M3 Standards Partnership: GHG Project Report

July 2022

Abstract

As we seek to address the pressing issue of decarbonising the world's economies, voluntary sustainability standards and initiatives can play a vital role in building consensus and progressing the harmonisation of greenhouse gas (GHG) emissions data, while also providing robust and credible assurance systems, ensuring that data is appropriate, accurate and comparable.

This paper presents the findings of a structured review of the GHG aspects of the standards of the four members of the M3 Standards Partnership[1]—the Initiative for Responsible Mining Assurance (IRMA), Responsible Jewellery Council (RJC), ResponsibleSteel and Towards Sustainable Mining (TSM)—as well as a variety of other organizations in the mining, minerals and metals sector. It also reports on the responses to a detailed survey of leading mining companies drawn from the M3 Partnership's memberships. The 47-question survey focused on GHG emissions measurement, disclosure and reporting, and target setting.

The paper outlines recommendations for potential alignment of GHG aspects of standards for the M3 Partnership organisations and identifies areas where further research is needed for the sector as a whole to improve harmonisation of GHG emissions requirements and data.

Introduction: Harmonising GHG Emissions Data and Climate Change Approaches to Improve Interoperability and Communication to Stakeholders

The urgent need to decarbonise global socio-economic systems is clearer today than it has ever been before. Climate change is a vital issue for people and planet, and global warming, if left unabated, will have considerable consequences for human societies and natural environments. Mining, minerals and metals, and their associated supply chains, form an integral part of contemporary life, but they are also significant GHG emitters. The mining sector is linked to 28% of global GHG emissions[2] when including scope 3 emissions[3]. Companies in each of these sectors are facing increasing pressure to decarbonise, with demand for decarbonised products and materials coming from across stakeholders including shareholders, policymakers, financial institutions, downstream customers and civil society organisations.

[1] The M3 Partnership, made possible by the ISEAL Innovations Fund with support from the Swiss State Secretariat for Economic Affairs, aims to identify opportunities for alignment and collective action to drive improvement in social and environmental performance.

[2] McKinsey (2020) Climate risk and decarbonization: What every mining CEO needs to know. https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-risk-and-decarbonization-what-every-mining-ceo-needs-to-know

[3] Scopes of emission are categorised throughout this report using the following definitions: Scope 1: A reporting organization's direct GHG emissions. Scope 2: A reporting organization's emissions associated with the generation of electricity, heating/ cooling, or steam purchased for own consumption. Scope 3: A reporting organization's indirect emissions other than those covered in scope 2(3a: upstream; 3b: downstream) – derived from WRI & WBCSD (2004) The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Revised Edition.

But how are GHG emissions in products and at production facilities, from mine sites to integrated steelmaking sites, to be identified and communicated? How can differences in performance be robustly measured, credibly verified and fairly compared? And how can we take the lead on driving forward transparency, visibility, and market knowledge on GHG emissions by these heavy industrial sectors, which commonly feature multi-tiered, variable and multi-jurisdictional supply chains?

Voluntary standards and other sustainability initiatives have proliferated to fill this gap, both for GHG emissions and climate change and for the broader ESG spectrum, and there are now more than 150 standards and initiatives in the mining, minerals and metals sector[4]. For ease of reference, this report will refer to these organisations as voluntary sustainability initiatives (VSIs)[5]. With some including 100s of criteria in their requirements, and with varying governance structures, purposes, materials, scopes and levels of ambition, these VSIs' approaches are heterogenous.

While it is crucial that VSIs' approaches to climate change and GHG emissions retain their sectoral and organisational specificity, increasing harmonisation between them on requirements can contribute to better interoperability, both horizontally (for example, between different mining standards) and vertically (for example, between standards for mining and for downstream processes such as steelmaking). This will facilitate improved transfer of data and information through supply chains, ultimately improving market information and allowing top performers to effectively market their products. For example, Gold Standard (2021) argues that having transparently allocated and tracked data which is claimed appropriately is a core component of a credible GHG Reporting System[6].

In this context, following the ISEAL Alliance's 2018 definition, harmonisation refers to "organisations systematically adjusting and aligning for greater outcomes"[7]. The "alignment of texts to adopt similar language eliminating major differences and creating common requirements"[8] is an example of this. VSIs can play a vital role in building consensus and progressing ambition, alignments, harmonisation and the interoperability of GHG emissions data, while also providing robust and credible assurance systems, ensuring that data is appropriate, accurate and comparable.

RESOLVE and M3 Standards Partnership Initiatives

Conducting research in 2018 and updating it in 2021, RESOLVE, an independent NGO, analysed standards and reviewed the public disclosure of information by mining companies. They made a number of recommendations relating to the harmonisation of target setting, GHG emissions, measurement, disclosure and reporting, including identifying a core set of benchmarks they expect to become the norm in leading practice in 3-5 years. They have developed a tool, the RESOLVE Climate Smart Mine Emissions Widget[9] ('the RESOLVE Widget') which helps organisations integrate these recommendations into their approaches to GHG emissions data and target setting. If

[4] International Institute for Sustainable Development (IISD) (2018) Standards and the Extractive Economy. https://www.iisd.org/system/files/publications/igf-ssi-review-extractive-economy.pdf
[5] Ibid.
[6] Hewlett, O. & Gold Standard (2021) Accounting & Reporting the Climate Impact of Certified Commodities: Guidance for Creating a 'Greenhouse Gas Reporting System'. Version 1.0 for public consultation.
[7] ISEAL Alliance (2018) Framework of Interoperability. https://www.isealalliance.org/get-involved/resources/framework-interoperability
[8] Ibid.
[9] RESOLVE (2021) Climate Smart Mine Emissions Widget Report. https://www.resolve.ngo/docs/csm_widget_report_-_final.pdf

implemented broadly, this would represent significant progress and alignment on GHG emissions and approaches to climate change.

This M3 Standards Partnership GHG Project included a review of the GHG aspects of the M3 Partner organisations' standards plus a small number of other approaches, referred to here as the Standards Review. This was combined with a detailed survey distributed to the M3 Partnership's mining members, the Company Survey. Its overall purpose was to identify points of potential harmonisation between the M3 Partner organisations' programmes, as well as to highlight areas where further detailed research is vital to progressing GHG emissions data interoperability in the mining, minerals and metals space.

The project complements the RESOLVE work, investigating the GHG requirements of a smaller set of standards, including some additional standards outside the scope of the RESOLVE analysis, looking specifically at how standards inter-relate across the supply chain, and focusing in more detail on the accounting rules, and the management and formatting of data.

Standards Review

The standards included were those of the four M3 Partners (IRMA, RJC, ResponsibleSteel[10] and TSM), plus the Aluminium Stewardship Initiative (ASI), Bettercoal, the Copper Mark, and the International Council on Mining and Metals (ICMM)[11]. Details of the assessed standards are given in Appendix I.

The selected standards were analysed according to their overall structure and approach, objectives and principles, treatment of GHG emissions targets, reference points included in the requirements, the measurement and inclusion of GHG emissions by scope and by accounting rules, data management and formatting rules, and disclosure and reporting requirements. They were then compared to identify points of similarity, difference and the potential for enhanced interoperability.

A key objective of this approach is that it looks at the specifics of how standards up- and downstream of each other inter-relate. This has led to the identification of areas that require further investigation to set appropriate goals for harmonisation and interoperability. One further recommendation, for example, is that increased transparency is needed in some areas of data, such as carbon offsetting or the allocation of emissions to co-products, in order to allow efficient transfer of data between actors in the supply chain, as well as to build confidence in the credibility of claims. Recommendations made throughout the following sections are summarised at the end of the report.

Company Survey

The aim of the Company Survey was to provide insight into the current practices of mining companies as well as to investigate their attitudes and opinions towards GHG emissions voluntary standards requirements, how the accounting landscape is changing, and what challenges are involved in improving the quality of GHG emissions data. This confidential survey complements RESOLVE's review of public disclosure by seeking expert opinions from industry about activities which do not necessarily form part of a public disclosure regime, as well as about those which are part of such a regime. The survey gathered responses across different emission scopes and related

[10] ResponsibleSteel requirements referenced include consideration of draft additional requirements for GHG emissions and Climate Change.

[11] ICMM represents corporate commitments and policy papers rather than a Standard but is included in the following discussion as a Standard for ease of reference.

to different scales and systems of an organisation (corporate, mine site and product level), and comprised a total of 47 questions, focusing on 4 areas:

- general questions pertaining to the respondent and their represented organisation
- data measurement, collection, and accounting rules
- disclosure and reporting
- GHG emissions reductions targets

The full set of survey questions is provided in Appendix III.

The M3 Partners sent emails to their mining company contacts inviting them to participate in the survey. 17 responses were received from experts from 16 different mining organisations. Respondents have been anonymised, and where appropriate, duplicate results have been amalgamated. There are significant limitations as a consequence of this sample size regarding the extent to which results can be generalised for the sector as a whole. Moreover, there is a potential selection bias as companies may be more likely to respond if they are more engaged in GHG issues. However, as member organisations they are of direct relevance to the M3 Partnership and the results give an indication of the direction of leading companies, and of the approaches that are becoming industry practice. A profile of the respondents' mined materials is given in Appendix II.

The Company Survey results broadly reinforced the findings of the Standards Review, such as demonstrating that the allocation of emissions to co-products is a common practice. It also displayed promising attitudes from companies towards developing their GHG emissions practices, for example, working towards the inclusion of scope 3 emissions in measurement, disclosure, and reporting and a willingness to have emissions data held on a public database.

The following sections thematically present the results of these two analyses together, outlining recommendations for the M3 Partnership organisations, and areas where further research is needed for the sector as a whole.

Data Measurement, Collection, and Accounting Rules

Most of the standards and initiatives in the standards review reference existing GHG accounting standards and reporting and disclosure guidance. The GHG Protocol and GRI 305 were most common, but various others also featured frequently. The survey revealed similar practices to be common among mining organisations; three quarters of respondents were collecting emissions data at the mine site level and the remainder had plans to start doing so. The vast majority followed the GHG Protocol for determining emissions, and four used ISO 14000 series standards.

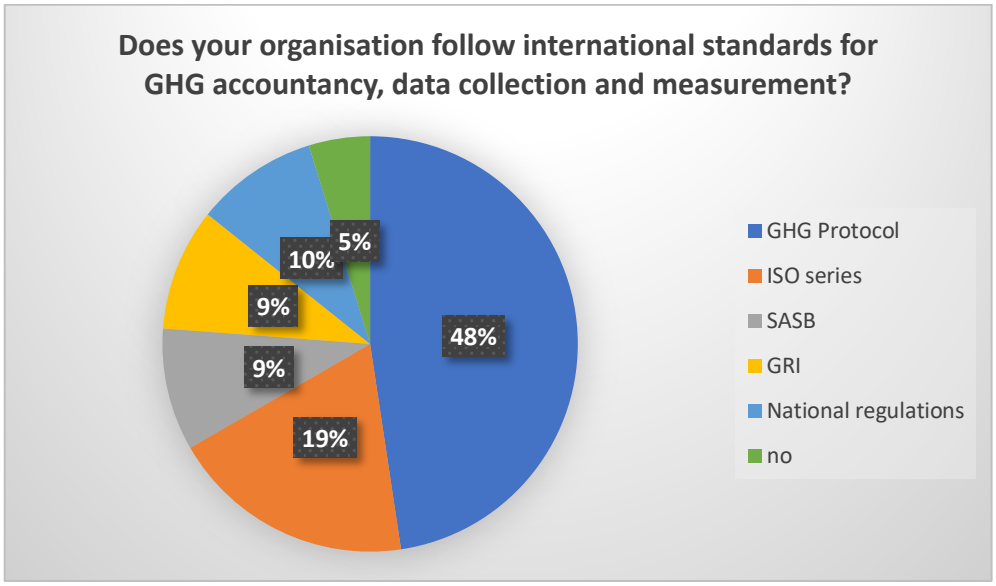

Figure 1: Company Survey, Measurement Standards

It is good news that there is some consensus of approach; however, these protocols still allow for multiple approaches to the data, including formatting, which need to be narrowed on a sectoral basis and harmonised overall. The lack of harmonisation of some of these key variables impacts particularly negatively on the needs of downstream consumers and voluntary standards.

i. Organisational Definitions

Standards use various definitions to establish at what scale an organisation collects and discloses data, in part because of the way they conceptualise how the businesses are structured: ResponsibleSteel focuses on site-level GHG emissions intensity performance and allows GHG data averaging between sites within a strategic business unit; ASI uses 'entities', which covers multiple scales from a business to a group of facilities or a single facility; TSM distinguishes between the corporate level and facilities. This variation highlights how important transparency is in the sharing and communication of methodologies and data, both horizontally across different standards and vertically within the transfer of data along a supply chain given that boundaries might differ and practices such as emissions averaging may have been used.

Transparency is needed in relation to the organisational boundary of the reported data: whether the data is for a specified site, multiple sites within a specified geography or for a company as a whole.

ii. Which GHG emissions scopes are calculated?

In the Standards Review, scope 1 and 2 emissions were generally included in GHG emissions measurement, and scope 3 was occasionally included. Some of the downstream standards require that scope 3 emissions are calculated for input materials and thus from mine sites; this practice will need to be implemented generally to allow enhanced interoperability. ResponsibleSteel's draft requirements stipulate that scope 1, 2 and 3.1 (purchased goods and services), 3.3 (fuel- and energy-related activities not included in scope 1 or scope 2) and 3.7 (employee commuting) emissions be accounted for in relation to the extraction, processing and transportation of input materials. To incentivise provision of data for all three scopes, ResponsibleSteel has built into its requirements a conservative default emissions factor in the absence of primary data (a burden of the doubt approach).

All Company Survey respondents included scope 1 emissions and all but one included scope 2. Around half of respondents collected scope 3 emissions, for both upstream and downstream. There was variation in which segments of scope 3 emissions were included in calculations, shown in the graph below[12]. Overall, upstream emissions were far more commonly included (scopes 3.1-3.8) compared to downstream (scopes 3.9-3.15). Of the respondents that collect scope 3 emissions, six of the upstream scope 3 categories were included by the majority of companies, compared to just one of the downstream categories. Most frequently included were scope 3.4 upstream transportation and distribution, and scope 3.3. fuel and energy related activities not included in scopes 1 and 2. The three subcategories required by the ResponsibleSteel Standard (3.1, 3.3 and 3.7) were commonly found to be calculated.

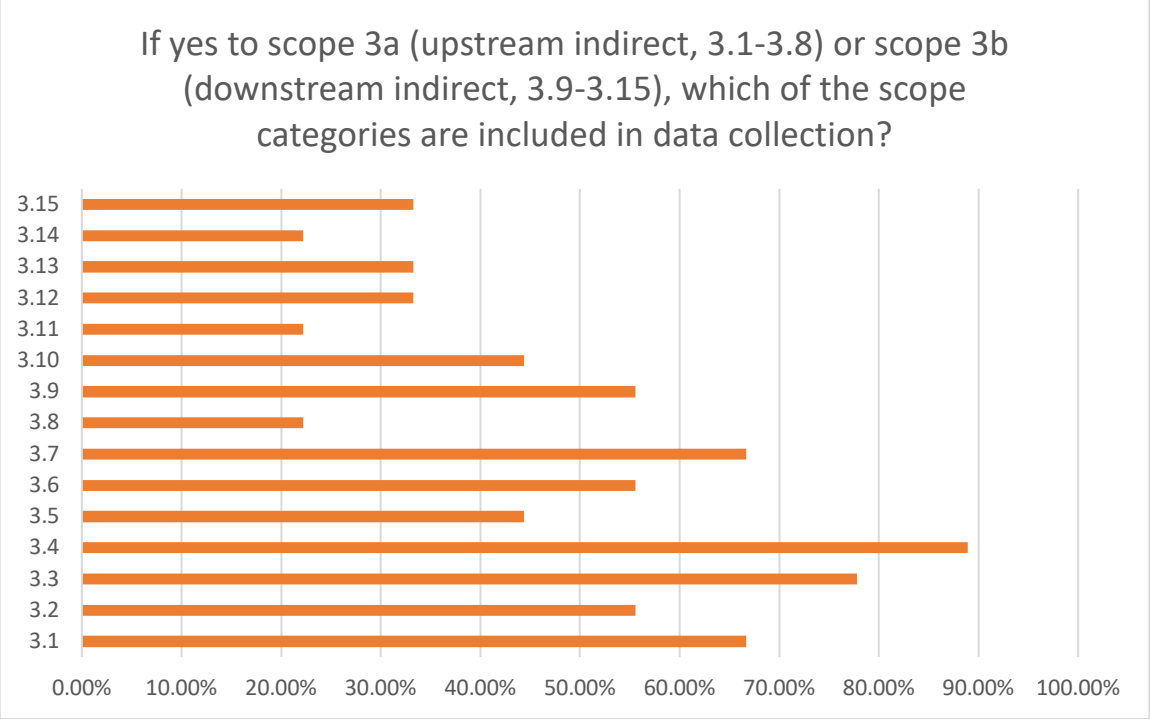

Figure 2: Company Survey, Scope 3 categories for companies measuring up- and downstream emissions

This suggests that voluntary standards should reflect the growing availability and demand for scope 3 emissions, particularly for upstream scope 3 emissions which are significant to transferring data downstream. Requirements for the measurement of scope 3 emissions (in addition to scope 1 and 2) should be considered for inclusion in standards by the M3 Partners. Further work is required on determining which scope 3 emissions are most important to different supply chains, but there is a growing focus on scope 3 emissions which companies are already responding to.

iii. Carbon Offsets

In the Standards Review, the inclusion of carbon offsets varied between standards, and where included, the methodology differed. Two initiatives explicitly recognise the role of offsets and one explicitly exclude them (the ResponsibleSteel Standard). This creates a potential misalignment between standards, which could be mitigated by requiring that the treatment of offsets must be

[12] For a breakdown of the scope 3 subcategories see Greenhouse Gas Protocol (2013) Corporate Value Chain (Scope 3) Accounting & Reporting Standard. https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

explicit, and when included the offsets are quantified and disclosed as a separate element of the GHG emissions data. TSM does so for level A performance, including offsets as a way to meet emissions reductions targets and requiring that a calculation of offsets as a percentage of total emissions generated at the facility and the source and nature of the accreditation of the offsets is included in annual public reporting.

The majority of Company Survey respondents did not use carbon offsetting on or off site, as shown in the figure below. 26.7% of companies used on-site offsets. One example was planting trees onsite, while another was using excess steam from a co-located plant to generate energy for the processing plant. 31.2% used off-site offsets or were looking into the potential to use them. Offsets in use or being scoped included tree planting and reforestation projects which generate carbon credits, as well as purchasing of offsets on public markets. Some companies noted their intention to install renewable energy capacity on or adjacent to operation sites. Of those companies using carbon offsets, three included them in the determination of emissions data. All other companies did not. One of the three used a limited criteria of offsets. All three reported that the use and extent of offsets was made explicit in reporting and disclosure.

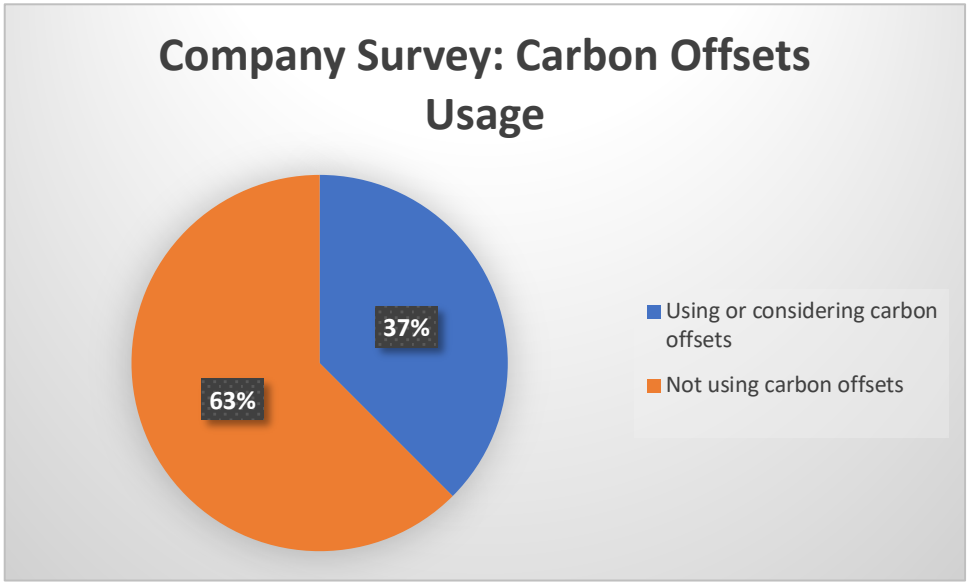

Figure 3: Company Survey, Carbon Offsets Usage

While it is encouraging that those companies which did use carbon offsets made their use explicit, it is also notable that many mining companies already are using or are planning to use offsets. The status of carbon offsets' efficacy is a matter of some debate, and so it is particularly important to make its inclusion transparent and explicit within disclosures in order to facilitate the transfer of emissions data downstream. Downstream standards might exclude carbon offsets from calculations, as in the case of ResponsibleSteel. Additionally, not all the approaches that respondents detailed would always be thought of as 'offsets', emphasizing the need for clear definitions and a shared understanding of terminology, and pointing again to the value of transparency.

iv. Allocation of Site GHG Emissions to Co-Products

The Standards Review revealed that material- and sector-specific requirements are not included for this area. The Company Survey showed that allocation of emissions to co-products was a common practice among half of respondents. Allocation was primarily conducted via physical allocation methods; economic and financial methodologies were not indicated in the responses.

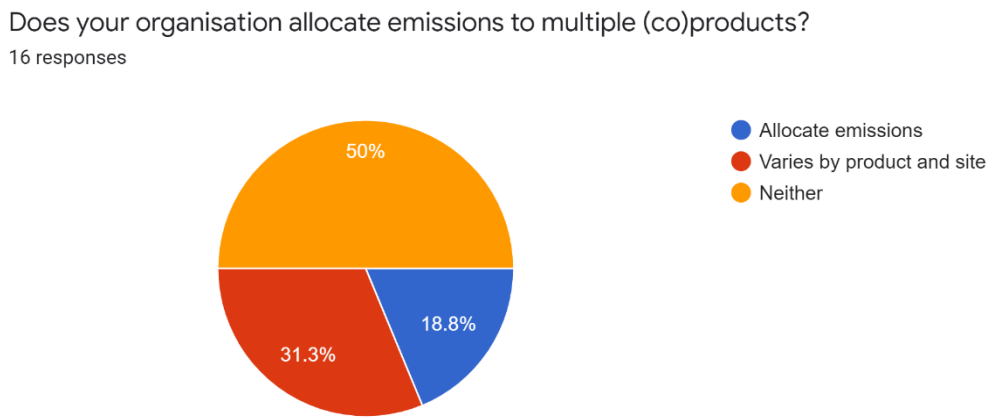

Figure 4:Company Survey, Prevalence of Allocation to Co-Products

Both physical and economic allocation methods are recognised in the GHG Protocol[13] as well as supplier and reporting company allocation approaches, and each may be more or less relevant dependent on specific site configurations or minerals.

For allocation to co-products, implementing consistent allocation from mine sites to products will be crucial to ensuring that downstream standards can have comparability between different materials from different sites. Further levels of complexity may be added to this, including the point in the supply chain that allocation occurs. There is a need for further research into all of these variables to investigate whether allocation methodologies can be harmonised and guidance given for various key scenarios.

v. Carbon Capture, Utilisation and Storage

In the Standards Review, mining standards and initiatives did not commonly address Carbon Capture, Utilisation and Storage (CCU/S) and its treatment in accounting. This is another issue of relevance to downstream standards such as ResponsibleSteel's and is also a potentially controversial area which requires effective accounting approaches. The Company Survey responses indicated fairly early-stage engagement with CCU/S, with 35% of respondents either considering or in the process of assessment to incorporate CCU/S into projects.

[13] Greenhouse Gas Protocol (2013) Corporate Value Chain (Scope 3) Accounting & Reporting Standard. https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

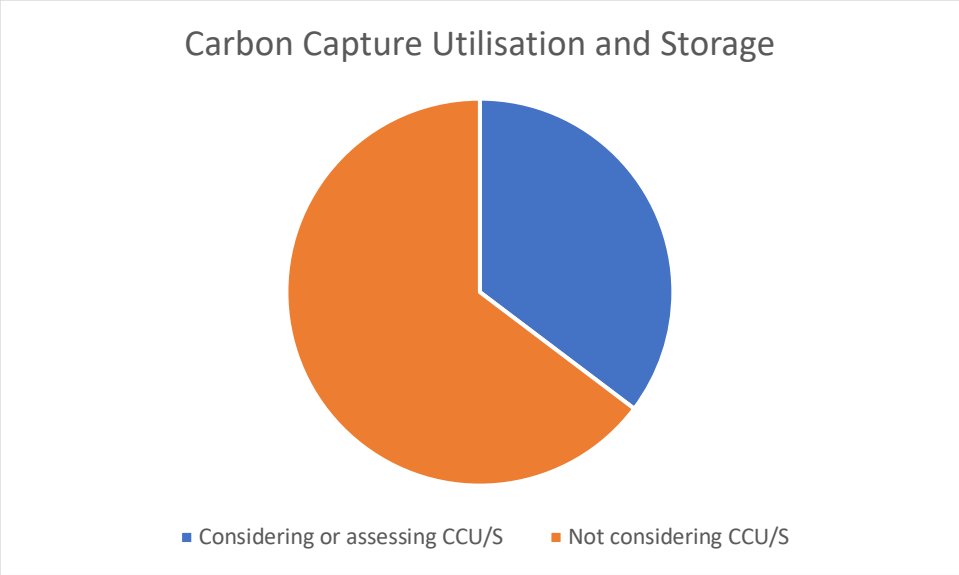

Figure 5 Company Survey, Companies Considering CCU/S

vi. Other Variables

Other variables identified in the Standards Review, which are significant to accounting rules and data harmonisation and largely unaddressed, included: consideration of exports of by-products, and treatment of energy and waste exported from sites.

Data Management, Disclosure and Reporting

Data management, including the units that GHG emissions are reported in and the requirements of reporting and disclosure (both publicly and to customers) were more commonly addressed in standards and initiatives, but this also needs further alignment and harmonisation.

i. Units of GHG Emissions Reporting

In the Standards Review, there was variation as to whether site level data was required to be absolute or in terms of emissions intensity. The predominant unit for reporting GHG emissions was CO_2e, based off GWP100, and this was referenced in five of the assessed approaches. This refers to carbon dioxide equivalent using global warming potential with a 100-year time horizon – some documents refer instead to CO_2eq, both refer to using a measure by which GHGs such as methane are converted to carbon dioxide equivalent levels of global warming potential. Other time horizons such as GWP20 (20-year time horizon) are also in usage. Commonly, values were given per tonne of product, which is a useful format regarding data transfer to customers. Some standards, however, only required absolute values.

To facilitate interoperability with downstream standards, emissions intensity measurement and reporting will be crucial. Company Survey respondents reported product emissions in a number of reporting units. The majority were in tonnes CO_2e / tonne product. Some others were in product equivalents. Some reported either in tonnes CO_2e total or per an internal target measure. Emissions profiles differ according to production route and product. Formatting around the structure of tonnes CO_2e (GWP 100 including all emissions) per tonne of product or a similar equivalent measure, if consistently applied, could help to increase harmony between standards and companies.

Given the pertinence of absolute emissions to regulatory environments, it is reasonable to expect a move towards both the inclusion of intensity and absolute reporting in requirements for any standard.

ii. Disclosure Parameters

In the Standards Review, in relation to disclosure, standards and initiatives requirements varied according to what scale disclosures were made on (corporate or mine sites or product), and whether disclosures were made publicly or to customers, as well as which emissions scopes were included.

Corporate public disclosure was required in six standards. Mine site or facility level disclosure was less common, with consideration in four and strict requirement in two.

In terms of emissions scopes, the Company Survey showed that scope 1 and 2 were overwhelmingly reported publicly at the corporate scale. Around half of respondents reported scope 3, and many noted the difficulty of including scope 3 emissions in reporting. At the corporate level, over 85% of companies reported absolute emissions, and over half reported emissions intensity. An eighth of companies reported neither.

In the Company Survey, most companies reported mine site emissions publicly. Others reported at some sites publicly, and others reported to customers or at some sites to customers. Only one respondent returned that no mine site level emissions are reported publicly or to customers.

At the mine site level, the inclusion of scope 3 emissions decreased. Scope 1 were included on every occasion, and scope 2 for all but one respondent. Only a third of respondents answered that they reported on scope 3 emissions. Absolute and emission intensities disclosure at the mine site level displayed a similar pattern to that at the corporate scale, with 87.5% disclosing absolute, and just under two thirds disclosing intensities.

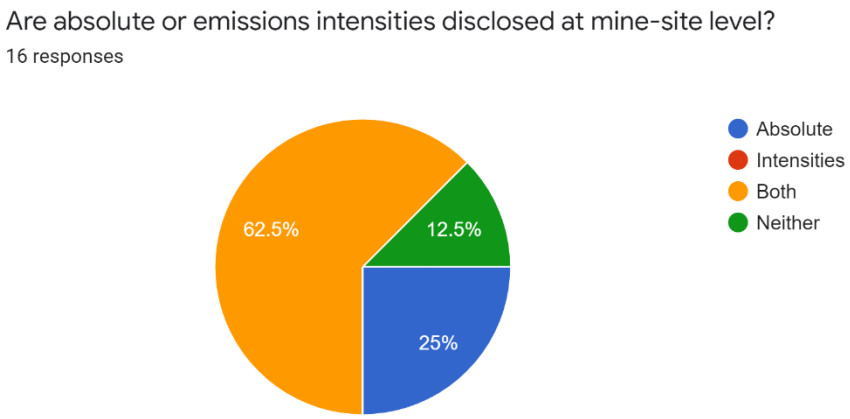

Figure 6 Company Survey, Mine Site Level Disclosures

Product level emissions were also answered as generally being either publicly disclosed or disclosed to customers. Again, there was variation in whether that applied to all products or just to some. Products included a similar scope disclosure profile to mine sites. All included scope 1; all but one included scope 2; and around a third included scope 3a and scope 3b (notably marginally more on scope 3a).

In sum, absolute emissions reporting and corporate level reporting were both common practice; mine site level and emissions intensity reporting were less so, but still widespread. Mine site level and emissions intensity reporting are important to transferring data through the supply chain. This suggests that M3 Partners should seek to include requirements on the disclosure and reporting of both absolute and emissions intensities at corporate and mine site levels for at least scope 1 and 2 emissions. Scope 3 was shown to be more challenging by the survey, and more of a concern for mining companies. Establishing requirements for upstream scope 3 emissions will be significant to increasing supply chain interoperability. Further research and work are required to identify and propose resolutions to the challenges of including scope 3 emissions.

iii. Disclosure of Accounting Methodology and Third-Party Verification

The importance of transparency, around accounting methodologies generally and a number of specific variables, has been noted throughout this analysis. The Company Survey also asked companies whether they disclosed their accounting methodology alongside GHG emissions data; 61.5% of respondents stated that they did, while 38.5% stated that they did not. In the interests of interoperability, and data being useful for other standards and users in the supply chain, it is vital that accounting methodologies are disclosed and a number of key factors are made explicit. A requirement to disclose the accounting methodology used in disclosure and/or reporting could be incorporated into standards.

Another issue of transparency is credibility, and encouragingly, 68% of Company Survey respondent organisations have their emissions externally verified by a third party. However, this requirement is only included in a few of the standards, while RESOLVE recommends third-party verification every three years as a baseline. This Company Survey result suggests that including third-party verification requirements would be viable and is recommended.

iv. Strong Market Demand for GHG Emissions Data

The Company Survey displayed further encouraging results around company attitudes towards GHG emissions disclosure and reporting specifically. The results show that customers are commonly requesting GHG emissions data of mining companies. Nearly half of respondents replied that customers frequently request data, and a further quarter replied that they occasionally ask for it. Only 13% responded that customers do not request GHG emissions data. Evidently, there is strong downstream pressure for GHG emissions data transference.

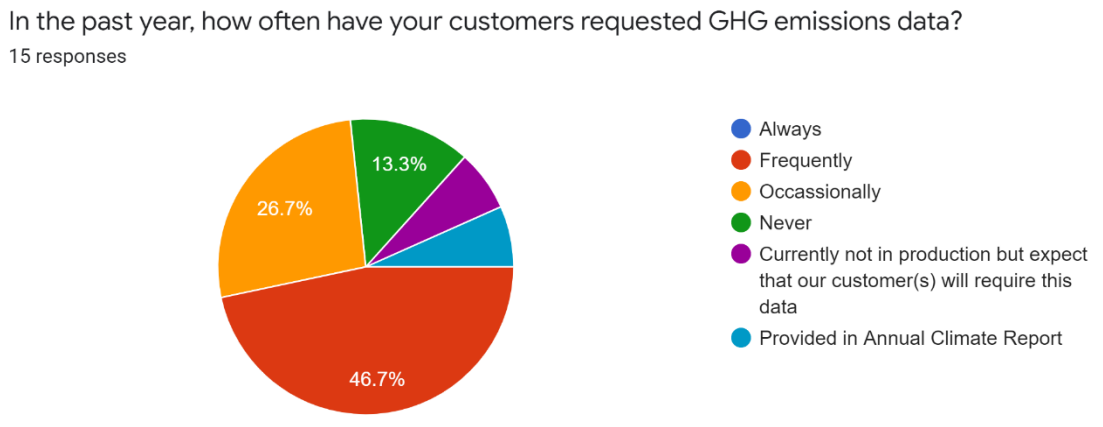

Figure 7 Company Survey, Customer Requests for Data

Mining companies also responded that they would be willing to or are already uploading emissions data and supporting information to a public GHG emissions database. This would make data far more accessible to stakeholders and should be accompanied by transparency on accounting rules.

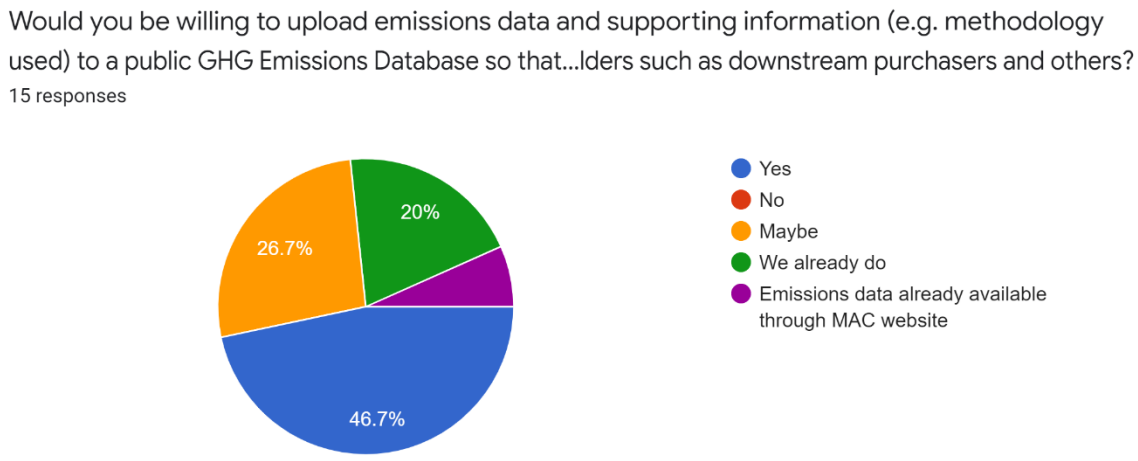

Figure 8 Company Survey, Public GHG Emissions Database

Consistency in the formatting of data and the transparent disclosure of GHG emissions data publicly and to customers are vital to facilitate supply chain integration and greater interoperability, and to build confidence across all stakeholders in the veracity of claims.

GHG Emissions Reductions Targets

i. What scope of emissions are included in targets, and at what organisational scale?

In the Standards Review, the inclusion of GHG emissions reduction targets was common. All but one of the assessed approaches include explicit references to or requirements for target setting, although they varied by whether they included scope 3 emissions. ICMM stated that scope 3 emissions targets should be included "if not by the end of 2023, as soon as possible" and the RESOLVE Widget recommends that there is a target date for developing scope 3 targets at the corporate level. Approaches to targets varied further with regards to organisational scale. Some standards prescribed corporate or mine site or facility level targets or a combination of these.

In the Company Survey, GHG emissions reductions targets were prevalent. 87% of companies responded that they have set or are developing corporate and / or mine site level emissions reduction targets. The most common answer was that both were being developed (37%), followed by mine site level only (31%), corporate only (19%) and neither (13%). Of companies setting targets, the majority were including mine site level targets (68%), ahead of the requirements of current standards and initiatives. It would be useful to conduct further research on this, but this early data suggests there may be the possibility to extend target setting to include mine site and corporate level more widely.

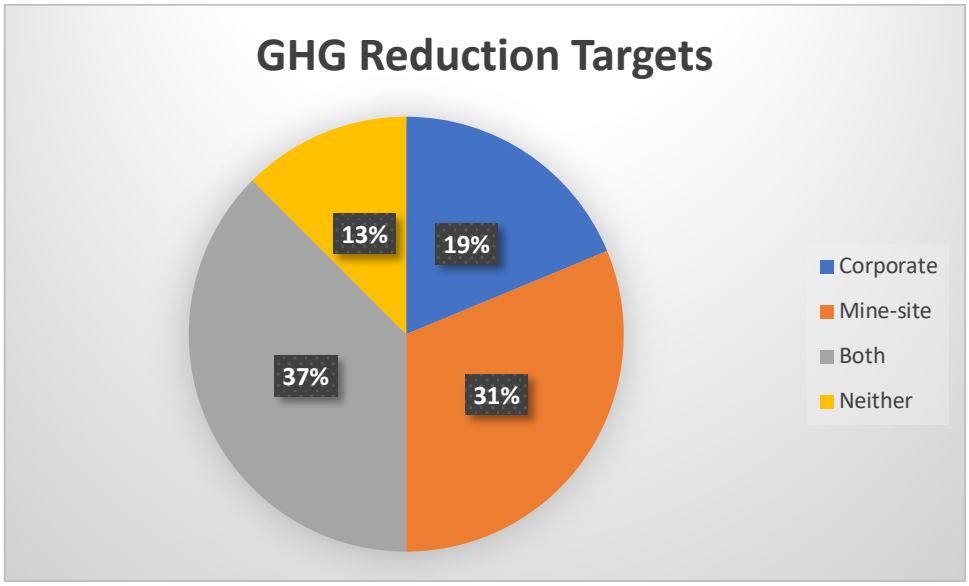

Figure 9 Company Survey, GHG Reduction Targets

The most commonly cited demand factor driving the inclusion of GHG emissions data and targets was shareholders (90%). Regulators and customers followed closely, and a variety of other actors were identified including NGOs.

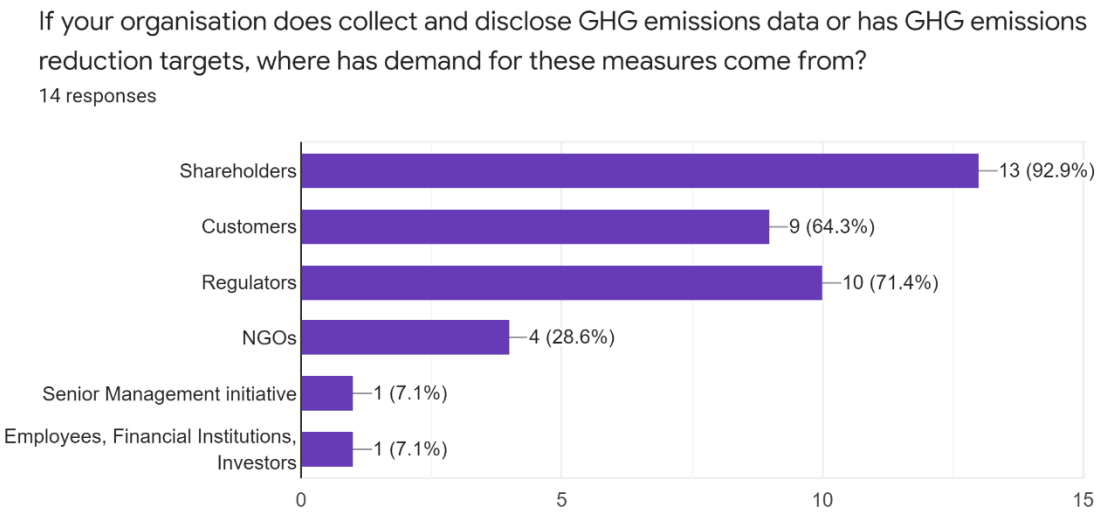

Figure 10 Company Survey, Demand for Disclosure

All those companies with targets had included scope 1, and all but one had included scope 2 emissions, and that company had plans to evaluate scope 2 reduction targets. Scope 3 targets were less common, with a third including upstream emissions targets and a quarter including downstream targets. A further six organisations responded that they had plans to develop scope 3 targets and a number of challenges were raised in this regard. The lack of direct control over scope 3 emissions and the availability of supplier GHG emissions information were highlighted as particular obstacles. One respondent noted that "it takes years to establish a scope 3 database while investigating, assessing, validating, and consolidating the data required." RESOLVE recommended requiring targets

for scope 1 and 2 reductions and development dates for scope 3 targets, which is reaffirmed by these results.

ii. Frameworks, Terminology, and Science-Based Targets

In the Standards Review, five standards made direct reference to the Paris Agreement and Climate Goals, and three to science-based targets and / or SBTi (Science Based Targets Initiatives)

In the Company Survey, recognition of and interest in science-based targets (SBTs) was also widespread. 80% of companies were either already setting SBTs or planning to have them in place by 2027. Various concerns were raised: for example, several respondents responded that not much is known about SBTs, that there is a perception that they are not feasible and that the technology to achieve them is not yet sufficiently developed. A specific concern related to the inclusion of fugitive emissions from coal.

These results show the prevalence of target setting among mining companies and standards as well as interest in SBTs and the Paris Agreement, which should prove fertile ground for extending target setting and harmonising the frameworks and terminology used around them.

Summary of Recommendations and Next Steps

The results of the Standards Review and Company Survey have highlighted several key areas in which further action is needed to improve the harmonization of GHG emissions data and voluntary standards' requirements.

Data Measurement, Collection, and Accounting Rules

Voluntary standards should aim to reflect the growing demand for scope 3 emissions data, particularly regarding upstream emissions which are most relevant to the transfer of GHG data downstream. The M3 Partners should consider whether requirements for the measurement of scope 3 emissions (in addition to scope 1 and 2) should be incorporated into their standards. Further research is required on determining which scope 3 emissions are most important to different supply chains. Furthermore, standards can consider moving towards specifying scope boundaries with scope boundary diagrams, rather than using upstream and downstream scope 3 classifications.

There is potential misalignment between standards due to the variety of approaches taken around carbon offsetting. This could be mitigated by making explicit the inclusion and quantification of offsets as a separate data point within the disclosure of GHG emissions data. The M3 Partners should consider whether to make it a requirement of their standards to disclose the inclusion and quantification of carbon offsets within their GHG data disclosure and reporting.

Another area where further research is required relates to the allocation of GHG emissions to co-products. The methods for doing this vary but it is a crucial practice in relation to the consistent and comparable transfer of GHG emissions information through the supply chain. Research is needed on whether allocation methodologies can be harmonized, and guidance given for various key scenarios. This could be addressed through joint multi-stakeholder working groups, with representation from across the mining, minerals and metals sector.

Data Management, Disclosure and Reporting

The formatting, disclosure, and reporting of emissions data is central to the transfer of emissions data between points in the supply chain. Though emissions profiles differ according to production route and product, formatting GHG emissions data around the structure of tonnes CO_2e (with GWP

100 including all material GHGs) per tonne of product or a similar equivalent measure, if consistently applied, could help to increase harmony between standards and companies. Given the pertinence of absolute emissions to regulatory environments, it is reasonable to expect a move towards both the inclusion of intensity and absolute disclosure and reporting in requirements for any Standard. The M3 Partners should consider setting requirements on specific common units of disclosure, such as tonnes CO_2e (GWP 100), for absolute emissions and tonnes CO_2e (GWP 100) per tonne of product for intensity. The M3 Partners should also consider whether to integrate a requirement to include both absolute and intensity figures in disclosure and reporting within their standards.

Additionally, the Standards Review and Company Survey suggested that corporate level reporting was common practice and that mine site level reporting was widespread but less common. With both important to transferring data through the supply chain, the M3 Partners should seek to include requirements on the disclosure and reporting of both corporate and mine site levels for at least scope 1 and 2 emissions. Challenges and concerns were raised about the inclusion of scope 3 emissions, and further research is required to identify and propose resolutions to these challenges.

The Company Survey results also suggest that including requirements for third-party verification would be viable, which can be considered for integration into standards by the M3 Partners.

More broadly, there is a need for further research into technologies and methods for handling GHG disclosures in supply chains and the specific applications to mining, minerals and metals supply chains. In the meantime, one method to increase interoperability and transparency would be for accounting methodologies as well as the key factors mentioned above (such as carbon offsetting, the allocation of emissions to co-products, the consideration of exports of by-products, the treatment of energy and waste exported from sites, and CCU/S) to be made explicit. The M3 Partners should consider including requirements specifying that accounting methodologies and the approach to key factors are included in GHG emissions data disclosures.

GHG Emissions Reductions Targets

This project suggests there may be the possibility to extend target setting to include mine-site and corporate level more widely. RESOLVE recommended requiring targets for scope 1 and 2 reductions and development dates for scope 3 targets, a recommendation which is supported by these results. The results evidence the prevalence of target setting among mining companies and in standards, as well as interest in SBTs and the Paris Agreement as frameworks for setting targets. This should prove fertile ground for extending target setting and harmonizing the terminology used around them. The M3 Partners should consider extending requirements on target setting specifically around scope 3, and at both the mine site and corporate levels, as well as to review frameworks and terminology around climate change approaches.

Summary – Recommendations and Next Steps

- M3 Partners
  - To consider including in standards requirements for the measurement of scope 3 emissions data.
  - To consider requiring disclosure of GHG emissions data accounting methodologies including for specific key factors such as carbon offsets inclusion and quantification, approaches to the allocation of emissions to co-products, and the inclusion and extent of CCU/S use.
    - To consider setting requirements on specific common units of disclosure.
  - Seek to include requirements on the disclosure and reporting of both absolute and emissions intensities at corporate and mine site levels for at least scope 1 and 2 emissions.
  - To consider requiring third-party verification of GHG emissions data.
  - To consider extending requirements on scope 3 emissions target setting at both the mine site and corporate levels and to harmonise frameworks and terminology around Climate Change approaches.
- Further Research
  - Further work is required on determining which scope 3 emissions are most important to different supply chains and to identify and propose resolutions to the challenges of including scope 3 emissions in disclosure and reporting.
  - The allocation of emissions to co-products is a complex area where further research could benefit the harmonization of practices towards interoperability.

Looking Ahead

This report presented findings from two pieces of research and provided recommendations for further consideration for the organisations of the M3 Partnership. A number of areas relating to GHG aspects of standards and to mining, minerals and metals supply chains where further research could help facilitate improved interoperability are identified. Research is already underway on a number of these issues. COMET is a research partnership between the Rocky Mountain Institute (RMI), the Payne Institute at the Colorado School of Mines and Columbia Centre on Sustainable Investment (CCSI) that investigates the required industrial carbon accounting methods to support differentiated markets[14]. Horizon Zero[15], which is a project in RMI's Climate Intelligence Program, aims to improve GHG data accuracy, transparency and accountability using blockchain technology. Standard setters commonly review and update their requirements based on evolving good practices. Emerging technologies, such as blockchain and other distributed ledger technologies, could prove transformative for the transfer of information along supply chains[16], but can only be as effective as the quality and consistency of the data being used as inputs and outputs.

[14] COMET Framework 2021, see https://www.cometframework.org/

[15] See https://rmi.org/our-work/climate-intelligence/horizon-zero/

[16] Charles Cannon, Suzanne Greene, Thomas Koch Blank, Jordy Lee, and Paolo Natali (2020). The Next Frontier of Carbon Accounting: A Unified Approach for Unlocking Systemic Change. Rocky Mountain Institute. https://rmi.org/insight/the-next-frontier-ofcarbon-accounting/ ; Tang, Q. & Tang, L. M. (2020) Developing

Collaborative action by multistakeholder standards setters and VSIs can help to elucidate priorities for enabling the flow of GHG emissions data through supply chains and bring to the forefront the needs of different stakeholder groups. VSIs can play a vital role in building consensus and progressing ambition, alignments, harmonisation and the interoperability of GHG emissions data, while also providing robust and credible assurance systems, ensuring that data is appropriate, accurate, transparent and comparable.

Blockchain-Based Carbon Accounting and Decentralized Climate Change Management System. *Information for Efficient Decision Making,* pp.431-450

References:

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RESOLVE (2021) Climate Smart Mine Emissions Widget Report. https://www.resolve.ngo/docs/csm_widget_report_-_final.pdf

Tang, Q. & Tang, L. M. (2020) Developing Blockchain-Based Carbon Accounting and Decentralized Climate Change Management System. Information for Efficient Decision Making, pp.431-450

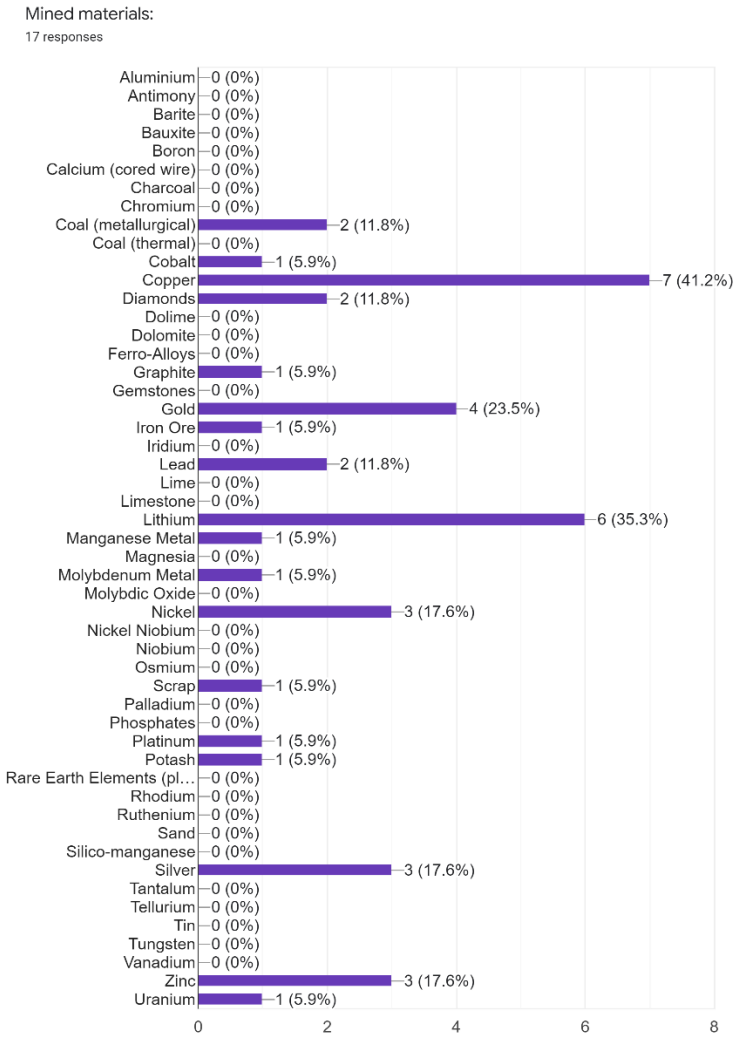
WRI & WBCSD (2004) The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Revised Edition.

List of Figures:

Appendix I – Reviewed Standards

Organisation	Reviewed Materials
Initiative for Responsible Mining Assurance (IRMA)	The Standard for Responsible Mining V1.0 Guidance Document for the Standard for Responsible Mining Draft Chain of Custody Standard
Towards Sustainable Mining (TSM)	Towards Sustainable Mining Climate Change Protocol
Responsible Jewellery Council (RJC)	Chain of Custody Standard and Guidance 2017 Code of Practices and Guidance 2019
ResponsibleSteel	ResponsibleSteel Standard V1.1 ResponsibleSteel Climate Change and Greenhouse Gas Emissions Draft V2.2 (2022)
Aluminium Stewardship Initiative (ASI)	ASI Performance Standard V2.0 and 3.0 ASI Chain of Custody Standard V2.0
International Council on Mining and Metals (ICMM)	Principles and Climate Change: Position Statement (2021)
The Copper Mark	The Copper Mark Criteria, The Copper Mark Criteria Guide
Bettercoal	Bettercoal Code 2.0 and Guidance

Appendix II – Mined Materials of GHG Survey Respondents:



Appendix III – Survey Questions

GHG Emissions Reporting Survey: M3 Standards Partnership

This survey aims to gather information on how mining companies are setting GHG emissions targets and collecting and disclosing GHG emissions data, focusing on the mine-site and product levels. It has the dual purposes of informing increased interoperability between the organisations that form the M3 Standards Partnership Programme and identifying areas of potential alignment on data formatting in the mining sector. Find out more about the M3 Project here: https://www.m3standardspartnership.org/. The results of this survey will be anonymised and confidential. Data or statistics from the survey may be cited in aggregate, and a summary of the results will be shared with respondents. The deadline for responses is the 27th of May 2022.

1. Organisation:

_____

2. Name:

_____

3. Email Address:

_____

4. Mined materials:

Check all that apply.

- [ ] Aluminium
- [ ] Antimony
- [ ] Barite
- [ ] Bauxite
- [ ] Boron
- [ ] Calcium (cored wire)
- [ ] Charcoal
- [ ] Chromium
- [ ] Coal (metallurgical)
- [ ] Coal (thermal)
- [ ] Cobalt
- [ ] Copper
- [ ] Diamonds
- [ ] Dolime
- [ ] Dolomite
- [ ] Ferro-Alloys
- [ ] Graphite
- [ ] Gemstones
- [ ] Gold
- [ ] Iron Ore
- [ ] Iridium
- [ ] Lead
- [ ] Lime
- [ ] Limestone
- [ ] Lithium
- [ ] Manganese Metal
- [ ] Magnesia
- [ ] Molybdenum Metal
- [ ] Molybdic Oxide
- [ ] Nickel
- [ ] Nickel Niobium
- [ ] Niobium
- [ ] Osmium
- [ ] Scrap
- [ ] Palladium
- [ ] Phosphates

- [ ] Platinum
- [ ] Potash
- [ ] Rare Earth Elements (please check and list in other)
- [ ] Rhodium
- [ ] Ruthenium
- [ ] Sand
- [ ] Silico-manganese
- [ ] Silver
- [ ] Tantalum
- [ ] Tellurium
- [ ] Tin
- [ ] Tungsten
- [ ] Vanadium
- [ ] Zinc
- [ ] Other: _____

Data Measurement and Collection

NB: The following sections distinguish between corporate, mine-site and product level emissions reporting. In this distinction, corporate level refers to the overall company level emissions, facility level refers to an individual or collection of facilities or operations relating to mining within a given country, and product level refers to a product system that would be marketed or sold to customers from a given facility or collection of facilities.

5. Does your organisation measure GHG emissions data at the mine site level?

Mark only one oval.

- ◯ Yes, always
- ◯ Yes, at some sites,
- ◯ No, but planning to start doing so
- ◯ No
- ◯ Other: _____

6. Does your organisation follow international standards for GHG accountancy, data collection and measurement?

Check all that apply.

- [ ] GHG Protocol
- [ ] ISO series
- [ ] EN series
- [ ] No
- [ ] Prefer not to say
- [ ] Other: _____

7. If following ISO or EN series standards, please specify which standards are used:

_____

8. Which of the following categories are included in GHG emissions data collection?

NB: The classification of Scope derives from the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), 'GHG Protocol Corporate Accounting and Reporting Standard', Revised Edition, 2004. Scope 1: A reporting organization's direct GHG emissions. Scope 2: A reporting organization's emissions associated with the generation of electricity, heating/ cooling, orsteam purchased for own consumption. Scope 3: A reporting organization's indirect emissions other than those covered in scope 2(3a: upstream; 3b: downstream).

Check all that apply.

- [ ] Scope 1 (direct)
- [ ] Scope 2 (energy indirect)
- [ ] Scope 3a (upstream indirect)
- [ ] Scope 3b (downstream indirect)

9. If yes to scope 3a (upstream indirect, 3.1-3.8) or scope 3b (downstream indirect, 3.9-3.15), which of the scope categories are included in data collection?

Check all that apply.

- [ ] Scope 3.1 Purchased goods and services
- [ ] Scope 3.2 Capital goods
- [ ] Scope 3.3 Fuel- and energy- related activities (not included in scope 1 or scope 2)
- [ ] Scope 3.4 Upstream transportation and distribution
- [ ] Scope 3.5 Waste generated in operations
- [ ] Scope 3.6 Business travel
- [ ] Scope 3.7 Employee commuting
- [ ] Scope 3.8 Upstream leased assets
- [ ] Scope 3.9 Downstream transportation and distribution
- [ ] Scope 3.10 Processing of sold products
- [ ] Scope 3.11 Use of sold products
- [ ] Scope 3.12 End-of-life treatment of sold products
- [ ] Scope 3.13 Downstream leased assets
- [ ] Scope 3.14 Franchises
- [ ] Scope 3.15 Investments

10. How is the materiality of emissions decided?

Check all that apply.

- [ ] Following guidance of international standard
- [ ] threshold % of total emissions (e.g. 5% scope 1 and 2, 10% scope 3)
- [ ] Financial risk-based approach
- [ ] Other: _____

11. Does your organisation implement any activities considered to be carbon offsets on-site?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other: _____

12. Does your organisation offset any emissions through off-site carbon offset projects or programmes?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other: _____

13. If so to either of the two previous questions, please give a brief description of the types of projects or programmes:

_____

_____

_____

_____

_____

14. Are carbon offsets included in the determination of emissions data?

Mark only one oval.

- ◯ Yes, all carbon offsets
- ◯ Yes, a limited criteria of offsets
- ◯ No
- ◯ Other: _____

15. If so, is the use and extent of offsets made explicit in reporting and disclosure?

_____

16. Is your organisation developing or considering CCU/S (carbon capture, utilisation, and storage) projects or programmes?

Mark only one oval.

- ◯ Already operating CCU/S
- ◯ Plans to develop CCU/S in next 5 years
- ◯ Considering CCU/S
- ◯ Not considering
- ◯ Other: _____

17. If so, please give a brief description of the types of CCU/S projects your organisation is involved with:

_____

_____

_____

_____

_____

18. Is CCUS (carbon capture, utilisation, and storage) included in the determination of emissions data?

Mark only one oval.

- ◯ Yes
- ◯ No

19. If so, is the use of CCUS made explicit in reporting and disclosure?

Mark only one oval.

- ◯ Yes
- ◯ No

20. Does your organisation allocate emissions to multiple (co)products?

Mark only one oval.

- ◯ Allocate emissions
- ◯ Varies by product and site
- ◯ Neither
- ◯ Other: _____

21. If allocated, which category of allocation method is used?

Mark only one oval.

- ◯ Physical (mass, volume, etc.)
- ◯ Economic/financial
- ◯ Other: _____

22. What unit are product emissions reported in? (e.g. tonnes CO2e / tonne product)

_____

23. Are absolute and/or emissions intensities reported at site-level and product level?

Mark only one oval.

- ◯ Absolute
- ◯ Intensity
- ◯ Both
- ◯ Neither
- ◯ Other: _____

24. Any other comments on data measurement and collection:

_____

_____

_____

_____

_____

Disclosure and Reporting

25. Does your organisation follow international standards for disclosing and reporting GHG emissions or other activities?

Check all that apply.

- [ ] GHG Protocol
- [ ] GRI 305
- [ ] ISO Series
- [ ] EN Series
- [ ] TCFD
- [ ] CDP Member
- [ ] None
- [ ] Other: _____

26. Are disclosures independently verified by a third party?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Sometimes
- ◯ Other: _____

27. At the corporate level, which emission scopes are publicly reported?

Check all that apply.

- [ ] Scope 1 (direct)
- [ ] Scope 2 (energy indirect)
- [ ] Scope 3a (upstream indirect)
- [ ] Scope 3b (downstream indirect)

28. Are absolute or emissions intensity disclosed at corporate level?

Mark only one oval.

- ◯ Absolute
- ◯ Intensity
- ◯ Both
- ◯ Neither

29. Are mine-site level emissions reported publicly or to customers?

Check all that apply.

- ☐ Yes, publicly
- ☐ Yes, to customers
- ☐ At some sites, publicly
- ☐ At some sites, to customers
- ☐ No
- ☐ Other: _____

30. If so, what scopes are reported?

Check all that apply.

- ☐ Scope 1 (direct)
- ☐ Scope 2 (energy indirect)
- ☐ Scope 3a (upstream indirect)
- ☐ Scope 3b (downstream indirect)

31. Are absolute or emissions intensities disclosed at mine-site level?

Mark only one oval.

- ◯ Absolute
- ◯ Intensities
- ◯ Both
- ◯ Neither

32. Are product level emissions reported publicly or to customers?

Check all that apply.

- ☐ Yes, publicly
- ☐ Yes, to customers
- ☐ For some products, publicly
- ☐ For some products, to customers

33. If so, what scopes are included for products?

Check all that apply.

- ☐ Scope 1 (direct)
- ☐ Scope 2 (energy indirect)
- ☐ Scope 3a (upstream indirect)
- ☐ Scope 3b (downstream indirect)

34. If so, is the accounting methodology disclosed alongside the data?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other: _____

35. In what unit are product level emissions disclosed? (e.g. tonnes CO2e / tonne product)

_____

36. In the past year, how often have your customers requested GHG emissions data?

Mark only one oval.

- ◯ Always
- ◯ Frequently
- ◯ Occassionally
- ◯ Never
- ◯ Other: _____

37. Would you be willing to upload emissions data and supporting information (e.g. methodology used) to a public GHG Emissions Database so that data would be more easily accessible to stakeholders such as downstream purchasers and others?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Maybe
- ◯ We already do
- ◯ Other: _____

38. If no, why not? If maybe, on what would your participation in a public registry depend? If you already do, please provide a link to the registry:

39. Any other comments on reporting and disclosure:

GHG Emissions Reduction Targets

40. Has your organisation set (or is it developing) corporate and/or mine-site level GHG reduction targets?

Mark only one oval.

- ◯ Corporate
- ◯ Mine-site
- ◯ Both
- ◯ Neither
- ◯ Other: _____

41. Which emission scopes are included in your GHG reduction targets?

Check all that apply.

- [ ] Scope 1 (direct)
- [ ] Scope 2 (indirect energy)
- [ ] Scope 3a (upstream indirect other)
- [ ] Scope 3b (downstream indirect other)

42. If particular scopes are not included, does your organisation plan to develop targets for them?

_____

43. If scopes are not included, what are the challenges or reasons for not including them?

_____

_____

_____

_____

_____

44. Is your organisation considering setting 'science-based' emissions reductions target in line with recognised standards (e.g. SBTi)?

Mark only one oval.

- ◯ Already sets science based targets
- ◯ Plans to develop science based targets in next 5 years
- ◯ No plans
- ◯ Other: _____

45. What barriers and challenges are there for making science-based target commitments for your organisation?

46. If your organisation does collect and disclose GHG emissions data or has GHG emissions reduction targets, where has demand for these measures come from?

Check all that apply.

- [ ] Shareholders
- [ ] Customers
- [ ] Regulators
- [ ] NGOs
- [ ] Other: _____

47. Any other comments on GHG emissions reduction targets:

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