been analysed across different areas such as information systems, communication, technology, corporate social responsibility and business. Each area has analysed the concept of interoperability and its practical significance using different approaches, and as a result, it is a multifaceted concept reflecting different points of view (Dassisti et al., 2013; Day, 2004; Kasunic, 2001; Mori Junior, Franks, & Ali, 2016; Yahia, Aubry, & Panetto, 2012). Chen et al. (2008) argue that the concept of interoperability itself is still confusing and has different definitions in different sectors and domains. In the same vein, Ford et al. (2007) have identified thirty-four distinct definitions of interoperability used in research papers, standards and government documents.

Chen and Doumeingts (2003) argue that interoperability implies support of communication and transactions between different organisations that must be based on shared business references. Similarly, Vernadat (2007) states that interoperability refers to the ability of a system or process to use information and/or functionality of another system or process by adhering to common standards. INSPIRE (2011), regards interoperability as the ability for people to interact with each other, between organisations and across domains of influence and geographical boundaries, to achieve a goal or objective, within accepted limits of performance. A broad definition of the interoperability concept was applied by Mori Junior et al. (2015), when assessing sustainability certification schemes in mining. These authors highlighted that interoperability is not only the capacity of schemes to recognise or reference other schemes, but it is also their capacity to interact with governments, industry sectors and civil society organisations to further their reach and outcomes. This is an

interesting consideration for mining stakeholders, but falls outside of the scope of this study, which concentrates on the interoperability *between* initiatives only.

A working concept of interoperability for the purposes of this analysis may be drawn from Dassisti et al. (2013). These authors think of interoperability as being on a continuum between the concepts of integration and compatibility. Integration is more than interoperability. It involves a degree of functional dependence between two systems and less flexibility between them. Compatibility is less than interoperability, where systems do not interfere with each other's functioning, but are able to work side by side (for example, by managing different parts of a supply chain). Within the range between compatibility and integration, we would place the terms, 'collaboration', 'harmonisation', 'cross-recognition' and 'shared process'.

'Collaboration' describes the activity of stakeholders from different sustainability initiatives working together towards common goals. 'Harmonisation' refers to the alignment of texts to adopt similar language across different sustainability standards, eliminating major differences and creating common minimum requirements. 'Cross-referencing' is when a sustainability standard refers to and accepts provisions of another standard as its own. 'Shared process' is the mechanisms which sustainability standards are able to operate jointly, for example, by joint auditing and other assurance processes.

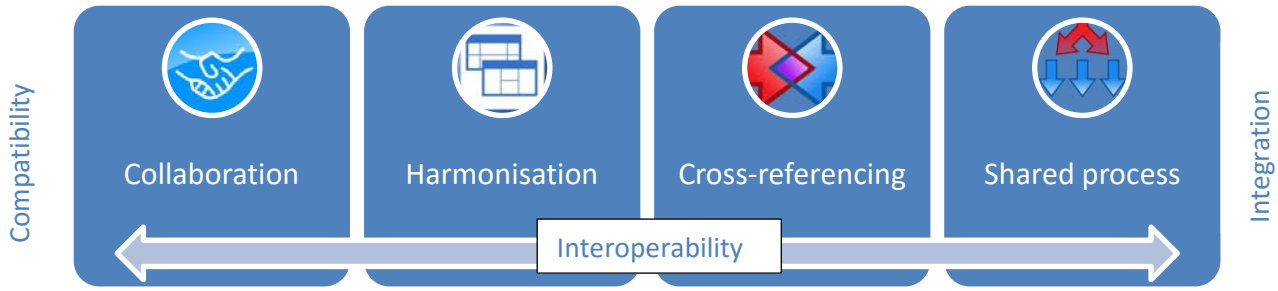

Diagram 1: Aspects of interoperability between sustainability initiatives

2.2 How can interoperability be assessed?

Developing frameworks to measure interoperability is challenging due to the different dimensions of the concept of 'working together' in the context of sustainability initiatives, as shown in diagram 1. However, the project has drawn on several authors who have developed interoperability measurement models. These studies mainly focused on interoperability of information systems, enterprises and technology. For instance, Daclin et al. (2006) studying interoperability of enterprises, suggest that the degree of interoperability could be measured in three ways: assessment of potentiality, incompatibility and performance. Potentiality refers to a set of system characteristics that have an impact on the ability of an entity to interoperate with another entity. Incompatibility refers to the identified barriers to interoperability, and performance measurement evaluates the ability of two cooperating enterprises to interoperate in practice. The potentiality, compatibility and performance interoperability measurement methods are also mentioned by Chen et al. (2008). They both point out that measuring interoperability allows entities to know their strengths and weaknesses and to prioritise actions in relation to each other.

Guédria et al.(2008) mention the Organisational Interoperability Maturity Model (OIM), which measures the ability of organisations to interoperate. The OIM has five levels of interoperability (see figure 1) and aims to assess the interoperability of an organisation considering the quality of its interoperability components proposing an integrated approach.

Level	Name	Description
4	Unified	The organization is interoperating on continuing basis. Command structure and knowledge basis are shared.
3	Integrated	Shared value systems and goals, a common understanding to interoperate. However there are still residual attachments to a home organization.
2	Collaborative	Recognised interoperability frameworks are in place. Shared goals are recognised. Roles and responsibilities are allocated but the organizations are still distinct.
1	Ad hoc	Some guidelines to describe how interoperability will occur but essentially the specific arrangements are still un-planned. Organisations remain entirely distinct.
0	Independent	Organisations work without any interaction. Arrangements are unplanned and unanticipated. No formal frameworks in place. Organizations are able to communicate e.g. via phone, fax and face-to-face meetings.

Figure 1: The OIM maturity levels (Guédria et al., 2008).

Kasunic (2001) states that typically interoperability is assessed by focusing on standards, compliance mechanisms, data models, certification criteria, and how individual systems match up to such criteria or standards. Interoperability potentiality is concerned with assessing whether an enterprise possesses intrinsic attributes related to interoperability, which make it easier to interoperate with other enterprises, in the eventuality of a partnership (Chen et al., 2008). This approach is taken in the mapping section of the study, which is a content analysis of the potential interoperability of the standards, compliance mechanisms, models and criteria of the 18 sustainability initiatives sampled. The case studies then dig deeper into identifying the opportunities for and challenges to interoperability between two sets of initiatives; and evaluates their collaborative performance.

2.3 Indicators framework

The following framework of indicators is designed to assess the interoperability of the sustainability initiatives selected. The mapping exercise adapted the potentiality measurement approach, previously used to assess interoperability between enterprises and information systems (Chen et al., 2008; Daclin et al., 2006), to assess the potential for interoperability among initiatives. To do so, four indicators of interoperability of sustainability initiatives were identified: (1) similar type of initiative, (2) common thematic scope, (3) similar assurance process, and (4) similar procedures for non-compliance (see table 1).

Indicator	Questions	Examples
Similar type of initiative Selected sustainability initiatives include certification schemes, law/ regulations and standards/ frameworks. They may be performance based, management system based or a mixture of both.	**What** type of initiatives are these? **Who** are their stakeholders?	The Conflict-free Gold Standard is management system based, while the UN Sustainable Development Goals are performance based. The Aluminium Stewardship Initiative is based on a combination of performance and management system assessment
Common thematic scope Assessment of the thematic scope of each initiative is used to determine shared focus and overlapping mandates.	**Why** do the initiatives exist? **What** issues do they address?	The EITI and section 1504 of the Dodd-Frank Act both require mining companies to report on payments to governments with the aim of increasing revenue transparency in the extractive industries.
Similar assurance process The type of assurance adopted (first-, second- or third-party), the assurance frequency, the assurance follow-up mechanism in place, and the mechanism in place to guarantee the quality of the assurance providers (assurance guidelines and training, accreditation and quality review).	**How** are these initiatives assured?	SA8000:2014 has third party assurance to issue a certificate of compliance. The EITI provides third party assurance by auditing company payments and government revenues reported. The OECD Due Diligence Guidance does not have an assurance process.
Procedures for non-compliance Mechanisms to determine sanctions and penalties for situations of non-compliance adopted by the initiatives.	**When** are sanctions applied for non-compliance?	Certifications may be withdrawn for non-compliance with Fairmined, Fairtrade, the ICGLR's mineral certification and SA 8000. EITI suspends membership of participating countries when they miss reporting deadlines.

Table 1: Framework of indicators of interoperability between mineral sustainability initiatives

The indicators framework is used to add rigour and structure to what is primarily a qualitative analysis of the interoperability of the sustainability schemes. It is not intended to result in rigid classification about which of the schemes can or cannot improve their outcomes by enhancing interoperability. Rather it is meant to guide policymakers as to where gains in the four different aspects of interoperability are most likely to be achieved. The next chapter maps the selected sustainability initiatives according to these four indicators.

3 Mapping sustainability initiatives for potential interoperability

3.1 Types of initiative

This section provides an overview of the features of 18 sustainability initiatives. A purposive selection technique was applied to identify the initiatives. All either target the mining industry directly or are widely applied to it. The types of initiative may be classified as: (1) certification schemes, (2) standards and frameworks, and (2) national and international law and regulations. Certification schemes are voluntary initiatives, which involve the issuance of a formal compliance document certifying the responsible practices of the beneficial party. Other types of sustainability standards and frameworks do not include the issuance of a formal compliance document. They are also voluntary by nature. Government and inter-governmental initiatives, in contrast, are required by national and international law and regulations. Compliance is mandatory for all concerned parties within the jurisdiction in which the law is applied.

Table 2 gives an overview of the initiatives: their objectives, target groups, stakeholders and classification type. Table 3 lists the respective commodities and activities operated by the initiatives, and the geographic areas where those initiatives operate.

Name	Objective	Target groups and affected stakeholders
Classification type 1: **Certification schemes**		
Aluminium Stewardship Initiative (ASI)	ASI is developing standards for international application by the aluminium value chain, with pilot implementation from 2017. ASI's standards are designed to be applicable to all stages of aluminium production and transformation, specifically: bauxite mining, alumina refining, primary aluminium production, semi-fabrication (rolling, extrusion, forging and foundry), material conversion, and refining and re-melting of recycled scrap, as well as material stewardship criteria relevant to downstream users of aluminium.	All companies in the aluminium value chain
Conflict-Free Smelter Program (CFSP)	CFSP is a certification scheme in which an independent third party audits smelter, refiner procurement and tolling activities and determines if the smelter or refiner demonstrated that all the minerals they processed originated from conflict-free sources.	Upstream industries
Fairmined Standard for Gold and Associated Precious Metals (Fairmined)	Fairmined is a certification scheme created by the Alliance for Responsible Mining (ARM) that aims to promote the progressive organisation and formalisation of the Artisanal and Small-Scale Mining (ASM) sector, bringing with it improved labour rights, safer working conditions for miners, and strengthened miners' organizations with the capacity to campaign for legislation and public policies that promote their rights and enable a responsible ASM sector. Its standards build on Artisanal and Small-scale Miners' Organizations (ASMO) compliance with a relevant country's legislation.	Artisanal small-scale mining organizations
Fairtrade Standard for Gold and Associated	Fairtrade is a certification scheme that aims to create opportunities for ASM miners and their communities promoting the formalisation of the ASM sector through the establishment of ASM organisations, bringing with it improved working conditions for producers, strengthened	Artisanal small-scale mining organizations and trading companies

Name	Objective	Target groups and affected stakeholders
Precious Metals (Fairtrade)	producer organisations with the capacity to lobby for legislation and public policies that promote a responsible ASM sector, improved environmental management, social security, gender equality, child protection and the elimination of child labour in mining communities, the well-being of families and children, fairer market access, benefits to local communities in mineral rich ecosystems, and improved governance to this sector.	
Initiative for Responsible Mining Assurance (IRMA)	IRMA is a certification scheme that aims to establish a third-party independent assurance system and develop standards that improve the social and environmental performance of industrial mining operations.	Large-scale mining companies
International Cyanide Management Code (ICMC)	ICMC is a certification scheme for the gold mining industry and the producers and transporters of the cyanide used in gold mining. The objective of this program is to improve the industry's performance in its management of cyanide, and to provide a framework of assurance for the industry's stakeholders.	Large-scale mining companies
International Standards Organization 14001 (ISO 14001)	ISO 14001 is a certification scheme that addresses aspects of environmental management systems. It provides practical tools for organisations looking to identify and control their environmental impact and constantly improve their environmental performance.	Any type of organization
Responsible Jewellery Council Code of Practices (RJC)	RJC is a certification scheme that aims to provide a common standard, based on international standards for responsible business practices, to advance responsible ethical, social and environmental practices, which respect human rights, throughout the diamond, gold and platinum group metals jewellery supply chain, from mine to retail.	Any scale of mining companies
Social Accountability SA 8000 (SA8000)	SA8000 is a certification scheme that aims to provide an auditable, voluntary standard […], to empower and protect all personnel within an organisation's control and influence who provide products or services for that organisation, including personnel employed by that organisation itself and by its suppliers, sub-contractors, sub-suppliers and home workers." (SA8000:2014	Any type of organization
Mineral Certification Scheme of the International Conference on the Great Lakes Region (ICGLR)	The ICGLR is an inter-governmental organisation formed to reduce conflict and promote sustainable development in Africa's Great Lakes region. It has established a mineral certification scheme that aims to provide support for sustainable conflict-free mineral chains in and between member states with a view to eliminating support to armed groups that sustain or prolong conflict, and/or otherwise engage in serious human rights abuses.	Upstream industries until mineral export of ICGLR countries; artisanal small-scale mining organizations as well as large-scale mining companies
Classification type 2: **Standards and frameworks**		
Conflict-Free Gold Standard (CFGS)	CFGS is a standard that provides a mechanism by which gold producers can assess and provide assurance that their gold has been extracted in a manner that does not cause, support or benefit unlawful armed conflict or contribute to serious human rights abuses or breaches of international humanitarian law.	Large-scale mining companies
Extractive Industries Transparency Initiative (EITI)	EITI is a standard that aims to promote the open and accountable management of natural resources. It consists of procedural and output requirements for natural resource management on country level, with the aim to impede corruption by improving the governance and transparency of revenues resulting from resource extraction. The focus is on the publishment of payments (taxes, royalties etc.) by companies of extractive industries to government bodies and of the reception of these payments by government bodies respectively. It shall further enhance transparency on the spending of these revenues by government bodies as well as on beneficial ownership of companies operating in the country.	Large-scale mining companies

Name	Objective	Target groups and affected stakeholders
Global Report Initiative – Mining and Metals Sector Supplement (GRI-M)	GRI is the most widely used sustainability reporting framework in the world. It aims to improve transparency of impacts on society, environment and economy of all kinds of organisations and provide guidance on sustainability reporting. The Mining and Metals Sector Supplement contains a set of disclosures for use by all organizations in the Mining and Metals sector. The disclosures cover key aspects of sustainability performance that are meaningful and relevant to the Mining and Metals sector.	Large-scale mining companies as well as juniors and mid-tiers
International Council on Mining and Metals – Sustainable Development Framework (ICMM-S)	The ICMM-S is a framework that aims to improve the sustainability performance within the mining sector. It consists of 10 principles in which compliance shall be assured by a third party. The principles are elaborated in a suite of guidance documents addressing a wide range of issues relating to social and environmental responsibility in mining.	Large-scale mining companies
OECD - Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD-D)	The objective of the OECD-D is to help companies respect human rights and to avoid contributing to conflict through their mineral sourcing practices through a risk-based due diligence framework.	Downstream industries with inclusion and effects on upstream industries, artisanal small-scale mining organizations as well as large-scale mining companies
UN Sustainable Development Goals (SDGs)	The SDGs were adopted as the Agenda 2030 by the UN General Assembly as the succeeding framework to the Millennium Development Goals. The SDGs (17 sustainable development goals) shall stimulate until 2030 actions of all stakeholders worldwide in areas of critical importance for humanity and the planet.	Any type of organization
Classification type 3: **Law and regulations**		
Dodd-Frank Act – Sections 1502, 1503 and 1504[2] (DFA)	The Dodd-Frank Wall Street Reform and Consumer Protection Act is a federal law of the United States of America established to improve accountability and transparency in the financial system of the United States. It contains three sections which are relevant for mining companies and for supply chains covering conflict minerals. Section 1502 on conflict minerals, section 1503 on safety in mining and section 1504 on the disclosure of payments to governments related to mining activities.	Downstream industries with inclusion of and effects on upstream industries, artisanal small-scale mining organizations as well as large-scale mining companies
European Regulation on self-certification of responsible importers of tin, tantalum and tungsten, their ores, and gold originating in conflict-affected and high-risk areas (EUSC)	The certification scheme of the EU is a legal provision that shall curtail opportunities for armed groups and security forces to trade in tin, tantalum and tungsten, their ores and gold. It shall improve the transparency in supply chains of importers of minerals and metals, of smelters and refiners sourcing from conflict-affected and high-risk areas. The overall goals are to break the nexus between conflict and illegal exploitation of minerals and to promote peace and security in conflict-affected and high-risk areas.	Downstream industries with inclusion of and effects on upstream industries, artisanal small-scale mining organizations as well as large-scale mining companies

Table 2: Names, objectives, target groups, and stakeholders of the initiatives

The majority of initiatives operate globally (13 out of 18; 72%). However some emphasise middle and low income country contexts. Africa is specifically mentioned by four initiatives (22%) with three of them (17%) operating in the Great Lakes Region. Latin America, Asia, Oceania and the Caribbean are mentioned once (6%) and one (6%) initiative operates in least developed countries.

[2] Note that Section 1504 of the Dodd Frank Act was repealed by the President of the United States in January 2017. This has reduced the potential interoperability of the Act with other revenue reporting initiatives, most notably with the EITI and the EU Directives on transparency. The other sections of the Act remain relevant to the analysis, however.

For more detailed profiles of these and other sustainability initiatives relevant to mineral and metals supply chains, there are several up to date sources of comparative information, such as Kickler, K. and Franken, G. (2017); Rüttinger, L. and Scholl, C. (2016); and the online tool StandardsMap.

Name	Commodity / Activity	Geographic Area
ASI	Bauxite/Aluminium	Worldwide
CFGS	Gold	Worldwide
CFSP	Tantalum, Tin, Tungsten and Gold	Worldwide
DFA	Tantalum, Tin, Tungsten and Gold	Democratic Republic of Congo (DRC) and its adjoining countries; listed companies in the American stock exchange
EUSC	Tantalum, Tin, Tungsten and Gold	The 12 Member States of the Africa Great Lakes Region (Angola, Burundi, Central African Republic, Republic of Congo, Democratic Republic of Congo, Kenya, Uganda, Rwanda, South Sudan, Sudan, Tanzania and Zambia); listed companies in the European stock exchange
EITI	All natural resources	Worldwide; 51 member countries
Fairmined	Gold and Associated Precious Metals	Latin America, Caribe, Africa, Asia and Oceania
Fairtrade	Gold and Associated Precious Metals	Non-developed countries
GRI-M	All mineral resources	Worldwide
IRMA	All kinds of industrial mining (except mining operations that produce fuels for energy generation)	Worldwide
ICMM-S	All mineral resources	Worldwide
ICMC	Cyanide and Gold	Worldwide
ISO 14001	Environmental Management System	Worldwide
ICGLR	Tantalum, Tin, Tungsten and Gold	The 12 Member States of the Africa Great Lakes Region (Angola, Burundi, Central African Republic, Republic of Congo, Democratic Republic of Congo, Kenya, Uganda, Rwanda, South Sudan, Sudan, Tanzania and Zambia)
OECD-D	Minerals and metals from conflict-affected and high-risk areas	Worldwide
RJC	Diamonds, Gold and Platinum Group Metals	Worldwide
SA8000	Social Management System for decent workplaces	Worldwide
SDGs	Sustainable Development Goals	Worldwide

Table 3: Commodity or activity and geographic area operated by the initiatives.

3.2 Thematic scope

The assessment of the thematic scope of the sustainability initiatives grouped aspects of sustainability performance into three categories:

- Environmental sustainability themes, including broad concerns, such as climate change, to very industry-specific issues like the use of cyanide to produce gold.
- Socio-economic impacts, both positive and negative, in terms of contribution to local economic development and social responsibility (towards the mining workforce and affected communities), including occupational health and safety.
- Governance in relation to anti-bribery and corruption measures, transparency and due diligence, including in relation to conflict minerals.

Sorting themes into even these three categories proved challenging, since many are overlapping or have all three dimensions associated with the issue. For example, community health is closely related to environmental impacts on land, water and air quality. Conflict minerals could be grouped with human rights, but was placed within governance since the issue requires due diligence of the entire supply chain at a corporate level. Identifying subthemes under the three categories was even more difficult, as the initiatives address topics in varying amounts of depth and detail, and take varying approaches to defining and groups the issues. The absence of clear-cut distinctions between themes across the range of many sustainability initiatives is precisely the problem identified for this research project, however. The mapping section should therefore be read as a 'rough guide' to understanding where areas of potential interoperability lie and where they are missing to date.

3.2.1 Environmental themes

This section examines the extent to which the initiatives have environmental themes within their scope. There are eleven initiatives (61%), out of the 18 analysed in this research project, which address environmental themes. These are the ASI, Fairmined, Fairtrade, GRI-M, ICMM-S, ICGLR, ICMC, ISO, RJC, SDGs and IRMA. Seven (39%) of the initiatives assessed do not address any environmental themes specifically, although the CFGS cross-references other initiatives even though it does not have environmental standards or indicators within its scope:

"The Standard is designed to complement existing approaches and company systems and policies regarding responsible mining and sustainable development, including environmental, social and community impacts."

The OECD-D does not address environmental themes in detail, but it recommends that during the risk assessment phase, research reports on *inter alia* environmental harm should be considered.

Nine different environmental themes were identified as being within the scope of the eleven initiatives identified. The environmental themes addressed by these schemes are: waste (11; 100%), water (9; 82%), biodiversity and ecosystems (9; 82%), tailings (9; 82%), air emissions (8; 73%), environmental impacts (8; 73%), mine rehabilitation (7; 64%), climate change (6; 55%) and energy (3; 27%) (see figure 2).

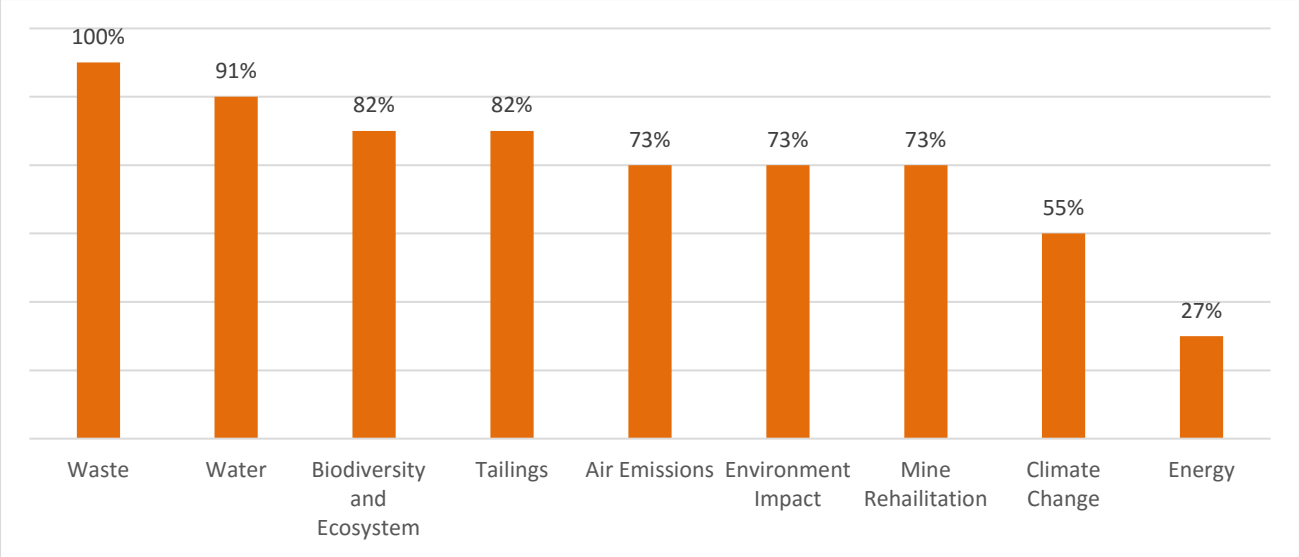

Figure 2: Subthemes as a percentage of 11 initiatives with environmental topics within their scope

Waste is the most widely included topic, considered by all of the eleven initiatives addressing the environmental themes. They make use of standards addressing waste management practices, such as: public disclosure of the quantity of hazardous and non-hazardous waste created by the company and the respective waste disposal methods, implementation of waste management strategies, safe storage of residues, disclosure of the risks associated with residues, compliance with applicable law and/or adopting international standards, and monitoring waste trends to improve performance.

Seven (63%) of these initiatives go beyond general aspects of waste management. They include performance indicators to recycle, recover, reduce, eliminate or reuse waste. For example, ASI has a criterion requiring a timeline and a roadmap for the reduction and elimination of specific residues. Another five initiatives, the SDGs, Fairmined, RJC, ICMM and ISO have specific criteria or principles fostering or requiring reduction of waste and recycling programs. GRI has an indicator requiring disclosure of the percentage of materials used that are recycled input materials.

Three initiatives (GRI, ASI and SDGs) have adopted a life cycle and resource efficiency approach, combined with the concept of material stewardship. Material stewardship is defined as the responsible provision of materials and supervision of material flows to create maximum societal value and minimum impact on humans and the environment (International Council on Mining and Metals, 2006). The ASI addresses this topic through the use of the following criteria within companies' operations as well as within the value chain: environmental life cycle assessment, collaboration, product design, and aluminium processing for scrap, collection and recycling of products at end-of-life. GRI addresses this topic by providing guidance for companies to disclose their programs and progress relating to materials stewardship, such as: life-cycle assessments, traceability schemes and processes for assessing sustainability attributes of products (e.g. recyclability, material use, energy use, etc.). SDG 12 addresses the responsible consumption and production of raw materials. When applied to the mining sector, the goal should encourage mining companies to collaborate with governments, and across the supply chain, to support a circular economy to minimize inputs to waste from the mining process and to increase reuse, recycling and repurposing of raw materials and products to improve sustainable consumption.

Water, is the second most widely addressed topic, as it is within the scope of ten (90%) of the eleven initiatives addressing environmental themes. Nine of these initiatives (ASI, ICGLR, IRMA, ISO, Fairmined, GRI, ICMC, RJC and SDGs) address aspects of water quality and water quantity; and one initiative (Fairtrade) addresses only aspects of water quality. ASI and GRI also adopt an interesting risk-based approach whereby the applying entity has to manage and disclose water management programs according to the material water-related risks identified. GRI also requires full disclosure about the effluent treatment method employed and the total volume of planned and unplanned water discharge by destination.

Aspects such as water pollution prevention, management of ground and surface water quality, discharges and effluents management, and environmental and local communities' protection from water contamination are the topics generally used by initiatives addressing water quality. In regards to water quantity, disclosure of water withdrawn by source, impact of water consumption in the local and global context, scarcity and water competition, were the more frequently addressed topics. In addition to the water quality and quantity general management systems, water efficiency, re-use and recycling programs are encouraged by the ICMC, GRI, ISO and RJC.

The ICMM-S does not have specific requirements regarding water quality or quantity. However, it provides a general requirement that members should respect the rights, interests, special connections to land and water, and perspectives of indigenous peoples, where mining projects are to be located on lands traditionally owned by or under customary use of indigenous peoples. RJC provides a similar statement regarding the responsibility of members to respect the rights of indigenous peoples with regards to land and water.

Biodiversity and ecosystems are addressed by the following nine initiatives: ASI, Fairmined, Fairtrade, GRI, ICMM, ISO, RJC, UN and IRMA. Avoiding loss of biodiversity and degradation of ecosystems and respecting protected areas are the main topics addressed by these nine initiatives (82%). The majority of the initiatives have indicators in place to assess, disclose and manage biodiversity and ecosystems impacts. However, some of the initiatives also include a more detailed approach with regard to this theme. For instance, ASI adopts a risk and materiality approach to assess and manage biodiversity impacts caused by land use and activities over which the certified or participant entity has direct management control or significant influence.

In addition to assessment and management of biodiversity and ecosystems impacts, six initiatives (Fairmined, Fairtrade, GRI, RJC, SDGs, IRMA) have indicators or principles in place addressing restoration, rehabilitation or compensation for biodiversity and ecosystems loss, not only during the exploration, development and operational phases, but especially during mine closure, decommissioning and divestment phases. Two of them (Fairtrade and Fairmined) provide a premium price for certified entities that operate with low impact in areas of high biodiversity or have restoration programs in place in areas of high biodiversity.

Five initiatives (ICMM, IRMA, RJC, UN and ASI) require a commitment to not explore nor negatively affect World Heritage Sites. RJC, ICMM, GRI and IRMA also require companies to put programs in place to avoid the decline of species listed by the International Union for the Conservation of Nature (IUCN) as threatened with extinction, including adverse impacts on habitat critical to supporting their survival.

Nine initiatives have requirements for **tailings management** (9; 82%). Fairmined and IRMA standards are aligned with the Minamata Convention on Mercury, which among others, requires the certified entity to eliminate cyanide leaching from tailings to which mercury has been added without first removing the mercury.

RJC states the same thing regarding cyanide leaching in tailings to which mercury has been added without first removing the mercury.

Fairmined adopts a progressive improvement approach, whereby the certified entity starts reducing the amount of amalgamated tailings that go into leaching progressively; and within nine years leaching of any amalgamated tailings are not allowed at all. Fairtrade establishes that cyanide leaching of unprocessed amalgamated tailings are not allowed and does not take place.

Fairmined and Fairtrade require that tailings be detoxified before discharge; discharge must not occur into water or where they can reach water bodies; and amalgamation and disposal of tailings must be properly planned and carried out by experienced persons. Fairtrade adds to these requirements that amalgamation and/or cyanide use should take place 100 meters away from water bodies and that discharge should not occur in places susceptible to flooding. RJC requires that disposal of tailings must not occur on water bodies. Regarding this matter, IRMA states that it will only certify land-based tailings disposal.

Public disclosure on the location, quantity, associated risks, approaches taken to minimise potential impacts and reporting of incidents with tailings are part of GRI's requirements. A general requirement to manage mine tailings is provided by SDGs, ICGLR and ICMM. The ICMC, IRMA and RJC are more specific about tailings management and require members to have in place specific practices, such as:

- written management and operating plans and procedures,
- mechanisms in place to identify and comply with regulatory requirements on the cyanide concentration,
- plans to identify and manage risks associated with tailings,
- monitoring tailings storage facilities for mortalities of wildlife,
- carrying out physical and geochemical characterisations of mine tailings,
- protection measures for the surrounding environment and local communities.

Eight initiatives (73%) include **air emissions** in their scope (ASI, Fairmined, GRI, ICMM, ISO, RJC, SDGs and IRMA). These initiatives seek to prevent air pollution using assessment, disclosure, compliance with applicable law and management plans to monitor emissions to air that have adverse effects on humans and/or the environment. In addition to the indicators on prevention of pollution, six of these initiatives also have indicators in place fostering the reduction of emissions through the use of cost effective best available technology, practices and products to avoid or reduce adverse impacts (AIS, RJC, UN, ISO, ICMM, Fairmined, IRMA). Mercury air emissions from mining operations are also specifically addressed by two initiatives (IRMA and ICMM). IRMA also addresses the assessment and management of particulate emissions, such as dust from blasting, wind-blown from exposed surfaces, large truck and equipment traffic and ore crushing.

Eight initiatives provide general requirements to identify **environmental impacts** and implement management systems to manage these environmental impacts, fulfil compliance obligations and address risks and opportunities. Such requirements are provided by ASI, GRI, ICMM, ICGLR, ICMC, ISO, RJC and IRMA. In addition, ASI, GRI, ICMM, RJC, SDGs and IRMA provide specific requirements to identify and manage

environmental impacts considering project lifecycle and post-closure land use in closure planning strategies. For instance, the ICMM-S states that members should assess the positive and negative, direct, indirect and cumulative environmental impacts of new projects from exploration to closure. The ASI requires members to include environmental, social and governance aspects in the due diligence process for closure, decommissioning and divestment.

Mine rehabilitation is also addressed by a significant number of initiatives (8; 73%) concerned with environmental impacts. Most of the schemes encourage mine rehabilitation with incentives for rehabilitation programs or establishing requirements for land restoration. For example, Fairmined has an additional ecological premium price for certified members that have rehabilitation initiatives for native ecosystems. Fairmined also provides progressive requirements, in which certified entities should comply with specific processes of rehabilitation over time. A similar approach is employed by Fairtrade, in which the certified entity should adopt a continuous improvement approach to set up a planning process for rehabilitation and restoration of the disturbed areas.

The GRI and ICMM address mine rehabilitation by requiring mining companies to disclose information on the amount of land disturbed or occupied by operations, and the amount of land rehabilitated in accordance with appropriate post-mining use. The ICGLR requires the mine site operator to incorporate rehabilitation in the mine closure plan, including funds for its implementation. Detailed requirements addressing mine rehabilitation are provided by the RJC. The RJC's mine rehabilitation requirements determine that the certified member should not only prepare and regularly review a mine rehabilitation plan, but should involve local stakeholders in the mine rehabilitation plan development, estimate and allocate funds for its implementation and adopt good practice techniques for the rehabilitation of environments disturbed or occupied by mining activities. The ASI has added a similar criterion to the 2017 consultation draft (version 2) of the Performance Standard under Biodiversity.

IRMA addresses the mine rehabilitation topic using the term reclamation. Reclamation refers to the process of reconverting disturbed land to its former or other productive uses. Similar to the RJC approach, IRMA also establishes detailed indicators for mine rehabilitation, such as that the final use is appropriate for rehabilitation areas, re-vegetation and reinvasion of natural vegetation, timing, strategies and plans to deal with open pits and funds needed to develop and implement mine rehabilitation strategies and plans.

Seven initiatives have indicators addressing **energy** within their scope (ASI, GRI, ICMM, ISO, RJC, SDGs and IRMA). The majority of these initiatives have similar indicators for the disclosure of energy used by source (ASI, GRI, RJC) and indicators fostering disclosure and encourage adoption of practices to reduce energy consumption (ASI, GRI, ICMM, ISO, RJC, SDGs and IRMA).

Commitment to reduce greenhouse gas (GHG) emissions to combat and mitigate impacts on **climate change** is addressed by six initiatives (55%). These initiatives (ASI, GRI, ICMM, ISO, SDGs and IRMA) have specific indicators for public disclosure of GHG emissions, monitoring results, emission reduction targets and reduction strategies.

Furthermore, the SDGs, ASI, GRI, ICMM and IRMA make use of indicators and principles to develop low GHG emissions technologies to manage a transition to a low carbon economy and to mitigate climate change impacts on operations and communities. For example, the UN recommends an integrated approach to

improve human and institutional capacity on climate change mitigation, adaptation and impact reduction. This initiative also suggests special attention and support to vulnerable stakeholders, such as least developed countries, small island developing states, women, youth and local and marginalised communities. The GRI recommends compliance with provisions of ISO 14064:20063 and IRMA determines that members shall comply with the requirements of this standard. These are good examples of cross-referencing between sustainability initiatives.

3.2.2 Socio-economic themes

Contribution to local economic development

Seven themes relating to the contribution of mining to local economic development were identified in the mapping of sustainability initiatives. They require implementing companies and governments to leave a positive economic legacy to the local communities and broader societies affected by the extraction of non-renewable resources. Economic themes are covered by 15 of the 18 initiatives (83%), that is all but the EU, ICMC and ISO. The ISO does state in the introduction to its 14001 standard, however, that its purpose is "to provide organizations with a framework to protect the environment and respond to changing environmental conditions in balance with socio-economic needs."

Fourteen of these 15 initiatives (93%) make statements about positive economic impacts. Twelve (80%) address strategies for community development. Eight initiatives (53%) contain provisions aimed at boosting local employment. Eight initiatives (53%) intend for business operations to result in poverty reduction. Seven initiatives (47%) require mining companies to use local suppliers in order to stimulate local business and trade. Six initiatives (40%) include aspects of social protection and four (27%) cover infrastructure development.

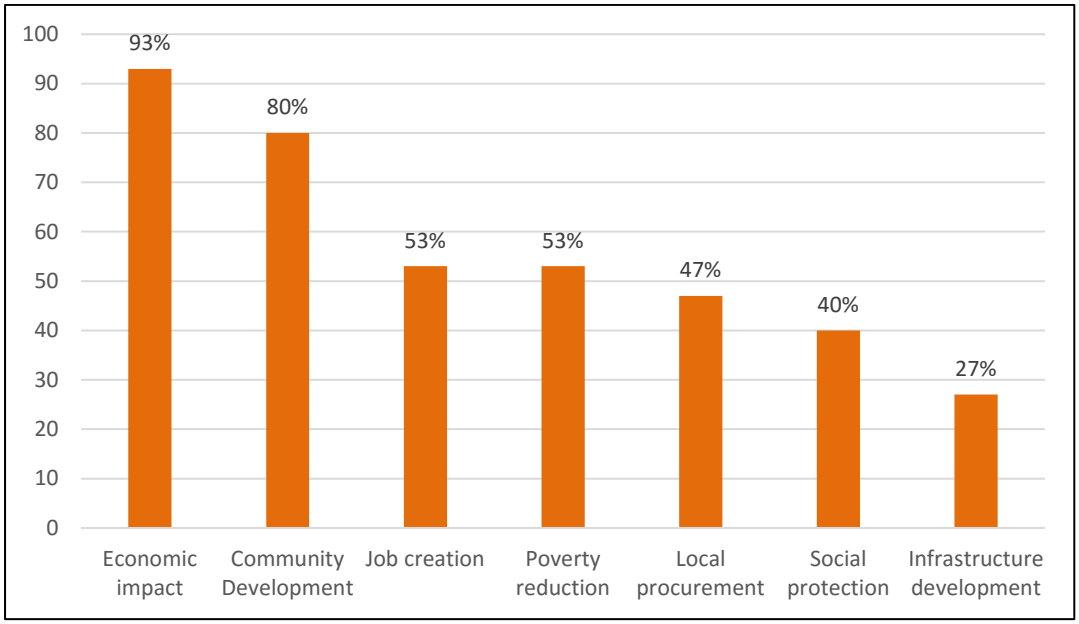

Figure 3: Percentage of initiatives with economic themes within their scope

[3] The ISO 14064 standard (published in 2006) provides a set of tools for programs to quantify, monitor, report and verify greenhouse gas emissions.

Six initiatives (40%), namely the CFGS, EITI, ICMM, ICGLR, SDGs, and IRMA, include a normative statement that mining operations shall have a positive **economic impact** where the resource exploitation is taking place. The CFGS more generally states that gold mining "should be a source of economic and social development"[4] and EITI aspires that the disclosure of revenues and payments to governments derived from extractive industries will contribute to more effective economic and social spending by governments through multi-stakeholder monitoring.

The GRI has many provisions for companies to report on their direct and indirect economic impacts, offering a variety of possible indicators for this purpose. The OECD suggests *inter alia* direct economic value generated as an indicator to measure improvement of risk mitigation as part of a model supply chain policy. The ICMM, ASI and RJC similarly require economic effects of mining operations to be included in impact assessment and for disclosure purposes, but without specifying further. The ICMM requests companies to create partnerships with other stakeholders for development goals in host countries and communities.

The OECD, CFGS and CFSP seek to create economic opportunities for artisanal and small-scale miners (ASM). The OECD and RJC include recommendations for LSM to assist ASM in a formalization process for the economic development of surrounding communities. Fairmined and Fairtrade similarly aim for ASMO to become formal and viable businesses through participation in their schemes.

Further provisions with relevant economic development content are given by the Dodd-Frank Act and ICMM, which both state that institution building for local and regional development shall be supported. The RJC emphasises the economic interests of indigenous peoples, which should be considered throughout the life cycle of a mine. IRMA highlights the need for improved livelihoods of people affected by displacement and mining-induced resettlement. ASI has established an Indigenous Peoples Advisory Forum as part of its governance, which provides the opportunity for indigenous communities and their representatives to participate in an ongoing dialogue with ASI on indigenous rights and interests and their integration into ASI's program.

Twelve (80%) initiatives address the **community development** theme (ASI, CFGS, CFSP, Fairmined, Fairtrade, GRI, ICMM, ICGLR, OECD, RJC, SDGs and IRMA). Among these, five initiatives (33%), i.e. ASI, Fairmined, Fairtrade, SDGs and IRMA, include a clear statement that mining companies shall contribute to community development in the sense of supporting livelihoods in those communities and promoting their wellbeing. Fairmined and Fairtrade raise a premium on the price of mineral resources to fund development efforts in affected communities. Both require, together with IRMA and GRI, a community development plan to be in place. Fairtrade states that mining operators shall set up a binding agreement with affected communities and names a few points of general agreement terms to be considered. The ICMM commits its member companies to engage in community development from exploration to closure. The ICGLR sets out five points for how companies should engage in community development, by (1) consultation, (2) local sourcing, (3) infrastructure and social service provision, (4) obtaining free and informed consent before acquiring land, and (5) gender-sensitive mining operations. RJC and IRMA aim for community-led development with companies playing a supporting role. The SDGs further express the need for more sustainable cities and human settlements.

[4] World Gold Council, Conflict-Free Gold Standard, version of October 2012, p.4.

Eight initiatives (53%) (EITI, Fairmined, Fairtrade, GRI, ICMM, RJC, SDGs, and IRMA) include provisions for promoting **employment**. GRI and EITI require reporting of employment data in the extractive sector, whereby GRI requires company-level data and EITI reports shall contain aggregated, country-level data for the entire industry. GRI further asks for disclosure of information on local employment as well as on job creation along the supply chain. ASI and IRMA require companies to hire local staff. The SDGs want to see full employment promoted (in the national context). Fairtrade, Fairmined, and the SDGs also emphasise employment opportunities for youth. RJC takes a similar position by seeking opportunities and training for youth as part of a child labour remediation process. ICMM motivates its members to create job opportunities for indigenous peoples. Fairtrade, SDGs and IRMA include provisions on the employment of vulnerable groups.

Poverty reduction is covered by Fairmined, Fairtrade, EITI, GRI, ICMM, IRMA, SA8000, and the SDGs (8; 53%). The SDGs, EITI, Fairmined and Fairtrade address poverty alleviation directly as a goal of their initiatives. The EITI states in one of its principles that natural resource wealth shall contribute to poverty reduction. Fairmined follows a concept of decent labour that addresses poverty; Fairtrade aspires to alleviate poverty through fairer trade practices; and the SDGs target to end poverty worldwide. ICMM encourages its member companies to seek opportunities to address poverty in areas of influence. GRI demands reporting on significant, indirect economic impacts, which can encompass economic development in areas of high poverty as well as effects on the availability of products and services for people living on low income. The SDGs name also further possibilities where poverty needs to be addressed, e.g. by promoting food security and the reduction of inequality. IRMA names poverty as an issue to include in social impact assessments and SA8000 only states that statistics on poverty shall be considered when determining a living wage.

Seven initiatives (47%), which are CFGS, CFSP, GRI, ICMM, ICGLR, OECD, and SDGs, cover **local procurement** as a way for mining companies to support the economy by sourcing products and services locally. GRI requires companies to report on their supply chains and to give figures on the proportion of spending on local suppliers. ICMM names local content as one of six development priorities. ICGLR makes a general statement that mining companies should support local businesses. The OECD suggests in a footnote that the community shall be supported by sourcing as many goods and services as possible locally. The SDGs promote local and regional economic linkages.

Six initiatives (40%), namely Fairmined, Fairtrade, ICGLR, IRMA, RJC, and SDGs, mention **social protection** of either employees of the mining industry or of communities. Fairmined and Fairtrade include a set of provisions for social security, like healthcare and pensions for ASM workers. These two schemes also explicitly require companies to adhere to national laws about social security and which include a provision for reparation to widows, widowers and heirs in case of loss of life due to workplace accidents. RJC stresses also the adherence to labour and social security law with regards to contractual arrangements for employees. The ICGLR requires companies to promote livelihood security, without specifying further. IRMA stipulates that there shall be adequate compensation for work-related injuries and illnesses, compensation for loss of earnings in cases of severe injuries (until the affected worker is eligible for the pension system), and a rehabilitation program which facilitates return to work after injury and severe illness. The SDGs, going beyond industry concerns, envisage "a world with equitable and universal access to quality education at all levels, to health care and social protection, where physical, mental and social well-being are assured."[5] They further address the need for

[5] United Nations A/RES/70/1, Resolution adopted by the General Assembly on 25 September 2015, Transforming our world: the 2030 Agenda for Sustainable Development, p. 3.

social protection systems on the national level, which shall achieve substantial coverage of the poor and vulnerable by 2030. Last but not least, the SDGs are meant to be facilitated by a participatory budgeting approach to improve public resource allocation, for example, to social expenditure.

Infrastructure development receives relatively little attention from the initiatives in their key documents, and is mentioned by only four of them (27%) (GRI, ICGLR, IRMA, and the SDGs). The GRI requires companies to report on their infrastructure investments. ICGLR expects companies to put in place a development program for local infrastructure. The UN SDGs call for the building of resilient infrastructure in a general sense. IRMA refers in its standard to the construction of mining infrastructure and to payments made to governments for infrastructure development. The IRMA draft also mentions that risks of negative social impacts and loss of biodiversity shall be avoided during infrastructure development.

The economic themes discussed above are fairly diverse and common denominators can barely be found among the initiatives' provisions. This suggest opportunities for greater harmonisation if the sustainability initiatives were to work together to fill in some of the gaps in these thematic areas. Although positive economic impacts and contribution to community development are widely accepted as important by the initiatives, these themes are addressed in far less detail than are negative social impacts to be discussed below.

Social and human rights impacts

This section analyses how the 18 initiatives under scrutiny cover social and human rights impacts of mining and metals supply chains. All 18 initiatives cover social and human rights impacts within their standards and guidelines, but to very different extents. For example, the EUSC concentrates on issues of human rights, whereas the SDGs cover all of the themes analysed in this section at a generalised level.

Human rights are covered by most of the initiatives (16; 89%). Social impacts in general are addressed by twelve initiatives (67%). Subthemes of forced labour, child labour, the rights of women and vulnerable groups are covered by 13 (72%) initiatives each. Labour rights and working conditions are less extensively covered, by just over half the initiatives (56%). The rights of indigenous peoples, land rights and resettlement are addressed by eight initiatives (44%). Although there are clearly overlapping themes, the initiatives with similar intentions and target groups use diverse approaches to each of these topics. Some make only a general statement, whereas others offer detailed instructions on how to best reach an objective. There is a plethora of diverse provisions, measures and tools about how to tackle major social sustainability concerns within the mining industry and metals supply chains. Nevertheless, it is possible to identify common denominators and to highlight the major differences.

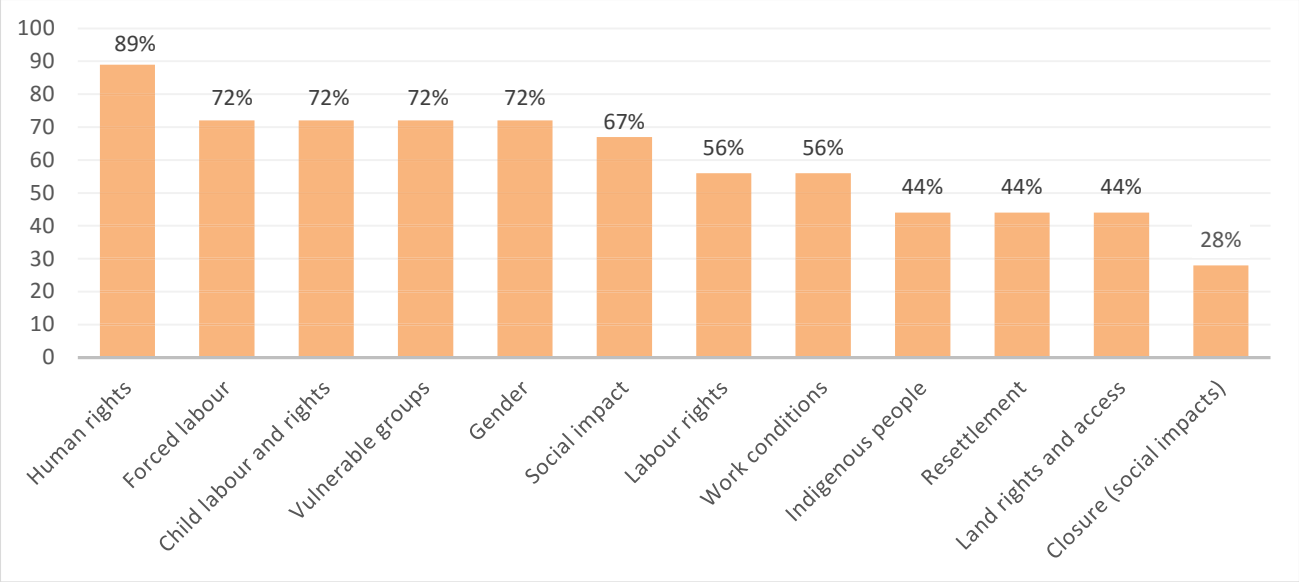

Figure 4: Percentage of initiatives with social themes within their scope

Most of the initiatives state that organisations shall not contribute to or tolerate **human rights** abuses (11; 61%; ASI, CFGS, CFSP, DFA, EUSC, Fairmined, Fairtrade, ICGLR, IRMA, OECD, and SDGs). Human rights provisions include non-discrimination (56%; 10, i.e. ASI, EITI, Fairmined, Fairtrade, GRI, ICMM, IRMA, RJC, SA8000, and SDGs), prohibition of torture, cruel, inhuman and degrading treatment (50%; 9, i.e. CFGS, CFSP, Fairmined, Fairtrade, ICGLR, OECD, RJC, SA8000, and SDGs), remediation of adverse impacts on human rights (44%; 8, i.e. ASI, CFGS, Fairmined, Fairtrade, GRI, IRMA, RJC, and SA8000) and human rights considerations for the use of security forces (28%; 5, i.e. ASI, CFGS, Fairmined, IRMA, and RJC). Five initiatives (28%, i.e. ASI, CFGS, Fairtrade, IRMA, and RJC) require companies to have a human rights policy, four (22%, i.e. ASI, Fairmined, Fairtrade, and RJC) require a human rights due diligence process, and three initiatives (17%, i.e. ASI, IRMA and SDGs) require distinct human rights impact assessments. The GRI requires integration of human rights considerations into investment agreements. IRMA requires external monitoring of human rights practices (IRMA) and SA8000 recognises the right of personnel to observe practices of their religion, national or social origin, gender, and sexual orientation, among others.

More than two-thirds (72%; 13, i.e. ASI, CFGS, CFSP, Fairmined, Fairtrade, GRI, ICMM, ICGLR, IRMA, OECD, RJC, SA8000, and SDGs) of the initiatives prohibit **forced or compulsory labour**. Seven initiatives (39%; ASI, Fairmined, Fairtrade, IRMA, RJC, SA8000, and SDGs) also refer to slavery and human trafficking and also six initiatives (33%; ASI, Fairmined, Fairtrade, IRMA, RJC, and SA8000) state that companies shall not tolerate mental or physical coercion. ASI, Fairmined, Fairtrade, RJC, and SA8000 (28%; 5) prohibit confiscation of personal items like identification documents; prison labour; and conditioning of labour through loans and employment fees. Two initiatives cover the freedom of spouses to work for the same employer (Fairmined and Fairtrade), and three mention the freedom of movement of employees (ASI, RJC and SA8000). The RJC points to risks of forced labour associated with ASM nearby the operations of member companies. The GRI requires companies to report on risks of forced labour in supply chains and related mitigation measures.

Child labour is condemned by 13 of the initiatives (72%; ASI, CFGS, CFSP, Fairmined, Fairtrade, GRI, ICMM, ICGLR, IRMA, OECD, RJC, SA8000, and SDGs). Six initiatives (33%) define minimum working ages for children

and youth (ASI, Fairmined, Fairtrade, ICGLR, IRMA, and RJC); require avoidance of hazardous and unsafe situations (i.e. ASI, Fairmined, Fairtrade, IRMA, RJC, and SA8000); mention the need for school attendance (Fairmined, Fairtrade, RJC, SA8000, and SDGs) and five (28%) mention remediation in cases of child labour detected in supply chains (Fairmined, Fairtrade, IRMA, RJC, and SA8000). ASI, GRI and IRMA refer to child labour risks in the supply chain, whereas RJC points to child labour risks in ASM. Fairmined and Fairtrade both also mention the rights of children. IRMA is the only initiative which covers aspects of physical and mental health of children found to be engaged in mining activities.

Eight initiatives (44%, i.e. CFGS, CFSP, Fairmined, Fairtrade, GRI, IRMA, OECD-D, and RJC) have in common that they treat artisanal and small-scale miners as a vulnerable group, which requires special attention. It should be noted that some minerals, such as bauxite, do not have artisanal mining activities associated with them. The OECD-D states that companies shall respect the rights of **vulnerable groups**, and another four initiatives (Fairmined, Fairtrade, SA8000, and SDGs) refer to the needs of people requiring special attention, such as e.g. pregnant and breast-feeding women. Fairmined and Fairtrade require programs to be in place to improve conditions for disadvantaged persons and minority groups. The ICGLR requires the improvement of working conditions for women. The three aforementioned standards as well as RJC emphasize that hazardous tasks and work associated with high risks should never be carried out by vulnerable people. IRMA adds to this context that protection shall be guaranteed to vulnerable groups in the workplace. The ASI mentions that special attention shall be paid to vulnerable groups in the context of resettlement. The SDGs point to the need for social protection of them.

Nine initiatives (50%, i.e. ASI, DFA, Fairmined, Fairtrade, ICGLR, IRMA, RJC, SA8000, and SDGs) state that organisations shall not engage in sexual abuse, gender-based violence, or any other form of harassment and exploitation of women. Seven (i.e. ASI, Fairmined, Fairtrade, GRI, RJC, SA8000, and SDGs) name **gender** as one of the aspects of non-discriminatory practices. The ASI and SDGs emphasize the elimination of all forms of discrimination against women, and SA8000 forbids pregnancy and virginity tests in the workplace. Six initiatives (33%, i.e. Fairmined, Fairtrade, GRI, ICGLR, IRMNA, and SDGs) point to equal representation of women in organisations, participation in stakeholder engagement processes or highlight leadership by women. Three initiatives (IRMA, RJC, and SDGs) include gender as an aspect to be covered in impact assessments,[6] and three (Fairmined, Fairtrade, and RJC) require gender to be considered within risk assessments.[7] Five initiatives (Fairmined, Fairtrade, GRI, RJC and SDGs) are concerned about equal pay for men and women; and four initiatives (Fairmined, Fairtrade, RJC and SDGs) emphasise equal opportunities and equal access to economic resources for women and men. The SDGs and ICGLR include the creation of gender-sensitive work environments. The ASI and ICGLR address respect for the rights and interests of women. The OECD-D requires organisations to implement a gender awareness and empowerment program.

Eight initiatives (44%) pay attention to the rights of **indigenous peoples**, of which six (33%) include the requirement to act according to the principle of free, prior and informed consent (FPIC). This is required for any form of **land access** and impact on land being owned or acknowledged as the territory of indigenous peoples. The ICGLR mentions “free and informed consent” only. Fairmined does not directly include FPIC in its standard, but cross-references the ILO Convention 169 in a section which is not subject to audits and

[6] RJC, UN SDGs and IRMA; the latter as part of its human rights impact assessment.
[7] Fairmined and Fairtrade.

certification.[8] Beyond broad mention of indigenous peoples' rights, there is little consensus among the initiatives about how to handle the complex social impacts occurring when mining affects indigenous and non-indigenous communities, such as mining-induced **resettlement**. The diversity of perspectives on these topics is reflected in 58 different provisions that are variations on these three themes (indigenous peoples, land access and resettlement). IRMA provides the most comprehensive coverage of these social impacts.

Half of the initiatives (50%; ASI, Fairmined, Fairtrade, GRI, ICMM, ICGLR, IRMA, RJC, and SDGs) highlight the importance of community engagement. Three schemes (ASI, IRMA, and RJC) make reference to social and environmental impact assessment. Fairmined and Fairtrade mention only environmental impact assessment, while the RJC requires an environmental and social management plan. Grievance mechanisms for social impacts and community concerns are required by the GRI, IRMA, and RJC. The ICMM and IRMA state that communities shall be compensated for adverse impacts of mining activities; and the RJC and ICMC require the protection of communities. Four initiatives (Fairmined, Fairtrade, IRMA, and SDGs) make mention of community health. ASI makes reference to protecting local community livelihoods.

The broadest reference to **labour rights** is that half of the initiatives state that employees shall enjoy freedom of association and collective bargaining (50%; ASI, Fairmined, Fairtrade, GRI, ICGLR, IRMA, RJC, SA8000, and SDGs). The next most prevalent provision (22%, i.e. Fairtrade, IRMA, RJC, SA8000) is the encouragement of workers by their employers to form worker organisations in jurisdictions where trade unions are suppressed by national law or other circumstances. Four initiatives (22%) also respect the right of workers to engage in collective bargaining (ASI, Fairmined, RJC and SA8000). Three initiatives (17%) each require respect for workers' right to establish and join a trade union (ASI, Fairmined, Fairtrade), the provision of access for trade unions to workers (Fairmined, IRMA, and SA8000), and an engagement to raise workers' awareness of their rights (Fairtrade, IRMA, and SA8000). The ICMM and IRMA express the need for companies to engage with workers' representatives. IRMA makes further stipulations on retrenchment as well as on the phenomenon of companies hiring replacement workers in times of strike.

Half the initiatives address **working conditions** with respect to remuneration (50%, i.e. ASI, Fairmined, Fairtrade, GRI, ICMM, ICGLR, IRMA, RJC, and SA8000). Six mention the legal minimum wage, five a living wage, four the (national) industry standard, three collective bargaining agreements, and two regional average wages. The ICMM and ICGLR both refer to the term "fair remuneration". Four initiatives out of five, which name different types of wage references, provide a statement of preference among these choices: RJC, Fairmined and Fairtrade state that the highest of these wages shall be applied. SA8000, Fairmined and Fairtrade also claim that employers shall increase salaries over time to a living wage level as an ultimate goal or even to exceed it. The IRMA draft states that companies shall apply any of the choices which are higher than the legal minimum wage. Most of the initiatives do not offer guidance on how to determine wage levels. IRMA acknowledges this issue in its 2nd standard draft and requires companies to "develop a mechanism for determining, and a timeline for achieving living wages for employees"[9]. SA8000 offers a stepped approach, including guidelines and indicating that "wages shall be sufficient to meet basic needs of personnel and to

[8] ILO Convention 169 states in article 16 that "relocation shall take place only with (…) free and informed consent"; The Fairmined Standard for Gold from ASM (version 2.0, Apr. 2014) states on p. 17 that "responsible ASM organizations will undertake consultations based *on the spirit of* ILO Convention 169".
[9] IRMA Standard for Responsible Mining, IRMA-STD-001, Draft v2.0, April 2016, p. 40.

provide some discretionary income."[10] The same five initiatives also address modalities for salary payments, regulation of overtime and payment of overtime as well as regulation on deductions from salaries.

Further issues covered as part of working conditions are that all employees shall be contracted as permanent workers and be granted the according benefits (28%; 5, i.e. Fairmined, Fairtrade, IRMA, RJC, and SA8000), receive written and legally binding contracts (17%, 3, i.e. Fairmined, Fairtrade, and SA8000), the regulation of working time (33%; 6, i.e. ASI, Fairmined, Fairtrade, IRMA, RJC, and SA8000), utilisation of disciplinary practices (28%; 5, i.e. ASI, Fairtrade, IRMA, RJC, and SA8000), sufficient and appropriate leave (22%; 4, i.e. Fairmined, Fairtrade, IRMA, and RJC) and a rest day (28%; 5, i.e. Fairmined, Fairtrade, IRMA, RJC, and SA8000). SA8000 is the only initiative to also mention breaks during working time in its standard, but does not specify leave provisions in turn. A number of initiatives also address concerns of harassment and intimidation (28%; 5, i.e. Fairtrade, ICMM, IRMA, RJC, and SA8000) and equal opportunities at work (22%; 4, i.e. Fairmined, Fairtrade, IRMA, and RJC). SA8000, Fairmined, and Fairtrade require a policy or plan for the improvement of working conditions. The latter two also ask for a regular assessment of working conditions according to such policy or plan. Four initiatives (22%) expect companies to make provision for housing (Fairmined, Fairtrade, RJC, and SA8000) as well as the availability of potable drinking water and sanitation facilities on site (IRMA, RJC, SA8000, and SDGs for both provisions). IRMA, RJC, and GRI require a grievance mechanism to be in place for work related matters.

Several initiatives (5; 28%; ASI, GRI, ICMM, IRMA, and SDGs) consider the impacts mine sites can have on society after **closure**. The ASI wants companies to include social aspects in their due diligence process for closure, decommissioning and divestment. The GRI asks companies to report on the number and percentage of operations with closure plans and acknowledges that closure can have an impact on workforce, the wider community, the local economy and the environment. The ICMM states that member companies shall engage in community development from project planning to mine closure. Both the SDGs and IRMA require that communities shall be part of the management and monitoring of post-closure plans and related social and health risks. IRMA also wants to see appropriate references in the closure plan to an environmental and social impact assessment.

Occupational health and safety

Fifteen of the sustainability initiatives (83%) cover occupational health and safety in their provisions. Two thirds (67%) address issues related to spills and hazardous substances respectively, and eleven initiatives (61%) cover emergency response. Fourteen initiatives (78%) require companies to provide training and to engage in capacity building. Health impacts of transportation is covered by four initiatives (28%).

[10] SA8000 International Standard, June 2014, Criteria 8.1, p. 12.

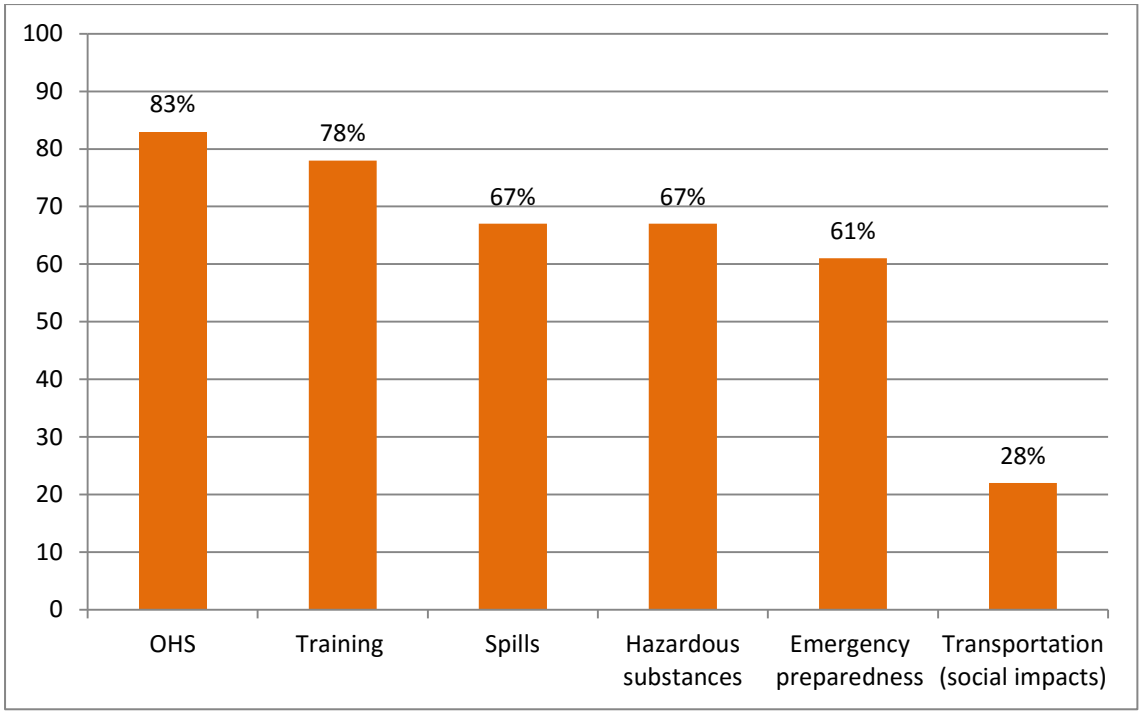

Figure 5: Percentage of initiatives with themes of health, safety and capacity development within their scope.

The analysis of **occupational health and safety** (OHS) themes revealed that there is more of a management approach applied here in comparison to most of the other socio-economic themes. Although the OHSAS 18001 offers a ready-made and comprehensive management system standard, only IRMA and the RJC cross-reference it directly. The other initiatives each have their own management approach to OHS matters, resulting in a scattered range of systems.

Four initiatives (22%; ASI, ICMM, ICMC, and IRMA) require the application of an OHS management system. The ICMC does not request this directly from applying companies, but assumes that they have a safety, health and environmental management program, into which cyanide management can be integrated. SA8000 refers to documented and written OHS procedures. SA8000, ICMC and IRMA require clear lines of responsibility for OHS matters. The ASI and ICGLR require an OHS policy. Six schemes (33%; Fairmined, Fairtrade, ICMM, IRMA, RJC, and SA8000) want to see an OHS risk assessment and several of them also want a monitoring system in place. The ASI stresses the need for an OHS performance evaluation, and the RJC requires review of OHS incidents. IRMA devotes a part of its safety provisions to communication and engagement with workers and their representatives' participation at OHS inspections. Fairmined, Fairtrade and the RJC highlight the need for workers to access sufficient OHS information. IRMA, GRI and Fairmined further require that companies document OHS incidents and IRMA asks for OHS data management.

The majority of initiatives require companies to provide OHS training (11; 61%; CFGS, CFSP, Fairmined, Fairtrade, ICMM, ICGLR, ICMC, IRMA, OECD-D, RJC, and SA8000). OECD-D includes recommendation for OHS training of artisanal and small-scale miners and the ICMC focusses on the safe and environmentally protective handling of cyanide. Other points with strong support among the initiatives are for OHS committees (33%; 6, i.e. Fairmined, Fairtrade, GRI, IRMA, RJC, and SA8000) with worker representatives; that employers shall provide for safe work environments, machinery and equipment (39%; 7, i.e. Fairmined, Fairtrade, IRMA, RJC,

SA8000, and SDGs); access to and the application of personal protective equipment (33%; 6, i.e Fairmined, Fairtrade, ICGLR, IRMA, RJC, and SA8000) as well as first aid (28%; 5, i.e. Fairtrade, Fairmined, IRMA, RJC, and SA8000) and other medical facilities and procedures (17%; 3, i.e. IRMA, RJC, and SA8000). Fairmined and Fairtrade require regular medical checks of miners.

The RJC, SA8000 and IRMA place emphasis on safety equipment, such as fire safety equipment, alarm systems, emergency exits and emergency lighting. SA8000 and IRMA also include the requirement that companies can at any time provide records of where employees are located in buildings and on site. Section 1503 of the DFA also has mandatory requirements for overall reporting on specified OHS information. Within the theme of **training and capacity building** the analysis shows that OHS training is the most prominent form of training mentioned by the initiatives. Fairmined, Fairtrade and OECD-D also address OHS training for ASM.

Concerning the theme of unplanned discharges and significant **spills**, the initiatives also vary in their approach to environmental and human protection. Five initiatives (28%, i.e. ASI, ICGLR, ICMC, ISO, and SDGs) require companies to have a management plan for mine waste and tailings in place. The ASI requires a risk-based approach to spills and leakages, compliance controls and remediation after occurrences. IRMA and ICMC also require monitoring and effluent controls. Six of the initiatives (33%, i.e. Fairmined, Fairtrade, ICMC, IRMA, RJC, and SDGs) require measures to protect water bodies, for example, from acid mine drainage. IRMA, the SDGs and ICMC refer to active water management. The SDGs call for reduced marine pollution from land-based activities and to reduce the release of chemicals and wastes to air, water and soil. The RJC requires that its members shall not use riverine, marine and lake disposals. The RJC and IRMA require provisions for structural stability of tailings and impoundments. The ICMM, ICMC, and SA8000 contain provisions for safe storage and prevention measures against spills of process residues and hazardous substances. Beyond GRI reporting standards, the ASI requires external reporting on issues occurring around planned and unplanned discharges. IRMA goes beyond other initiatives by requiring a spill emergency response plan, stormwater facilities during operations and stormwater management after closure, dam spillways and a public liability accident insurance.

Nine of the initiatives (50%, i.e. ASI, GRI, ICMM, ICMC, IRMA, ISO, RJC, SA8000, and SDGs) require an emergency response plan. Seven (39%, i.e. the aforementioned excluding SA8000 and SDGs) of these highlight the necessity to involve stakeholders, like the affected communities themselves. Six (33%, i.e. Fairmined, Fairtrade, ICMC, ISO, SA8000, and SDGs) stress the need for sufficient training and information for **emergency response and preparedness**. Fairmined and Fairtrade require a rescue plan, and RJC, SA8000, and IRMA want to see an evacuation plan in place. The ICMM, ISO, and RJC demand regular review and revisions of emergency response plans. The ICMC and ISO also seek monitoring of their effectiveness as well as post-emergency evaluations. The latter two also require internal and external reporting on the emergency response procedures. Fairmined and Fairtrade call for a procedure for identifying disaster risks to communities based on mining activities, and Fairmined also demands an action plan for it. The ICMC highlights that emergency response plans need to have access to appropriate and sufficient resources in order to be effective.

Regarding **hazardous substances**, nine initiatives (50%, i.e. ASI, Fairmined, Fairtrade, ICGLR, ICMC, IRMA, RJC, SA8000, and SDGs) require management of toxic substances. Six initiatives (33%, i.e. ASI, ICMC, IRMA, RJC, SA8000, and SDGs) require regular quality controls on facilities and storage rooms where such are handled and kept, and four (22%, i.e. ICMC, IRMA, ISO, and RJC) also stipulate preventive maintenance of the facilities as well as emergency planning in this context. Six initiatives (33%) promote the minimization of usage of hazardous substances: five initiatives (28%, i.e. Fairmined, Fairtrade, ICMM, IRMA, and RJC) of mercury, three

(17%, i.e. Fairmined, Fairtrade, and IRMA) of cyanide, two (11%, i.e. Fairmined and Fairtrade) of nitric acid, and one initiative (6%, i.e. SDGs) in general. Fairmined, Fairtrade and the RJC promote alternative processing methods without the use of the respective hazardous substances. The ASI addresses storage and disposal of bauxite residue, spent pot lining and dross. The ICMM, RJC and IRMA further address emissions of mercury as a by-product of mining. Fairmined, Fairtrade and the RJC cover social aspects of working with and storing toxic chemicals, for example, by requiring the protection of residential areas as well as keeping track of tools which have been in contact with hazardous substances so that they may not be used for other purposes. Through requiring certification with ICMC, the RJC and IRMA also cross-reference workers and environmental protection, monitoring of impacts on the environment, and decommissioning plans for cyanide facilities as well as an assurance mechanism for its funding.

Four initiatives (22%) consider the effects that **transportation** can have on the health of affected communities. ISO states in its 14001 environmental management standard that "some of the organization's significant environmental impacts can occur during transportation."[11] Acknowledging this, the GRI demands disclosure of transportation impacts on the environment, and mitigation plans. IRMA addressed the need for dust suppression at mine sites as well as on roads.

3.2.3 Governance and due diligence themes

In this section we consider the extent to which the 18 schemes under analysis incorporated governance themes related to avoiding corruption and conflict within their scope. In our pre-analysis, we identified 13 different themes to cover within this section. These are presented in two parts, relating to: (1) transparency and corruption, and (2) mining in conflict-affected and high risk areas. Governance refers to business integrity at the corporate and site level, including the following themes:

- Anti-corruption and bribery
- Grievance mechanism and whistleblower protection
- Legal compliance
- Transparency of payments to governments
- Money laundering
- Beneficial ownership
- Political party and campaign contributions
- Supply chain due diligence
- Conflict assessment of area of operation
- Control of transportation of conflict-free minerals
- Trade-related aspects of conflict-free mineral certification
- Conflict risk assessment of the business
- Control of minerals at site of production

There are 15 (83%), out of the 18 initiatives analysed in this research project, addressing the governance themes identified. Three (17%) of the initiatives assessed do not address any of these governance themes. SA8000 does require a grievance mechanism for workers, but does not refer specifically to complaints about corruption or bribery. ISO and ICMC are environmental sustainability standards. The SDGs may be regarded

[11] BS EN ISO 14001:2015, BSI Standards Publications, p. 29.

as the overarching framework for sustainability initiatives, including those related to transparency and anti-corruption, and to conflict minerals. SDG 16 on Peace, Justice and Strong Institutions aims to: 'promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels'.

Transparency and corruption

Anti-corruption and bribery is addressed by ten (67%) initiatives. Principle 1 of the ICMM-S is to 'implement and maintain ethical business practices and sound systems of corporate governance'. This includes a commitment to 'implement policies and practices that seek to prevent bribery and corruption'. The revised version of the IRMA Standard 2.0 has removed corporate level requirements, including anti-corruption and bribery themes. The SDG 16.5 is to 'substantially reduce corruption and bribery in all their forms'. RJC's provision 9 relates to bribery and facilitation payments. OECD-D addresses bribery in its model supply chain policy for minerals from conflict-affected and high-risk areas. It also cross-references the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (1997). GRI G4 includes reporting on ethics and integrity. Fairtrade requires members to have an anti-corruption policy.

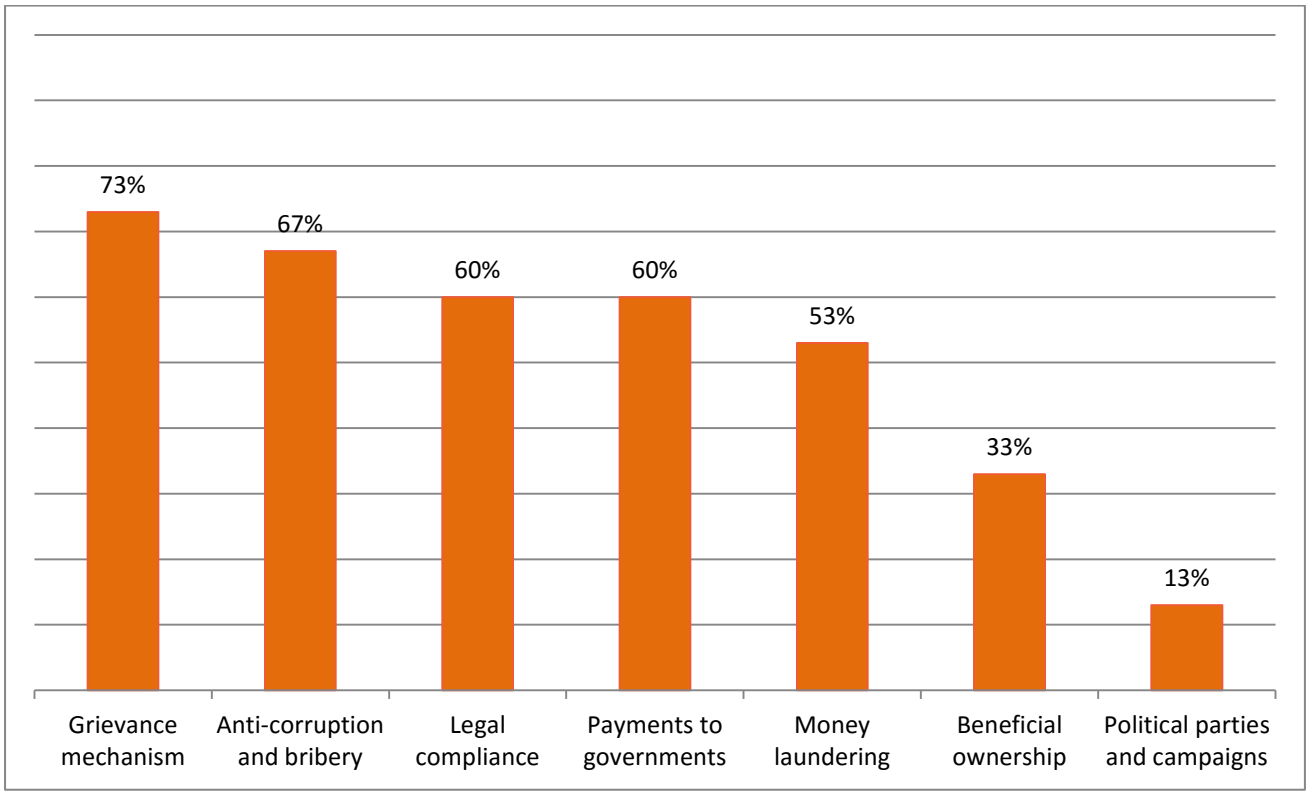

Figure 6: The seven governance themes on transparency and corruption and the number of schemes that include these themes within their scope.

Eleven (73%) initiatives have requirements for a **grievance mechanism and/ or whistle blower protection** for complaints to be lodged without reprisals. These vary in scope and are not all relevant to complaints about corruption or bribery. The assurance procedure of ICMM-S includes establishing a 'grievance procedure including confidential, third-party whistle-blowing mechanism' in its first principle about implementing and maintaining ethical business practices and sound systems of corporate governance. GRI G4's reporting principles on ethics and integrity require reporting on 'whistleblowing mechanisms or hotlines' for reporting

concerns about unethical or unlawful behaviour (G4-58). IRMA has a chapter on grievance mechanism and access to other remedies. It requires that stakeholders should have access to an operational-level grievance mechanism for grievances related to the company and its mining-related activities.

The RJC Code of Practice requires members to 'protect employees from any penalty or adverse consequences for identifying in good faith concerns related to suspected bribery'. The RJC Chain of Custody Standard also requires companies to establish a grievance mechanism related to materials from conflict-affected areas. OECD-D includes establishment of a grievance mechanism as 'an early warning risk awareness system' for risk-based due diligence in the mineral supply chain. Likewise, also EUSC requires importers of minerals or metals within the scope of the regulation to establish a company-level grievance mechanism 'as an early warning risk awareness system' (Article 4e). As of 2015, Fairtrade requires members to have a grievance mechanism for issues related to conflict, human rights and the environment.

Legal compliance is an explicit requirement of nine of the initiatives (60%). The first chapter of the IRMA Standard asserts the norm that 'Compliance with applicable host country laws is one of the most basic principles of operating a mine, or any activity, in a given jurisdiction.' Companies are required to abide by any host country laws that pertain to the themes addressed by IRMA. In terms of transparency, companies have to keep and disclose records of any legal non-compliance to stakeholders on request. GRI G4 requires disclosure of the 'monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations' (SO8). ICMM-S commits to 'work with governments, industry and other stakeholders to achieve appropriate and effective public policy, laws, regulations and procedures that facilitate the mining, minerals and metals sector's contribution to sustainable development within national sustainable development strategies' (Principle 1). RJC's first provision is legal compliance. OECD-D refers to legal compliance in the context of its model supply chain policy for minerals from conflict-affected and high-risk areas.

Transparency of payments to governments is also addressed by nine of the initiatives (60%). The EITI is recognised as the leading voluntary initiative for promoting transparency of payments to governments. It has arguably become even more important since the repeal of Section 1504 of the DFA in January 2017. The ICMM-S has issued a position paper on Transparency of Mineral Revenues (2009), which supports the EITI. The RJC cross-references the EITI in provision 29 of the Code of Practice. IRMA has a chapter on 'revenue and payments transparency', which cross-references EITI and the EU Accounting Directive and Transparency Directive. It states the intention 'to support, without duplicating, the work of the EITI and mandatory transparency regimes' (Draft 2.0 Ch. 1.2). Cross-reference to the DFA has been removed from the IRMA Standard draft 2.0. Also OECD-D cross-references EITI. ICGLR promotes implementation of the EITI by its member states, as one of the six 'tools' of its Regional Initiative against Illegal Exploitation of Natural Resources (RINR).

Money laundering is addressed by eight (53%) of the initiatives, although it is not a key area of focus for any of them. The SDG 16. 4 is to 'significantly reduce illicit financial and arms flows...' Provision 10 of RJC's COP refers to money laundering and finance of terrorism. In the Chain of Custody Standard, RJC defines 'illegitimate sources' of material as including 'sources of material that are involved with… illegal mining, funding of conflict, money laundering, funding of terrorism, or proceeds of crime' (RJC Chain of Custody Standard, p. 15). OECD-D addresses money laundering in its model supply chain policy for minerals from conflict-affected and high-risk areas (Annex II, 12). This relates specifically to money laundering from 'the extraction, trade, handling, transport or export of minerals'. GRI G4 includes money laundering in the definition of corruption. Fairtrade

mentions money laundering in its requirement for an anti-corruption policy. The EITI Standard associates money laundering with lack of transparency relating to the beneficial ownership of companies.

Five (33%) initiatives require disclosure of **beneficial ownership** for a variety of reasons. The EITI has introduced in its revised standard of 2016 the requirement that implementing countries start to disclose beneficial ownership of companies that bid for, operate or invest into extractive industry projects. From the beginning of 2017, EITI multi-stakeholder groups will have to publish a roadmap to the disclosure of beneficial ownership, and that by 2020 all implementing countries request and companies disclose their beneficial ownership in EITI reports. Beyond EITI, also CFGS, IRMA, OECD-D, and RJC have provisions for beneficial ownership included in their standards, guidelines and frameworks. CFGS demands that companies check the ownership of transportation service providers in the context of sourcing from conflict areas and/or occurring human rights abuses. IRMA has included in its transparency requirements that applying companies, i.e. the companies to be certified, disclose beneficial ownership. OECD-D recommends several times throughout its guidelines to verify beneficial ownership of business partners, suppliers and of mine sites as part of risk assessment in the supply chain. RJC asks its members to apply know your customer principles and to verify beneficial ownership, among others, as a measure to act against money laundering and the finance of terrorism.

Disclosure of **political party or campaign contributions** is addressed by two initiatives (13%). The ICMM-S requires companies to have a 'clearly articulated corporate policy on ethical business… including… policy on political payments' (1.1). It also mentions 'systems for recording and reporting requests relating to political payments and bribes' (3.7). IRMA requires disclosure at the mining project level of 'any payments to politicians' campaigns, political parties or related organizations' (1.2.3.2f).

Conflict-free minerals

Twelve (80%) initiatives include requirements for **supply chain due diligence** for 'conflict-free' minerals within their scope. It is the primary objective of OECD-D, CFSP, EUSC and CFGS. IRMA requires companies operating in conflict-affected or high risk areas to record information on mineral production, trade and processing, payments and transportation routes, and to make this information available to downstream purchasers and regional or global mechanisms for tracking minerals from these areas. RJC's Chain of Custody Standard applies to the entire jewellery supply chain 'from mine to retail', as does the ASI Chain of Custody Standard. Business entities are required to issue chain of custody transfer documents when material is sold or transferred between businesses.

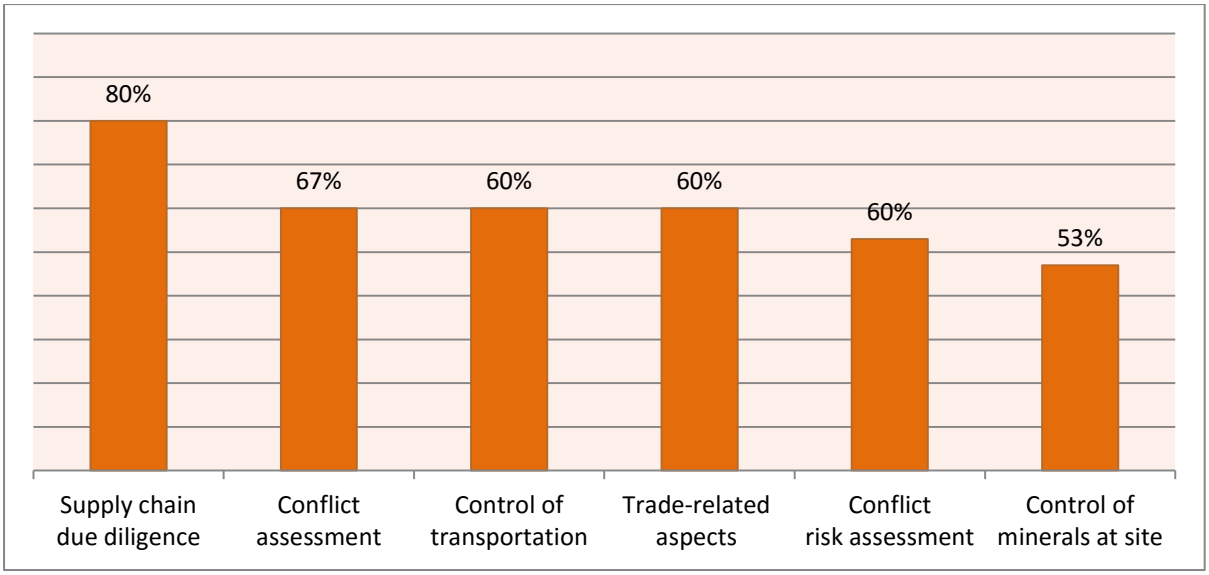

Figure 7: The six governance themes on conflict-free minerals and the number of schemes that include these themes within their scope.

The initiatives addressing conflict minerals vary in their applicability to one, several, or all mineral commodities. They also vary in terms of geographic scope, from a very specific focus on the Great Lakes region of Africa, to a global reach. OECD-D is recognised as the most comprehensive initiative focused on this theme, and is cross-referenced by IRMA, ICGLR, RJC, ASI, EUSC, Fairmined, CFSP and CFGS.

Ten (67%) initiatives apply to gold and other precious metals or the '3Ts' associated with conflict (tin, tantalum and tungsten). Gold is the focus of the CFGS, Fairmined, Fairtrade and RJC. Bauxite is the raw material that needs to be responsibly sourced for compliance with the ASI.

Unlike the CFGS, the ASI is not primarily concerned with the sector's risk of association with armed conflict in conflict-affected areas, although the ASI Performance Standard does have a criterion on conflict-affected and high risk areas. The second version of the ASI Chain of Custody requirement provides three different options for due diligence of the material supplier. None of the options specifically mentions conflict, but the most detailed (option 1) requires that 'The material supplier is not complicit in human rights abuses'. A total of eleven initiatives state that companies shall not contribute to armed conflict or human rights abuses (see section on human rights).

Nine (60%) initiatives require a **conflict assessment of the area of mining operation**. OECD-D places the onus on companies to assess whether a country or region in which they are operating is conflict-affected or 'high risk'. This may be a problem for companies dependent on the host government for their licences. For this reason, the CFGS refers companies to the Heidelberg Conflict Barometer as the default method to determine whether the mining activity is in a conflict-affected or high risk area. The revised IRMA Standard v.2.0 has removed reference to the Heidelberg Barometer to align with the OECD-D. Fairtrade requires artisanal and small scale mining organisations (ASMO) to 'identify and assess whether (companies) are operating in a conflict-affected or high risk area' (1.3.9). The Fairmined Standard excludes conflict-affected and high-risk areas from its geographical scope, and refers to a definition and stipulations of OECD-D to clarify under which circumstances an ASMO in a red-flagged country could apply for certification.

DFA and ICGLR are specifically focused on minerals originating from the DRC, which is widely accepted to be conflict-affected. The CFSP's gold standard focuses on the DRC and countries through which gold mines in the DRC may be smuggled. It categorizes countries as level 1, 2 or 3. The DRC is the only level 3 country, defined as 'conflict-affected'. Level 2 countries are all Central or East African, with the exception of the United Arab Emirates.

The other schemes relating to gold and bauxite have a much wider geographical application, as gold is found throughout the world and also bauxite is mined on different continents. The assessment of conflict-affected countries or regions is therefore important to these schemes. CFGS addresses this issue most clearly of all the schemes surveyed. The global applicability of OECD-D and CFGS was also intended to reduce the risk of a drop in trade due to 'country stigmatisation', as seen in the DRC in response to the Dodd Frank legislation (WGC consultation Brussels, 2012).

Control of transportation of 'conflict-free' minerals is addressed by nine (60%) initiatives. For example, IRMA requires companies to report any payments related to transportation of minerals. The ICGLR Regional Database is designed to track and analyse 'mineral flows' within and from the Great Lakes region and member states. Fairtrade has a transport control procedure aimed at traders. **Trade-related aspects** of 'conflict-free' mineral certification are also addressed by nine (60%) initiatives. For example, ICGLR issues a certificate to member states for export of designated minerals. These are issued for mineral shipments that can demonstrate 'conflict free' origin, transport and processing. Fairtrade has a range of requirements aimed at traders. IRMA requires companies operating in conflict-affected or high risk areas to record locations where minerals are consolidated, traded or processed.

Eight (53%) initiatives require a **conflict risk assessment of companies** to be applied. OECD-D's supplement on 3Ts has a guiding note for upstream company risk assessment, which contains guidance on establishing on-the-ground assessment teams and a recommended list of questions for consideration. The supplement on gold has similar guidance on risk assessment for upstream companies. IRMA requires a conflict risk assessment for companies operating in conflict-affected or high risk areas. Fairtrade requires ASMO to 'detect risks regarding the direct or indirect financing or support of armed groups' (1.3.10). Fairmined provides for a due diligence process to confirm that gold produced by an ASMO is 'conflict free', but only 'where deemed appropriate (based on a case-by-case basis) by the certification body' (0.2.10c). The **control of minerals at the site of production** is required by seven (47%) initiatives. For example, the ICGLR provides for mine site inspections by agencies of member state governments and third party auditors. Fairtrade requires ASMO to have an internal control system, including 'unannounced spot checks' on conflict-related issues (1.3.10).

Recommendation: Working groups should be established to harmonise sustainability initiatives in relation to specific themes, following the examples of the ISEAL living wages working group and the OECD working group on conflict minerals. Mutual recognition and cross-referencing of standards, indicators and certification wherever possible should be a guiding principle for the working groups. More mining and metals supply chain initiatives should be encouraged to join umbrella organisations like the ISEAL Alliance.

3.3 Assurance process

The assessment of the mechanism in place to evaluate compliance considered two different components: the type of assurance (first-, second- or third-party assurance) and the instrument in place to guarantee the quality and competence of the assurance providers (e.g. accreditation or quality review).

3.3.1 Type of assurance

The use of assurance providers by sustainability initiatives, especially certification schemes, is an important instrument to assess the level of conformity of participants against pre-determined requirements. Assurance is also important to avoid 'greenwashing' and conflicts of interest, and to improve credibility and enhance independence (Barry et al., 2012; Blackman & Rivera, 2011; ISEAL Alliance, 2011; Komives & Jackson, 2014).

There are different types of assurance process: first-party, second-party, or third-party entity (or some combination of these). Third-party assurance is the assessment performed by a body or person that is independent of the organisation or person that provides the object under assurance and of user interests in that object under assurance. Second-party assurance refers to assessment performed by a person or organisation that has a user interest in the object under assurance and first-party assurance refers to assessment performed by the person or organisation that provides the object under assurance (adapted from ISO and IEC, (2004).

Apart from the SDGs, all the initiatives analysed either have a third-party assurance mechanism in place to determine compliance or encourage the use of third-party assurance (17; 94%). All the certification schemes (ASI[12], CFSP, Fairmined, Fairtrade, ICGLR, ICMC, ISO, RJC, SA8000 and IRMA), standards (CFGS and EITI), legal provisions (DFA and EU) and the GRI-M, OECD-D and ICMM-S frameworks use a compulsory third-party assurance process to attest compliance. For example, the DFA requires certain public companies to provide disclosures about the use of specified conflict minerals emanating from the Democratic Republic of Congo (DRC) and nine adjoining countries through an annual Conflict Minerals Report. In addition, the US Securities and Exchange Commission (SEC) states that such report must be audited by an independent private sector auditor. The objective of this audit is not to confirm the "conflict free" status of a company's products, but to confirm that due diligence carried out by the company conforms to a nationally or internationally recognized framework and is described properly in the Conflict Minerals Report (Ernest & Young, 2012). Similarly, the EU determines that an importer of minerals or metals within the scope of the regulation can self-certify as a responsible importer by declaring compliance on the supply chain due diligence obligations set out by the regulation to a Member State competent authority. However, this declaration should contain documentation in which the importer confirms its adherence to the obligations including results of the independent third-party audits carried out.

The RJC and ASI adopt an interesting approach allowing its members to conduct an initial self-assessment followed by a third-party audit. The use of this combined approach has the advantage of accessibility, capacity building and assurance cost reduction. Training material and instructions on the self-assessment mechanism for members are provided, so they can conduct the self-assessment following minimum quality criteria. Once the self-assessment is conducted, it can be submitted to an accredited assurer to discuss audit timing and cost.

[12] Assurance, auditor accreditation, oversight procedures and audit protocols are under development (http://aluminium-stewardship.org/wp-content/uploads/2015/11/ASI-Standards-Docs-Overview-and-Diagram-July2016.pdf accessed on 24th August 2016).

Such self-assessments are designed to reduce the workload of the assurance team and, as a consequence, reduce the audit costs. The ASI will pilot its self-assessment in 2017 through an online assurance platform as part of its final consultation and testing process. Companies can use a self-assessment tool in the platform to prepare for third-party assurance, under a similar model to RJC.

Although a third-party assurance process is not a compulsory mechanism to attest compliance with the GRI framework, the GRI recommends its use to improve credibility. The GRI states that a variety of approaches could be used to implement external assurance, including the use of professional assurance providers or other external groups or individuals. However, regardless of the approach used, external assurance should be conducted by competent groups or individuals external to the organization who follow professional standards for assurance, or who apply systematic, documented, and evidence-based processes. Among others, GRI recommends that assurance providers should be independent to publish an impartial opinion or conclusion, competent in both the subject matter and assurance practice, able to apply quality control procedures and issue a written report that is publicly available and includes conclusions, responsibilities of the assurance providers and a summary of the work performance.

The OECD does not provide a certificate to attest compliance with its framework. But among its five-step framework for risk-based due diligence in the mineral supply chain there is one step addressing the independent third-party audit of supply chain due diligence. According to this guidance, companies at identified points in the supply chain should have their due diligence practices audited by independent third parties. This audit process should include the scope of the audit and the audit criteria to determine conformity.

The SDGs do not make use of a third-party assurance process or an audit mechanism to attest compliance. However, a voluntary follow-up and review framework, based on a second-party assurance approach, was developed to assess the progress made at national, regional and global levels to implement the sustainable development goals and targets over a 15-year period. At the global level, a high-level political forum under the auspices of the UN General Assembly and the Economic and Social Council has the central role in overseeing follow-ups and reviews conducted at the national level. National-level processes are the foundation for reviews at the global level – the global review will be primarily based on national official data sources. This framework aims to make a contribution to implementation of the SDGs and help countries to maximise and track progress in implementing the goals. This framework is also an important instrument to provide accountability, support cooperation and foster exchanges of best practices.

Schemes that make use of third-party entities to provide assurance tend to have a more independent and rigorous process than initiatives that use only self-assessments or second-party assurances. However, third-party assurance processes are usually more costly (Barry et al., 2012; ISEAL Alliance, 2011; Martinov-Bennie, Frost, & Soh, 2012; Mori Junior, Best, & Cotter, 2014). Although the use of third-party assurance providers is the most common practice, the combined approach can improve the accessibility and the rigour of the assurance process. According to Barry et al. (2012), a combined approach for example enables small-scale participants to share the costs of third-party assurance, which works towards accessibility. A combined approach can also strengthen the assurance process as two different assurers will conduct assurances of the same object (Mori Junior et al., 2016).

3.3.2 Assessing quality and competence of assurance providers

There are different instruments to guarantee the competence of individuals involved in assurance processes, including the person managing the assurance process and the assurance team. The International Organization for Standardization (2011) states that assurers' competence is formed by two components, personal behaviour and the ability to apply the knowledge and skills gained through education, work experience, assurance training and assurance experience. The assurance team needs to be competent in the subject matter under assurance as well as in applying the assurance practice. The GRI recommends that assurance providers should demonstrate competency in both the subject matter and assurance practice (Global Reporting Initiative, 2013). The 17 initiatives that use or recommend third party assurance use either accreditation or quality criteria, or a combination of both to guarantee the competence of assurance providers.

Eight initiatives (ICMM-S, OECD-D, CFGS, ASI[13], DFA, EU, EITI and GRI-M; 39%) suggest quality criteria that organisations looking for assurance providers should consider. These criteria address the independence of assurance providers, situations of conflict of interest or dependence on fees from assurance client, competence of the assurance providers, accountability and importance of a multidisciplinary assurance team. For example, the OECD-D determines three principles based on the ISO 1901114, in which the third-party assurance should be conducted: (1) independence (assurance providers must be independent and not have conflicts of interest with the entity to be assured), (2) competence (assurance providers must have knowledge and skills in auditing, due diligences, company's operations, social, cultural and historical context of conflict-affected areas and applicable standards), and (3) accountability (performance indicators must be used to monitor the ability of the assurance providers to carry out the assurance in conformity with the assurance programme, based on the objectives, scope and criteria of the assurance). The EU cross-references the OECD-D principles of independence, competence and accountability.

The ICMM-S also provides three criteria for members companies to select external assurance providers: (1) independence, (2) individual competencies, and (3) organisational competencies. These three criteria combined have eight different requirements established by the AA 100AS, ISAE 3000, the Code of Ethics for Processional Accountants, ICMC and the Handbook of International Auditing, Assurance and Ethics Pronouncements. It is interesting to see that the ICMM did not develop its own criteria and requirements for selecting external assurance providers. Instead, best-practice requirements already developed and used by different initiatives and handbooks are referenced. A similar approach is adopted by the CFGS. Instead of developing its own criteria and requirements the CFGS uses and cross-references the ICMM-S criteria for members companies to select assurance providers.

Similarly, the GRI recommends the use of external assurance, in addition to any internal resource, to enhance the credibility of sustainability reports. In addition to the competence and independence of the assurance providers, GRI also addresses the results of the assurance process. Quality criteria for assurance providers include: a clear and public written assurance report including an assurance opinion or set of conclusions; a

[13] The ASI's accreditation criteria and processes are currently under development. http://aluminium-stewardship.org/activities-and-plans/#, accessed on 1st September 2016.

[14] ISO 19011 is an international standard that provides guidance on auditing management systems, including the principles of auditing, managing an audit programme and conducting management system audits, as well as guidance on the evaluation of competence of individuals involved in the audit process, including the person managing the audit programme, auditors and audit teams.

description of the responsibilities of the report preparer and the assurance providers; and a summary of the work performed to explain the nature and scope of the assurance performed.

The DFA does not provide detailed criteria or requirements regarding the quality and competence of the assurance providers. Instead, it provides general comments and recommendations. The DFA requires that the Conflict Minerals Report must be audited by an independent private sector auditor and in accordance with standards established by the Comptroller General of the United States. Similar to the GRI approach to make assurance results publicly available, DFA also requires that the Conflict Minerals Report, including the respective certified independent private sector audit, is publicly available on the issuer's internet website.

The ISO, Fairmined, Fairtrade and SA8000 (22%) have each developed an accreditation mechanism, whereby assurers, must be accredited by the initiative or by an international accreditation body in order to provide assurance services. Fairmined authorised two certification bodies to verify compliance with its standards and keep their contacts available on the Fairmined's official website[15]. Similarly Fairtrade establishes that assurance services should be provided by Fairtrade's official auditor and keep information about this assurance provider on its official website[16]. The ISO and SA8000 have specific accreditation procedures and requirements of organisations interested in conducting audits against their standards.

Six initiatives (IRMA[17], EITI CFSP, ICMC, RJC and ICGLR; 28%) have both accreditation mechanisms in place combined with quality reviews to verify the quality and depth of the assurance before providing a certificate, claim or label. In these situations the initiative becomes the entity responsible to evaluate the quality of the assurance process. For example, the CFSP has three accredited audit companies and these companies were accredited based on the following specific selection criteria: meet and follow ISO 19011 audit program standards; meet audit expectations of the OECD Guidance audit process; be a global company with staff in key countries where tantalum, tin or tungsten smelters or gold refiners are located; experience in evaluating procurement transaction records and traceability schemes. This accreditation mechanism is used together with a quality review process conducted by an audit review committee and an audit program manager. The audit team is selected by the CFSP based on availability, location and language. This approach improves the independence of the audit team and the respective audit process. The ICMC adopts a similar approach accreting assurance providers based on their experience, expertise, certification by a self-regulating professional organisation and independence. All assurance reports are reviewed by the ICMC to ensure that appropriate responses have been provided and adequate evidence has been included in support of the assurers' findings.

Country validation of EITI implementation is conducted in three stages of first-, second- and third-party assessment: (1) a self-assessment by the national EITI multi-stakeholder group; (2) validation by a team from the international EITI secretariat; and (3) review of the secretariat's findings by an independent validator. For the reconciliation of revenues and payments reported, the EITI requires an assessment of whether the

[15] http://www.responsiblemines.org/en/section-fairmined-certification/certification-bodies, accessed on 1st September 2016.
[16] http://wordpress.p20126.webspaceconfig.de/standard-auditing/, accessed on 1st September 2016.
[17] IRMA is in the process of developing and independent third-party assurance systems. This systems will have an accreditation mechanism combined with a quality review mechanism.
http://www.responsiblemining.net/certification/#assurance, accessed on 31st August 2016.

payments and revenues are subject to credible and independent audit and whether the audit was conducted in accordance with international auditing standards.

Quality control methods and procedures for auditors, criteria for accrediting auditors and terms and conditions to apply to accredited auditors are responsibilities and duties of the RJC Accreditation and Certification Committee. RJC developed its accreditation mechanism aligned with requirements outlined in the ISO 19011[18] including education, technical experience, competence, training, technical registration and independence. RJC also determines that accredited certification bodies may be subject to impromptu witness audits and reviews by independent peers as part of a quality control process.

The ICGLR has accreditation bodies and an accreditation mechanism based on independence, competence, accountability and disclosure requirements. The quality review role is played by the ICGLR Audit Committee, which provides independent oversight of the third-party auditing system reviewing audit reports. The Audit Committee is composed of representatives of member states, local and multinational companies and local and international civil society actors.

3.3.3 Potential to align assurance processes

There are enough similarities in the way that the three types of initiatives have developed and implemented assurance mechanisms to suggest that further alignment is possible and recommended. Figure 8 shows that in relation to the type of assurance employed, all but one of the schemes (17; 94%) use a third-party assurance process to assess compliance. The SDGs are at a higher level than the other initiatives, with an appropriate review framework based on second-party assurance. For all targeted sustainability initiatives, however, third-party assurance is considered best practice to ensure the independence, rigour and credibility of the conformity assessment process, even though it tends to be more costly than second- or first-party assurance. The three stage approach adopted by the EITI Standard in 2016 is a good example of a cost-effective, but credible system of validation. Efficiencies may also be achieved by pooling assurance mechanisms between similar initiatives. This is discussed further in the case study of collaboration between Fairmined and the RJC.

In relation to the mechanism employed to guarantee the quality and competence of assurance providers, some of the initiatives have established quality and competence criteria for their assurance providers. Others require assurance providers to be accredited either by the initiative itself or by an international accreditation body to be able to provide conformity assessments. Entities seeking assurance against these standards should contact only accredited assurance providers. A third group of initiatives use a combination of accreditation and a quality review process. In addition to the accreditation mechanism, these initiatives have a quality review mechanism in place to actually review the quality of the assurance process conducted. In some cases, certificates, labels or claims are issued after the quality review and only if the assurance process conducted achieves minimum quality criteria.

[18] ISO 19011 is an international standard that specifies general requirements for accreditation bodies assessing and accrediting conformity assessment bodies. It provides guidance on auditing management systems, including the principles of auditing, managing an audit programme and conducting management system audits, as well as guidance on the evaluation of competence of individuals involved in the audit process, including the person managing the audit programme, auditors and audit teams.

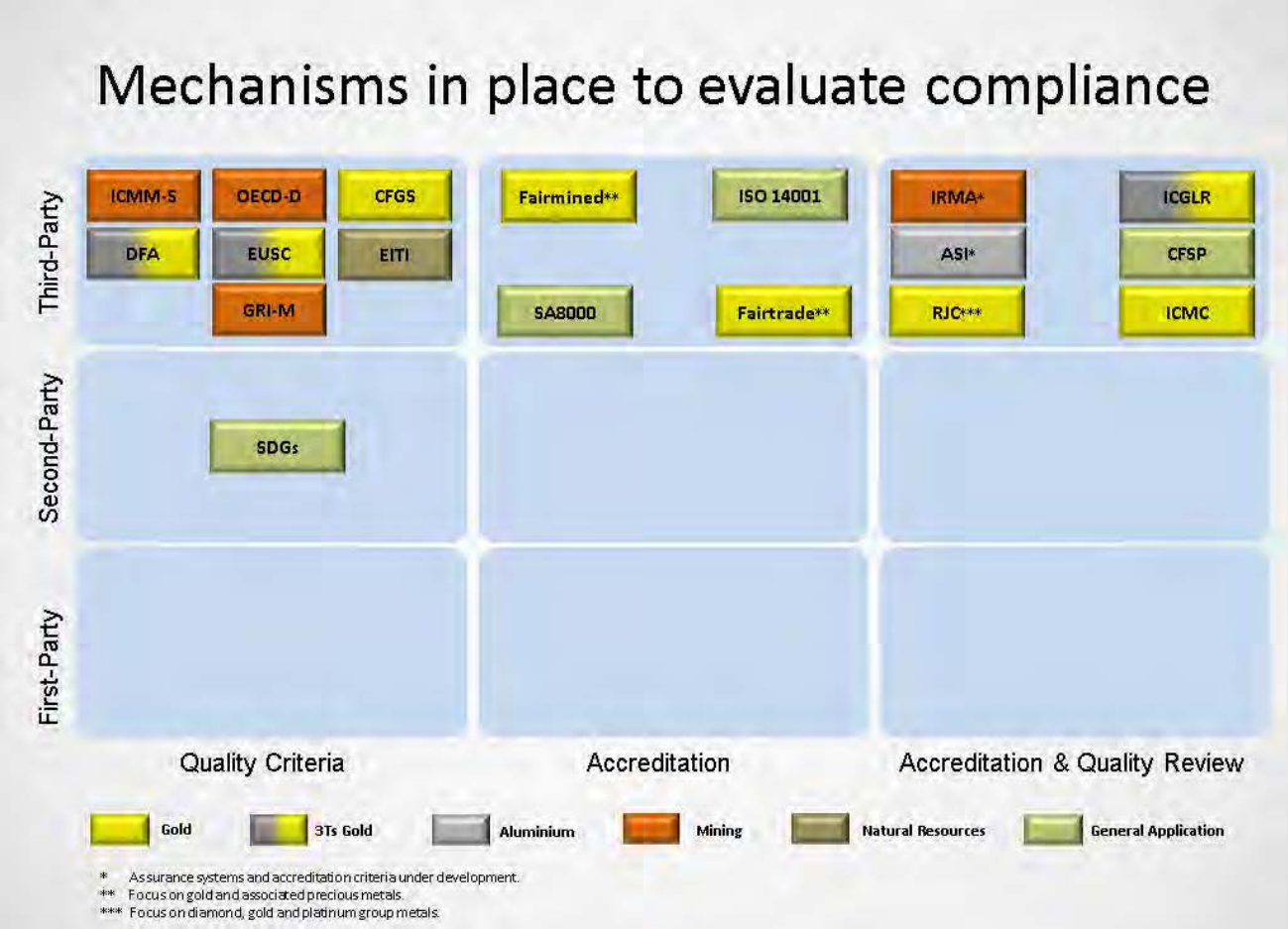

Figure 8: Mechanisms in place to evaluate compliance

Similarities were identified not only on the approach adopted, but also on the criteria used by these initiatives to determine the quality and competence of the assurance providers. For example, 6 out of the 17 initiatives using third-party assurance refer to the ISO 19011 when evaluating the competence of individuals involved in conformity assessments and the quality of conformity assessments conducted. The initiatives referring to ISO 19011 are: RJC, ISO 14001, ICMM-S, CFSP, OECD-D and ICGLR.

In conclusion, there are opportunities for greater interoperability between the assurance mechanisms used to evaluate compliance. Although some the initiatives analysed operate in different contexts and with different commodities, it is important to highlight that there are interoperability opportunities if the concepts of horizontal and vertical interoperability were applied. Initiatives have the possibility to collaborate not only horizontally, when different initiatives apply to the same industry and stage of production, but also vertically when different initiatives operate in different stages of the value chain.

Recommendation: Sustainability initiatives relevant to mining and metals supply chains should share lessons learned and leading examples from their assurance processes, and pool resources for more efficient, cost effective assurance where possible.

3.4 Sanctions for Non-Compliance

This section explores the mechanisms used by initiatives to identify and deal with situations of non-compliance. Managing situations of non-compliance appropriately is important to guarantee the credibility of initiatives and, at the same time, incentivise participants to ensure compliance. According to Stark and Levin(2011), Sharife and Grobler (2013) and Partnership Africa Canada (2009), certified and compliant participants can lose enthusiasm and interest in an initiative when non-compliance by others is not penalised. It is considered good practice for effective sustainability initiatives to have detailed information about sanctions for situations of non-compliance and clearly communicate and apply these to stakeholders consistently and transparently (Acosta, 2014; Mori Junior & Ali, 2016).

The majority of sustainability initiatives (14; 78%) have operating procedures in place under the following headlines: non-compliance classification, corrective actions, complaints mechanism, disciplinary sanctions and disclosure practices for non-compliance. These initiatives are: CFGS, CFSP, DF, EITI, Fairmined, Fairtrade, ICGLR, ICMC, ISO, RJC, SA8000, GRI, OECD and ICMM. The ASI, EU, and IRMA[19], are in the process of setting up their compliance mechanisms and related non-compliance handling procedures. The UN SDGs do not have non-compliance procedures in place.

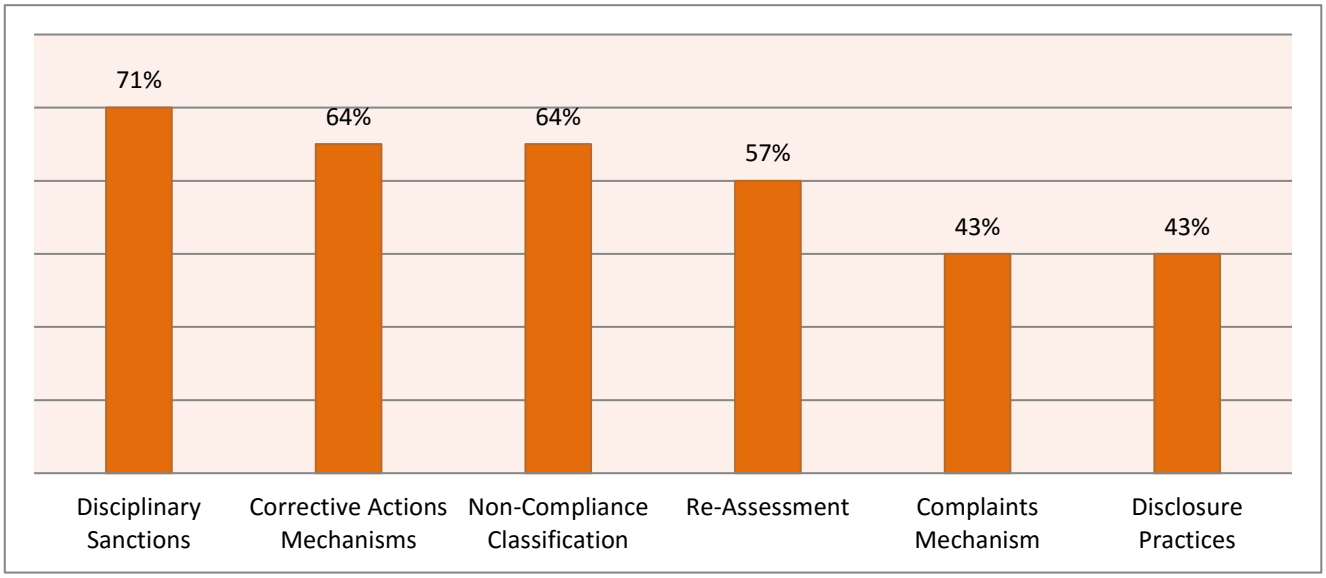

Figure 9: Percentage of initiatives covering aspects of non-compliance.

The CFGS, CFSP, EITI, Fairmined, Fairtrade, DFA, ICGLR, ISO, RJC, and SA8000 (representing 71% of the initiatives with some kind of non-compliance procedure in place) are the initiatives which include in their procedures **disciplinary sanctions.** Fairmined, Fairtrade, ICGLR, and SA8000 stipulate that certifications may be withdrawn as an ultimate consequence of non-compliance. Fairmined and Fairtrade also include the possibility of temporary suspension of certificates, if certain conditions apply. The RJC applies suspension and withdrawal of membership and subsequently certification for non-compliance. The EITI follows a suspension and de-listing approach for participating countries who do not meet the requirements of the Standard during

[19] Information regarding the compliance mechanisms and related non-compliance handling procedures of the ASI, EU, and IRMA were not integrated into this section of the analysis because they are still under development.

the set timeframe. Suspension may be lifted at such time as the reporting requirements are met. The CFSP and ICGLR work with a preclusion period, which applies once a certificate is withdrawn or non-compliance asserted. A few initiatives also mention further reasons for a withdrawal of certification or contract cancellation. Such could be, for example, failure to abide by contracts, provision of false information, failure to provide access to sites, and inappropriate use of certification and labels, among others. The CGFS prohibits self-declaration of compliance. Under the DFA, companies may be subject to litigation by the U.S. Securities and Exchange Commission if they do not adhere to the law. The ISO includes the possibility of reducing the certification scope if a company meets some, but not all of the standard.

Some initiatives apply disciplinary procedures beyond the suspension or withdrawal of certification or membership. For example, the ICGLR member states may revoke mineral production rights from companies. Fairmined and Fairtrade reduce trading rights with their labels if companies are found to be non-compliant. Fairmined and ISO also refer to a limitation or cancellation of marketing rights for their respective labels and certifications. Fairtrade applies financial sanctions if labels have been used for marketing purposes without permission or if agreed trading volumes have been exceeded. One of the certification bodies of Fairmined, the Institute for Market Ecology (IMO), also states that as a result of an evaluation process, which is done during an audit, "additional conditions and sanctions" can be applied, without further specifying what these are.

A few initiatives also require disposal of products which have been produced under circumstances of non-compliance. The CFGS demands that gold mined under such circumstances shall be declared as non-compliant. Companies must ensure that the next trading partner in the chain of custody is informed about the situation of non-compliance and that this trading partner can decide whether to buy the non-compliant material or not. Similarly, if Fairmined suspends a certificate, all trading partners shall be informed about the situation and restoration plans by the company concerned. The CFSP, in contrast to the provisions of CFGS, states that its audit review committee will decide on the retention and/or disposal of non-compliant products. The ICGLR makes the effect of non-compliance on the chain of custody more clear: if a mine is found to be non-compliant, then an exporter, which is sourcing from that mine, is declared as non-compliant too. The RJC clarifies that it handles disciplinary proceedings confidentially, with effects being visible online in an up-to-date member list.

The nine initiatives that adopt a Non-compliance Classification method (CFGS, CFSP, Fairmined, Fairtrade, ICGLR, ICMC, ISO, RJC, and SA8000, representing 64%) also adopt a **corrective action mechanism**. This mechanism establishes corrective actions to be undertaken by entities after their non-compliance has been detected.

In more general terms, most of the initiatives requiring corrective action do so within a pre-determined timeframe. The CFGS expects corrective actions to commence within 90 days of finding non-compliance, and for the issues to be remediated within six months. Fairtrade requires companies to submit their corrective action plan within one month. Traders must then implement the proposed action within 45 days and producers within four months. In the case of the ICGLR, "yellow-flagged" issues must be mitigated within six months. The ISO refers the ISO 17021[20] and sets a six-month maximum to rectify non-compliance. The ICMC gives certified companies one year to resolve minor issues. If companies have been found non-compliant, then

[20] ISO 17021:2011 is an international standard that sets requirements for the auditing of management systems and for auditor competence. It is also a criteria for auditor accreditation of some initiatives.

they have three years to work on their processes to meet the ICMC standard and obtain the certificate. SA8000 requests companies to submit corrective action plans for critical non-compliance within one week and to implement them within one month. For major non-compliance it is one month and three months, and for minor non-compliance two and six months respectively. Fairmined leaves the timeframe for corrective action open and makes it subject to agreement between the auditor and the concerned organization. The RJC does not specify when corrective action needs to be implemented, but states that if major non-compliance has been found, a re-assessment needs to take place within one year, and within three years for minor non-compliance.

The CFGS, Fairtrade, ICGLR, ISO, and SA8000 all require companies to propose corrective action themselves. SA8000 goes even as far as to state that no rectifying actions can occur during the audit (i.e. with participation of the auditor), as the companies are obliged to apply a root-cause analysis first in order to understand the reasons for non-compliance. According to the documents assessed, ICMC, RJC and Fairmined allow corrective actions to be agreed upon between the company concerned and the auditor. The CFSP involves the initiative itself, the company concerned, and an audit review committee to agree on corrective action.

Adoption of a **non-compliance classification method** was the most common approach used by initiatives to manage situations of non-compliance. Nine out of fourteen initiatives (64%) which have procedures for non-compliance, differentiate between types of criteria, their significance for compliance, and hence their relevance for non-compliance procedures. These initiatives are: CFGS, CFSP, Fairmined, Fairtrade, ICGLR, ICMC, ISO, RJC, and SA8000. The DFA has an authoritative body to ultimately confirm compliance, and the EITI has the EITI Board to confirm country progress in implementing the standard.

Fairmined, Fairtrade and ICGLR recognise two levels of compliance, based on a set of core criteria, which must be met, in combination with progress criteria, which are more flexible. Fairmined and Fairtrade require criteria to be in place at the time of first certification, and other criteria that shall be reached within a time span of several years. Similarly, the ICGLR separates “red flagged” and “yellow flagged” criteria, which form its core requirements, from other criteria for progress over time. The ICGLR’s criteria for progress require auditors to rate in percentage points (next to a literal explanation) the extent to which the criteria have been met.

The RJC also operates with a minimum level of compliance with core criteria, but it does not include progress criteria, like the aforementioned three initiatives. Instead, the RJC differentiates between critical, major, and minor non-compliance, which each trigger different procedures. In the same way, SA8000 differentiates between critical, major, and minor non-compliance, as well as temporary non-compliance in the provision of living wages.

The ICMC and ISO both differentiate between critical and minor non-compliance. This is similar to the ICGLR’s distinction between red and yellow flagged criteria. In the same vein, the CFGS states that minor and administrative issues may be handled with less rigid procedures, which allow the company to remain in compliance. The CFSP includes statements about differentiation between levels of non-compliance, which can be interpreted as leading to different procedures, but for which no further detail is provided.

Eight initiatives (57%) provide information about **re-assessment** to gather further evidence after non-compliance has been found. Fairmined, Fairtrade, ICGLR, ICMC, ISO, and SA8000 stipulate that re-assessment shall take place to verify the effectiveness of corrective action. For the CFGS and RJC, the re-assessment is

done as part of regular audit requirements, whereby RJC auditors can also recommend an additional mid-term review to follow up on non-compliances and if appropriate. Fairmined and the ISO also state that the re-audits can be done with a narrowed scope to focus on the issues of non-compliance detected. In this context, ISO also states that short-notice audits shall be considered. Fairmined, Fairtrade, and ICMC explicitly include the option of a re-assessment being done as a desktop review, based on evidence provided by the company. RJC has this option for its mid-term reviews, depending on the risk profile of the company. The assurance process of CFGS, which also includes the assessment of corrective actions, is done by the annual conflict-free gold report of companies without any intervention of the CFGS secretariat. CFSP, Fairmined, Fairtrade, and ICMC all state that whether a re-audit is necessary will be decided case-by-case. CFGS and ICMC also include the notion that minor discrepancies could be promptly rectified during the initial audit, if feasible.

SA8000 states when the re-audit has to take place according to its non-compliance classification. For critical non-compliance, it must take place within 30 days and for major non-compliance within 90 days. Minor non-compliance will be flagged for the next regular audit. It also states that non-compliance will be upgraded according to its classification, if the same issue is detected again at the next audit, thus reaching a higher level of urgency to be rectified. In contrast, Fairtrade states that companies may lose certification if the same failure to meet the standard is found twice in consecutive audits.

Six initiatives (43%) have some kind of **complaints mechanism** in place, which may be used by stakeholders to raise allegations of non-compliance against certified entities. The initiatives with such a mechanism in operation are: CFSP, Fairmined, Fairtrade, RJC, SA8000 and ISO. The RJC, and SA8000 follow a principle of subsidiarity for handling complaints: allegations shall be handled first at the lowest, appropriate level. In this context, SA8000 also determines three different grievance mechanisms, at the certified company level, the certification body's level and the SA8000 level.

Fairmined, RJC, and SA8000 may set up a formal investigation procedure to address a complaint. The RJC stipulates that formal investigations are headed by ad hoc panels, which consist of the initiative's staff, a lawyer and an independent third party. Potential conflicts of interest while running formal investigations or other forms of disputes are addressed by the ICMC and ISO. Fairmined also sets an approximate timeframe for a complaints case to be investigated.

The CFSP accepts anonymous complaints. In contrast, Fairmined, RJC, SA8000 state that anonymous complaints cannot be responded to (except in cases of whistleblowing). The RJC and SA8000 also address whistleblower protection in this context, and guarantee confidentiality in such cases. Fairmined, Fairtrade, RJC, and SA8000 all require evidence to substantiate the complaint. Entities seeking to appeal any decisions by the initiative may do so for Fairmined, RJC and SA8000. Fairmined, Fairtrade and RJC also elaborate on situations in which independent arbitration may be necessary.

The initiatives differ considerably in their **disclosure practices for non-compliance**. We suggest that such disclosure could encompass information on incidents of non-compliance, corrective action, re-assessment results, complaints raised as well as their disciplinary proceedings. However, we find that only six initiatives (43%) disclose any of this information, with no initiative disclosing information on all of these aspects.

The CFGS and Fairmined are the only standards to demand a form of disclosure of non-compliance. In both cases, business partners shall be informed. The ICMC is the only initiative which publishes on its webpage

corrective action plans and re-assessment results through summarized audit reports. The ICMC and SA8000 state to publish results of their complaints mechanisms, whereas the RJC intends to publish aggregated data of its complaints procedures. The ISO's overarching 17021:2011 standard states that certificate suspension, withdrawals and reductions shall be published online.

Other initiatives follow an approach of listing compliant companies. The CFSP operates a list of compliant smelters and refiners, and the ICGLR plans to do so via its database. In both cases, these lists form part of their compliance and non-compliance procedures. The EITI, Fairmined, Fairtrade, GRI, ICMC, ICMM, RJC, and SA8000 list compliant entities online.

A few of the initiatives differ in their approaches for disclosing how participants meet their standards. The EITI requires annual reports to be published by participating countries. Similarly, the CFGS requires companies to publish a conflict-free gold report annually. According to a confidentiality document of Fairtrade's certification body, this initiative may only disclose aggregated data, which may not inform third-parties on individual cases.

The mechanisms which initiatives have in place to follow up on deviations from their standards can influence potential interoperability between them. Initiatives which seek collaboration with one another may be reluctant if one of the parties does not have a robust system in place which guarantees that situations of non-compliance are handled as effectively as possible. If implementation is not monitored adequately, it could lead to persistent non-compliance amidst formal statements of meeting all requirements and thus diminish the credibility of the initiatives involved. In a scenario of interoperating initiatives, the credibility and reputation of one may have repercussions for the other. The perceived ability to rely on robust procedures for non-compliance of another initiative is a critical factor determining propensity to engage in forms of interoperability. Perceived lax handling of non-compliance and alleged persistence of deviations amidst standard claims are significant risks for potential collaborating parties.

Recommendation: Generic models for monitoring and evaluation should be developed to measure the effectiveness of sustainability initiatives. Prior to implementing a new or revised validation process, sustainability initiatives should survey which other standards and schemes each member already reports against, to establish a baseline of their sustainability performance. A self-assessment (second party assurance) should be included as a stage of validation, to help track changes made within companies (or countries for the EITI), which they themselves would ascribe to joining the initiative. This would help in tracking the impact of sustainability initiatives individually and in relation to each other, as the causality between standards and observed changes in practice is difficult to establish.

This section has highlighted how initiatives approach the disclosure of information on non-compliance detected through audits, audit reviews, complaints mechanisms, as well as disciplinary measures against participants as a result of non-compliance. Some common approaches have been highlighted, like the classification of critical and less critical non-compliance, which lead to different consequences. Most initiatives also work within timelines for corrective action. A form of review is also foreseen by most of the initiatives, but the differences between them raise questions of comparability. Complaints mechanisms are on the vanguard, but have not reached a majority yet among the initiatives analysed. Disciplinary procedures differ widely, although many of the schemes may have a similar inherent motivation to be credible in their compliance and non-compliance statements. Last but not least, and probably the most important factor about

non-compliance procedures, the transparency of such through disclosure of information to a wider interested public, is at the same time the most diversely handled factor presented.

3 Case Studies

4.1 Collaboration between the Responsible Jewellery Council and the Alliance for Responsible Mining (ARM)-Fairmined

4.1.1 Background

This case study investigates whether there are substantial reasons for sustainability governance initiatives to invest in interoperability projects that would deliver positive outcomes, not only for the initiatives involved but also to their main stakeholders, and ultimately for more responsible mining practices. It focuses on a collaborative project between the Responsible Jewellery Council (RJC) and the Alliance for Responsible Mining's (ARM) standard: Fairmined. The RJC and ARM signed a first Memorandum of Understanding (MoU) in November 2011. This first MoU aimed to: (1) explore collaboration opportunities to advance their shared objectives of improving social, environmental and labour practices, good governance and the implementation of ecosystem restoration practices in ASM; (2) enhance relationships between large-scale and ASM; and (3) increase market access for jewellery raw materials produced by ASM communities. This MoU was revised in February 2016 and, 'facilitating the participation of the jewellery industry in both certification systems', was included as an additional shared objective.

The aim of the MoU is to ensure that the RJC's and ARM's standards, systems and activities are mutually supportive. To do so, the RJC and ARM agreed to collaborate on the following prioritised topics:

- harmonising assurance and certification approaches between the two standards systems to allow combined RJC and Fairmined audits.
- increasing market access for precious metals from responsible ASM; for example, through the creation of social investment opportunities into the ASM sector for RJC members or through the development of joint communications materials to increase market awareness.
- jointly recruiting private, governmental and intergovernmental sponsors to fund projects to improve social, environmental and labour practices in ASM.

The Responsible Jewellery Council (RJC) – the trading name of the Council for Responsible Jewellery Practices Ltd. – was established in 2005 and is an international not-for-profit standard-setting and certification organisation. It aims to reinforce consumer confidence in the jewellery industry by advancing responsible business practices throughout the diamond, gold and platinum group metals jewellery and watch supply chain. Membership is open to all businesses and associations participating in the diamond, gold and platinum group metals jewellery and watch supply chain and/or engaged in activities that have a potential impact on consumer confidence. Certification against the RJC Code of Practices is compulsory for all RJC Commercial Members within two years of joining the RJC. The RJC Code of Practices covers legal and regulatory compliance, responsible supply chains, human rights, labour rights, working conditions, health and safety, environmental management and responsible mining practices.

The RJC has more than 900 member companies throughout the jewellery supply chain – from mining to retail – certified against its Code of Practices and 33 member companies certified against the RJC Chain-of-Custody (CoC) certification. The RJC CoC was developed to support businesses who wish to provide independent

assurance to customers and stakeholders that their gold is traceable and originated from responsible sources that comply with environmental, labour and ethical standards.

Fairmined is an assurance label that certifies gold from responsible artisanal and small-scale mining (ASM), which was created by the Alliance for Responsible Mining in 2011. ARM originated in 2004, as a global initiative, which aims to support and enable artisanal miners to deliver certified metals and minerals to the market through a set of standards for responsible ASM. Hence, it contributes to transforming ASM into a more socially and environmentally responsible activity and to improving the quality of life of marginalised artisanal miners, their families and communities. ARM's work is focused on four strategic areas: (1) assisting miners on the ground, (2) developing standards and certification systems, (3) building responsible supply chains and markets, and (4) promoting inclusive policies in the mining sector.

Under the Fairmined Certification, ARM has six certified mining organisations in Bolivia, Colombia, Mongolia and Peru, and has 144 consumer-facing brands (licensees) working and making claims about the use of Fairmined gold in 16 countries. There are also 12 entities (suppliers) trading or transforming Fairmined gold in seven countries, and 11 projects in West Africa and Latin America. The Fairmined Standard for Gold and Associated Precious Metals was developed to support sustainable development of ASM communities and includes requirements for formal and legal mining operations; environmental protection; labour conditions; traceability of Fairmined minerals; and socio-economic development through the Fairmined Premium. It also outlines market models and requirements for market actors (Fairmined suppliers and licensees).

In 2014, the RJC formally recognised the Fairmined Standard for responsible mining as an equivalent standard to the RJC Code of Practices, enabling gold produced by Fairmined-certified ASM operations to be traded as a CoC material. Likewise, the RJC has cross-recognition programs with the London Bullion Market Association's (LBMA) and the Conflict-Free Sourcing Initiative's (CFSI) audit certification processes.

This case study drew on 12 semi-structured interviews conducted in 2016. The interviews targeted RJC and Fairmined representatives, RJC and Fairmined accredited auditors and RJC and Fairmined members involved in this interoperability project. In addition, secondary data complemented this primary data to put the case study in context and refine the analysis. Participants were encouraged to provide their perceptions and opinions on the drivers for, benefits and challenges of, and lessons learnt from the Fairmined and RJC interoperability project.

4.1.2 Drivers for Collaboration

Three main drivers for the collaboration were observed: **similarity between systems and goals, increase reach** and **reduce audit overlapping (audit fatigue and costs)**. **Similarity** was considered one of the key drivers for this collaboration project. The RJC and ARM share similar goals, operate within the same sector and have common members, and most of their stakeholders are the same. According to some of the participants, because of the similarities, such a collaboration project was considered a natural step towards a more efficient approach to fostering responsible practices in the sector.

"We have the same goals, we are operating in the same sector, we have the same clients and many of our stakeholders are the same. Most of the processes we have are similar. So why not work together?" (Participant 3, a certification scheme representative)

"We cover the whole supply chain, and particularly upstream, our members cover other sectors beyond jewellery... automotive, electronics. So, for us to work independently it would be narrow-minded." (Participant 6)

Increased reach was also one of the drivers for the RJC and ARM-Fairmined interoperability project. Some of the participants commented that both Fairmined and the RJC could be seen as complementary systems, and combining efforts could help them to increase reach throughout the supply chain. Working together, the RJC CoC standard and Fairmined standard can combine efforts and expertise in different parts of the supply chain to better support claims for responsibly sourced jewellery materials produced, processed and traded. In this context, ARM can use its expertise and focus on its core business, which is ASM, while the RJC can use its expertise and focus on the downstream industries. Recognising each other's expertise and focus permits ARM and the RJC to be more effective. Also, such an approach combined with a set of requirements, enables verification of the eligibility and traceability of materials from mine to retail. Three participants commented:

"We are complementary systems, and working together we can improve our reach." (Participant 1, a certification scheme representative)

"If there is another scheme doing a good job in another part of the supply chain, why not try to work together and improve outcomes?" (Participant 4, a certification scheme representative)

"This project is recognition that Fairmined addresses a certain sector of the supply chain that is difficult for us to reach on our own." (Participant 7, a certification scheme representative)

Reduced audit overlapping was also an important motivation for the collaboration. According to some of the participants, there is general annoyance from different stakeholders – especially certified and authorised companies – that audit overlapping causes audit fatigue and results in unnecessary audit costs. The lack of harmonisation of the assurance processes used by different initiatives results in duplication of efforts and high costs of compliance, particularly when there are different schemes with similar standards addressing the same topics in the same part of the supply chain. For example, in regards to audit overlapping, several participants highlighted:

"We are hearing so much pushback on this audit fatigue. We get so many complaints from our clients that they are just tired of having to have an audit body in there, day-in day-out. And there is very little synergy between all these audits. They say auditors come and ask the same questions and we have to pay twice." (Participant 8, an auditor)

"We recognise this burden of overlapping and we know that companies are also complaining about it." (Participant 7, a certification scheme representative)

"There is pressure from the industry to reduce overlapping. The market wants more collaboration." (Participant 3, a certification scheme representative)

4.1.3 Benefits

Leadership, **access to market**, **cost reduction** and **internal processes and systems improvement** were considered the key benefits of this interoperability project. In a scenario where the number of sustainability

initiatives addressing responsible practices is increasing, overlap situations among different initiatives are growing and stakeholders are pressuring for more collaboration and interoperability; being the pioneers in addressing these topics could establish the RJC and ARM as **leadership** organisations. This interoperability project between ARM and the RJC can be used as a benchmark for initiatives that are facing the same challenges and are receiving the same pressure from their stakeholders to improve collaboration and to reduce overlapping. Regarding this matter, participant 7 mentioned:

"Actually, politically it [the RJC and Fairmined collaboration project] is a huge benefit. It helps to place us as a leadership organisation." (Participant 7, a certification scheme representative)

Access to market was another benefit mentioned by participants. Some of the participants pointed out that the RJC–ARM-Fairmined collaboration project can improve market access for certified gold. Such a situation is particularly beneficial for Fairmined, which can benefit from the vast number of RJC members. The RJC's upstream members are potential buyers of Fairmined gold, but regardless of their decision to engage at the moment with Fairmined gold or other certified gold initiatives, these RJC members can see that within the RJC–ARM-Fairmined interoperability project, certified gold and ASM could play an important role in their responsible sourcing strategies. This project can be a great tool to spread the message of best practice in responsible sourcing, which can include Fairmined gold.

Cost reduction was another important benefit mentioned by participants. The divergent assurance requirements of different initiatives operating in the same context increases the costs of compliance. Companies seeking certifications or keeping their certifications valid have to periodically contract third-party auditors to attest their compliance against certification schemes' requirements. It is important to highlight that audit processes incur direct costs (audit fees and audit travel expenses) and indirect costs, such as the employees' time allocated to provide information for the audit teams. In such a situation, although there are similarities between both standards and the RJC recognises the Fairmined standard as an equivalent standard to its Code of Practices, companies have had to contract two different audit teams to attest compliance with the RJC CoC and Fairmined standards. Regarding this matter, one of the participants stated:

"As a company it is not good when you have to allocate people to provide information for auditors and then another audit process starts asking most of the same things again and you have to allocate people's time to respond again." (Participant 5, a certified company representative)

To solve this duplicity problem and reduce audit costs, the RJC and ARM launched the pilot combined Fairmined and RJC CoC audit project. This project aims to reduce the audit burden without compromising the quality and rigour of the audit process. To do so, three main activities were carried out: (1) the RJC's and Fairmined's auditors' accreditation processes were aligned in order to increase the number of audit service providers accredited to conduct both assurance processes; (2) the RJC's and Fairmined's audit workbooks and audit procedures were aligned to enhance usability and streamline the assessment processes; and (3) the RJC's CoC and Fairmined's standards were reviewed in order to identify similarities and to inform auditors about where and what these similarities are.

According to some of the participants interviewed, this pilot combined audit project presented important positive outcomes. The combined audit approach reduces the audit burden in terms of time and costs. In one participant's words:

"The cost savings with a combined audit are significant. Additional time on-site means we have to charge more, because we have to pay the auditor to be there; when combining two audits the overall time needed is less, so the price of the audit itself is less. There is also the travel costs – some of the facilities are in unusual locations, which means we have to bring auditors to that specific location. So if we need to come at two different times the site will need to pay for that travel cost twice. The travel costs can be substantial." (Participant 8, an audit company representative)

When asked to estimate the cost reduction, this participant pointed out:

"I would estimate a reduction of something between 20% and 50% of the audit time when combining audits. On top of that you have the travel costs reduced by half." (Participant 8, an audit company representative)

Improvement of internal processes and systems was also considered an important benefit by some of the participants. It was stated that the interoperability project between the RJC and ARM results in internal controls and systems improvement through the learning process of exchanging information and practices. Such a relationship helps both organisations to improve their systems and practices as they can learn from each other's experiences. In this regard participant 1, Participant 3 and Participant 7 added:

"We have learned from them and I am sure they have learned from us too." (Participant 1, a certification scheme representative)

"Learning and innovation are very important. When you work together you can see how things have been done in other organisations and you learn. You can see innovation opportunities and you can improve your processes." (Participant 3, a certification scheme representative)

"Such a relationship helps inform and strengthen our own organisation and systems. We are better aware of the issues they are facing and are grappling with. We have an intimate knowledge of the other certification scheme and we exchange information. All of this helps us as an organisation to be in a stronger position." (Participant 7, a certification scheme representative)

Participants were asked to provide examples of internal controls and systems improvements obtained through this learning process. ARM representatives mentioned improvements in its audit and accreditation processes. Participant 1 and Participant 3 highlighted that the RJC has comprehensive audit procedures and a very good accreditation process that were used, as a model, to improve Fairmined's audit procedures and accreditation process. In these participants' words:

"For example, the RJC has a good accreditation process and audit strategy. So we basically used their experience to develop and improve our audit procedures and our accreditation process." (Participant 1, a certification scheme representative)

"For example, the audit processes. This is where we were not very strong and now we are improving. In the past we had only two audit companies accredited, and our guidelines to do it weren't so good. In this aspect the RJC has a good process, so we are using the RJC's knowledge to improve our audit process. They are very open to sharing their knowledge. It was a jump in improvement. If we had to develop ourselves, we would take a long time to do it." (Participant 3, a certification scheme representative)

As well as an improvement in their procedures, it was also important to recognise an interesting example of interoperability. ARM and the RJC have in place an accreditation process that is used by both initiatives. Regarding this specific example, Participant 4 mentioned:

"For example, their accreditation process is really good. So we got the RJC's process, we accepted its accreditation process and we recognised the RJC's work on it. So, the accreditation process is only one for both of us. The RJC's accreditation is the one in use – we just adapted and included our standards in this process." (Participant 4, a certification scheme representative)

RJC representatives also provided examples of improvements in their systems and innovation opportunities. The traceability mechanism was one of the cases mentioned. ARM has a traceability system in place that automatically tracks Fairmined gold from the mining site to the final consumer through the whole supply chain. The RJC is working with ARM at the moment to explore opportunities to also use Fairmined's traceability system. One participant commented:

"One of the challenges we have at the moment is traceability. We want to have data on how much certified gold has been traded through our supply chain, for example. This is an area where we need ARM to help us. They already have software in place helping to do that." (Participant 6, a certification scheme representative)

4.1.4 Challenges and key topics to get right

This section presents the main challenges facing a successful interoperability project as well as the more important aspects these initiatives have to get right in order to have an effective interoperability project, according to participants' points of view. Having **common goals** was considered by participants as the first step for any successful collaboration. It is important to align, discuss and approve shared goals upfront. Without common agreement on the goals and main strategies of the initiatives, the success of the interoperability or any other type of collaboration could be jeopardised. Equally as important, **credibility** was considered an essential condition to minimise reputational risks. Initiatives do not want to be associated with or partner with other initiatives that do not have strong systems, a robust governance structure and a strong reputation.

As a second step, participants stated that it is very important to assess the level of alignment between systems, standards and assurance approaches. A comparative assessment would allow both initiatives to clearly identify topics of synergy as well as topics without synergy, and determine priorities and strategies. Participant 6 pointed out:

"It is important to access the level of alignment between the two systems, standards on the different topics and the assurance approach as well. Comparative assessment not only on the standards but also on the assurance that sits behind it." (Participant 6, a certification scheme representative)

Comparative assessment is an important instrument to identify interoperability opportunities, such as **combined services** and **shared information**. In this regard, it is important to highlight the excellent work conducted by the RJC and ARM in comparing their systems and processes to identify synergistic opportunities and opportunities to share services and information to reduce overlapping. For instance, the pilot joint audit project – this joint audit project had a combined audit protocol and the timeline of audits synchronised to

allow one audit process to certify RJC and Fairmined simultaneously. In relation to the usefulness of this combined audit protocol, one of the auditors stated:

"RJC and Fairmined provided a list of all the overlaps between the two protocols and we developed our work based on this document. Obviously, there were provisions that were different and there were aspects that were overlapping, but this document guided our wok and helped a lot to conduct this first joint audit." (Participant 8, an auditor representative)

Another important aspect mentioned addressed general aspects of **project management**. Participants highlighted the importance of having time and resources properly allocated to develop such a project. Financial and technical support to have professionals allocated to develop and implement the project, as well as firm commitment and support from management to conduct such a project, were considered important key success factors. Capacity constraints might be a risk for any collaboration or interoperability project.

Engagement and consent from members and other key stakeholders was also considered a relevant topic. Key stakeholders must understand and see the benefits of the project; without the support of these important stakeholders the success of any type of collaboration or interoperability project could be affected. This engagement can improve the legitimacy of the project and the level of participation. Also, engaging with these stakeholders can provide important insights and valuable improvement recommendations. When stakeholders or members do not feel involved it is likely that they will not support the project.

Premium price was another key theme mentioned during interviews. This is one of the differences of the RJC and Fairmined systems – the RJC does not have a premium price component on its system, but Fairmined does. Certified Fairmined miners will receive a Fairmined Premium for community and business development. The Fairmined premium is up to USD 4,000 per kilogram of gold. For Ecological Gold (gold that has been extracted without the use of chemicals and with strict ecological restoration requirements), an ecological premium – at USD 6,000 per kilogram of gold – must be paid. This premium price is a market incentive to cover costs of certification and to invest in mining operations, social development and environmental protection. However, according to some of the participants, the premium price has been criticised by some industries because it has a direct impact on costs and margins. Regarding this topic, Participant 6 stated:

"I hear from the industry that the premium price is an issue. The payment is an issue because it does limit the market. Some organisations are not willing to pay the premium price. It is a barrier to mainstreaming your standards. The deal is, for some companies, sustainability should not come at a premium price, it should be business as usual." (Participant 6, a certification scheme representative)

In the same vein, Participant 5 argued that some of the companies do not want to pay a premium price. In this participant's words:

"The RJC does not have a premium price and Fairmined has. Some of the clients complain about the Fairmined premium price. Consumers want certified gold but they don't want to pay the premium price. That is the truth." (Participant 5, a company representative)

Although there were some comments criticising the premium price, it is also important to highlight that the premium price is a crucial incentive to bring artisanal miners to certification. Without a direct economic

incentive – in this case, the premium price – artisanal miners would not be interested in investing time and resources into improving their practices and obtaining the certification. Equally important, Fairmined introduced the possibility of negotiating the premium price based on the quantity of gold purchased: the premium price is reduced if a brand accommodates large purchase commitments.

Competition among initiatives was considered a challenge to improving interoperability. Participants mentioned that some of the initiatives are competing to increase market share, gain business and increase funding. Interoperability or any type of collaboration could be seen as a barrier to improving collaboration for initiatives competing for the same funding opportunities and market share. Participant 3 provided an interesting comment on this issue. This participant stated that competition can affect interoperability, but lack of interoperability and the existence of overlap are not good for the beneficiaries. In this participant's words:

"There is a lot of competition, and sometimes it is not easy to improve collaboration when you are competing for funding. The problem is: lack of collaboration and overlapping is not good for the beneficiaries." (Participant 3, a certification scheme representative)

Another interesting topic mentioned by participants was around the role initiatives should play in relation to **artisanal and small-scale mining** (ASM). ASM is widespread mainly in developing countries, and it represents an important livelihood for poverty-affected communities. ASM is also generally associated with social and environmental concerns, such as child labour, gender inequality, armed conflicts, poor health and safety conditions, and environmental impacts. In this context, different participants stated the importance of incentivising different stakeholders, including consumers, governments and industries, to support ASM to move towards more positive practices rather than to disengage and disincentivise. Sustainability certification schemes, standards, frameworks and other governance initiatives can be fundamental tools for development in ASM communities, as such initiatives have the capacity to foster good governance and progressively transform and formalise informal mining and trading (Franken et al., 2012). Participants stated that initiatives should play an important role in providing information on responsible supply chains to different stakeholders, and also in fostering the inclusion of ASM as part of responsible sourcing policies and strategies of upstream businesses.

"Demand for ASM-certified gold is growing, but it is still so tiny. There are very few leading the pack, but the huge majority don't do anything, and the few that are doing something are still in the early stages of writing their responsible sourcing policies. We have to include ASM in these policies because this sector is marginalised. We have to inform companies that there is responsible gold from ASM! Unfortunately, with the complexity of the sector, some companies believe it is easier to source from different gold producers. This is a challenge but also an opportunity." (Participant 3, a certification scheme representative)

Similarly, Participant 4 said:

"We believe it is more responsible to try to engage and help ASM than to say that you will not work with artisanal miners and will ignore ASM. Why ignore when you can make the difference and collaborate to enhance local development in undeveloped countries." (Participant 4, a certification scheme representative)

The RJC–ARM-Fairmined interoperability project provides an interesting and relevant example of how upstream companies and ASM can work together. This project demonstrates that different certification

schemes can work together to improve responsible ASM practices and increase the awareness of different stakeholders about responsible sourcing policies and responsible supply chains. In this regard, participant 6 concluded:

"I think one of the key areas is how to include more ASM, responsible ASM, in the supply chain. This is something Fairmined is doing, the RJC is doing, a lot of people are doing, but we need to think of how to address this issue together." (Participant 6, a certification scheme representative)

4.1.5 Conclusion

This section presents a set of findings and lessons from the case study analysed in this research. Participants provided similar comments on the drivers for collaboration, challenges, and key topics to get right in order to ensure a successful interoperability project. Similarity between systems and goals, increased reach and reduced audit overlapping were the topics most often mentioned by participants as the drivers for the RJC and ARM-Fairmined interoperability project.

In relation to the benefits, participants mentioned leadership, access to market, internal processes and systems improvement and cost reduction as the main benefits of such a project. It is important to highlight here the important work conducted to develop and implement the combined Fairmined and RJC CoC audit project. This combined audit project, the pilot of which was undertaken in November 2016, presented important positive outcomes, such as a reduction in audit costs and audit fatigue. According to the results presented, the combined audit process can significantly reduce the audit costs – participants estimated a 20–50% reduction in audit fees, and a 50% decrease in travel costs. Notably, this combined audit approach also has a positive impact on audit fatigue, as the time required of auditees to attend to auditors was reduced, as was the quantity of repeated audit questions and tests. Combining services and sharing information were considered key topics to be addressed in any type of interoperability project. The combined audit project implemented by the RJC and ARM-Fairmined is an important example of interoperability, in which only one audit process can attest compliance against both certifications at once.

Having common goals was considered the first step for any type of successful collaboration. A credible and strong certification system was considered equally important. Participants stated that having a strong system and a robust governance structure in place, as well as a good reputation, are crucial conditions to develop collaboration and interoperability projects with other initiatives. Initiatives do not want to be associated with unreliable initiatives (reputational risk). General aspects of project management and stakeholder engagement were also considered important issues. According to participants, resources and time should be properly allocated to the interoperability project in order to avoid capacity constraints, and members and other key stakeholders should understand and see the benefits of the interoperability project to guarantee legitimacy and participation. Also, competition among initiatives was considered a barrier for collaboration and interoperability.

Another challenging factor mentioned by participants was the premium price. The premium price has been criticised by some industry representatives because it has a direct impact on their costs and margins. However, without an economic incentive it is hard to convince artisanal miners to invest in certification and improve their practices. Participants discussed the role initiatives should play in incentivising stakeholders to engage with ASM and to explore opportunities to foster more responsible ASM practices. Responsible supply chains

and responsible sourcing programs are two examples of how initiatives can play an important role in helping companies and other important stakeholders to better understand the challenges and risks, but also the opportunities of engaging with ASM.

In conclusion, it is necessary to recognise and value the importance of this RJC–ARM-Fairmined interoperability project. This project demonstrates that it is possible to have upstream companies and ASM working together towards a more responsible mining approach.

Recommendation: Sustainability initiatives should actively seek opportunities for **collaboration**, as a first step in building trust between their various stakeholders. International organisations and development cooperation agencies should continue to support collaborative activities and encourage sustainability initiatives to overcome competing and vest interests to achieve greater interoperability.

4.2 Potential interoperability between the EITI and the ICGLR in the Great Lakes region

4.2.1 Background

The Great Lakes region of Africa has been at the epicentre of global initiatives to break the association of natural resource extraction with conflict and corruption, and their attendant effects on human insecurity, poverty and inequality. The International Conference on the Great Lakes Region (ICGLR) was established in Nairobi in 2006, bringing African Heads of State and Government together to form a new regional organisation. Its aim is 'to address the root causes of intractable conflicts and constraints to development in a regional and innovative approach' (ICGLR website, 2017). As the lead regional organization tackling the illegal exploitation of minerals from the Democratic Republic of Congo (DRC) , the ICGLR stands beside a host of other public and private sector initiatives to tackle resource conflict in the Great Lakes region .

The Extractive Industries Transparency Initiative (EITI) has been one of the most successful resource governance initiatives of the past 15 years to advance global norms of transparency and multi-stakeholder dialogue amongst governments, extractive industries and civil society organizations. The EITI Standard, 2016 requires countries and companies to disclose information on the key steps in the governance of oil, gas and mining revenues (EITI website, 2017). It has 52 implementing countries to date, of which half (25) are in Africa. The DRC is considered one of the EITI's success stories for promoting multi-stakeholder dialogue and greater transparency in the governance of its vast natural resources. However, the DRC is one of only four EITI compliant member states of the ICGLR. This represents a third of the ICGLR's dozen member states. Nevertheless, the ICGLR has named an 'EITI Peer Learning Mechanism' as one of the six 'tools' of its Regional Initiative Against the Illegal Exploitation of Natural Resources (RINR) (Lusaka Declaration, 2010).

The case study focuses on this point of intersection between the EITI and the ICGLR's RINR, as a relatively unexplored opportunity for enhancing the effectiveness of both initiatives in the region. The co-ordination, harmonization and collaboration between the conflict-free minerals initiatives working in the Great Lakes region has been highlighted clearly in the literature and policy circles focused on this topic (te Roller, 2013: 57). There has been comparatively little attention paid to the notion of aligning the EITI with the African regional initiative against illegal exploitation of minerals. This case study investigates whether there are convincing reasons for investing more time and resources into building the ICGLR's EITI Platform into a mutually beneficial mechanism for the two initiatives, and ultimately for the sustainable development of the region.

The case study seeks to address the following three research questions:

1. What are the existing aspects of common scope, collaboration and compatible mechanisms within the EITI and the ICGLR's RINR?
2. What are the barriers to implementation of the EITI and the RINR within the ICGLR's member states?
3. What is the potential for enhancing interoperability between the EITI and the ICGLR's RINR, and how could they work together for greater effectiveness of both initiatives in the Great Lakes region?

It is a qualitative study based on content analysis of primary documents of the EITI and the ICGLR, including the EITI Standard, 2016 and the Lusaka Declaration of the ICGLR, 2010; and canvassing opinions and additional

data via elite interviews with stakeholders of the ICGLR, the EITI International Secretariat and an EITI multi-stakeholder group. Twenty interviews were conducted face to face in Lusaka, Zambia in October 2016 and Oslo in January 2017. The case study was also informed by secondary sources on the EITI and RINR, 'conflict minerals' and transparency issues relating to the Great Lakes region, and the broader political context of the member states of the ICGLR.

4.2.2 Findings

The ICGLR is a relatively new organisation in Central Africa, a region with a history of weak inter-governmental cooperation compared to West, East and Southern Africa. Its membership overlaps with the smaller East African Community (EAC) in the East (Kenya, Uganda, Tanzania, Burundi, Rwanda and South Sudan), the Southern African Development Community (SADC), which includes Angola, the DRC, Tanzania and Zambia; and the Economic Community of Central African States, which includes Angola, the CAR and Congo Republic. It differs from these regional economic communities, however, in its primary focus on peacebuilding.

The intensity and breadth of conflict in the Great Lakes region since the 1990s (and further back for the wars in Sudan and Angola) make it remarkable that an organisation like the ICGLR exists at all. Each member state has been embroiled in or affected by armed conflict, from the genocide in Rwanda; through the participation of Angolan, Rwandan and Ugandan forces in the Congolese War (1998-2003); displacement of refugee populations into Zambia, Kenya, Tanzania and elsewhere; transnational incursions of armed groups, such as the LRA from Uganda to the DRC, the CAR and South Sudan. Most recently, instability in Burundi has affected the functioning of the ICGLR Secretariat itself (Interview, 19/10/2016).

This context is important to understanding the challenges faced by the ICGLR and its RINR. Although the technical aspects of mineral certification are essential to the success of conflict-free minerals initiatives for the region, they cannot be implemented without acknowledging and engaging the complex political dynamics within and between member states. These member states are the key stakeholders of the ICGLR, and building consensus between them is a vital aspect of the peacebuilding process for regional security.

The recognition of resource conflict in the region and the importance of regional collaboration for better resource governance was established in the ICCGLR Protocol of 2006. It was further addressed in the Lusaka Declaration of the Special Summit to Fight Illegal Exploitation of Natural Resources in the Great Lakes Region (2010), which launched the RINR. The Lusaka Declaration establishes six tools of the RINR:

- A regional certification mechanism for the 3TG minerals
- Legal harmonization of member states' resource governance regimes
- A regional database on mineral flows
- Formalisation of artisanal and small-scale mining (ASM)
- An EITI peer learning mechanism
- A whistle-blowing mechanism

The current status of these six tools is discussed in section 4 on process and mechanisms. What is clear from the Declaration is that the ICGLR member states set themselves an ambitious range of tasks to address

resource conflict in the region. Irrespective of whether all the member states have the capacity to fully implement these tools, there is a degree of legitimacy conferred on resource governance initiatives in the region by the expressed will of the region's governments to be part of the fight against conflict minerals. This is recognized in the efforts to collaborate with the ICGLR made by the OECD, the European Union, iTRI, BGR, the World Gold Council and others working to ensure responsible business conduct in relation to the region's mineral wealth.

The EITI is a multi-stakeholder initiative, which works on the principle of transparent reporting by government and the extractive industries, overseen by a multi-stakeholder group that includes civil society representatives. The EITI Standard adopted in 2016 has widened the initiative from its original process of reconciling mining and petroleum revenues reported by governments with payments of taxes and royalties by the extractive industries. The changes are detailed in the section on thematic scope below. The EITI stakeholders at national level have greater flexibility under the new EITI Standard to decide on the scope of reporting within their jurisdiction (EITI Standard, 2016, Requirement 1).

The stakeholders of the EITI include an equal number of representatives from government, industry and civil society. For example, in Zambia, there are 18 members of the multi-stakeholder group, including six from each sector. Interviews were conducted for the case study with representatives of this multi-stakeholder group, the Zambian Executive Council (ZEC). They included representatives from the Ministry of Mines, the Chamber of Mines, the Zambian Council of Churches and the local chapter of the NGO Publish What You Pay. The views of these stakeholders within one of the few EITI implementing countries of the ICGLR serves to highlight both the potential and the barriers to greater interoperability between the EITI and the ICGLR's RINR.

Several of the interviewees mentioned confidence-building and increased trust between stakeholders as an achievement of the EITI in their country (4 interviews, 16-20/10/2016). They described the context of Zambia's long history of mining and of social tensions arising over the course of privatization of the mines, frequent regulatory changes and copper market volatility in the past 20 years.

A ZEC representative noted that:

"Mistrust is reduced by sharing information. An achievement of the EITI is that information on mineral production and revenues is now more readily available. We're seeing increased transparency as more and more information is being released" (Interview, 19/10/2016).

Another admitted that:

"We were very skeptical about the EITI at the beginning, because it lacked a legal basis we did not think it would make a difference, but we now see that it is valuable to have the Council [ZEC]" (Interview, 20/10/2016).

This observation of the Zambian stakeholders was corroborated by interviews with the International EITI Secretariat, where the EITI's effect of "incremental building of trust around resource governance" was seen as an achievement of the initiative (Interview, 01/09/2016).Another admitted that:

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4.2.3 Opportunities and barriers to collaboration

The ICGLR conducted a study on the implementation of the EITI amongst its member states in 2014, which was used to inform the first meeting of the ICGLR's EITI Platform in April 2015 (Kabemba and Okute, 2015). The study provided a country-by-country analysis of the perceptions of EITI within the region, which several of the interviewees referred to. One regional expert pointed out that:

"The twelve member states of the ICGLR are each at a different level of understanding the EITI… and their interest in the EITI differs considerably. Zambia was the first to organize Publish What You Pay and to push for EITI, then Tanzania and the DRC. But others, like Kenya and Uganda, are not interested. Rwanda has said they don't have the capacity to implement it. [And] how could a state like Angola sign an agreement on multi-stakeholder transparency? The EITI as a tool of the RINR will not work until more of the twelve countries adopt it" (Interview, 20/10/2016).

This view was echoed by another source, who said that:

"Despite the declaration of the heads of state of the ICGLR, it is unlikely that the EITI will be implemented throughout the region, for example, in Angola. Burundi was moving ahead until the constitutional crisis. Some are hopeful about Sudan, but I am less so [and] there is a setback in Kenya since the last change in government."

Differing perceptions of the EITI amongst some political actors in the region were a barrier to implementation, as:

"The EITI is still being seen as a control instrument of Western interests, and it happens to succeed in countries where they need the World Bank. It is not seen as a tool that advances economic development. The economic advantage of the EITI is not well understood" (Interview, 20/10/2016).

This view is shared in the literature by Sturesson and Zobel (2015), who argue that lack of political will is the underlying reason why EITI implementation has been deferred in Uganda for many years, despite the Government regularly pronouncing an intention to do so and citing technical reasons for delay. They note that "the EITI is increasingly being described as a mechanism imposed by development partners and a violation of the country's sovereignty" and that "the GoU attaches large symbolic and political value to managing the oil sector on its own terms" (p. 39).

The ICGLR has an important legitimating role in both the transparency and the conflict minerals initiatives for the region, by ensuring the African governments of the region lead the process. Further, a potential value of the ICGLR's EITI platform within the RINR is to provide a regional endorsement of the transparency initiative from African neighbours and peers to countries like Uganda, that appear hesitant to commit to the EITI. The value of collaboration with the ICGLR for this reason was recognized by one of the EITI officials interviewed:

"ICGLR advocacy is very important on this issue. We need to brief ICGLR more so that they are able to explain better the logic behind EITI." (Interview, 11/01/2017).

In this sense, interoperability of the two initiatives should not be considered in technical terms only, as a way of harmonizing rules or aligning the process and mechanisms. This case study highlights the importance of identifying common interests of the stakeholders of different initiatives, and engaging with the political actors of the region.

In terms of type of initiative and stakeholders, the interviews reflected that the ICGLR is more state-centric than the multi-stakeholder EITI. While there has been some lobbying of the ICGLR by civil society organisations, it does not have the same level of participation from civil society or the private sector as the EITI. Further collaboration between the two initiatives may enhance public participation in resource governance in at least some of the countries of the region.

We now turn to a comparison of the thematic scope of the EITI and the RINR.

4.2.4 Thematic scope

The ICGLR Protocol Against the Illegal Exploitation of Natural Resources, 2006, establishes the scope of the regional organisation's engagement in the issue of resource conflict. Article 3 asserts the sovereignty of the member states over their natural resources. Article 4 frames the illegal exploitation of natural resources as a violation of this state sovereignty. Article 11 establishes a mechanism for the certification of natural resources, but does not specify the type of resources. Interestingly, there is no mention in the Protocol of the 3TG minerals, while "uncut diamonds" are mentioned in a reference to the Kimberley Process Certification Scheme. This reflects the focus of conflict minerals initiatives primarily on 'conflict diamonds' at the time.

The Lusaka Declaration, 2010 sets out the scope of the RINR as being to address:

"…the endemic conflicts and persistent insecurity caused by armed groups in the Great Lakes Region financed through the illegal exploitation of natural resources and trade in minerals, in particular Gold, Colombo-Tantalite, Wolframite and Cassiterite…" (Preamble, p. 2).

This later agreement of the ICGLR therefore frames the material scope of the RINR on the 3TG, but arguably does not exclude other minerals from the region being tracked in relation to conflict.

A notable difference between the RINR and other initiatives in the Great Lakes region, is in the unique title of the regional initiative "against illegal exploitation" of natural resources. The phrase reflects the perspective of post-colonial African governments, concerned not just about conflict, but also the exploitation of their resources by subnational armed groups and the global supply chains that profit from them. Illegal revenue flows via these routes have something in common with the revenues lost to corruption, in that both rob the state coffers of resource revenues needed for development. As one of the regional experts concluded: "These schemes come from different angles. When you put them together they converge on the same thing: resource governance." (Interview with regional expert, 20/10/2016).

The overarching aim of the EITI Standard, 2016 is "promoting public awareness about how countries manage their oil, gas and mineral resources" (www.eiti.org). This has broadened the scope of the initiative from being primarily an anti-corruption tool for revenue transparency, to a more comprehensive resource governance standard. This has increased the relevance of the EITI to mining issues within the ICGLR, as one of the EITI representatives explained:

"EITI was first about the traceability of revenues, but it has evolved a lot since its inception, which was particularly in light of realities on the ground. CAR, for example, has no formal mining sector; it is all done by artisanal and small-scale mining. It was then semi-formal organisations with limited accounting systems which started to disclose the information. This experience led us to encourage other countries, which have significant ASM sectors, to also include it in their EITI reports. The DRC's first report was innovative in that regard, as it tried to include traders and middle actors" (Interview, 11/01/2017).

The first requirement of the standard is for the national multi-stakeholder group to decide on the scope of reporting in their country. This means that EITI implementing countries of the Great Lakes Region could potentially choose to include conflict minerals on their agenda. The role of the OECD in coordinating this was mentioned:

"The Dodd-Frank Act section 1502 created a lot of pressure on the countries to do something about the matter. This led members of [the EITI] MSGs to participate in the OECD multi-stakeholder group and hence, the initative by OECD became more relevant to EITI and EITI became more relevant to them. Certainly, the OECD functioned here like an umbrella of diverse organisations" (Interview, 11/01/2017).

The second requirement is to disclose a range of information about the legal and institutional framework and fiscal regime for the extractive industries. This includes information about "award of exploration and production rights, licence allocations, and registers of licenses, contracts, beneficial ownership and state participation in the extractive sector" (EITI Standard, 2016).

The third requirement is to report on exploration, production and export figures. This is to provide an overview of the scale and prospects for extractive industries. Requirement four sets out how revenues are to be reported and reconciled. The level of disaggregation of data is decided by the MSG, but project-level reporting is now required by the EITI Standard.

EITI now also tracks where the money goes after it is raised from companies. Requirement five is to trace how extractive industry revenue allocations are recorded in the budget and distributed, including at subnational levels. The EITI encourages (this is not mandatory) tracking of any funds earmarked for particular geographic regions or programs. Social spending by companies, traditionally called corporate social responsibility (CSR), is to be recorded as the sixth requirement. The final requirement of the EITI Standard (apart from the timelines for compliance) is possibly the most challenging. It is to report on the outcomes and impact of EITI implementation.

The most significant thematic differences between the EITI and the RINR are:

Material scope: the EITI pertains broadly to the extractive industries of mining, oil and natural gas, while the RINR focuses narrowly on gold and the 3Ts (tin, tantalum and tungsten).

Geographic scope: the EITI operates at the national level, while the RINR is regional and concerned with transnational issues.

Scale of extractive industries: the EITI reports have previously had a materiality threshold requiring reporting only by companies over a certain size (or turnover), while the RINR certification scheme for the 3TG is primarily engaged with small-scale operators. Artisanal and small-scale mining (ASM) has been included in some EITI countries, however, notably in Central African Republic.

Data reporting: the EITI Standard, 2016 provides for reporting a wide range of data, but EITI implementing countries have to date focused mainly on taxes and royalties, while the RINR mineral database is focused on mineral supply chains.

The distinction between the thematic scope of the EITI and the RINR makes for an interesting case study of potential interoperability between them. It is not obvious, even to the practitioners within each organization, that there is potential for interoperability, what achieving it would require and how it would help. Concern about 'mission creep' has been expressed by EITI stakeholders before, during debates about the expanded scope of the EITI Standard, 2016. This was reiterated in one of the interviews for the case study that, "there is a danger of the EITI becoming everything to everyone. We may need to set boundaries to keep the EITI focused and effective" (Interview, 14/01/2016).

This was a contested view, however, as another interviewee said that, "Since 2010, we have argued that the EITI is too narrow. We should consider: is there a way to integrate the EITI with other initiatives in the region to make it more relevant to the ICGLR governments" (Interview, 20/10/2017). Two of the experts interviewed pointed to the issue of tax evasion as relevant to the region. For example, one referred to the Mbeki Report on Illicit Financial Flows from Africa, pointing to "the bigger question for the region to tackle is that illicit financial flows are a serious threat to peace" (Interview, 20/10/2017).

The findings on thematic scope of the two initiatives indicates that there is little overlap between them currently. However, this does not preclude the EITI implementing countries from considering the RINR further in the future as they adapt to the expanded mandate of the new EITI Standard, 2016. Nor does it mean that the mechanisms of each initiative cannot be interoperable, as discussed in the section 4 below.

4.2.5 *Cross-referencing and interaction*

The inclusion of the EITI into the RINR was at least partially the result of lobbying by regional civil society networks (Interview, 20/10/2016). The interviews with EITI stakeholders in Zambia did not find a high level of awareness about the EITI Peer Learning Platform of the RINR, however. This was despite the fact that the regional meeting to launch the EITI Peer Learning Mechanism was held in Lusaka, Zambia in April 2015 (ICGLR, 2015). One of the Zambian EITI representatives said that, "although we had a meeting with the ICGLR, the EITI as a tool of the RINR is still only in theory rather than practice" (interview, 17/10/2016). Another representative did express interest in the RINR, however, saying that "…the EITI has a role in the RINR, as we cannot deal with the different issues to do within mining in silos" (Interview, 20/10/2016).

A civil society representative in Zambia noted that:

"There is no contact or linkages with the EITI in the DRC and the regional forum is not there. We have just seen the CSOs networking and the government may be surprised by the level of information we have about what's happening in Tanzania, Malawi and elsewhere. The EITI and RINR need to work together more" (Interview, 17/10/2016).

Interviewees from the EITI International Secretariat were aware of the RINR's EITI mechanism, and had participated in regional meetings and peer learning exchanges with the ICGLR (Interviews, 10-11/1/2017). A barrier to closer interaction between the EITI and the ICGLR is their differences in approach, according to an EITI stakeholder. The ICGLR "approaches resource governance from a legislative angle, while the EITI does not need laws to be implemented effectively" (Interview, 11/01/2017). At the same time, this interviewee

acknowledged the ICGLR as "good promoters of the EITI as a key pillar of their strategy" (interview, 11/1/2017). The need for greater collaboration at the national level within ICGLR countries was reiterated, however:

"It is of course interesting to talk about the coordination of various initiatives at the international level, as often the same actors are involved, but it's much more interesting to discuss that question [about interoperability] at the national level… The countries that are implementing various initiatives need to see the benefits [of collaboration], otherwise they will end up with a lot of duplicates" (Interview, 11/1/2017).

4.2.6 Potential for shared process

The six tools of the RINR listed in section 1 are in various stages of implementation, with the Regional Certification Mechanism the most advanced. The Regional Mineral Database is currently under construction in a project commissioned by Partnership Africa Canada on behalf of the ICGLR Secretariat. The terms of the project are to work with member states to better understand existing data that is being collected in the region. For this reason, the mineral database is considered to be an important RINR mechanism in terms of potential interoperability with the EITI. Consultants working on the implementation project pointed out that the ICGLR's Regional Certification Mechanism does not specify the data to be included in the database, only the queries it wants to run on the basis of it. Part of the project is therefore to identify what kind of data is relevant, to ensure traceability "from the production at the mine site all the way to exports" (Interview, 10/02/2017). The member states have the responsibility to populate the database:

"The main challenges will be data sharing [between member states]… not just because member states may not be happy to share their data, but also because member states do not have the data most of the time. [The Regional Mineral Database] is a top-down approach, and apart from the DRC, some countries do not even have the bottom brick to build on, as data is not available in other member states. What is difficult is to have services in member states that have the mandate, money, attributions and experience to fill these tables with real data" (Interview, 10/02/2017).

It seems logical that the EITI could assist member states to capture and communicate the relevant data to the ICGLR, especially as the range of data is expanded under the 2016 Standard beyond revenues to include production figures, ASM and anything else the national MSG in each country agrees to include. Both organisations could see the potential for data-sharing in theory, but foresaw practical limitations to doing so:

"The ICGLR Certification Manual states in 7.3.9 that it should make use of other data sources, for example, the EITI and we are discussing it. However, the ICGLR database is [trying] to do a lot already, setting up this database is already such a big task just with regards to mineral flow data sources" (Interview, 10/02/2017).

From the EITI Secretariat's side, it was recognized that:

"There are a lot more potentials. Earlier the focus of EITI was very narrow, but it now includes production data, which is the tax base. We are interested in working with initiatives establishing mineral traceability to ensure we are not replicating what they have done. ICGLR and other actors could benefit from that kind of open source output… but it is not an easy task and requires significant capacities. There are a lot of administrative hurdles…" (Interview, 11/01/2017).

The design phase of a database was considered as a window of opportunity to ensure a well aligned system:

"Setting up a database is already one issue; sharing it with another body is another issue. Very often the World Bank provides technical support. Unfortunately, countries choose technical service providers working with licenses, whereby the data gets locked up in a system run with a commercial interest. This is not interoperable. Our approach is mainstreaming and it should be part of the design phase, as it may already be too late later on" (Interview, 11/01/2017).

Since the ICGLR's Regional Mineral Database and the expanded scope of the EITI's data reporting in each country are both in the 'design phase', this would be an opportune period for the two organisations to work on their compatibility, despite the difficulties involved. The role played by the EITI multi-stakeholder groups in certain ICGLR member states will be pivotal to these efforts, as the international and regional secretariats have limited influence.

The two mechanisms of the EITI which could potentially enhance the RINR are (1) the multi-stakeholder groups in each ICGLR member state, and (2) the reporting of data relevant to the ICGLR's Regional Mineral Database.

According to one of the experts interviewed:

"There is value in the EITI to the [Great Lakes] region, as it has a very progressive mechanism in creating a multi-stakeholder group in each country. It is a forum. Whether or not it improves transparency, the EITI has value as an enhanced conversation about resource governance" (Interview, 20/10/2016).

The barrier to interoperability, however, is that the multi-stakeholder groups of the EITI operate at the national level, while the RINR is a regional initiative to track transnational mineral supply chains, mineral smuggling and illicit financial flows across borders. There is little incentive for the stakeholders of each national EITI group to include these transnational issues in the scope of their national initiative.

4.2.7 Recommendations to the EITI and ICGLR

In conclusion, the findings of this case study suggest that there would be mutual benefits gained from closer collaboration between the ICGLR's RINR and the EITI multi-stakeholder groups of its member states. There are significant practical and political barriers to doing so, however. The following recommendations are offered towards building interoperability between the transparency and conflict-free minerals initiatives in the Great Lakes Region:

Recommendations to the ICGLR and EITI:

The ICGLR Secretariat should sign Memoranda of Understanding (MoU) with the EITI multi-stakeholder groups of implementing member states (currently the DRC, Republic of Congo, Tanzania and Zambia), to collaborate on building the EITI Peer Learning Mechanism as the 5th tool of the Regional Initiative on Natural Resources. The MoU should elaborate on the aims, structure and activities of the EITI Peer Learning Mechanism, with the role and responsibilities of each organisation clearly defined.

EITI multi-stakeholder groups of the ICGLR member-states should deliberate on how to engage in the Regional Initiative on Natural Resources. The topic should be placed on the agenda for discussion at EITI MSG meetings in the four implementing member states. The ICGLR Executive Secretary should be invited to inform these discussions.

The material scope of the ICGLR's Regional Initiative on Natural Resources should be clarified and defined more broadly than 3TG. This would be in line with the OECD Due Diligence Guidance, which pertains to all minerals, and the EITI's focus on oil, gas and minerals. The Regional Certification Mechanism should remain focused on the 3TG to ensure effective implementation, while the other tools of the RINR could address wider sources of resource conflict within the ICGLR's member states, such as diamonds, oil, copper and cobalt.

Mineral production and revenue data collected for the EITI reports of the DRC, Republic of Congo, Zambia and Tanzania should be considered in the design the ICGLR Regional Database on Mineral Flows. Regular meetings should be held between the government departments responsible for collecting and reporting the EITI data and those who will be required to input data into the ICGLR Regional Database.

Reporting on the scale and estimated production figures for artisanal and small-scale mining (ASM) should be included in the terms of reference of EITI implementing countries of the Great Lakes Region. This would align with the 4th tool of the ICGLR's Regional Initiative, namely ASM formalization, and promote the ultimate common objectives of both initiatives: to prevent illegal exploitation of the region's minerals and promote sustainable development.

5 Conclusion

Sustainability initiatives are part of the global governance landscape that is always changing to accommodate competing interests, shifting alliances and multiple points of view. Setting norms in any sector is never a neat, systematic process as the political exercise of consensus-building doesn't often result in the policy that technically makes the most sense. However, the UN SDGs demonstrate that, at the highest level, there are common values and goals with which the majority of human beings can agree. The mining industry and metals supply chains are grappling with many universal ethical choices for responsible conduct, as well as issues that are specific to certain commodities (like gold vs. bauxite), scales of mining (small, medium and large enterprises) and mineral processing techniques. It is inevitable that the more attention that is paid to these issues, the more duplication and confusion may arise. The responsibility of all actors involved in these initiatives, however, is to put aside vested interests and commit to greater collaboration and harmonisation of their efforts.

The similarity of approaches, indicators and standards used by the 18 initiatives to address the environmental, socio-economic and governance themes demonstrate not only the existence of overlap in some situations, but also the possibility to improve interoperability. Further research to identify the barriers to cross-recognition and thematic alignment would be valuable to the end users (member or reporting companies, governments and civil society organisations) of these initiatives. The two case studies conducted for this project have identified some of the nuances between sets of initiatives, but more empirical case studies would provide a more complete picture.

There are opportunities for greater interoperability between assurance mechanisms. Initiatives have the possibility to collaborate not only horizontally, when different initiatives apply to the same industry and stage of production, but also vertically when different initiatives operate in different stages of the value chain.

The mechanisms which initiatives have in place to follow up on deviations from their standards can influence potential interoperability between them. Initiatives which seek collaboration with one another may be reluctant if one of the parties does not have a robust system in place which guarantees that situations of non-compliance are handled as effectively as possible. Transparency about the consequences of non-compliance is needed to build trust between stakeholders and between initiatives seeking greater interoperability.

Interoperability has become a topic of significant importance to sustainability initiatives. We understand that there are different design characteristics impacting the interoperability among initiatives and some of them work with different commodities, industries and goals in different contexts. However, the existence of common thematic scope among the majority of the initiatives analysed in this report demonstrate the potential interoperability has to avoid duplication, reduce costs, improve outcomes and improve credibility.

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