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Certification and sustainability assessment for battery materials: review of requirements and data commonalities

Prepared for FBICRC project participants

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About Future Battery Industries CRC
The Future Battery Industries Cooperative Research Centre is enabling the growth of battery industries to power Australia's future. We bring together industry, researchers, governments and the community to ensure Australia plays a leading role in the global battery revolution. www.fbicrc.com.au

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EXECUTIVE SUMMARY

Adoption of sustainability assessment and reporting standards, including certification, provides opportunities for battery material producers and supply chains to demonstrate and incentivise positive sustainable development outcomes. However, there has been a proliferation of voluntary assessment and reporting schemes that individual companies could choose to adopt. Each of these schemes have particular audiences that they serve and so differ in the topic areas of focus and data categories that they consider. In some cases, there are common topic areas or data categories between different reporting schemes, though in many cases the detailed requirements for measuring progress within these categories are rarely the same.

An important industry need is therefore to understand where commonalities between schemes do lie and how reporting requirements can be streamlined between current reporting practices and future certifications or standards. A streamlined approach can provide avenues for certification pathways for the industry by identifying where duplication of effort can be avoided, maximising the value gained from time-intensive data collection processes.

This research was funded by the Future Battery Industries Cooperative Research Centre as part of a broader four-year research project titled 'Demonstrating market advantage through certification and life cycle analysis for Australian battery materials.' The project is a collaborative initiative featuring key research, industry, and government partners within the Australian battery materials, certification, and Life Cycle Assessment space.

The report provides a thorough assessment of the common data requirements for some of the voluntary and mandatory reporting schemes that are relevant to Australian battery mineral producers. Included in the comparison analysis are two sustainability certification schemes (the Initiative for Responsible Mining Assurance, Certification of Raw Minerals), six sustainability reporting and assurance standards (Towards Sustainable Mining, Global Reporting Initiative, Carbon Disclosure Project, Dow Jones Sustainability Index, Responsible Mining Index, OECD Due Diligence Guidance for Stakeholder Engagement in the Extractives Sector) and three regulatory instruments/schemes (the National Pollutant Inventory, the National Greenhouse Gas and Energy Reporting Scheme and Environmental Compliance Reporting) of relevance. These reporting schemes were identified from prior research, further web-based research, and stakeholder engagement. Detailed information on the reporting requirements for each of these schemes was collected and aggregated into environmental, social and governance categories/topics. The number of specific reporting requirements or indicators for each category was determined to inform an analysis of potential data commonalities across schemes and to highlight categories/schemes with high assessment/reporting requirements. The summary results of this assessment are shown in Table 1.

THE KEY FINDINGS FROM THIS ANALYSIS WERE:

- The Global Reporting Initiative (GRI), the Initiative for Responsible Mining Assurance (IRMA), and the Responsible Mining Index (RMI) feature comprehensive coverage of reporting requirements across environmental, social and governance reporting categories and featured the highest number of identified reporting categories of all disclosure instruments of focus, GRI with 131 total reporting categories, IRMA with 129, and RMI with 89. In some cases, commonalities on reporting requirements are identified between these schemes, however the requirements for measuring progress within each data category can differ. Refer to the findings and discussion section and the appendices for more detail on the differences identified.
- Commonalities between environmental compliance reporting and certification schemes or standards are found in some environmental reporting categories (namely GHG emissions reporting, water monitoring and reporting, and waste monitoring and reporting) creating opportunities for streamlining these areas between reporting mechanisms.
- Certification schemes and standards featured more requirements under social categories than for mandatory regulatory reporting. Therefore, a company/site may be acting in accordance with local regulations but having insufficient data or processes in place to meet all requirements of the various voluntary sustainability certification, reporting or assurance schemes.
- Companies should seek to assess their internal data and processes against the requirements of the various schemes to understand barriers to adoption. An improved understanding of data commonalities between schemes can help streamline this process.

TABLE 1: HEATMAP OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE CATEGORIES AND NUMBER OF INDICATORS CONSIDERED BY EACH SUSTAINABILITY CERTIFICATION, REPORTING AND ASSURANCE STANDARD OR REGULATORY SCHEME.

Scheme acronyms:
IRMA – The Initiative for Responsible Mining and Assurance. CERA – Certification of Raw Minerals. TSM – Towards Sustainable Mining. GRI – Global Reporting Initiative. CDP – Carbon Disclosure Project (incl. CDP Water). DJSI – Dow Jones Sustainability Index. RMI – Responsible Mining Index. NPI – National Pollutant Inventory. NGER – National Greenhouse and Energy Reporting scheme. ECR – Environmental Compliance Reporting (incl. environmental impact assessment and reporting to some state and national environmental protection acts; not exhaustive).

Legend
Highest
High
Medium
Low
Lowest

	CERTIFICATIONS		REPORTING AND ASSURANCE STANDARDS						REGULATORY		
Environmental Category	**IRMA**	**CERA**	**TSM**	**GRI**	**CDP**	**DJSI**	**OECD**	**RMI**	**NPI**	**NGER**	**ECR**
AIR QUALITY	17	4		7				3	4		5
CLIMATE CHANGE			2	2	8	8		2			
GREENHOUSE GAS EMISSIONS MANAGEMENT	2	1	2	2	6			1			
GREENHOUSE GAS EMISSIONS REPORTING	2	2	2	3	3	3		3		2	
OZONE-DEPLETING SUBSTANCES & POLLUTANTS				6					3		
BIODIVERSITY, ECOSYSTEMS, PROTECTED AREAS	5	1	4	3	10			4			6
ENERGY				17	10	7		1	1	8	
HABITATS AND MINE CLOSURE				4	1			3			
TAILINGS MANAGEMENT	3		4		3			4	2		
ENVIRONMENTAL MANAGEMENT		3						2			
CONSUMPTION AND EFFICIENCY		2		5				1			
NOISE AND VIBRATION	2	1						2			
SUPPLY CHAINS	1			4	1						
WASTE	12	4		10				1	1		
WATER	17	2	4	24	15	7		8	3		
Social category											
CULTURAL HERITAGES	4	1									1
EMPLOYEE PROTECTION, FAIR LABOUR AND TERMS OF WORK	12	6	2	14		15		12			
STAKEHOLDER ENGAGEMENT	13	3	5	3	2		24	9			1
COMMUNITY HEALTH, SAFETY AND WELLBEING	5	4		2				1			
OCCUPATIONAL HEALTH AND SAFETY	8	3	4	9				6			
HUMAN AND COMMUNITY RIGHTS	6	8		2		4		6			
RISK MANAGEMENT	3		4			2					
SUPPLY CHAIN DUE DILIGENCE	1			2		2		1			
Governance Category											
CUSTOMERS				1		1					
BUSINESS INTEGRITY	1	3		3	2	2		5			
COMPLIANCE	3	1		4							
RESETTLEMENT	5							3			
TRANSPARENCY	5			1	2	15		8			
CORRUPTION & COMPETITION	1	2		4		4		1			
RISK MANAGEMENT	1					4		2			

Approach to comparison

Reporting categories were classified into three spheres of sustainability reporting - environmental, social, and governance - and a heatmap is provided of reporting requirements under each reporting category for those schemes evaluated.

Reporting requirements have been colour coded for ease of reference, where dark green indicates a higher number of reporting requirements and light green indicates a lower number of reporting requirements. Gaps indicate an absence of reporting requirements under a data category. However, where schemes may not feature reporting requirements under one reporting category, these may be represented under another reporting category. For example, IRMA, CERA and TSM do not feature specific reporting requirements under energy. However, they do cover energy reporting to some extent under Scope 1, and 2 GHG emissions reporting.

INTRODUCTION

Landscape of sustainability certification, assurance and reporting for the mining industry

A proliferation of Environmental, Social and Governance (ESG) schemes has emerged for assessing, measuring, and communicating the sustainable development outcomes associated with battery material production systems and supply chains. Also referred to in the corporate world as non-financial disclosure, this market has been largely driven by the shifting perceptions of two groups of stakeholders - consumers and downstream purchasers. A significant shift in the availability of information for end consumers on the environmental and social issues related to mining practices has contributed to the pressures felt by mining companies to reduce environmental burdens, improve ethics in business practices, and gain social licence from affected stakeholders. Additionally, downstream supply chain purchasers, in particular electric vehicle manufacturers, have increased their awareness of the risks these issues might impose on the security of materials supply. End market requirements for ESG disclosures and certifications are rapidly changing. Examples of these include the London Metal Exchange's (LME) responsible sourcing requirements, the Johannesburg Stock Exchange's adoption of Integrated Reporting, as well as advancement by markets towards the development of schemes such as battery passports and material stewardship.

Regulatory instruments, such as laws and planning regulations that offer environmental and social protections, can be sound mechanisms for the purpose of monitoring and assessing the environmental and social impacts of business, however they can differ in rigour between nations and even sub-nationally, and can in some cases impact on the ability to provide positive sustainable development outcomes for the environment, workers, and affected communities. In response, an increasing number of voluntary disclosure schemes that facilitate the communication of sustainable development outcomes have emerged, several of them focused on mining minerals applicable for battery end markets. However, the challenge for mining companies focused on battery material production lies in deciding which scheme is appropriate for their operations; identifying whether their current practices and available data will meet the requirements; and understanding whether an adopted scheme will be applicable for the requirements of preferred end markets. A report for the FBICRC on drivers for adoption of certification schemes identified 16 schemes or standards with potential relevance for the battery minerals mining sector and lithium supply chains (Rutovitz et al., 2020).

There is a large body of prior research on corporate sustainability reporting and sustainability disclosures in the mining industry. This includes work to understand the drivers for reporting and the influence of stakeholder needs (Deegan and Blomquist, 2006), as well as the effectiveness of sustainability disclosure schemes in fostering legitimacy and driving change (Leong et al., 2014; Pellegrino and Lohdia, 2012; Böhling et al., 2019; Fonseca et al., 2013; 2014). Considerable efforts have also been undertaken to understand the degree of mining company compliance with reporting standards and the evolution of disclosed content over time (Demirkan et al., 2021; Jenkins and Yakovleva, 2006; Perez and Sanchez, 2009), as well as how these disclosures can be used to benchmark industry performance (Mudd, 2010; Northey et al., 2013; 2019). However, missing from the existing literature is a clear description of how different sustainability certification and reporting schemes should co-exist and be adopted by industry to serve different business purposes, drive positive change and to meet the needs of different stakeholder groups.

Purpose of this report

This research aims to extend previous work performed in the area of sustainability reporting and disclosure for the mining sector by offering a detailed comparison and analysis of schemes, standards, and regulatory instruments that are applicable to a range of battery minerals mined in Australia. We used a combination of web-based research and engagement with FBICRC participants to identify schemes of relevance, collect information on reporting requirements and guide the selection of reporting categories for detailed comparison and analysis.

Accuracy and transparency of information via voluntary disclosure provide stakeholders with the necessary information to enable business relationships. Additionally, benefits for companies are also enhanced through the ability to benchmark and measure material progress progress towards sustainable development goals by using reporting effort to drive informed target setting and monitor progress towards identified strategic company goals. It is important for companies looking to adopt certification or standards to not only make choices that consider the applicability of schemes for end markets, but also consider which schemes provide best practice environmental and social performance outcomes.

The importance of this research lies in providing clarity on the reporting requirements for companies looking to adopt certification schemes or standards and puts companies another step towards readiness assessment for future adoption.

METHODOLOGY

The types of schemes considered for this study include voluntary and regulatory sustainability monitoring, reporting, and disclosure schemes / instruments. Voluntary schemes include sustainability certifications and sustainability reporting or disclosure standards. Australian regulatory instruments include compulsory environmental scoping, monitoring, and reporting instruments considered to align with ecologically sustainable development (ESD) principles, such as the National Greenhouse and Energy Reporting scheme (NGER) and Environmental Impact Assessment (EIA).

Desktop research was performed to better understand the sustainability indicators of importance for industry, end markets, and supply chain stakeholders. We also sought to understand where perceptions of value in sustainability reporting might impact on the preference for one scheme over another. Background research assisted in focusing on sustainability certification schemes, standards, and regulations that were of relevance for the mining industry and contributed to value creation in sustainability reporting.

Several criteria were applied when selecting schemes to consider, including:

- Relevance for the Australian context,
- Relevance for a diverse set of battery minerals,
- Preference for schemes and standards that required some form of public disclosure, or third-party verification,
- Preference for standards or guidance that facilitated the comparison of schemes with best practice in environmental or social categories of relevance for the mining industry,

A total of 11 different sustainability certification schemes, sustainability reporting and disclosure standards, and regulatory instruments were selected for evaluation and comparison.

Two sustainability certification schemes:

- The Initiative for Responsible Mining and Assurance (IRMA)
- Certification of Raw Minerals (CERA)

Six sustainability reporting and assurance standards:

- Towards Sustainable Mining (TSM)
- Global Reporting Initiative (GRI)
- Carbon Disclosure Project (CDP)
- Dow Jones Sustainability Index (DJSI)
- Responsible Mining Index (RMI)
- OECD Due Diligence Guidance for Stakeholder Engagement in the Extractives Sector

Three Australian regulatory instruments:

- National Pollutant Inventory (NPI)
- The National Greenhouse Gas and Energy Reporting scheme (NGER)
- Environmental Compliance Reporting (including Environmental Impact Assessment, and reporting to various state and national environmental protection acts; please note that this was not an exhaustive assessment and so anything listed under this category should be considered indicative only)

We note that several initiatives were considered but not included in the detailed analysis: the Extractive Industries Transparency Initiative, the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict Affected and High-Risk Areas, the Responsible Minerals Assurance Process, ISO 14001, ISO 26000, and the International Council on Mining and Metals. However, we do make some mention of these schemes throughout the report, where we have discovered relevant information.

We also note that certain carbon pricing mechanisms being introduced (such as the Carbon Border Adjustment Mechanism in the EU), while relevant, have not been considered as part of this analysis and could be considered via a future comparison analysis if additional certification or standards instruments arise out of such mechanisms.

ANALYSIS FRAMEWORK

An analysis framework was developed to evaluate the schemes against environmental, social and governance sustainability reporting requirements and against each other in terms of coverage of sustainability performance evaluation.

A previous FBICRC report on the common drivers and options for certification and LCA (Rutovitz et al., 2020) identified governance principles that were commonly agreed by stakeholders as important for the extractives sector (multi-stakeholder governance, third-party verification, transparency, ISEAL good practice). A report by EY and the Centre for Corporate Citizenship Boston College identified some of the ways in which industry perceives that sustainability reporting provides value and further analysed the motivations for sustainability reporting (EY and the Centre for Corporate Citizenship Boston College, 2013), highlighting that transparency and stakeholder perceptions of trustworthiness were key motivators for engaging with sustainability reporting. Based on the value perceptions and drivers for sustainability reporting identified in these reports, the principles of multi-stakeholder governance, transparency, and third-party verification were integrated into our common requirements analysis framework, outlined in Table 2 to the right.

Information on reporting requirements was collected using web-based research and language was extracted from guidance documents and/or sample questionnaires provided by certification and standards providers. A high-level comparison was performed to classify initiatives according to 1. Type of initiative, 2. Governance, 3. Scope, and 4. Verification, the results of which can be found in the next section.

TABLE 2: COMMON REQUIREMENTS ANALYSIS FRAMEWORK

PARAMETERS	SCHEME OR REGULATORY INSTRUMENT
1. Type of Initiative	• Certification, standard, or regulation
2. Governance	• What is the governance structure of the managing body?
3. Scope	• Does the scheme require reporting at the site or company level?
4. Reporting Category Classification	• Does the reporting category belong to the environmental, social, or governance sphere of sustainability reporting? • Is the indicator category sufficiently different from other indicator categories to warrant its own classification? • To what degree does the scheme or instrument require monitoring, reporting, and/or management of indicator categories?
5. Reporting Requirements	• What are the specific reporting requirements to meet the highest level of performance under the scheme, standard, or regulation?
6. Stakeholder engagement	• What level of stakeholder engagement is required when scoping potential environmental and social impacts? • What level of stakeholder engagement is required when developing indicator categories? • What level of stakeholder engagement is required when managing performance against indicators? • Are there grievance mechanisms in place? • Is stakeholder engagement appropriately designed, effective, accessible, and inclusive?
7. Public reporting	• Does the indicator category require public reporting of performance data?
8. Verification	• Is third-party verification of data required?

CLASSIFICATION OF SUSTAINABILITY REPORTING CATEGORIES FOR DETAILED EVALUATION

A large volume of data was collected on the reporting requirements of sustainability schemes. To aid in the dissemination of information to future adopters of these schemes and standards, detail is provided on a select group of sustainability reporting categories. Reporting categories were selected for comparative analysis based on the perceived level of importance for stakeholders. Stakeholder perspectives were integrated using a combination of desktop research and workshop-based engagement with FBICRC project participants. Desktop research was combined with workshop-based stakeholder engagement performed with industry participants from the FBICRC in July 2021.

SUSTAINABILITY PERFORMANCE REPORTING CATEGORIES SELECTED FOR COMPARISON ANALYSIS

Literature review and FBICRC participant perspectives were used to select several sustainability reporting categories for comparative analysis.

Based on this, the following sustainability reporting categories were selected:

- Air quality
- GHG emissions
- Energy consumption/use
- Water management, monitoring, and reporting
- Waste management, monitoring, and reporting
- Biodiversity
- Cultural heritage
- Employee protections, fair labour, and terms of work
- Occupational health and safety
- Engagement

What are the focus areas for your organisation in terms of sustainability performance?

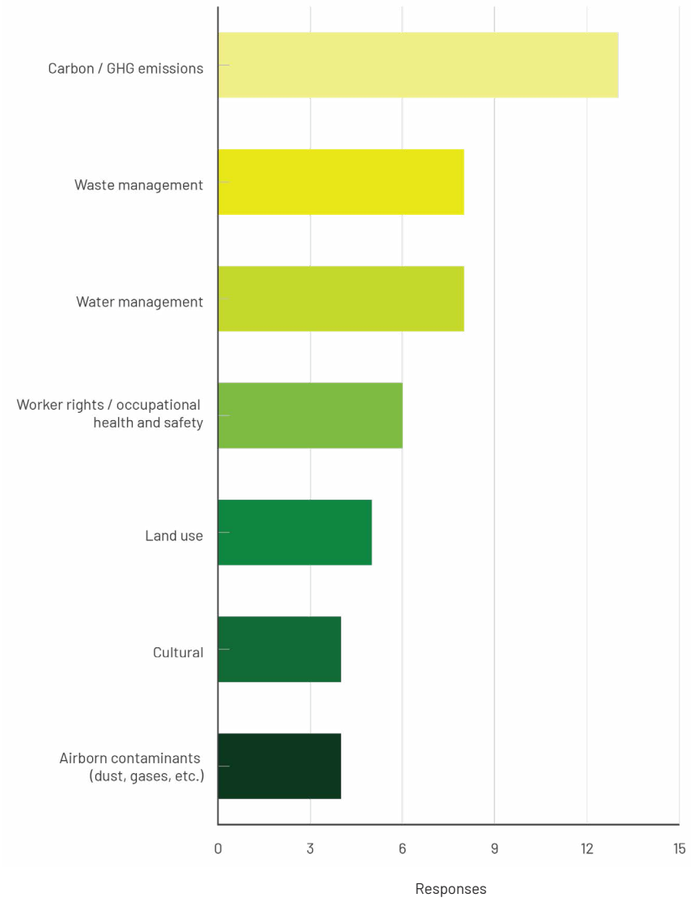


Figure 1: Results from 'LCA, EPDs, Data' workshop held on the 29th April 2021: Q and A polling on participant focus areas for sustainability performance.

SUSTAINABILITY CERTIFICATION, ASSURANCE AND REPORTING SCHEMES

Overview of schemes and instruments selected for comparison analysis

A brief overview is provided on each of the schemes and regulatory instruments selected for comparison. Here we introduce some of the historical contexts that helped to form each initiative or regulation to provide some basis to the relevance for selection and comparison. Voluntary disclosure and reporting instruments differ in the way they are applied compared to compulsory regulated monitoring and reporting, however, in many ways these communication methods have evolved to serve similar purposes. Understanding the context under which they were established and their aims and objectives, provides some insight into the reasons for commonalities between voluntary and regulated reporting. A better understanding of the common objectives between voluntary and regulated reporting enables companies to make informed choices for future adoption, particularly when armed with the understanding of where certification or standards could assist with regulated reporting requirements and vice versa.

VOLUNTARY REPORTING SCHEMES

IRMA

The Initiative for Responsible Mining Assurance (IRMA) was founded in 2006 by coalition consisting of NGOs, downstream supply chain stakeholders, representatives from affected communities, mining companies, and labour unions. The IRMA standard was developed after years of extensive consultation with stakeholders and industry. The governance structure consists of a Board of Directors, committees and working groups that contribute to deliberative decision making. Consensus decision making is the objective, however in the absence of consensus, if there are two no votes from representatives of a certain sector, the decision will not pass.

IRMA's standard is internationally recognised and covers the full range of battery minerals. IRMA seeks to provide transparency to stakeholders by requiring companies to publicly disclose the results of sustainability performance assessments. Reporting categories total 26 and are grouped under four sustainability principles which include Business Integrity, Planning for Positive Legacies, Social Responsibility, and Environmental Responsibility. IRMA's assessment process recognises continual improvement by offering different levels of sustainability certification: IRMA 50 to recognise meeting 50% of performance obligations, IRMA 75 to recognise meeting 75% of obligations, and IRMA 100 to recognise best practice. Mining companies are encouraged to perform a self-assessment gap analysis against IRMA certification to understand where they may be achieving or falling short of best practice standards. The self-assessment offering is potentially a win-win for mining companies looking to adopt certification but apprehensive about whether they will meet requirements. The information collected during self-assessment is not disclosed publicly and can provide valuable information on improvements to be made before committing to certification.

CERA

The Certification of Raw Materials (CERA) is developing a 4in1 standard certification scheme that will have the capacity to cover all mined minerals and their downstream stages including processing, and refining. CERA4in1 provides certification for all mining regions to ensure that mining meets a minimum standard of ethical, and environmental criteria. The CERA4in1 standard covers twelve different data categories grouped into environmental, social, and governance themes.

CERA4in1 offers future traceability of sustainably extracted, processed, and traded raw materials through four different standard approaches. The Readiness Standard defines objectives at the planning and exploration stages, the Performance Standard is applied at the production phase, the Chain of Custody Standard addresses the traceability of the product, while the Final Product Standard is applied to a market ready product, assuring the sustainable sourcing of its raw materials. The CERA4in1 standard offers good coverage of downstream supply chain stages, compared to other schemes and standards, however it is not yet ready for market. Peer review of the standard was completed in March 2021, however, it is not clear from the website when the standard will be ready for adoption.

Towards Sustainable Mining

Towards Sustainable Mining (TSM) is a sustainability reporting scheme for the mining industry. It was developed in 2004 by the Mining Association of Canada and is currently being adapted for the Australian context by the Minerals Council of Australia (MCA). It provides a range of performance indicators across three categories: communities and people, environmental stewardship, and climate change. It also includes an independent verification process and public reporting of site and company performance. Beginning in 2025, MCA members will be required to assess and publicly report on their performance against TSM indicators and conduct independent verification (MCA, 2021).

Global Reporting Initiative

The Global Reporting Initiative (GRI) was founded in Boston, USA in 1997 because of increased pressure for transparency following the Exxon Valdez oil spill. In 2015 the GRI adopted the Sustainable Development Goals framework into their sustainable reporting standards.

In 2019 GRI launched a program to focus standards on specific sectors, mining is one of the focus sectors for this standard with a sector specific standard due to be released in 2023. GRI focuses on 34 different reporting categories under three groupings: environmental, social, and economic.

Governance of the GRI standard is performed by several groups of multinational stakeholders which include representatives from business, civil society organisations, investment institutions, labour organisations, and mediating institutions. Governance groups include the Board of Directors, the Global Sustainability Standards Board, the Stakeholder Council, the Due Process Oversight Committee, the Independent Appointments Committee, the Governmental Advisory Group, and the GRI Secretariat.

Carbon Disclosure Project

The Carbon Disclosure Project (CDP) is a voluntary environmental disclosure scheme for companies, cities, states, and regions. It categorises disclosure across three areas of environmental impact - climate change, deforestation, and water - using a questionnaire format. Within the questionnaire process, companies can select industries, which includes an option for Metals and Mining. It is administered by CDP, a not-for-profit charity that has been in operation since 2000 and is located across 50 countries. It is funded by a combination of government and philanthropic grants and mission-complementary fee for service activities (CDP, 2021). A scoring system is also used, based on the data submitted, to rank companies (from A to D) and cities based on their performance which is publicly available on their website. Due to the length of operation, CDP has one of the largest and most comprehensive databases of environmental performance disclosure.

Dow Jones Sustainability Index
The Dow Jones Sustainability Indices (DJSI), launched in 1999, compare the sustainability performance of publicly traded companies according to the family of sustainability indices measured. The DJSI are operated by S&P Dow Jones Indices and RobecoSAM, where the former is responsible for the calculation, marketing and distribution of information related to the indices, and the latter is responsible for deriving the sustainability metrics. Measurement against the sustainability indices is performed via a questionnaire that includes 19 different reporting categories under three groupings: Economic Dimension, Social Dimension, and Environmental Dimension.

The DJSI is a good example of how a comparative performance index can generate perceptions of value in sustainability reporting, it does this by exclusively inviting companies to be included in the performance index. However, the index does have a minimum threshold for Australian companies to be included, they have to be registered in the S&P/ASX 200 and be scoring in the top 30% of companies assessed using the Corporate Sustainability Assessment (CSA) method.

Responsible Mining Index
The Responsible Mining Index (RMI) is an independent research organisation based in Switzerland which established the RMI foundation in 2012. It produces a biennial assessment of global mining companies based on 44 reporting categories and groups them according to six different themes: Economic Development, Business Conduct, Lifecycle Management, Community Wellbeing, Working Conditions, and Environmental Responsibility. The comparison ranks companies in terms of commitment, action, and effectiveness.

OECD Due Diligence Guidance for stakeholder engagement in the extractives sector
The Organisation for Economic Co-operation and Development (OECD) is an international organisation that collaborates with governments, policy makers, and citizens to establish evidence based international standards for a range of industries. The OECD consists of 38 member countries around the globe who engage with experts to inform country-based analysis and standards development. Australia continues to be a member since 1971. Although the OECD Due Diligence Guidance for Stakeholder Engagement in the Extractives Sector does not apply a holistic sustainability lens in the way that other certification schemes and standards do, it has been included in this comparison because it sets a high standard for the mining sector in an area of sustainability that poses particular challenges, stakeholder engagement. For the purpose of this research, we have performed a comparison to understand to what degree certification schemes or standards meet the best practice standards stipulated in the single issue OECD guidance.

NATIONAL REGULATORY REPORTING REQUIREMENTS

National Pollutant Inventory for the mining sector
The National Pollutant Inventory (NPI) is an Australian national reporting system that tracks emissions to air, water, and land of identified toxic substances of concern. Many of the toxic substances of concern are common among other global jurisdictions and are required to be reported under certification schemes and standards, for example relevant EU Numeric Air Quality Standard Indicators are required to be reported under IRMA, and many of these pollutants also feature under the reporting requirements for the Global Reporting Initiative. The reporting of NPI emissions is managed at a state or territory level via legislation titled National Environment Protection Measures (NEPMs). Australian industries (including the mining industry) are required to monitor, measure, and report their emissions under this legislation if their emissions meet or exceed the reporting threshold.

National Greenhouse and Energy Reporting (NGER)
Australia tracks and manages its commitments to the Paris Agreement via the National Greenhouse and Energy Reporting scheme. Companies that exceed an energy use threshold are required to report Scope 1 and Scope 2 Greenhouse Gas (GHG) emissions using the online reporting system provided. Reporting is expected to be independently verified by an appropriately qualified auditor. GHG emissions are then publicly disclosed, aggregated at the industry level and analysed based on the common drivers of emissions for each industry. Most voluntary reporting initiatives require reporting of Scope 1 and Scope 2 GHG emissions.

The EPBC Act and Environmental Impact Assessment
At the state and territory level, environmental and social impacts are managed through the relevant planning and environmental protection laws for each region. Reporting requirements differ slightly across states and territories but generally require interaction with the process of Environmental Impact Assessment (EIA) at some point in the planning and approvals process. The environmental, social, and economic reporting requirements for the EIA process are significantly dependent upon:

- **The level of detail applied to initial environmental, social, and economic impact screening performed by the proponent.** This sets up the planning and approval process by providing initial observations on matters of importance. The effectiveness, appropriateness, and design of stakeholder engagement can significantly impact on the likelihood of identifying relevant issues for community stakeholders at this point.
- **The level of detail provided by the relevant state or territory planning authority when stipulating reporting requirements for the EIA.** The reporting requirements stipulated by the relevant authority may provide detail on a specific reporting category (for example, requiring GHG emissions to be reported) however, in most cases reporting categories are broad and specific requirements are determined only if preliminary investigations have identified a need for more detail under a specific reporting category.
- **The interpretation of reporting requirements by the proponent when carrying out the EIA process.** In many cases, reporting can differ depending on the proponent's interpretation of reporting requirements and / or perceived importance of relevant of issues. For example, the relevant authority might stipulate reporting GHG emissions as part of the EIA, however, proponents might only feel obligated to report scope 1 and 2 emissions and not scope 3.

When a mining development may impact on a matter of 'national environmental significance', as defined under the Australian Government's Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), development of an EIA for federal assessment and approval processes is required. Under agreements with the state and territory governments, EIA's prepared to comply with the EPBC Act can often be prepared in lieu of or be combined with state-based EIA reporting to avoid duplication of effort. Under the EPBC Act a mitigation hierarchy is followed to prevent irreversible impacts to ecological and cultural sites of national importance or significance.

Variations in the level of granularity applied to an EIA can significantly impact on the effectiveness of meeting sustainable development objectives. Australia's definition of ecologically sustainable development sets out four sustainable development principles, outlined below. In particular, there is a significant risk of not meeting the principle of conservation integrity and inter-generational equity, if best practice monitoring, reporting and management processes are not followed.

- **The precautionary principle.** If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- **Inter-generational equity.** The present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations. Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations.
- **Conservation of biological diversity and ecological integrity.** The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
- **Improved valuation, pricing, and incentive mechanisms.** Improved valuation, pricing and incentive mechanisms should be promoted.

A proliferation of voluntary sustainability reporting schemes has flooded the market to provide the perceived level of stringency required to meet sustainable development goals – attempting to fill a gap in the sometimes limited, and variably applied regulatory environmental assessment and reporting. In some cases, environmental reporting requirements between regulatory and voluntary schemes reflect commonalities. However, some voluntary schemes go further to identify specific reporting indicator categories, establish clear expectations on active management practices, and integrate effective and meaningful stakeholder involvement into the planning and management processes.

Governance, scope, and verification comparison

A high-level assessment of governance, scope and verification commonalities is shown in Table 3 to the right. Out of the initiatives of focus, most initiatives were considered standards rather than certification schemes, most initiatives required some degree of mine site data to report against categories, roughly half of all schemes focused exclusively on mine site data, and most initiatives required some level of either public reporting or third-party verification.

To aid in identifying areas where industry participants can streamline reporting processes, a high-level indication is provided on the sustainability metrics and indicators that overlap between regulatory and voluntary schemes in the next section through a sustainability assessment comparison analysis performed for a select group of environmental and social indicators.

TABLE 3: COMPARISON OF INITIATIVES ACCORDING TO TYPE, GOVERNANCE, SCOPE, AND VERIFICATION REQUIREMENTS.

NAME	TYPE OF INITIATIVE	GOVERNANCE	SCOPE	VERIFICATION
ECR	Regulation	State executed planning regulation to guide approvals towards ecologically sustainable development principles and reduce impacts on matters of National Environmental Significance.	Mine site or production site	Not required. Public disclosure is required for the purpose of stakeholder information and engagement.
NPI	Regulation	Federal regulation	Mine site or production site	Not required.
NGER	Regulation	Federal regulation developed to meet Paris Agreement commitments	Company level	External auditor required for verification engagement report.
IRMA	Standard and certification	Two stakeholder engagement periods during development.	Mine site	Verification is provided by IRMA auditors.
CERA	Standard and certification	Developed by consultants and universities.	Mine site or production site	Third-party verification by approved auditors.
TSM	Standard	Developed by the Mining Association of Canada. An independent Community of Interest Advisory Panel, consisting of representatives from indigenous and community stakeholders, non-government organisations, workforce stakeholders, and financial organisations.	Combination of mine site and company level information	Third party verification is required on reporting categories every 3 years.
GRI	Standard	Multinational oversight, multi stakeholder governance including representatives from business, civil society organisations, investment institutions, labour organisations and mediating institutions	Currently developing a mine site and primary processing standard	Not required.
CDP	Disclosure standard and comparison index	Not-for-profit charity	Company level	Third-party verification is not required. Provides supported connection to accredited auditors. Australian auditors listed.
DJSI	Disclosure standard and comparison index	Governance by an internal index committee. Periodic engagement with external stakeholders - only for material changes to methodology	Company level, some site level data needed	Independent third-party verification is required every 4 years for most disclosed information. Public disclosure is required for some but not all reporting categories.
RMI	Standard and comparison index	Developed by the Responsible Mining Foundation not-for-profit. Governing body consisting of academics, scientists, consultants and lawyers. An advisory Council consisting of members from industry, human rights specialists, indigenous rights specialists, union representatives, NGO representatives, finance & investment specialists.	Mine site	No third-party verification is required. Public disclosure required on some reporting categories.
OECD Stakeholder Due Diligence	Standard	OECD oversight and continual collaboration with representatives from governments, parliaments, international organisations, business and labour, civil society, as well as citizens from across the globe.	Could apply to site or company	Not required.

Note: ECR=Environmental Compliance Reporting, NPI=National Pollutant Inventory, NGER=National Greenhouse and Energy Reporting, IRMA=The Initiative for Responsible Mining Assurance, CERA=The Certification of Raw Materials, TSM=Towards Sustainable Mining, GRI=Global Reporting Initiative, CDP=Carbon Disclosure Project, DJSI=Dow Jones Sustainability Index, RMI=Responsible Mining Index

SUSTAINABILITY PERFORMANCE REPORTING REQUIREMENTS EMERGING TRENDS

Analysis of findings

Comparison analysis of reporting requirements for selected reporting schemes and instruments identified a high variation in focus between environmental, social, and governance reporting categories. For example, regulatory instruments in general focused more on environmental reporting categories with specific mention of specific substances or conditions, while voluntary reporting tended to spread more broadly across all reporting categories and for most schemes requirements to report or monitor specific substances or conditions were limited.

Language differed significantly between all reporting standards of focus, even within reporting categories featuring the same or similar labels. This created challenges when classifying reporting requirements according to reporting categories. Due to these challenges, categorisation can in some cases be subject to interpretation and should be taken as illustrative rather than conclusive.

In many cases, evidence documentation differed between schemes, standards, and regulatory reporting, even under the same reporting category headings. This highlights the variations in perception of what counts as credible evidence that commitments or obligations are being met or worked towards. In addition to this, some reporting categories overlapped each other in their reporting requirements, creating challenges in providing a simplified classification of requirements for comparison.

Some schemes were very simplified in their reporting requirements and tended towards principles to identify ESG risk rather than requiring active tools, plans, or strategies for performance management and improvement. For example, for most reporting categories CERA stipulated a common assessment framework consisting of a due diligence process to identify areas of risk, deriving performance indicators, and measuring performance against them but lacked specificity on the exact assessment, monitoring, or management processes that should be followed or the types of evidence that could be used to meet the requirements of the scheme. Other schemes were considerably more detailed in their reporting requirements and required disclosure of multiple types of evidence under one reporting category. For example, IRMA and the GRI required monitoring of multiple substances and conditions under environmental reporting categories such as water and air quality and IRMA often required multiple types of evidence to substantiate claims of best practice being followed under most reporting categories.

Challenges were identified in comparing Environmental Compliance Reporting (ECR), given the variable nature of environmental assessment and management practices between states and territories. ECR includes reporting requirements under various state and national environmental protection regulations, incorporates ecologically sustainable development principles under the planning and approvals processes, and in most cases requires an Environmental Impact Assessment (EIA). In some cases, EIAs are more rigorous and may overlap more of the reporting categories than those that have been identified throughout this analysis. However, for the purpose of this research we have represented what we consider to be the most common reporting requirements under environmental compliance reporting.

In general, we observed that schemes with more required evidence under a reporting category tended to also move beyond a passive approach to sustainability reporting - monitoring and reporting - and extended their requirements into active management practices, performance target setting, and collaborative stakeholder engagement.

Approach to comparison

Reporting categories were classified into three spheres of sustainability reporting - environmental, social, and governance - and a heatmap is provided of reporting requirements under each reporting category for those schemes evaluated. In relation to schemes that recognised multiple levels of performance achievement, our approach was to represent the highest standard of achievement. For example, in the case of IRMA 50, 75, and 100 we focused on the requirements to meet IRMA 100.

Each of the heatmaps feature the number of reporting requirements under each reporting category, for each scheme or initiative. For example, The National Greenhouse and Energy Reporting regulation features two reporting requirements under the data category of GHG emissions - these being Scope 1 and Scope 2 GHG emissions. Reporting requirements have been colour coded for ease of reference, where dark green indicates a higher number of reporting requirements and light green indicates a lower number of reporting requirements. Gaps indicate an absence of reporting requirements under a data category. However, where schemes may not feature reporting requirements under one reporting category, these may be represented under another reporting category. For example, we see that IRMA, CERA and TSM do not feature specific reporting requirements under Energy. However, they do cover energy reporting to some extent under Scope 1, and 2 GHG emissions reporting.

SUSTAINABILITY REPORTING REQUIREMENTS: ENVIRONMENTAL HEATMAP

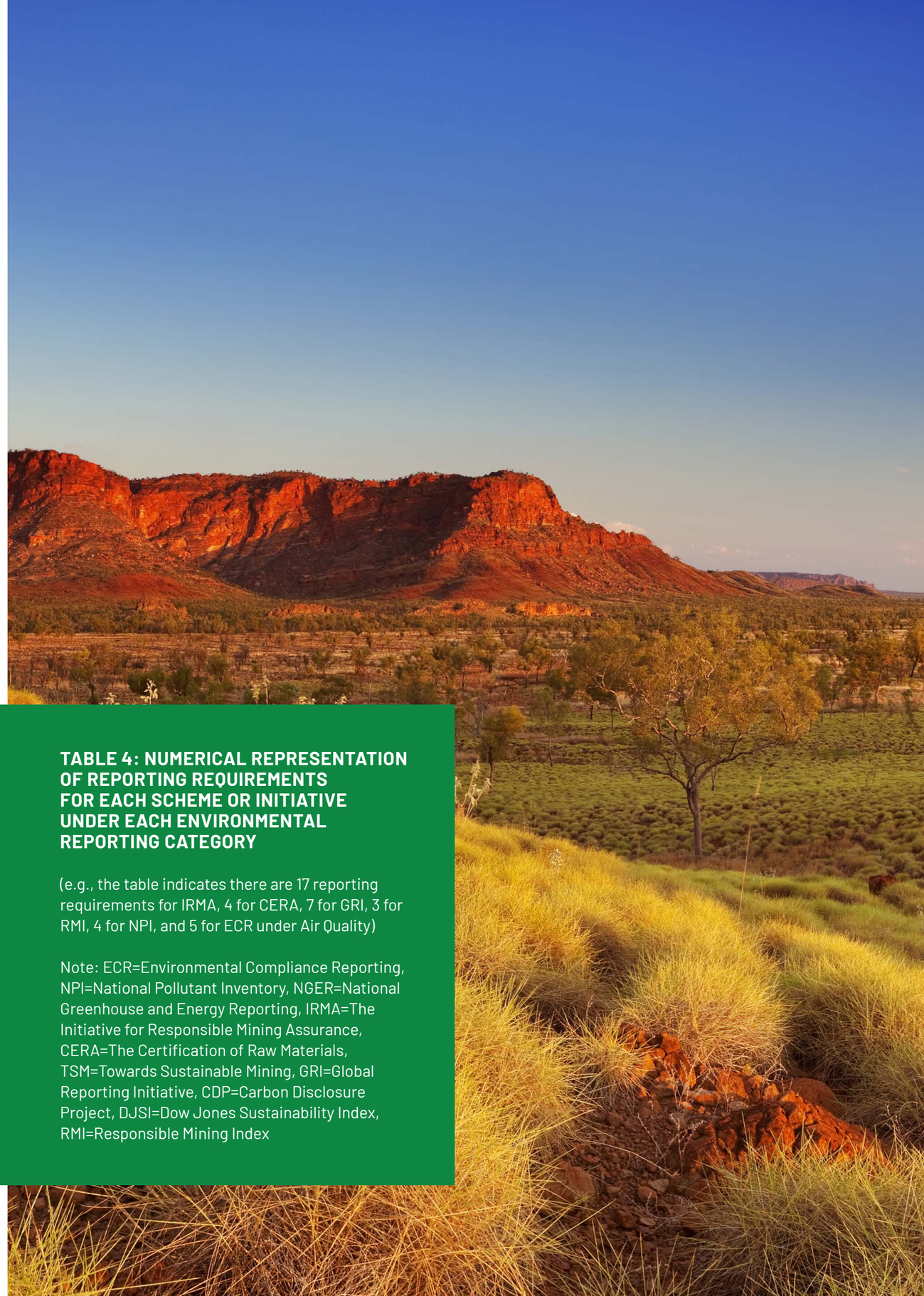
Environmental Category	IRMA	CERA	TSM	GRI	CDP	DJSI	RMI	NPI	NGER	ECR
AIR QUALITY	17	4		7			3	4		5
CLIMATE CHANGE			2	2	8	8	2			
GREENHOUSE GAS EMISSIONS MANAGEMENT	2	1	2	2	6		1			
GREENHOUSE GAS EMISSIONS REPORTING	2	2	2	3	3	3	3		2	
OZONE-DEPLETING SUBSTANCES & POLLUTANTS				6				3		
BIODIVERSITY, ECOSYSTEMS, PROTECTED AREAS	5	1	4	3	10		4			6
ENERGY				17	10	7	1	1	8	
HABITATS AND MINE CLOSURE				4	1		3			
TAILINGS MANAGEMENT	3		4		3		4	2		
ENVIRONMENTAL MANAGEMENT		3					2			
CONSUMPTION AND EFFICIENCY		2		5			1			
NOISE AND VIBRATION	2	1					2			
SUPPLY CHAINS	1			4	1					
WASTE	12	4		10			1	1		
WATER	17	2	4	24	15	7	8	3		

Legend	Highest	High	Medium	Low	Lowest

TABLE 4: NUMERICAL REPRESENTATION OF REPORTING REQUIREMENTS FOR EACH SCHEME OR INITIATIVE UNDER EACH ENVIRONMENTAL REPORTING CATEGORY

(e.g., the table indicates there are 17 reporting requirements for IRMA, 4 for CERA, 7 for GRI, 3 for RMI, 4 for NPI, and 5 for ECR under Air Quality)

Note: ECR=Environmental Compliance Reporting, NPI=National Pollutant Inventory, NGER=National Greenhouse and Energy Reporting, IRMA=The Initiative for Responsible Mining Assurance, CERA=The Certification of Raw Materials, TSM=Towards Sustainable Mining, GRI=Global Reporting Initiative, CDP=Carbon Disclosure Project, DJSI=Dow Jones Sustainability Index, RMI=Responsible Mining Index



ENVIRONMENTAL COMPARISON ANALYSIS

The next section features a comparison analysis of reporting requirements under the following environmental reporting categories:

- Air quality
- GHG emissions
- Energy consumption/use
- Water management, monitoring, and reporting
- Waste management, monitoring, and reporting
- Biodiversity

For more detailed information on the specific requirements under each reporting category, detailed comparison tables for each of the above reporting categories can be found in Appendix 1. Those comparison tables feature information taken directly from standards and example questionnaires and provide a good comparison of the similarities and differences between schemes, standards, and regulatory instruments that require reporting under these categories. A high-level summary of each environmental reporting category is provided below by first giving some context to the development of measuring and reporting against the category, and then providing a comparison analysis based on observations of the key similarities and differences of disclosure instruments under each reporting category.

Air quality

CONTEXT

Globally, nine out of ten people worldwide breathe air containing levels of pollutants that exceed World Health Organisation limits making air pollution the greatest environmental threat to public health (UNEP, 2021). Air pollution and climate change are closely linked as all major pollutants have an impact on the climate and most share common sources with greenhouse gases (UNEP, 2021).

The mining and metals industry include intensive activities that generate pollution to air, land, and water. Contaminants released to the air may present a risk to human health or ecosystem wellbeing and may be from stationary or mobile equipment, waste facilities, and other on-site activities or during transportation along roads, waterways, or rail. Understanding, measuring, and monitoring the source and degree of air pollution is an essential and necessary procedure that mining companies will continue to undertake. As the mining industry moves to increase downstream processing capability, emissions to air will continue to be of great importance for monitoring, management, and disclosure.

There has been increasing community demand to know about toxic substances emitted to the local environment. Australian, state and territory governments have agreed to legislation called National Environment Protection Measures (NEPMs), which help protect or manage particular aspects of the environment (Australian Department of Agriculture, Water and the Environment, 2021a). Australian industries, including mining and metals, are required to monitor, measure, and report their emissions under this legislation. Data from mining operations is reported to the National Pollutant Inventory (NPI) which tracks pollution across Australia and contains data on 93 substances that have been identified as important due to their possible effect on human health and the environment (Department of Agriculture, Water and the Environment, 2021b).

Given the significance of the impacts of air pollution on environmental and human health, air quality is heavily regulated and mining organisations will need to cover a range of minimum standards to meet environmental and social licence obligations. Given air quality is a well understood science and standards have been in place for many years, it is likely that moving beyond measuring and reporting to management and stewardship of air quality will continue to be common practice.

COMPARISON OF REQUIREMENTS

Six schemes (IRMA, CERA, GRI, RMI, NPI, ECR) address air quality as a key indicator which includes varying degrees of impact assessment, measuring, monitoring, and reporting. IRMA requires the most detailed reporting with a total of 17 reporting categories followed by GRI with 7. At a minimum all schemes require monitoring and reporting of air quality data. Beyond this, three schemes (IRMA, CERA, RMI) and one regulatory instrument (ECR) required management actions such as management plans, performance monitoring programs, screening assessments, modelling, stakeholder engagement and training.

Reporting of air quality data is usually required by monitoring point and for the various regulated air emission types. Given it is a regulatory requirement in Australia, it is assumed that in most cases air quality data is verified by a third-party auditor or the regulating agency. IRMA explicitly include a requirement for providing the name of the company that undertook the emissions testing or modelling.

All schemes request, as is required under regulation, public reporting of air emissions data at a minimum.

IRMA's requirements include management plans, modelling, records of stakeholder engagement and training and monitoring plans. They require detailed documentation such as plans, locations and/or photographs of where data is held and meteorology reports. Comparing data against standards and verification of emissions testing and modelling is also requested. It is assumed that in order to operate, mining and metals organisations will have resources dedicated to monitoring air emissions, therefore responding to the requirements set out in many of the voluntary schemes may be less onerous than those indicators that are not regulated.

GRI requires reporting of emissions data as well as standards and methodologies which, however in comparison to IRMA, could be interpreted as less onerous. Other schemes request similar levels of reporting such as minimum regulatory data on emissions, due diligence and public disclosure. RMI has specific requirements for engaging with vulnerable persons and reporting non-compliance with air pollution requirements.

Other than legal obligations and due diligence, there are a number of key benefits to undertaking a more stringent approach including enhancing environmental quality, increased understanding of the types and quantities of toxic substances emitted, catalysing cleaner production techniques, tracking environmental progress, meeting community right-to-know obligations, and assisting government in identifying priorities for environmental decision-making (Australian Department of Agriculture, Water and the Environment, 2021a).

Greenhouse gas emissions scope

CONTEXT

Greenhouse Gas Emissions (GHG emissions) are substances emitted into our atmosphere that accumulate and cause our planet into warm. Global GHG emissions have been increasing at an unprecedented rate during the 20th and 21st centuries, primarily driven by fossil fuel intensive energy systems. The United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement form the basis of Australia's ongoing commitments to reduce, track and report on national GHG emissions. Australia's GHG accounting system, the National Greenhouse and Energy Reporting scheme (NGER) underlies efforts for national GHG tracking and reporting.

The mining sector is primarily responsible for energy, transport, and process related emissions. Historically, Australia's focus has been on mining and concentration of minerals and less so on more energy and chemical intensive downstream materials processing stages. Australia has attracted recent investments in downstream

processing capability to enable mining companies in Australia to supply battery grade materials to a global battery market. Significant economic advantages are experienced by increasing the competitiveness of Australia's mining industry. However, without considered management of energy and chemical related inputs and flows, increases in production are very likely to result in increases in GHG emissions for the sector.

Companies purchasing battery products for end markets are under increasing pressure from consumers to reduce the environmental impacts of their products and communicate the level of sustainability achieved (Rutovitz et al., 2020). Voluntary certification schemes and standards have been developed to offer companies a method to communicate GHG related sustainability performance commitments and improvements, while national regulatory reporting offers companies established methods for emissions calculation and reporting. However, requirements differ between voluntary schemes themselves, and in comparison, with national reporting in terms of scope, data requirements, management practices, reporting requirements and verification practices.

COMPARISON OF REQUIREMENTS

Seven voluntary schemes (IRMA, CERA, TSM, GRI, CDP, DJSI, RMI) and one regulatory instrument (NGER) required some level of GHG emissions reporting. Three (IRMA, CERA, TSM) of the seven voluntary schemes and one (NGER) of the regulatory instruments require measuring and reporting Scope 1, and Scope 2 GHG emissions. While four of the voluntary schemes (GRI, CDP, DJSI, RMI) required measuring Scope 1, 2, and 3 GHG emissions. Corporate level emissions accounting and voluntary schemes are typically undertaken in compliance with the GHG Protocol. The GHG Protocol (https://ghgprotocol.org/) provides a set of accounting standards for ensuring common, consistent, and comparable estimates of GHG emissions, and was developed in a partnership with the World Resources Institute and the World Business Council for Sustainable Development (WBCSD).

Greenhouse gas emissions management

CONTEXT

GHG emissions reporting and management have become a key indicator requirement for sustainability reporting schemes as the pressure increases to meet Paris Agreement commitments. However, schemes varied in terms of management activity focus and data requirements. Regulatory instruments are more focused on GHG monitoring and reporting and lack a requirement of management practices, highlighting the gap that certification schemes fill in terms of targeted performance improvements.

COMPARISON OF REQUIREMENTS

Five voluntary schemes (IRMA, TSM, GRI, CDP, RMI) featured detailed requirements for GHG performance and reduction targets, and most of these schemes required some level of public reporting and / or third-party verification of results and performance measures, indicating the importance of GHG reduction in formation for stakeholders. Two schemes (CERA, TSM) explicitly required performance indicators to be included in environmental management systems, however, mention of performance management for other schemes does imply some level of management system underlying these requirements. Two schemes (GRI, CDP) required more detail around calculation methods and specified a requirement for monitoring and reporting of emissions intensities.

Best practice management approaches enable the mining industry to move beyond the regulatory requirements of monitoring and reporting and encourage companies to take ownership of emissions reduction efforts. To address this, some schemes integrate requirements that encourage actions and initiatives to ensure companies are actively working towards reduction targets, these include action plans (IRMA) and responsive actions based on audit and review of findings (RMI). Another approach is to monitor the level of financial investment in measures and methods that drive reduction and mitigation. Such approaches reduce the risk of not meeting targets by focusing company efforts through continual performance monitoring against the action plans or by focusing financial resources on initiatives.

Alternatively, some schemes are aimed at establishing performance targets but do not explicitly require development of action plans to meet them (TSM, GRI). This approach implies that target setting, and annual performance monitoring alone will enable companies to meet GHG performance goals. However, in the absence of a clearly defined plan to meet set targets, opportunities for focused efforts may be missed, increasing the risk of underperformance, potentially impacting on stakeholder perceptions of trustworthiness, and ultimately, social licence.

Energy

CONTEXT

According to ARENA, the Australian mining sector consumes around 10% of Australia's total energy use, rising at around 6.0% per annum over the last decade (ARENA, 2017). For the mining sector, energy and GHG reporting categories are closely intertwined due to energy intensive production processes, reliance on diesel and gas fuel sources, and a grid that is largely dominated by fossil fuel power generators. However, due to oil price volatility and pressure to reduce GHG emissions associated with high energy usage, the mining sector is moving towards options to reduce energy costs, reduce GHG emissions and improve efficiency. In the absence of a 100% renewable energy supplied electricity grid – as is the case in Australia - companies can reduce total GHG emissions through energy efficiency improvements so this area is increasingly targeted to meet sustainable development goals. Companies are also increasingly adopting renewable energy technologies to power some aspects of mining operations.

Opportunities for energy efficiency improvements occur at many points along the value chain. Energy consumption in the mining sector is predominantly driven by building operation, blasting, onsite movement of materials, minerals processing, operation of water pumps and ventilation equipment, and final product transportation (Australian Government, 2016). Energy efficiency is not only an issue impacting cost and emissions, but as the percentage of renewable energy increases in electricity grids, energy efficiency will play an important role in managing the peaks and troughs of electricity demand across energy intensive sectors.

Several organisations have supported measures to reduce emissions and increase the use of renewable energy in the mining sector, including the Minerals Council of Australia and ICMM. As renewable energy technologies increase their share of baseload electricity supply and technological advances enable cost effective off grid solutions, mining operations are expanding the uptake of renewable energy sources. In some instances, mature technologies such as solar and wind farms are coupled with battery storage to enable off grid mining operation, reducing dependence on centralised energy sources and the costs associated with grid connection asset installation and maintenance. Other examples include battery energy storage used to improve the efficiency of generators.

Given the external pressures the mining sector receives from stakeholders, particularly in GHG emissions reduction, energy management and reporting are fundamental tools that can be used to manage energy use on site and communicate commitments and improvements made to concerned stakeholders. To achieve this, energy management best practice requires initial policy or plan development, ongoing performance measurement, review, and ongoing efficiency improvement.

COMPARISON OF REQUIREMENTS

Schemes featured in the energy comparison tables vary in their requirements relating to energy management, monitoring, reporting, and efficiency improvements. Of the six schemes with energy reporting categories GRI featured the most requirements with 17 total reporting and management requirements. Five schemes (GRI, CDP, DJSI, NGER, NPI) require reporting energy consumption. Of these five, two schemes require quantification of total energy consumption from electricity and fuel (NGER, NPI), while others require a detailed breakdown of consumption by type of energy use (GRI, CDP, DJSI).

Those schemes that align more closely to best practice guidance for the mining sector do so because they move beyond reporting into active management practices. Three schemes (GRI, CDP, RMI) require energy management practices that include target setting, monitoring, and reporting of efficiency improvements.

Although third-party verification is not mentioned specifically under the energy reporting category, two schemes require third-party verification of all publicly reported documentation: NGER and TSM.

It should be noted that some schemes are not included here (IRMA, CERA, TSM) because they do not specifically focus on energy as a separate reporting category, but these schemes do require some level of energy reporting as part of the GHG reporting category.

Water management, monitoring, and reporting

CONTEXT

Historically, mining and materials sector companies have experienced significant difficulty in measuring and reporting water flows and quality for mining and mineral producing operations due to the complexity of water flows around operations and interactions with broader hydrology. This has led to significant inconsistencies in how different companies report water use as part of schemes such as GRI based sustainability reporting (Mudd, 2008; Northey et al., 2019). As a response to this, the Minerals Council of Australia (MCA) in collaboration with the University of Queensland developed a Water Accounting Framework for the minerals industry to standardise reporting of mine site water metrics (Danoucaras et al., 2014; MCA, 2014) (a revision was scheduled for release by the MCA in September 2021). This framework has subsequently been adapted by the International Council on Mining and Metals (ICMM) into their best practice guidelines for water reporting. The ICMM's recent update to their best practice water reporting guidance provides detailed guidance for internal water management accounting for operational purposes at the site level, as well as an approach to incorporating contextual water risks (e.g., scarcity) into industry reporting (ICMM, 2021). This includes guidance for aggregated reporting and also mapping water metrics to the requirements of various schemes including GRI sustainability reporting, CDP Water, the SASB Metals and Mining Sustainability Accounting Standard, and the Dow Jones Sustainability Index assessment.

COMPARISON OF REQUIREMENTS

Mining and industrial facilities within battery material supply chains can interact with water resources in a number of ways, from simple consumption of water to large-scale changes to regional hydrology and groundwater flows. Sustainability reporting and certification schemes have a range of criteria and indicators that they utilise to incentivise efficient and effective management of water resources. IRMA, GRI, CDP Water and DJSI vary in terms of the exact water indicators and data categories that are required to be reported. But generally, they include a mix of water withdrawal, water consumption, water discharge and water risk data, as well as can require further information on water monitoring and management plans and engagement with stakeholders on water related issues. CDP Water places a particular emphasis on detailed information to inform water governance and risk assessment to inform corporate level risk management. Whereas schemes such as IRMA place greater emphasis on the nature of water management plans at individual operations. TSM focuses mostly on adherence to several principles and criteria for water management. There are also regulated reporting requirements, such as facility level of emissions to water through the National Pollutant Inventory, which Australian industrial facilities must adhere to. Although not described here, state based environmental regulation can require reporting of additional water quality and management data to various state based regulatory authorities. Depending upon the state and regulatory scheme, this mandatory reporting by mineral and material producers is sometimes made public also.

Beyond this it should be noted that mandatory environmental compliance reporting in Australia often requires substantial reporting of water quality monitoring, flow and storage data that is infeasible to include within summary sustainability reporting. When reviewing mandatory and voluntary water reporting in New South Wales, Leong et al. (2014) found that "voluntary reports did not provide superior disclosure for any of the indicators". Mandatory water disclosures by Australian mineral producers varies on a state-to-state basis and on a site-to-site basis due to water licensing requirements and the nature of risks and interactions with specific hydrological features and local environments. So Australian mineral producers already collect significant data on water flows and interactions to manage environmental risks and compliance, although this is usually in a form that does not directly align with the requirements of sustainability reporting and certification schemes.

Waste management, monitoring, and reporting

CONTEXT

Mining wastes come in many forms and can be emitted into the air, water, and land. For the purposes of sustainability reporting and management wastes emitted into the air are usually covered under air quality indicators and so will not be covered in this section. Emissions of substances of concern include hazardous materials such as chemicals, substances, dangerous goods, controlled waste materials, and radioactive materials and can be emitted at any stage in the minerals processing supply chain. Some wastes are found in the actual ore body, while others are outputs of material processing stages such as chemicals, and hazardous substances remaining in processed mine tailings.

Tailings and waste containment facilities and infrastructure have failed in the past and continue to fail today, causing considerable environmental damage as substances of concern are released into the environment. However, carefully applied risk management and monitoring practices can substantially reduce the impacts on the environment and nearby communities.

COMPARISON OF REQUIREMENTS

Four voluntary schemes (IRMA, CERA, GRI, RMI) and one regulatory mechanism (NPI) feature requirements under the waste category. IRMA features the most reporting requirements under waste with a total of 12 requirements, followed by GRI with 10 reporting requirements. The National Pollutant Inventory has been categorised as only having one requirement which is to report substances. At a minimum mining companies will need to follow the requirements of the NPI regulation which requires reporting a full list of emitted pollutants, quantification of substances according to output categories such as mine tailings, unintentional leaks and spills, emissions to groundwater, and application of substances to agricultural land. However, RMI does not specify a direct requirement to monitor and report on wastes.

IRMA is particularly detailed in the types of evidence required to report against categories, particularly under management & performance and risk & impact assessment, however as CERA and GRI also requires a level of management and risk assessment, performing these steps to adhere to the requirements of the schemes does have the potential to realise the same outcomes.

IRMA features additional requirements including source characterisation & impact prediction, impact mitigation, emergency preparedness, and stakeholder engagement. No other voluntary schemes or regulated instruments require this. IRMA also stipulates a requirement for public disclosure of waste information relating to mercury.

Biodiversity

CONTEXT

There is a growing recognition that biological diversity is an extremely valuable asset to present and future generations, however, the current threat to species and ecosystems is unprecedented and species extinction caused by human activities continues at an alarming rate (UN, 2021). Mining poses serious and highly specific threats to biodiversity. However, mining can also be a means of financing alternative livelihood paths that, over the long-term, may prevent biodiversity loss (Sonter et al, 2018).

Mining has the potential to affect biodiversity throughout the life cycle of a project, both directly (land clearance, discharges to water bodies or the air) and indirectly (social or environmental changes induced by

mining operations). Cumulative impacts can also occur where mining projects are developed in environments that are influenced by other projects, both mining and non-mining (ICMM, 2006).

The protection of biodiversity has been recognised globally via the 1993 UN Convention on Biological Diversity (UN, 2021). The United Nation's Sustainable Development Goals (SDGs) and the Convention for Biological Diversity's 2020 Strategic Plan have more recently provided ambitious goals for preserving biodiversity globally. In Australia the Environment Protection and Biodiversity Conservation Act 1999 contains an extensive regime for the conservation of biodiversity (Australian Department of Agriculture, Water and the Environment, 2021b). The International Council on Mining and Metals in partnership with the International Union for the Conservation of Nature (IUCN) have developed a Good Practice Guidance for Mining and Biodiversity (ICMM, 2006), indicating the importance and priority of this issue to the industry globally.

Identifying risks to biodiversity, ecosystem services or protected areas is an important baseline activity for both existing and new mining activities, however, ongoing management and stewardship throughout the life of a mining project is an important consideration given the lifecycle and generational span of ecosystems and species. This is a long-term consideration with wide-reaching implications at a system level.

COMPARISON OF REQUIREMENTS

Six voluntary schemes (IRMA, CERA, TSM, GRI, CDP, RMI) and one regulatory mechanism (ECR) have requirements relating to biodiversity, ecosystem services, and protected areas. This includes screening impacts, management planning, risk identification, auditing and tracking performance as well as stakeholder engagement. The Carbon Disclosure Project has the most requirements of the schemes followed by ECR and IRMA.

As biodiversity value is often triggered by whether a site is listed as protected under regulation, reporting mostly happens at a site level. Some schemes, however, do suggest company-wide biodiversity action plans for all operations. TSM, GRI, CDP and ECR all require independent verification via their biodiversity requirements. IRMA requests documentation of independent reviews of biodiversity.

CERA and CDP specifically request public disclosure of commitments and actions in relation to biodiversity. RMI request that companies "track and disclose" data against company set targets for biodiversity.

Screening and impact assessment are requested across most schemes as a minimum, and similarly for preparing biodiversity action or management plans. The most detailed requirements, within the CDP scheme, involve quite in-depth measuring and reporting as well as monitoring, auditing, and evidence of implementation of mitigation strategies. Like GRI and ECR, detail is requested on key protected areas impacted, details of species impacted, evidence such as maps and photographs and the type, size, and extent of the mining operation.

The requirements are quite similar between the top three schemes (CDP, ECR, IRMA), therefore there is a level of effort required to respond to most schemes with respect to biodiversity impact. It is generally accepted that mining operations have a key responsibility to the best of their ability to identify and proactively manage impacts on biodiversity and species.

Organisations can realise significant benefits from adhering to the more stringent schemes analysed here (of which there are several). These include gaining a social and functional 'license to operate' through access to land, improving reputation and perception of communities and stakeholders, access to capital (e.g., investment banks signatories to the Equator Principles that apply IFC Biodiversity Performance Standards), increased investor confidence and loyalty, shorter and less contentious permitting cycles, strong partnerships with NGOs, improved employee motivation and reduced risks and liabilities (ICMM, 2006). It should be noted that in some cases, even the most rigorous attempts will not eliminate the impacts of mining on biodiversity. Offsets have been proposed as means to address residual impacts and fully compensate biodiversity losses, however under the mitigation hierarchy offsets are seen as a last resort (Sonter et al, 2018).

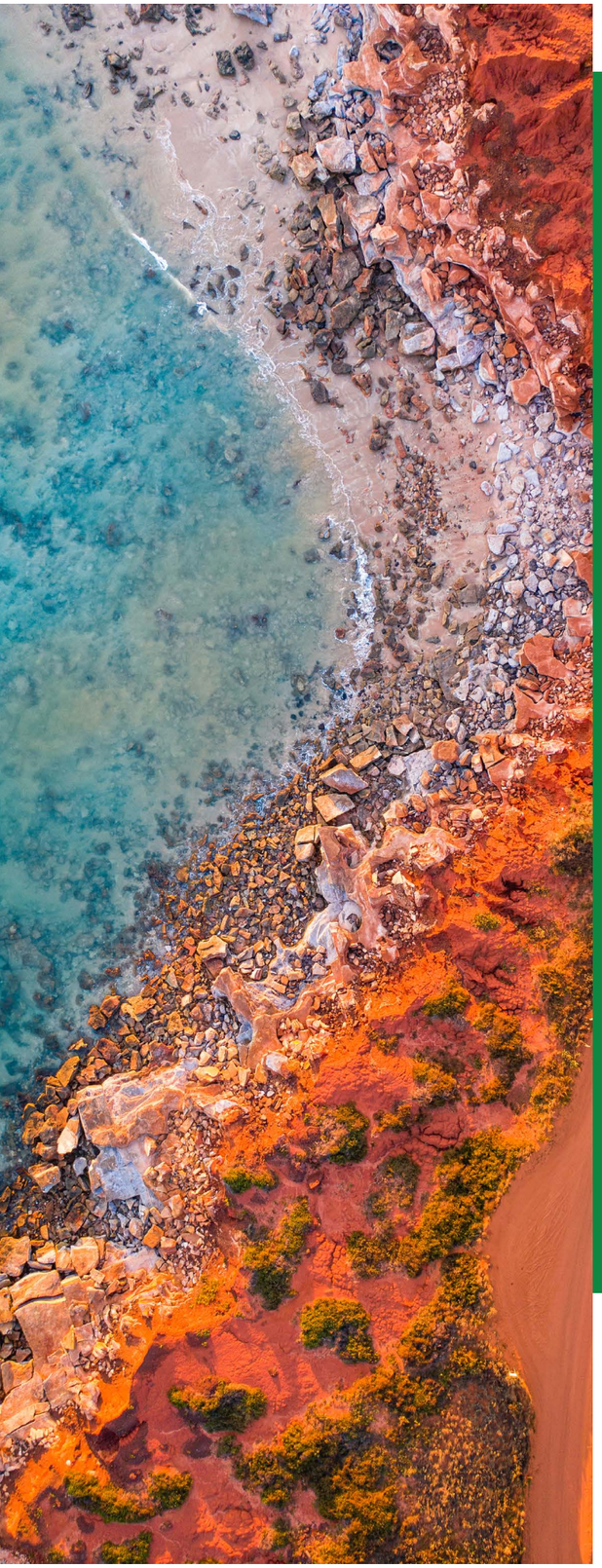
SUSTAINABILITY REPORTING REQUIREMENTS: SOCIAL HEATMAP

TABLE 5: NUMERICAL REPRESENTATION OF REPORTING REQUIREMENTS FOR EACH SCHEME OR INITIATIVE UNDER EACH SOCIAL REPORTING CATEGORY

(e.g., the table indicates there are 4 reporting requirements for IRMA, 1 for CERA, and 1 for Environmental Compliance Reporting under the Cultural Heritages reporting category)

Data Category	IRMA	CERA	TSM	GRI	CDP	DJSI	OECD	RMI	ECR
CULTURAL HERITAGES	4	1							1
EMPLOYEE PROTECTION, FAIR LABOUR AND TERMS OF WORK	12	6	2	14		15		12	
STAKEHOLDER ENGAGEMENT	13	3	5	3	2		24	9	1
COMMUNITY HEALTH, SAFETY AND WELLBEING	5	4		2				1	
OCCUPATIONAL HEALTH AND SAFETY	8	3	4	9				6	
HUMAN AND COMMUNITY RIGHTS	6	8		2		4		6	
RISK MANAGEMENT	3		4			2			
SUPPLY CHAIN DUE DILIGENCE	1			2		2		1	

Legend	Highest	High	Medium	Low	Lowest



SOCIAL COMPARISON ANALYSIS

The next section features a comparison analysis of reporting requirements under the following social reporting categories:

- Cultural heritage
- Employee protections, fair labour, and terms of work
- Occupational health and safety
- Engagement

For more detailed information on the specific requirements under each reporting category, detailed comparison tables for each of the above reporting categories can be found in Appendix 2. Those comparison tables feature information taken directly from standards and example questionnaires and provide a good comparison of the similarities and differences between disclosure instruments that require reporting under these categories. A high-level summary of each social reporting category is provided below to give some context to the development of measuring and reporting against the category, we then provide a comparison analysis based on observations of the key similarities and differences of disclosure instruments under each reporting category.

Cultural heritage

CONTEXT

Cultural heritage encompasses properties and sites of archaeological, historical, cultural, artistic, and religious significance. It also refers to unique environmental features and cultural knowledge, as well as intangible forms of culture embodying traditional lifestyles that should be preserved for current and future generations (IFC, 2021). Given the mining and metals sector has impacts across significant areas of land which could include sites of significance, it is important for cultural heritage values to be considered during operations, as well as during engagement with stakeholders before, during and after the operation.

As cultural and indigenous values are increasingly recognised over time, the mining and metals sector is expanding their impact assessments to move beyond environmental impacts and to encompass the cultural heritage impact of their operations. However, this field of social responsibility still has room for growth in Australia and is often limited to regulatory requirements and may not move far beyond initial measurement and management. Traditional owners are quick to highlight inadequacies of the requirements of mining companies. This is evidenced in incidents such as the 2020 Joint Standing Committee on Northern Australia inquiry into the destruction of 46,000-year-old caves at the Juukan Gorge in the Pilbara region of Western Australia by a mining company (Parliament of Australia, 2021).

Considering the impacts of operations on cultures, identifying sites of significance and engaging stakeholders can be an integral part of risk management. Whilst potentially challenging to define clearly beyond regulatory requirements triggered through mechanisms such as the EPBC Act, considering the wider implications associated with not recognising these values, it is a worthy exercise in demonstrating social responsibility and legacy of the organisation.

The importance of cultural heritage is recognised at an international level through the United Nations' Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) and Convention for the Safeguarding of Intangible Cultural Heritage (2003) encourage the international community to ensure that effective and active measures are taken for the protection, conservation, and presentation of the cultural (and natural) heritage. The International Finance Corporation (World Bank) has also developed key performance standards outlining IFC clients' responsibilities for managing their environmental and social risks, one of which was introduced in 2012 and included a standard on Cultural Heritage. In Australia, the Commonwealth Environmental Protection and Biodiversity Act provides a list of natural, historic, or Indigenous places that are of outstanding national heritage value, heritage places on Commonwealth lands and waters or under Australian Government control (Australian Department of Agriculture, Water and the Environment, 2021c). Should a mining activity occur on these listed sites, requirements come into effect as to how the heritage values will be managed and protected. In addition, the Aboriginal and Torres Strait Islander Heritage Protection Act 1984 aims to protect areas and objects that are of particular significance to Aboriginal people and allows the Environment Minister, on the application of an Aboriginal person or group of persons, to make a declaration to protect an area, object or class of objects from a threat of injury or desecration (Australian Department of Agriculture, Water and the Environment, 2021c).

COMPARISON OF REQUIREMENTS

Only two schemes have explicit requirements in relation to cultural heritage, IRMA and ECR. The most detailed of which is IRMA requiring management plans, training, and stakeholder engagement. Environmental compliance reporting points towards the requirements of the EPBC Act, which includes requirements for initial screening and impact assessment, but does not require any additional monitoring, reporting, or management beyond this.

The IRMA requirements for a cultural heritage management plan are at a project level and similarly, the requirements of the ECR are for each project that may impact a site listed under the EPBC Act.

There are no requirements explicitly stated in each of the schemes for independent verification, however, the EPBC compliance reports are required under law by the Australian Government.

The IRMA scheme has a list of requirements for documented evidence of cultural heritage management plans, training and stakeholder engagement and speaks to communicating to stakeholders where publicly available materials are located, however it does not explain specifically which documents should be public.

The IRMA scheme has quite substantial requirements for cultural heritage management plans, accompanying documentation and evidence of detailed stakeholder engagement regarding cultural heritage. The ECR requirements, if triggered, will require following the requirements of the EPBC Act where any action that is likely to have a significant impact on heritage properties and places must be referred to the Minister and undergo an environmental assessment and approval process control (Australian Department of Agriculture, Water and the Environment, 2021d).

Depending on whether the mining activity triggers the EPBC Act, it is more likely that the IRMA requirements will be more stringent as they are required regardless of regulation.

Proactively identifying, managing, and recognising cultural and indigenous heritage value of mining sites will minimise the risk of alienating stakeholders, damage to sites that are culturally and historically significant and may minimise negative stakeholder engagement outcomes should these sites be recognised during or after a project has been undertaken. It would be good practice to consider these as key social risks during the early stages of a mining project. As expected, considering regulatory requirements under Acts such as the EPBC Act mean an organisation will not be subjected to civil or criminal penalties, remediation orders and determinations to repair or mitigate damage and enforceable undertakings to negotiate civil penalties and provide for future compliance (Australian Department of Agriculture, Water and the Environment, 2021e).

Employee protection, fair labour, and terms of work

CONTEXT

This reporting category covers a wide array of requirements with respect to employment, from hiring to working conditions and human rights around fair labour and freedom of association. It is a far-reaching indicator across categories of:

- Employee hire and turnover
- Employee protection
- Exploitation
- Fair labour and terms of work
- Local employment

At a fundamental level, given mining operations can occur in countries all over the world, ensuring basic human rights with respect to employment and exploitation of labour are a necessity. In 1919, the International Labour Organisation (ILO) was formed to protect workers' rights and since then, internationally recognized human rights of workers have been enumerated and incorporated into laws world-wide including UN International Bill of Human Rights, ILO Declaration on Fundamental Principles and Rights at Work and ILO conventions. Voluntary standards also exist such as the International Finance Corporation Performance Standard and Social Accountability International SA8000 and included in this analysis, the GRI (GRI, 2020).

Mining companies can potentially impact the human rights of employees, customers, contractors, and communities either positively or negatively (ICMM, 2021). At a minimum, mining businesses must act with due diligence and address any negative human rights impacts, abide by international standards, and avoid causing or contributing to adverse human rights impacts. Beyond these minimum requirements, companies can make voluntary, positive contributions to support human rights (ICMM, 2021). Both ends of the measurement and management of employee protection, fair labour and terms of work indicator spectrum are covered by the schemes analysed.

Given this indicator addresses fundamental human rights, recognised at an international level, it would behove mining companies to be moving beyond measurement and reporting across several of the categories identified in the scheme. Gender and inclusion-based indicators in particular addressing the gender pay gap and the share of women in the workforce are addressing more systemic issues that reach far beyond the mining industry.

COMPARISON OF REQUIREMENTS

Exploitation and Fair Labour and Terms of Work are the most densely populated categories across 5 schemes (IRMA, CERA, TSM, GRI and RMI) requesting specific requirements for systems, policies and reporting for child and forced labour. Decent wages, remuneration policies and working conditions are addressed in IRMA, CERA, GRI and RMI. IRMA requires the most significant evidence of the presence of documentation, records, procedures, policies, and prescriptive requirements for employment conditions. Freedom of association is also a category requiring reporting across four schemes (IRMA, CERA, DJSI and RMI).

Occupational health and safety

CONTEXT

Ensuring work conditions are safe and workers are healthy is a fundamental human right. This is recognised globally across international standards and authoritative intergovernmental instruments, including International Labour Organisation (ILO), the Organisation for Economic Co-operation and Development (OECD), the World Health Organisation (WHO): and the UN Sustainable Development Goals (GRI, 2018).

Based on ILO estimates, 2.3 million workers die every year from work-related injuries and

diseases and more than 4 per cent of the world's annual GDP is lost as a consequence of work-related injuries and diseases. Mining industry work-related deaths, injuries and diseases are felt significantly in developing nations, where large numbers of people are engaged in hazardous activities. Death and disability resulting from hazardous work is a major cause of poverty, affecting the poorest and least protected such as women, children, and migrants (ILO, 2021).

International standards, conventions and codes of practice have been in place for occupational health and safety since the 1980's and various sustainability schemes have picked up these requirements which over time have become more detailed. Six of the nine schemes analysed required performance to be reported beyond recognition of the hazards and risks to detailed management systems, training systems, reporting quantitative performance on fatalities injuries and illnesses, providing records, certificates and procedures and practices in place for continual improvement and stakeholder engagement.

Given health and safety of workers is a fundamental human right, and the impacts of health and safety are felt within and beyond mining company operations on the wellbeing of communities, livelihoods of employees and social health of economies, the performance requirements of this indicator are important in moving beyond measuring and reporting.

COMPARISON OF REQUIREMENTS

Five schemes (IRMA, CERA, TSM, GRI, RMI) require a range of occupational health and safety indicators. The schemes with the most detailed requirements are GRI with 9 categories, IRMA with 8 categories and RMI with 6. CERA and TSM both have four or less categories.

Key across all the schemes is the requirement of management systems, policies and processes for occupational health and safety, with specific requirements for the identification of hazards and risks and a system to address these.

Reporting for occupational health and safety across the schemes doesn't designate specifically that site-level OH&S reporting is required, however, the requirement for management systems is across all employees (and often beyond employees of the organisation) indicating granularity of the requirements to a site level.

Four of the five schemes (IRMA, GRI, RMI and TSM) require reporting on work-related fatalities, three of the five (IRMA, GRI and RMI) on work related injuries, and two (IRMA and GRI) on work-related illness and disease. Often this includes reporting on remuneration and rehabilitation offered as a result of these fatalities, injuries and illnesses.

Given many OH&S requirements are often required by law, there doesn't appear to be requirements for independent verification across this indicator. GRI requests information on internal or external auditing of OH&S systems.

CERA and RMI explicitly state public disclosure only, however IRMA and GRI request evidence of policies that may be public documents.

IRMA and GRI require quite significant evidence of occupational health and safety categories. IRMA in particular has detailed requirements to show evidence of occupational health and safety records, documentation, certificates, procedures and policies in place. GRI requires reporting on quantitative indicators and less actual documentation but rather more detailed descriptors of what has been implemented.

IRMA and GRI cover OH&S services, both occupational and non-occupational. IRMA and RMI include categories on stakeholder engagement in OH&S such as records of meetings, communications and committees.

The fewer requirements of CERA are less prescriptive, although still encompass the need for some specific measurements and policies.

Given the breadth and depth of OH&S requirements at an international level and nationally in Australia. It is likely that adopting a more stringent scheme such as IRMA and GRI will be beneficial, and it may be that resources are already allocated to OH&S within the company.

Engagement

CONTEXT

Mining and metals sector activities have the potential to have significant social, environmental, and economic impacts on a variety of stakeholders. Companies can contribute to positive social and economic development when they involve stakeholders, such as local communities, in their planning and decision making (OECD, 2021). The mining sector in particular can have many activities in remote communities where they may be the only key industry operating in the area, placing more emphasis on the need for communication and engagement. This can also reduce risks and present opportunities for organisations to ensure operations are enhancing and being enhanced by the local community and stakeholders.

Given the nature and proximity of mining companies' operations to a range of communities, the importance of stakeholder engagement has been recognised by the mining and metals sector for a long time, as with other corporate sectors and organisational practices. Implementation of stakeholder engagement methods vary, but it is recognised as common practice to have engagement methods in place when operating within a community. Over time the depth and breadth of engagement methods and approaches are expanding in the mining industry and the benefits of deep and considered stakeholder engagement are being realised. In particular, vulnerable or minority stakeholder groups are being identified and recognised as being impacted negatively by mining activities. Artisanal and small-scale mining (ASM), characterised by labour-intensive mining activities with poor environmental and social practices, is a growing sub-sector

SUSTAINABILITY REPORTING REQUIREMENTS: GOVERNANCE HEATMAP

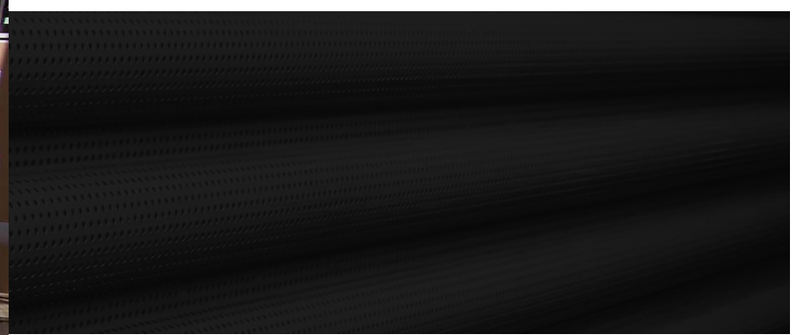
TABLE 6: NUMERICAL REPRESENTATION OF REPORTING REQUIREMENTS FOR EACH SCHEME OR INITIATIVE UNDER EACH GOVERNANCE REPORTING CATEGORY

(e.g., the table indicates there is 1 reporting requirement for the Global Reporting Initiative, and 1 for the Dow Jones Sustainability Index under the Customers reporting category).

Reporting Categories	IRMA	CERA	GRI	CDP	DJSI	RMI
CUSTOMERS			1		1	
BUSINESS INTEGRITY	1	3	3	2	2	5
COMPLIANCE	3	1	4			
RESETTLEMENT	5					3
TRANSPARENCY	5		1	2	15	8
CORRUPTION & COMPETITION	1	2	4		4	1
RISK MANAGEMENT	1				4	2

Legend	Highest	High	Medium	Low	Lowest

Note: IRMA=The Initiative for Responsible Mining Assurance, CERA=The Certification of Raw Materials, GRI=Global Reporting Initiative, CDP=Carbon Disclosure Project, DJSI=Dow Jones Sustainability Index, RMI=Responsible Mining Index



of the mining industry which creates significant employment in developing countries (this, however, may not necessarily apply to Australian-based operations). Globally, the inclusion and decent treatment of women and indigenous communities are being recognised as lacking and these vulnerable stakeholders are recognised as being an important focus of engagement when mining activities occur. Free Prior and Informed Consent (FPIC) has been adopted as a common standard by various national laws and international bodies as a process for engaging with and acknowledging the rights of indigenous people. The international law adopted in 1989; ILO Convention 169 on Indigenous and Tribal Peoples; suggests organisations demonstrate respect by obtaining the FPIC of indigenous peoples and provide culturally appropriate alternatives and adequate compensation and benefits for projects that affect indigenous peoples' rights (IFC, 2012).

Engaging people and diverse groups of stakeholders is not a one stop shop. Establishing and building healthy relationships takes time and is a long-term activity, therefore moving beyond measuring and reporting is vital when it comes to mining companies approaches to stakeholder and community engagement.

Seven voluntary schemes (IRMA, CERA, TSM, GRI, CDP, OECD, and RMI) and one regulatory reporting instrument (ECR) have requirements under various categories for the engagement indicator. This is indicative of the importance of engaging with stakeholders for the mining sector. The categories span engagement principles, community engagement, and engagement with specific groups (workers and trade unions, women, and indigenous communities).

COMPARISON OF REQUIREMENTS

Included in this analysis is a specific OECD Due Diligence Guide to Stakeholder Engagement which is solely focused on best practice engagement for the extractive sector, so has a lot of detail and relevance to this indicator. The guide was developed in line with the OECD Guidelines for Multinational Enterprises, one of four parts of the 1976 OECD Declaration on International Investment and Multinational Enterprises (OECD, 2017). This is very detailed guidance requiring a number of qualitative and quantitative measures of engagement across all of the categories listed from principles, to monitoring, to engaging with specific stakeholder groups such as ASM, women and indigenous communities and by far sets the standard for stakeholder engagement.

IRMA has the next most detailed requirements for engagement with 13 total requirements, followed by RMI with nine. These schemes include requirements for stakeholder engagement strategies and systems, scoping, procedures, stakeholder databases, grievance processes, documentation, and records as well as stipulations for specific stakeholder groups including ASM, women and Free Prior and Informed Consent (FPIC) for indigenous communities. RMI has specific requirements related to mine closure engagement. TSM has five requirements specifically focused on engaging with indigenous communities and obtaining FPIC. CERA, GRI and CDP have 2-3 requirements across stakeholder engagement management and specific requirements for ASM stakeholders, process, and due diligence.

The reporting occurs at both site and company level, with overall stakeholder engagement strategies and specific site-based stakeholder measures.

The OECD Due Diligence guide explicitly requests external verification by a third party. Other schemes do not mention verification.

IRMA, GRI and RMI schemes all require public reporting of some stakeholder engagement measures.

Following the OECD Due Diligence guide is a significant undertaking and requires establishing management systems and processes.

IRMA and RMI also require documentation and systems to be in place. The other schemes are less prescriptive in their requirements, but the nature of stakeholder engagement is time and resource intensive, therefore specific resources dedicated to performance in this area would be highly recommended.

There are various benefits to transparent and proactive engagement by mining companies. A social licence to operate, early identification of risks of adverse impacts, reducing time in obtaining approvals and negotiating agreements, avoiding the reputational risks and costs of conflict and grievances, improving corporate risk profile and attracting and retaining employees are just a few (OECD, 2017)

FINDINGS AND DISCUSSION

Several observations are presented as a result of our detailed commonalities analysis. The high-level findings are presented below, followed by an assessment of the commonalities between three schemes of focus we consider for no regrets adoption, and finally a discussion of results.

FINDINGS

- GRI, IRMA, and RMI feature an even coverage of reporting requirements across environmental, social and governance reporting categories and featured the most identified reporting categories of all disclosure instruments of focus, GRI with 131 total reporting categories, IRMA with 129, and RMI with 89. In some cases, commonalities in reporting requirements are identified between these schemes, however the requirements for measuring progress within each data category can differ. Refer to the findings and discussion section and the appendices for more detail on the differences identified.

- Commonalities between environmental compliance reporting and certification schemes or standards are found in some environmental reporting categories, namely GHG emissions reporting, water monitoring and reporting, and waste monitoring and reporting, creating opportunities for streamlining these areas between reporting mechanisms.

- Certification schemes and standards featured more requirements under social categories than for mandatory regulatory reporting. Therefore, a company/site may be acting in accordance with local regulations but having insufficient data or processes in place to meet all requirements of the various voluntary sustainability certification, reporting or assurance schemes.

- Common topic areas or data categories are found between reporting schemes beyond the three schemes of focus for commonality assessment (GRI, IRMA, and RMI), however in a similar case, if we dive down into more detail, the requirements for measuring progress within these categories are rarely the same.

- Companies should seek to assess their internal data and processes against the requirements of the various schemes to understand barriers to adoption. Improved understanding of data commonalities between schemes can help streamline this process.

- Under the environmental reporting theme, GRI featured the most reporting categories with 88 total categories, followed by IRMA with 61, and CDP with 57 total reporting categories.

- Under the social reporting theme, IRMA featured the most reporting categories with 53 total categories, followed by RMI with 39, and GRI with 32 total reporting categories.

- Under the governance reporting theme, DJSI featured the most reporting categories with 26 total categories, followed by RMI with 19, and IRMA with 16 total reporting categories.

- TSM did not feature any reporting categories for governance.

COMMONALITY ASSESSMENT FOR NO REGRETS ADOPTION

GRI, IRMA, and RMI featured a comprehensive coverage of reporting requirements across environmental, social and governance reporting categories and featured the most identified reporting categories of all disclosure instruments of focus, GRI with 131 total reporting categories, IRMA with 129, and RMI with 89. However, where commonalities are found between these schemes, the requirements for measuring progress within each category can differ. The commonalities and differences between these schemes under the environmental category are discussed below:

- IRMA featured more reporting categories under **air quality**, due to requirements to report specific substance emissions according to the EU Numeric Air Quality Standard indicators. GRI also featured reporting of several substances under their air quality indicator category, including particulate matter. Under Australian law companies are required to report on particulate matter and other air emissions, however requirements are limited at PM10, whereas IRMA requires monitoring and reporting PM2.5 and several other substances if relevant for certain operations. GRI also required specific reporting of ozone depleting substances & pollutants including CFCs, hazardous air pollutants, nitrogen oxide emissions, persistent organic pollutants, sulfur oxides, and volatile organic compounds.

- GRI and RMI include reporting requirements under **climate change** and IRMA does not. The predominant consideration under the climate change category is risk, with GRI focusing more on disclosure of financial risks and opportunities, while RMI is focused more on community, worker, and environmental risks. Three other schemes also focus on climate change risks DJSI, CDP, and TSM.

- GRI and RMI require reporting of Scope 3 **GHG emissions**, while IRMA does not. IRMA and GRI featured more requirements under GHG emissions management, and while all three schemes required emissions performance or reduction targets, IRMA additionally required annual third-party audits and GRI's additional focus was on monitoring emissions intensities.

- Reporting requirements were balanced across **biodiversity** reporting categories, all three schemes required screening and impact assessment procedures, however IRMA's requirements extended into stakeholder participation in biodiversity management, mitigation, and conservation planning and actions. IRMA and RMI also featured a requirement for companies to commit to not developing new mines in World Heritage Sites, IUCN protected areas or areas of UNESCO biosphere reserves. IRMA also required specific impact mitigation planning and management and included mine closure preparation as part of this category.

- GRI heavily outweighed other schemes in **energy** reporting requirements due to the disaggregated nature of reporting multiple energy sources and multiple energy uses. IRMA did not feature a specific reporting category for energy but does include energy reporting through electricity and fuel use under GHG emissions reporting. RMI's one energy indicator focused solely on energy performance and reduction measures. GRI also featured reporting requirements under energy performance targets and reductions.

- GRI and RMI feature specific reporting requirements under **mine closure** and although this is not a separate reporting category for IRMA, there is a requirement for mine closure planning under biodiversity, ecosystems, and protected areas.

- IRMA and RMI feature specific reporting requirements under **tailings management**, but GRI does not. Three common requirements include risk assessment, reporting and verification of risk and reviews. IRMA also requires copies of management procedures relating to tailings risk management including engineering design reports, facility classification reports, hydrology and facility mass balance reports, inundation analysis, and facility operations, maintenance, and surveillance manuals.

- RMI features requirements for **environmental management systems** to be integrated systematically at the company level with corporate oversight, formalised commitments, and company-wide policy making.

- GRI and RMI require **materials consumption and efficiency** monitoring, reporting, and target setting. GRI includes specific metrics on materials consumed to produce and package the primary product, categorised by non-renewable and renewable materials. RMI requires companies to track, review and act to improve their performance in terms of materials management and integrate re-use, repair, and recycling practices where applicable. CERA also featured requirements under materials consumption and efficiency.

- IRMA and RMI featured requirements under **noise and vibration**, but GRI did not. Both schemes required initial screening and assessment of impacts, management of impacts and community engagement at all stages. Depending on the proximity to communities, noise and vibration assessments can also be included as a requirement of Environmental Compliance Reporting and so reporting efficiencies could be achieved between regulated and voluntary reporting in some cases.

- IRMA required social screening criteria for suppliers and GRI required environmental and social screening of suppliers under the **supply chains** reporting category. GRI also required an environmental and social supply chain impact assessment and a climate change engagement strategy directly for suppliers.

- IRMA featured the most requirements under the **waste** reporting category, while GRI featured four requirements and RMI only featured one. IRMA's requirements focused on source characterisation and waste impact prediction, impact mitigation, emergency preparedness, and specific policies for cyanide and mercury management. GRI required significant level of disaggregation of reported waste data including the composition of waste material and categorisation of outputs according to hazardous and non-hazardous waste streams, tonnage disposed, and diverted, and those wastes diverted using recovery methods such as reuse and recycling. RMI requires systems for the management of hazardous waste materials.

- IRMA and GRI featured substantially more reporting categories under the **water** reporting category than RMI. CDP exceeded the reporting requirements of RMI in this area due to the CDP's specific water disclosure initiative. GRI required a high level of disaggregation in reported water withdrawal, consumption, and discharges according to water quality. IRMA and GRI featured commonalities in their consideration of watershed scale planning and management. All three initiatives integrate a water stewardship approach which integrates stakeholder engagement into activities. RMI includes a specific requirement to actively engage women from affected communities.

THE COMMONALITIES AND DIFFERENCES BETWEEN THESE SCHEMES UNDER THE SOCIAL CATEGORY ARE DISCUSSED BELOW:

- IRMA is the only scheme focused on **cultural heritages**, integrating impact assessment, management, employee training, and stakeholder engagement into reporting requirements.

- IRMA, GRI, DJSI, and RMI feature observed commonalities in **employee protection, fair labour, and terms of work** with 12, 13, 15, and 12 reporting requirements respectively, however issues of focus differ between initiatives. All included child labour and forced labour policies, except DJSI. IRMA's reporting categories are concentrated under employee protection mechanisms, exploitation protections, and fair labour and terms of work including freedom of association, living wage, and anti-discrimination policies. GRI features most reporting categories under employee hires and turnover, with a few reporting requirements under discrimination and harassment, career training, and gender pay indicators. DJSI almost exclusively focuses on employee hires and turnover with significant focus on indicators that monitor equitable hiring and promotion practices. RMI focuses on employee safety and protection initiatives, freedom of association, anti-discrimination policies, and local employment opportunities.

- IRMA and RMI feature the highest number of reporting categories under **stakeholder engagement** (outside of the OECD best practice comparison). Both featured coverage of stakeholder engagement with targeted groups including indigenous communities, women, and ASM entities. The key observable difference appears to be IRMA's inclusion of stakeholders in the design of the stakeholder engagement process, whereas RMI did not include this as a requirement. OECD best practice guidance also extended to workers and trade unions, however IRMA and RMI did not feature any requirements specifically directed at these groups.

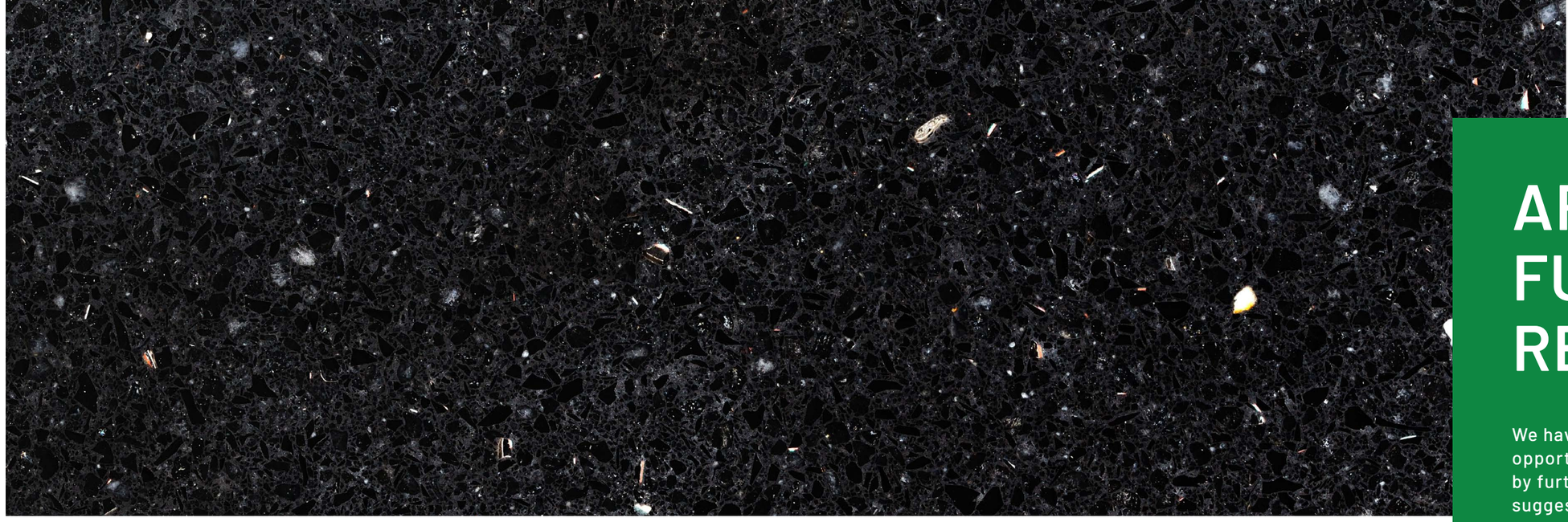
- IRMA features the highest number of reporting requirements under **community health, safety, and wellbeing**, CERA also features a higher number of reporting requirements under this category. IRMA covers considerations relating to conflict affected areas, infectious disease risks, and also integrates stakeholder engagement. GRI and RMI feature one requirement each for this category, RMI focuses on a general risk assessment process while GRI focuses on reporting violations.

- All three schemes are common in their inclusion and focus on **occupational health and safety** reporting categories, each requiring formal OHS policies and/or management plans, regular inspections and reports, OHS training, and reporting of work-related injuries.

- All feature reporting requirements under **human and community rights**, CERA also features common requirements under this reporting category. CERA focuses more on the rights of indigenous populations, while IRMA, GRI, and RMI focus on due diligence processes, risk management and mitigation.

- IRMA features requirements under **risk management** while GRI and RMI do not. IRMA's requirements are solely related to mining in conflict affected areas and include management plans, screening and impact assessment, and stakeholder collaboration.

- All three feature common requirements relating to **supply chain due diligence**, being a social and environmental risk assessment related to suppliers.



Discussion

Adoption of sustainability assurance schemes is still emerging. Adopting one scheme over another comes with a large burden of consideration, particularly in terms of the associated reputational and financial benefits and risks. However, sustainable development is a continual process and adoption of any single approach does not mean a company can rest on its laurels. Continual improvements in business and production practices will be required, regardless of the scheme adopted, to satisfy the evolving expectations of both downstream purchasers and community stakeholders that influence them. Some companies may choose to engage with an entry level performance standard, one that addresses fewer performance requirements and satisfies the short-term requirements of the current market to gain early market advantage while reducing the burden of data collection. However, expectations of a global market change rapidly, and laudable practices of some years ago can readily become minimum expectations when looking ahead. The historical evolution of sustainability disclosure suggests that environmental, social, and governance issues of focus rarely change completely or disappear from reporting requirements, but rather they increase in their complexity. Therefore, the burden of sustainability assurance reporting will no doubt continue to increase for materials producers, suggesting that there may be value in aiming for a higher bar, resulting in a larger hurdle jumped early on and smaller incremental improvements over time.

Given the complexity and evolving nature of sustainable supply chain assurance in the battery material sector, it is not possible to recommend one scheme over another as a suitable candidate for the requirements of end markets. On the one hand, no one scheme offers complete coverage of all environmental, social and governance reporting categories represented. One certification scheme IRMA and two assurance standards, GRI and RMI, go close to covering most of the reporting categories under analysis, however gaps in coverage still exist between each of these voluntary instruments. Additionally, interpretation of the requirements of each assurance instrument can differ between adopters. Some schemes, such as IRMA, reduce the potential for differing interpretations by introducing detailed forms of evidence to satisfy meeting reporting requirements. Where other schemes provide overarching guidance on the types of issues that companies may want to address and leave the determination of performance metrics open to interpretation. Based on the completeness of coverage and evidence required to meet reporting categories we consider three schemes that could offer a no regrets approach for mine site sustainability assurance, IRMA, GRI and RMI, noting that IRMA is the only scheme that currently offers mine site certification.

We have presented an analysis of the commonalities between IRMA, GRI, and RMI, three sustainability assurance standards that offer a comprehensive coverage of reporting requirements under environmental, social, and governance reporting categories. Our analysis of common requirements highlights the variance of focus for each scheme, despite their share of commonalities. This emphasises the difficulty that may be experienced by mining companies looking to adopt certification, particularly in choosing one scheme over another. However, we consider that adopting a more stringent approach early on, through a scheme that offers wide coverage of multiple reporting categories and is sufficiently detailed to avoid too much interpretation between adopters could be an appropriate approach for early adopters. This would have the added benefit of being able to provide assurance documents from one standard and cover off on the requirements of other standards of preference for end markets, minimising the need to revisit the management and assessment process. We also consider that there may be some hesitancy engaging with a scheme due to the costs associated and some concern that a mine site may not meet minimum requirements. IRMA offers an entry point that may alleviate anxiety around not meeting more stringent requirements, via a confidential self-assessment. This offering also minimises upfront costs as companies move through the process of understanding the full weight of the undertaking. We reiterate that sustainable development is a pathway to sustainability. It involves a continual process of improvement and engaging with sustainability assurance standards or certification schemes should be seen as a starting point on the journey to a more sustainable future.

AREAS FOR FUTURE RESEARCH

We have identified, through this research, opportunities to extend the progress in this field by further research. The following avenues are suggested possibilities:

- Identify reporting requirements that align between LCA and certification. This will enable opportunities for streamlining sustainability assessment and reporting processes for the battery materials industry.
- Industry engagement to understand the relative ease or difficulty mines may face in reporting to the standards of focus. This should include a data gap analysis that assesses industry's readiness for adoption of certification schemes or standards. Understanding the gap between standards and industry readiness will facilitate a targeted approach to industry support and better enable future adoption.
- Pilot certification of an Australian mine site to understand opportunities and barriers for adoption. Piloting an Australian mine site through the sustainability certification process will benefit both the Australian battery materials industry and certification service providers by increasing understanding around which approaches are appropriate for the Australian context. A pilot certification will provide a tailored blueprint for future Australian adopters.
- Develop or collaborate with developers on a streamlining tool that accepts various industry data sources into a common reporting framework, and processes data according to various reporting outputs – i.e., certification, standards, regulatory reporting. A meshing tool that facilitates reporting to multiple formats will enable an agile approach to sustainability reporting for end markets.

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APPENDIX 1: DETAILED ENVIRONMENTAL COMPARISON TABLES

Air quality

AIR QUALITY	IRMA	CERA	GRI	RMI	NPI	ECR
REPORTING CATEGORIES	17	4	7	3	4	5
Screening and impact assessment	• Air quality screening and assessment document(s) • Baseline air quality monitoring data, modelling results, and reports. • Dispersion model (i.e., potential % contribution of dust and emissions in relation to mining activity). • Comparison of potential or actual emissions to national or WHO air quality standards. • Comparison of potential or actual annual emissions of PM10, NOx and SO2 and heat input of any combustion sources to IFC guidance (see Explanatory Notes). • Names and credentials of service-providers that carried out or verified emission tests or modelling. • Meteorology data/reports.	• Due diligence process to identify hazards and mitigate related risks to air quality • Company derived indicators			• Environmental impact assessment	• Screening and impact assessment requirements vary between states
Management plan	• Air quality management plan	• Emissions and waste management plan				• Environmental management plan
Monitoring and performance	• Air quality monitoring program description (methodologies, monitoring locations, map of locations, monitoring schedule, etc.). • Air quality monitoring data • Comparison of operational air quality monitoring data with EU Air Quality Standards.	• Measure performance against company derived indicators		• Air quality data for each monitoring point • Non-compliance	• Monitoring of identified NPI emissions sources	• Management plan compliance monitoring
Reporting emissions	• The most recent air quality monitoring data. EU Numeric Air Quality Standard indicators (Sulphur dioxide, Nitrogen dioxide, Fine particles PM-2.5, PM-10, Lead, Carbon Monoxide, Benzene, Ozone, Arsenic, Cadmium, Nickel, Polycyclic Aromatic Hydrocarbons) • Links to the website(s) and/or a list of physical locations (e.g. nearby community facility) where the air quality management plan and compliance information (e.g., data showing that emissions limits have been met) can be accessed. • Photographs of physical locations show that information is available as advertised at physical locations.	• Public disclosure of performance against company derived indicators	• Significant air emissions in kilograms or multiples, for each of the following: i. NOx. ii. SOx. ii. Persistent organic pollutants (POP). iv. Volatile organic compounds (VOC). v. Hazardous air pollutants (HAP). vi. Particulate matter (PM). vii. Other standard categories of air emissions are identified in relevant regulations. • Source of the emission factors used • Standards, methodologies, assumptions, and/or calculations tools used.	• Regular public disclosure of air quality data for each monitoring point • Non-compliance incidents	• Reporting on NPI emissions above reportable emissions thresholds (including PM10, ...)	• Environmental compliance reporting on emissions including (PM10, ...)
Employee training	• Records of employee training related to air quality monitoring					
Stakeholder engagement	• Correspondence with or records of requests for air quality information from stakeholders (and company responses). • Records of presentations and meetings with stakeholders related to air quality management strategies and performance (e.g., meeting minutes or notes, attendee lists). • Documented stakeholder grievances related to air quality management and company response.			• Involve affected communities (incl women) in air quality management		

Greenhouse gas emissions

GHG EMISSIONS REPORTING	IRMA	CERA	TSM	GRI	CDP	DJSI	RMI	NGER
REPORTING CATEGORIES	2	2	2	3	3	3	3	2
Scope 1	• Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3).	• Environmental policy to ensure effective monitoring of emissions and public disclosure of performance	• Annual public reporting on GHG emissions at the facility level	• Gross direct (Scope 1) GHG emissions in metric tons of CO_2 equivalent including CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all • Biogenic CO_2 emissions in metric tons of CO_2 equivalent	• Base year and base year emissions. • Total gross global Scope 1 emissions by country/ region, business division, business facility, business activity and sector production activity in metric tons CO_2e. • Sources (e.g., facilities, specific GHGs, activities, geographies, etc.) of Scope 1 emissions within reporting boundary not included • Scope 1 emissions by greenhouse gas type and source of each used global warming potential (GWP).	• Metric tons of CO_2 equivalents for the current year and three years prior. • Percentage of data coverage.	• Track, review, and act to improve performance on reducing Scope 1 GHG emissions	• Carbon dioxide (CO_2), methane (CH4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6) and specified kinds of hydro fluorocarbons and perfluorocarbons in tonnes of CO_2e
Scope 2	• Annual reporting on GHG emissions from energy purchased and consumed at the mine site level.	• Environmental policy to ensure effective monitoring of emissions and public disclosure of performance	• Annual public reporting on GHG emissions at the facility level	• Gross location-based energy indirect (Scope 2) GHG emissions in metric tons of CO_2 equivalent. • Gross market-based energy indirect (Scope 2) GHG emissions in metric tons of CO_2 equivalent • Gases included in the calculation; CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all	• Base year and base year emissions (Scopes 1 and 2). • Total gross global Scope 1 emissions by country/ region, business division, business facility, business activity and sector production activity in metric tons CO_2e. • Sources (e.g., facilities, specific GHGs, activities, geographies, etc.) of Scope 1 emissions within reporting boundary not included • Scope 1 emissions by greenhouse gas type and source of each used global warming potential (GWP).	• Metric tons of CO_2 equivalent from energy purchased and consumed (without energy trading) • Data for the last 4 years (recommend Greenhouse Gas Protocol).	• Track, review, and act to improve performance on reducing Scope 2 GHG emissions	• Annual reporting on GHG emissions over the NGER threshold from energy purchased and consumed at the mine site level.
Scope 3				• Gross other indirect (Scope 3) GHG emissions in metric tons of CO_2 equivalent CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all. • Biogenic CO_2 emissions in metric tons of CO_2 equivalent. • Other indirect (Scope 3) GHG emissions categories and activities included in the calculation	• Gross global Scope 3 emissions, disclosing and explaining any exclusions.	• Account for all scope 3 emissions and disclose and justify exclusions (Completeness Principle of the GHG Protocol Scope 3 Standard).	• Track, review, and act to improve performance on reducing Scope 3 GHG emissions.	

Greenhouse gas emissions performance and management

GHG EMISSIONS MANAGEMENT	CERA	TSM	GRI	CDP	DJSI	RMI
REPORTING CATEGORIES	1	2	3	5	1	1
Management systems	• Emissions and waste management plan	• Systems in place at the facility level to manage energy, GHG emissions, physical climate impacts and adaptation (supported by MAC's Guide on Climate Change Adaptation for the Mining Sector)				
Calculation methods			• Base year for calculation including rationale, emissions, and context for significant changes that triggered recalculations • Source of emission factors and global warming potential (GWP) rates used, or reference to the source. • Consolidation approach for emissions; equity share, financial control, or operational control • Standards, methodologies, assumptions, and/or calculation tools used.	• Standard, protocol, or methodology to collect activity data and calculate emissions. • Approach to reporting Scope 2 emissions. • Gross global emissions (Scope 1 and 2 combined) compared to the previous year • Reason for change in gross global emissions (Scope 1 and 2 combined) compared to the previous year. • Emissions performance calculations basis (location- or market-based Scope 2)		
Intensities			• GHG emissions intensity ratio for an organisation. • Organisation-specific metric (the denominator) is chosen to calculate the ratio • Types of GHG emissions included in intensity ratio; direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3). • Gases included in the calculation; CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all.	• Emissions intensity target(s) and progress made against those target(s). • Gross global combined Scope 1 and 2 emissions in metric tons CO_2e per unit currency total revenue • Additional intensity metrics appropriate to business operations.		

Greenhouse gas emissions performance and management

GHG EMISSIONS MANAGEMENT CONTINUED.	IRMA	TSM	GRI	CDP	DJSI	RMI
REPORTING CATEGORIES	2	2	3	5	1	1
Performance and reduction targets	• Greenhouse gas action plan (GHG reports, studies, GHG policy or another relevant document(s)), specific to the mine, with sufficient detail to understand and measure mine's reduction goals and targets and success over a defined period, updated throughout the course of mine's life • Evidence policy is publicly available (e.g., link to website, list of publicly accessible locations where the document can be found, etc.). • Documentation of meetings or communications with stakeholders (e.g., meeting minutes, correspondence, etc.) where information on the mining project's greenhouse gas emissions and reduction strategies have been shared.	• Energy and GHG emissions performance targets are established at the facility level, annual public reporting on energy, GHG emissions, potential physical climate impacts, and adaptation measures.	• GHG emissions are reduced as a direct result of reduction initiatives, metric tons of CO_2 equivalent. • Gases included in the calculation; CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all. • Scopes in which reductions took place; direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3). • Standards, methodologies, assumptions, and/or calculation tools used.	• Absolute emissions target(s) and progress • Other climate-related targets • Target(s) to increase low-carbon energy consumption or production. • Other climate-related targets, include methane red uction targets. • Emissions intensity target(s) and progress • Net-zero target(s).		• Track and disclose data against reduction targets and across successive time periods, on performance reducing Scope 1, 2, and 3 GHG emissions • Audits and/or reviews of the effectiveness of measures taken to reduce Scope 1, 2 and 3 GHG emissions • Responsive actions, based on findings of audits and/or reviews, to continuously improve the effectiveness of measures taken to reduce Scope 1, 2 and 3 GHG emissions
Investment in mitigation				• Emissions reduction initiatives include planned and/or implementation phases. • Total number of initiatives at each stage of development, and for those in implementation stages, estimated CO_2e savings. • Methods to drive investment in emissions reduction activities		
Verification and assurance	Disclosure to IRMA auditors on an annual basis: • GHG emissions • progress on reduction targets and efforts to reduce mining related emissions			• Verification/assurance status of reported emissions. • Evidence of verification/assurance of Scope 1, 2 and 3 emissions • Verification of climate-related information other than emissions figures • Verification of CDP disclosure data points, and verification standards used	• Data publicly available on Scope 1, 2 and 3 emissions • Third-party verification for recent year data (GHG Protocol recommended).	

Energy

ENERGY CONSUMPTION	GRI	CDP	DJSI	NGER
REPORTING CATEGORIES	17	10	7	8
Total energy consumption	• Total energy consumption within the organisation • Standards, methodologies, assumptions, and tools used • Source of conversion factors.	• Organisation energy consumption totals (excluding feedstocks) in MWh (including energy related activities and percentage of total operational spend on energy) • Organisation energy consumption totals (excluding feedstocks) for metals and mining production activities in MWh.	• Total non-renewable energy (in MWh). • Third party verification for the most recent financial year of reporting.	• Total use or disposal of energy from the operation of the facility, including for own use and losses in extraction, production, and transmission.
Cooling consumption	• In joules, watt-hours, or multiples	• Total cooling your organisation has consumed in the reporting year. • Total cooling your organisation has consumed for metals and mining production activities. • Total cooling amounts that were accounted for at a zero-emission factor in the market-based Scope 2 figure	• Cooling consumption in MWh • Third party verification for the most recent financial year of reporting.	
Heating consumption	• In joules, watt-hours, or multiples	• Total heating your organisation has consumed in the reporting year. • Total heating your organisation has consumed for metals and mining production activities. • Total heating amounts that were accounted for at a zero-emission factor in the market-based Scope 2 figure	• Heating consumption in MWh • Third party verification for the most recent financial year of reporting.	• All electricity purchased for purpose of heating in kWh. Threshold = at least 20,000kWh
Steam consumption	• In joules, watt-hours, or multiples	• Total steam your organisation has consumed in the r eporting year. • Total steam your organisation has consumed for metals and mining production activities. • Total steam amounts that were accounted for at a zero-emission factor in the market-based Scope 2 figure	• Steam consumption in MWh • Third party verification for the most recent financial year of reporting.	• All electricity purchased for purposes of steam production in kWh. Threshold = at least 20,000kWh
Downstream consumption	• Energy consumption outside of the organisation • Standards, methodologies, assumptions and/or tools used • Source of conversion factors			
Upstream consumption	• Energy consumption outside of the organisation • Standards, methodologies, assumptions and/or tools used • Source of conversion factors			
Total fuel consumption	• Total fuel consumption within the organisation from non-renewable sources, in joules or multiples, and including fuel types used	• Applications of your organisation's consumption of fuel. • Fuel in MWh consumed (excluding feedstocks) by fuel type.		• All energy from fuel consumption must be reported, this includes fugitive emissions (venting, flaring and leakage). • Fuel consumed by combustion (i.e., onsite gas-powered generator, flaring) • Fuel consumed without combustion (i.e., losses to the atmosphere)

Energy

ENERGY CONSUMPTION CONTINUED	GRI	CDP	DJSI	NGER
REPORTING CATEGORIES	17	10	7	8
Non-renewable fuel consumption			• Non-renewable fuels consumed in MWh. • Third party verification (TPV) for the most recent financial year of reporting.	
Renewable fuel consumption	• Total fuel consumption within the organisation from renewable sources, in joules or multiples, and including fuel types used.			
Total electricity consumption	• In joules, watt-hours, or multiples	• Total electricity your organisation has consumed in the reporting year. • Total electricity your organisation has consumed for metals and mining production activities.		• The amount of electricity consumed from the operation of the facility must be evidenced by invoices, contractual arrangements, or industry metering records.
Non-renewable electricity consumption			• Non-renewable electricity purchased in MWh • Third party verification (TPV) for the most recent financial year of reporting.	• All electricity purchased in kWh. Threshold = at least 20,000kWh
Renewable electricity consumption		• Total electricity amounts that were accounted for at a zero-emission factor in the market-based Scope 2 figure	• Total renewable energy in MWh. • Third party verification (TPV) for the most recent financial year of reporting.	

Energy

ENERGY PRODUCED & SOLD	GRI	CDP	NPI	NGER
REPORTING CATEGORIES	17	10	1	8
Electricity production		• Electricity generated in the reporting year. • Electricity generated and consumed for metals and mining production activities. • Electricity amounts that were accounted for at a zero-emission factor in the market-based Scope 2 figure reported.		• Electricity generated, if more than 100,000kWh per generating unit in the reporting period.
Total energy production		• Energy generated in the reporting year. • Energy generated for metals and mining production activities. • Energy generation amounts that were accounted for at a zero-emission factor in the market-based Scope 2 figure reported.	• Onsite energy production using power generators.	• Extraction or capture of energy from natural sources for final consumption by or from the operation of the facility, or for use other than in the operation of the facility. • Solid, liquid, or gaseous fuel extracted / produced / captured onsite
Total energy sold	• In joules, watt-hours, or multiples			
Cooling sold	• In joules, watt-hours, or multiples			
Electricity sold	• In joules, watt-hours, or multiples			
Heating sold	• In joules, watt-hours, or multiples			
Steam sold	• In joules, watt-hours, or multiples			

ENERGY MANAGEMENT	GRI	CDP	RMI
REPORTING CATEGORIES	17	10	1
Energy intensity	• Energy intensity ratio for the organisation. • Organisation-specific metric (the denominator) chosen to calculate the ratio. • Types of energy included in the intensity ratio; whether fuel, electricity, heating, cooling, steam, or all. • Whether the ratio uses energy consumption within the organisation, outside of it, or both.		
Energy performance targets and reductions	• Reductions in energy consumption achieved as a direct result of conservation and efficiency initiatives, in joules or multiples. • Types of energy included in the reductions; whether fuel, electricity, heating, cooling, steam, or all. • Basis for calculating reductions in energy consumption, such as base year or baseline, including the rationale for choosing it. • Standards, methodologies, assumptions, and/or calculation tools used.	• Classification of any existing goods and/or services considered low-carbon products • Whether they enable a third party to avoid GHG emissions	• Track and disclose data, against reduction targets and across successive time periods, on performance on reducing energy consumption throughout operations. • Audits and/or reviews the effectiveness of measures taken to reduce energy consumption throughout operations. • Responsive action taken, based on the findings of audits and/or reviews, to seek to improve the effectiveness of measures taken to reduce energy consumption
Reduction in energy requirements of products and services	• Reductions in energy requirements of sold products and services achieved during the reporting period, in joules or multiples. • Basis for calculating reductions in energy consumption, such as base year or baseline, including the rationale for choosing it. • Standards, methodologies, assumptions, and/or calculation tools used.		

Water

WATER WITHDRAWALS	IRMA	GRI	CDP	DJSI
REPORTING CATEGORIES	17	24	15	7
Total water withdrawals		• Total water withdrawal from all areas (ML)	• Total volumes of water withdrawn across all operations and comparison to previous year	
Surface water withdrawals	• Documentation of surface water baseline or background water quantity data (e.g., raw data, a summary report). • Report on environmental flow requirements. • Water quantity monitoring data.	• Total water withdrawal from surface water (ML)		• Total freshwater surface withdrawals (rivers, lakes etc) for last 4 yrs. • Water returned to the source of extraction as discharge at similar or higher quality as extracted water for last 4 yrs. • Total net fresh water (in Million cubic meters) for last 4 yrs. • Third party verification of data for most recent financial year
Groundwater withdrawals	• Documentation of groundwater baseline or background water quantity data (e.g., raw data, a summary report). • Report on environmental flow requirements. • Water quantity monitoring data.	• Total water withdrawal from groundwater water (ML)		• Total fresh groundwater withdrawal for last 4 yrs. • Water returned to the source of extraction as discharge at similar or higher quality as extracted water for last 4 yrs. • Total net fresh water (in Million cubic meters) for last 4 yrs. • Third party verification of data for most recent financial year
Seawater withdrawals		• Total water withdrawal from seawater water (ML)		
Produced water withdrawals		• Total water withdrawal from produced water (ML)		
Municipal or third-party withdrawals		• Total water withdrawal from third-party water (ML)		
Withdrawals from water stressed areas		• Total water withdrawals from all areas with water stress in megalitres.	• Water withdrawn from areas with water stress and proportion.	

WATER CONSUMPTION	IRMA	GRI	CDP	RMI
REPORTING CATEGORIES	17	24	15	8
Total water consumption		• Total water consumption from all areas (ML).	• Total volumes of water consumed across all operations and comparison to previous year	• Track and disclose data, • on water consumption
Consumption from water stressed areas		• Total water consumption from all areas with water stress in megalitres.		
Recycled and reused		• Total volume of water recycled and reused • Total volume of water recycled and reused as a percentage of the total water withdrawal		
Performance improvements			• Total volumes of water withdrawn, discharged, and consumed across all operations and comparison to previous year • Water intensity information for metals and mining activities • Intensity information associated with your metals and mining activities for top five products by revenue: freshwater withdrawals and consumption, total water withdrawals and consumption, total water use	• Track and disclose data, against targets and across successive time periods, on its performanceon reducing water consumption • Audits and/or reviews on the effectiveness of measures taken to reduce water consumption • Responsive actions taken, based on the findings of audits and/or reviews, to seek to improve the effectiveness of measures taken to reduce water consumption
Stakeholder engagement	• Records of meetings or correspondence with potentially affected stakeholders related to proposed changes in water quantity/supplies. • Records of stakeholder grievances related to changes in water quantity, and the company's responses.			• Discuss with affected communities how to manage access to shared water resources • Actively involve women from affected communities in discussing how to manage access to shared water resources • Involve affected communities in the decisions made to reduce its water consumption

Water

WATER DISCHARGES	GRI	CDP	DJSI
REPORTING CATEGORIES	24	15	7
Total water discharges	• Total water discharge to all areas (ML) and volume sent for use to other organisations, if applicable. • Breakdown of total water discharged by: ζ Freshwater (≤1,000 mg/L total dissolved solids) ζ Other water (>1,000 mg/L total dissolved solids).	• Total volumes of water withdrawn, discharged, and consumed across all operations, compare to previous reporting year • Highest treatment level(s) of discharge within direct operations	• Water returned to source of extraction as discharge at similar or higher quality as extracted water (Million Cubic meters) for last 4 yrs. • Third party verification of most recent financial year
Discharges to surface water	• Total water discharge to surface water (ML) • Breakdown of total water discharged by: ζ Freshwater (≤1,000 mg/L total dissolved solids) ζ Other water (>1,000 mg/L total dissolved solids).		• Total fresh surface water withdrawal (lakes, rivers, etc) for last 4 yrs. • Total net fresh water (in million cubic meters) for last 4 yrs. • Third party verification of most recent financial year
Discharges to groundwater	• Total water discharge to groundwater (ML) • Breakdown of total water discharged by: ζ Freshwater (≤1,000 mg/L total dissolved solids) ζ Other water (>1,000 mg/L total dissolved solids).		• Total fresh groundwater withdrawal for last 4 yrs. • Third party verification of most recent financial year
Discharges to municipal or third-party	• Total water discharge to third-party water (ML) • Breakdown of total water discharged by: ζ Freshwater (≤1,000 mg/L total dissolved solids) ζ Other water (>1,000 mg/L total dissolved solids).		• Total municipal water withdrawal for last 4 yrs. • Total net fresh water (in Million cubic meters) for last 4 yrs. • Third party verification of most recent financial year
Discharges to sea water	• Total water discharge to seawater (ML) • Breakdown of total water discharged by: ζ Freshwater (≤1,000 mg/L total dissolved solids) ζ Other water (>1,000 mg/L total dissolved solids).		
Discharges to water stressed sources	• Total water discharge to water stressed areas (ML) • Breakdown of total water discharged by: ζ Freshwater (≤1,000 mg/L total dissolved solids) ζ Other water (>1,000 mg/L total dissolved solids).		

DISCHARGE IMPACT MITIGATION	IRMA	GRI
DATA CATEGORY	17	24
Mixing zones	• Mixing zone risk assessment (including inter-disciplinary considerations, e.g., socio-economic, biodiversity). • Documentation of evaluation of mitigation measures to reduce contamination in mixing zone to reduce size (e.g., studies, memos, reports). • Documentation of all water users affected by mixing zone, and documentation of agreements for any substitution of water supplies, if necessary. • Baseline and seasonal water quality monitoring data from inside mixing zone. • Biologic monitoring of aquatic life in surface water mixing zones. • Records (e.g., studies or observations) of migratory fish behaviour (if any present). • Records of effluent discharges into mixing zone (including volumes, dates, times), and comparison with records of typical local hydrograph.	
Priority substances of concern		• Priority substances of concern for which discharges are treated • How priority substances of concern are defined (international standard, authoritative list, or criteria used) • Approach for setting discharage limits for priority substances of concern • Number of incidents of non-compliance with discharge limits.
Monitoring and mitigation of discharge impacts	• Site characterization and prediction of potential Impacts ζ Baseline water quality and quantity ζ Evaluation of mining-related chemicals, wastes, facilities and activities that may pose a risk to water quality ζ Documentation of the mine's predicted water use, and any mining activities that may affect water quantity. ζ Conceptual site model ζ Mine site water balance inputs, calculations and results, and comparison to actual data ζ Water treatment evaluation and determination ζ Records of collaboration with stakeholders to identify water quantity and quality impacts on current and future water uses. • Equipment calibration and QA/QC documentation. • Location of data points • Mitigation options under consideration, and rationale for selection • Proposed and/or agreed strategies for avoiding or minimizing impacts, carrying out restoration, and addressing residual impacts that cannot be restored (e.g., offsets, compensation). • Records of meetings or communications where mitigation options were discussed and evaluated.	• Minimum standards for the quality of effluent discharge • How standards for facilities operating in locations with no local discharge were determined • Details of internally developed water quality standards or guidelines • Details of sector-specific standards considered • Profile of the receiving waterbody

Water

WATER GOVERNANCE	CDP
REPORTING CATEGORIES	15
Climate risk	• Climate-related scenario analysis to inform business strategy • Water-related outcomes from climate-related scenario analysis (detail and response)
Supply chain engagement & collaboration	• Water projects implemented or collaborated on due to CDP supply chain member engagement (name CDP supply chain member(s) • Proportion of suppliers requested to report on water use, risks and/or management information and proportion of your procurement spend this represents • Other water-related supplier engagement activities. • Rationale and strategy for prioritizing engagements with customers or other partners in the value chain • Reasons for not engaging with the value chain on water-related issues
Financial impact	• Water-related opportunities with potential to have a substantive financial or strategic impact on business • Response to water-related risks in the most recent mainstream financial report • Trend in water-related capital expenditure (CAPEX) and operating expenditure (OPEX) and the anticipated trend for the next reporting year • Internal price on water • Identified risks in direct operations with the potential to have a substantive financial or strategic impact on your business and response.
Governance & disclosure	• Water policy • Board level oversight of water-related issues (provide detail and position(s) of the individuals • Highest management-level position(s) or committee(s) with responsibility for water-related issues • Incentives to C-suite employees or board members for management of water-related issues • Activities that could either directly or indirectly influence public policy on water • Processes to ensure all direct and indirect activities seeking to influence policy are consistent with water policy/water commitments

WATER GOVERNANCE	CDP
REPORTING CATEGORIES	15
Impacts & compliance	• Detrimental water-related impacts (describe, response and total financial impact). • Fines, enforcement orders, and/or other penalties for water-related regulatory violations • Total number and financial value of all water-related fines, enforcement orders and/or other penalties for water-related violations and plans for resolving
Risk management	• Water-related risk assessment and procedures, contextual issues considered, stakeholders considered • Process for identifying, assessing, and responding to water-related risks within direct operations and other stages of the value chain. • Inherent water-related risks with the potential to have a substantive financial or strategic impact on business (define substantive financial or strategic impact) • Total number of facilities exposed to water risks with potential to have substantive financial or strategic impact on business, and proportion of your company-wide facilities • Number and proportion of facilities (by river basin) exposed to water risks that could have a substantive financial or strategic impact on business, and potential business impact associated with those facilities • Risks identified within value chain (beyond direct operations) with potential to have a substantive financial or strategic impact on your business and response
Strategy & targets	• Setting and monitoring water-related targets and/or goals. • Water targets monitored at corporate level and progress • Water goal(s) monitored at corporate level and progress

Water

WATER MANAGEMENT	IRMA	CERA	TSM	GRI	CDP
REPORTING CATEGORIES	17	2	4	24	15
Water management	• Adaptive management plan for water • Adaptive management actions that will occur if certain outcomes (e.g., specific impacts), indicators, thresholds or trigger levels are reached, and timelines for completion. • Records of on-site incident management and actions associated with adaptive management. • Documentation (e.g., correspondence) between monitoring teams and mine site management confirming recommendations for adaptive management and implementation of recommended actions. • Documentation confirming assessment of stakeholder proposals.	• Environmental policy to ensure effective monitoring of emissions and waste streams • Due diligence process to identify hazards and mitigate related risks • Key performance indicators and measure performance against them • Public disclosure of performance against indicators	• Water-related plans and management systems implemented at the facility level for water quality and water quantity.	• How and where water is withdrawn, consumed, and discharged, and the water-related impacts caused or contributed to, or directly linked to the organisation's activities, products, or services by a business relationship (e.g., impacts caused by runoff) • Explanation of process for setting any water-related goals and targets part of organisation's management approach, and how they relate to public policy and local context of each area with water stress.	• Water-related issues are integrated into a long-term strategic business plan and how • Water intensity is valued for the organisation's products or services.
Impact assessment & mitigation	• Additional analyses to further predict and quantify the potential impacts: ζ Conceptual site model (CSM) (mine-related contamination to water sources) ζ Numeric mine site water balance model (flow and groundwater level condition impacts) ζ Prediction of whether water treatment will be required to mitigate impacts on water quality during operations and mine closure/post-closure. ζ Comparison of predictions to actual data • Documentation on model descriptions, methods, assumptions, uncertainties, sensitivity analyses, model evaluations and revisions.	• Environmental policy to ensure effective monitoring of emissions and waste streams • Due diligence process to identify hazards and mitigate related risks • Key performance indicators and measure performance against them • Public disclosure of performance against indicators		• Description of how the organisation interacts with water, including how and where water is withdrawn, consumed, and discharged, and the water-related impacts caused or contributed to, or directly linked to the organisation's activities, products, or services by a business relationship (e.g., impacts caused by runoff) • Description of the approach used to identify water-related impacts, including the scope of assessments, timeframe and any tools, or methodologies used.	

Water

WATER MANAGEMENT CONTINUED	IRMA	TSM	GRI	RMI
REPORTING CATEGORIES	17	4	24	8
Scoping & screening	• Scoping process includes collaboration with relevant stakeholders, to identify potentially significant impacts the mining project may have on water quantity and quality, and current and potential future water uses. Include an evaluation of mining-related chemicals, wastes, facilities and activities that may pose a risk to water quality, mine's use of water, and any mining activities that may affect water quantity. • Reports / impact assessments of evaluations of mining-related chemicals, wastes, facilities and activities that pose a risk to water quality • Estimates, calculations, reports, or studies, of mine's predicted water use, and any mining activities affecting water quantity. • Records of collaboration with stakeholders to identify potentially significant impacts the project may have on water quantity and quality, and current and potential future water uses.			
Stakeholder engagement	• Reports, studies, or ESIA, into shared water challenges at local and regional level. • Documentation of collaborative research into water use and/or impact on a local and/or regional level. • Documentation of existing water rights holders, non-water rights users, and stakeholders, including contact details. • Documentation of mapping or similar exercise with stakeholders to identify water users and other stakeholders who might have an interest in the mine's water management. • Records of meetings with stakeholders where they contributed input on the identity of water users and other water stakeholders. • Records of decisions made following meetings with stakeholders and records of action plans proposed for implementation.	• Water users and COI participate in watershed-scale planning and governance fora, where they exist	• Description of how water-related impacts are addressed, including how the organisation works with stakeholders to steward water as a shared resource, and how it engages with suppliers or customers with significant water-related impacts.	• Systems in place to ensure its operations consult with potentially affected water users in the development of water stewardship strategies and plans • Involve affected communities in making decisions to manage water quality • Actively involve women from affected communities in making decisions to manage water quality
Stewardship	• Documentation of company research (e.g. reports, studies, ESIA, etc.) into shared water challenges at the local and regional levels. • Documentation of company actions to contribute positively to local and regional water stewardship outcomes (e.g. provision of support to government or NGO-led initiatives related to water stewardship; participation in meetings with other water stakeholders seeking to address water challenges; participation in local or regional water planning processes; etc.). • Documentation of collaborative research into water use and/or impact on a local and/or regional level.	• Commitment and accountabilities in place and communicated to relevant communities of interest to support water stewardship.	• Description of how water-related impacts are addressed, including how the organisation works with stakeholders to steward water as a shared resource, and how it engages with suppliers or customers with significant water-related impacts.	• Systems in place to ensure operations develop water stewardship strategies and plans, based on a catchment-level approach, to respect the water needs and rights of current and future water users and the environment • Systematically track the implementation of water stewardship strategies

Water

WATER MANAGEMENT CONTINUED	IRMA	GRI
REPORTING CATEGORIES	17	24
Baseline assessment	• Baseline or background data to reliably determine seasonal and temporal variability in physical, chemical and biological conditions of surface waters, natural seeps/springs and groundwaters that may be affected by the mining project. ζ Geomorphology, depth and width of water bodies, temperature, pH, oxygen reduction potential (ORP), electrical conductivity (EC), dissolved oxygen (DO), concentrations of nutrients, chemicals, metals, dissolved and suspended solids, species of aquatic flora and fauna, including the status of those species (composition, abundance, diversity and distribution, population size/ density and other relevant measures/attributes). • Baseline or background data to reliably determine water quantity affected by mining project: ζ water flows (feet or m per second), ζ lake volumes (surface water height relative to a fixed reference level), ζ groundwater (height or level relative to a reference elevation) • Sources of contamination and changes in water quantity or quality that are unrelated to mining project (collected over a period of at least two years)	
Mine closure	• Long-term water treatment engineering and risk assessment. • Annual closure cost estimate report • Documentation of evaluation of options to minimize the volume of water to be treated in a long-term water treatment system. • Documentation of mitigation strategies implemented at waste management facilities	
Emergency preparedness	• Emergency preparedness procedures or equivalent • Documented incidents where changes in water quality or quantity posed a threat to human health, safety, or resources • Documented emergency response actions taken following any incidents • Contact lists for government authorities, community representatives and media to be informed in event of an emergency related to changes in water quantity or quality that pose imminent threat to human health or safety, or commercial or natural resources.	
Sources significantly affected	• Baseline or background data to reliably determine seasonal and temporal variability in physical, chemical, and biological conditions of surface waters, natural seeps/springs and groundwaters that may be affected by the mining project, water quantity (i.e., flows and levels of surface waters, natural seeps/ springs and groundwaters) that may be affected and sources of contamination and changes in water quantity or quality that are unrelated to mining project.	• Total number of water sources significantly affected by withdrawal by type. ζ Size of the water source ζ Whether the source is designated as a nationally or internationally protected area ζ Biodiversity value (such as species diversity and endemism, and total number of protected species) ζ Value or importance of the water source to local communities and indigenous people.

Water

WATER MONITORING & REPORTING	IRMA	TSM	CDP	RMI	NPI
REPORTING CATEGORIES	17	24	15	8	3
Water monitoring	• Water monitoring and impact mitigation at all mine site impacted water sources (fresh water, salt water, drinking water, irrigation water, livestock water, aquaculture water, recreational water, industrial water) • Changes to quantity and physical, chemical, and biological conditions of surface waters (natural springs/seeps and groundwater) • Use of credible methods and accredited laboratories • Monitoring of metals/metalloids and non-metals / anions at all mine site impacted water sources	• Change in water storage (ML) if water storage has been identified as having a significant water-related impact.	• Proportion of water aspects regularly measured and monitored	• Track and disclose data, against targets and across successive time periods, on performance in reducing adverse impacts on water quality • Audits and/or reviews on the effectiveness of measures taken to reduce adverse impacts on water quality • Responsive actions, based on the findings of audits and/or reviews, to seek to improve the effectiveness of measures taken to reduce adverse impacts on water quality	• Site specific information on water quality and flow rates should be used to determining emissions for the purposes of NPI reporting. • NPI substances emissions - dissolved substances and suspended sediment - to water of arsenic trioxide, borax, copper sulfate, and cobalt sulfate (in acidic conditions, nickel oxide emissions) • NPI substances emissions - leachate from stockpiles, overburden, waste rocks and tailings- from overflows and/or discharges of excess mine process waters to surface waters, coastal/marine waters, or groundwater (and reported to NPI) • NPI substances - Process waters from beneficiation: ammonia, copper sulfate, inorganic cyanide compounds (sodium cyanide), methyl isobutyl carbonyl, methyl isobutyl ketone
Substances or conditions specified	33 substances or conditions • Substances: ζ Metals / Metalloids: Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium (Total), Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Radium 226/228, Selenium, Silver, Thallium, Uranium and Zinc ζ Non-Metals / Anions: Alkalinity (as $CaCO_3$), Ammonia (Tot), Chlorine, Chloride, Cyanide (Free/WAD), Fluoride, Hydrogen Sulfide , Nitrate (as NO_3–), Nitrite (as NO_2–), pH, , Sulfate and Total Dissolved Solids Conditions: ζ Flow, pH, Alkalinity, Total Dissolved Solids				11 Substances • NPI substances emissions - dissolved substances and suspended sediment - to water of arsenic trioxide, borax, copper sulfate, and cobalt sulfate (in acidic conditions, nickel oxide emissions) • NPI substances emissions - leachate from stockpiles, overburden, waste rocks and tailings- from overflows and/or discharges of excess mine process waters to surface waters, coastal/marine waters, or groundwater (and reported to NPI) • NPI substances - Process waters from beneficiation: ammonia, copper sulfate, inorganic cyanide compounds (sodium cyanide), methyl isobutyl carbonyl, methyl isobutyl ketone

Water

WATER MONITORING & REPORTING CONTINUED	IRMA	TSM	CDP	RMI	NPI
REPORTING CATEGORIES	17	4	15	8	3
Independent verification			• Reporting boundary for companies, entities, or groups for which water impacts on business are being reported (any geographies, facilities, water aspects, or other exclusions) • Verification of any other water information reported • Verification of data points and standards used • Coordinates and water accounting data for each facility and a comparison with the previous reporting year. • Proportion of water accounting data externally verified • Importance (current and future) of water quality and water quantity to the success of the business.		
Water quality reporting				• Water quality data for each monitoring point • Highlight when and where water quality falls below safety limits	• Where available, site specific information on water quality and flow rates should be used to determine emissions for the purposes of NPI reporting.
Public disclosure of performance	• Links to websites or list of physical locations (e.g., nearby community facility, mine office) where data can be accessed. • Photographs of physical locations showing data as advertised at physical locations. Photographs provided as evidence of advertising data should be accompanied evidence confirming the date and time of the photograph being taken. • Records of correspondence with stakeholders requesting water data (e.g., emails, letters) and company responses.	• Water related objectives or targets established to measure performance and reporting to inform decision-making and communicate performance publicly.		• Publicly disclose, on a regular basis, water quality data for each monitoring point • Highlight when and where water quality falls below safety limits	

Waste

WASTE MANAGEMENT	IRMA	CERA	GRI
REPORTING CATEGORIES	12	4	4
Management and performance	• Mine waste management policy or its equivalent (signed by senior management and endorsed at the director/ governance level of the company) • Records of communications with company employees (e.g., trainings, written materials) conveying the information contained in the waste policy and their responsibilities regarding waste management. • Records of employee competencies (e.g., resumes, CVs, trainings, certifications, etc.). • Operations, Maintenance and Surveillance manual that address mine waste management issues. • Mine waste risk management procedures. Operating budget that contains mine waste management tasks. • Performance evaluation of management measures, including critical controls for high consequence facilities	• Implement an environmental policy to ensure effective monitoring of emissions and waste streams • Identify key performance indicators and measure performance against them	• Actions, including circularity measures, are taken to prevent waste generation in the organisation's own activities and upstream and downstream in its value chain, and to manage significant impacts from waste generated. • If the waste generated by the organisation in its own activities is managed by a third party, a description of the processes used to determine whether the third party manages the waste in line with contractual or legislative obligations. • The processes used to collect and monitor waste-related data.
Waste risk & impact assessment	• A risk assessment to identify chemical and physical risks associated with existing mine waste (including tailings) facilities. • Mine waste facility design and mitigation of identified risks shall be consistent with the best available technologies and best available/applicable practices. • For high-consequence related mine waste facilities: • Documented high-consequence analysis by a professional engineer or similarly qualified person using an appropriate hazard classification system. • Documented critical controls framework for each high-consequence facility (e.g., may be found in Operation, Monitoring and Surveillance (OMS) Manual or other document). • Emergency Prevention/Emergency Response Plan. • Inundation analysis.	• Due diligence process to identify waste hazards and mitigate waste related risks	• Significant actual and potential waste-related impacts, including a description of: ζ the inputs ζ activities ζ and outputs that lead or could lead to these impacts • Whether these impacts relate to waste generated in the organisation's own activities or to waste generated upstream or downstream in its value chain.
Source characterisation & impact prediction	• Map or other documentation identifying all existing mine waste management facilities, and, if expansions are planned or anticipated, the potential locations of future waste management facilities. • Documentation of facility descriptions • Reports containing information on site geology, hydrogeology and hydrology. • Documentation of source characterization of mined materials/wastes (e.g., a detailed geochemical study that contains raw data from the testing, and interpretation of the data; results from numerical geochemical models). • Documentation of conceptual models/reports (e.g., descriptions of the sources, release, transport and fate of contaminants related to mining waste facilities). • Facility water balance and chemical mass balance models/reports.		
Impact mitigation	• Documentation of mitigation strategies implemented, over time, at each waste management facility. • Documentation of meetings or correspondence involving personnel from various disciplines and departments.		
Emergency preparedness	• Emergency preparedness plan or its equivalent. • Records of meetings or communications with stakeholders (e.g., meeting minutes, memos, written communications, reports) related to the development of the emergency preparedness plan or its equivalent. • Records of meetings, memos or reports related to emergency and evacuation drills.		

Waste

WASTE MONITORING & REPORTING	IRMA	CERA	GRI	NPI
REPORTING CATEGORIES	12	4	4	1
Monitoring	• Operation, Monitoring and Surveillance (OMS) Manual or equivalent. • Documentation of regular internal and/or external performance evaluations. • Company and regulatory inspection reports. • Maintenance reports. • Corrective action plans. • Records of worker grievances related to the management of mine waste facilities. • Mercury monitoring plan. • Documentation of stakeholder consultations undertaken during the development of the plan.	• Implement an environmental policy to ensure effective monitoring of emissions and waste streams	• The processes used to collect and monitor waste-related data.	
Reporting	• Monitoring data and summary of monitoring findings, summary of mercury management. • Cyanide discharges • Mercury discharges • Mixing zone monitoring data • Chemical mass balance reports		• Total weight of waste disposed of, diverted and generated (disaggregated into hazardous and non-hazardous) in metric tons by disposal method (incineration with or without energy recovery, landfill, other), and/or recovery method (reuse, recycling, other) • Disclosure of waste disposed of onsite and offsite by the above measures. • Composition of waste	• Emissions of substances to land include NPI substances contained in solid wastes, slurries, sediments, spills and leaks, and storage and distribution of liquids. • Emission sources can be categorised as: ζ Surface impoundments of liquids and slurries ζ Unintentional leaks and spills ζ Emissions to groundwater ζ Agricultural applications of substances to land and irrigation.
Public disclosure of performance	• Documentation showing that mercury waste information is publicly available on a website, or in publicly accessible locations.	• Public disclosure of performance against waste indicators		
Stakeholder engagement	• Documentation of outreach to stakeholders related to mine waste facility siting and waste management options, and the final design of mine waste facilities. • Documentation of fulfilment of information requests • Records of meetings with stakeholders where information related to the mercury monitoring plan and results has been shared.			

Waste

WASTE MONITORING & REPORTING CONTINUED	IRMA	NPI
REPORTING CATEGORIES	12	1
Hazardous materials management	• Records of materials, substances and wastes associated with the mining project that pose a potential hazard to health, safety, or the environment. • Documented procedures for the transportation, handling, storage and disposal of potentially hazardous materials, substances and wastes. • Documented procedures related to hazardous materials in the Emergency Preparedness and Response Plan (or its equivalent) are required in Chapter 2.5. • Documentation of programs to recycle or reuse waste materials.	• Systems in place to ensure operations identify and assess the risks related to the use of hazardous materials • Systems in place to ensure operations develop strategies and plans to address the risks • Tracks the implementation of strategies and plans
Cyanide management	• Compliance with the International Cyanide Management Code (The Cyanide Code) • Links to certification information from the ICMC website • Documentation from an ICMI certified auditor that the mine is verified as being generally consistent with Cyanide Code requirements. • Facility design documents that include information on secondary containment for cyanide unloading, storage, mixing and process tanks. • Facility design documents that include information on pipelines containing process water (or process solution). • Records of discharges to surface waters mixing zones (e.g., the water quality of discharges, and in particular, cyanide concentrations). • Water quality monitoring data from inside the mixing zone. • Documented studies from literature or conducted by the company on the lethal toxicity of cyanide to resident fish species. • Records (e.g., studies or observations) of the health and behaviour of resident and migratory fish (if any are present). Biologic monitoring of fish in surface water mixing zones.	
Mercury management	• Documentation on type of mercury emissions control system(s) being used. • Mercury mass balance inputs, calculations and results, including: ζ Released to air and water; ζ Produced as a by-product; ζ Resident in tailings ponds, waste rock dumps, etc • Analysis of the potential impacts of mercury emissions on human health or the environment. • Documentation on BAT and/or BEP being used to reduce mercury emissions from thermal sources. • Documentation of transportation of ore-related mercury. • Documentation of storage and/or disposal locations. • Documentation of sale or distribution of mercury.	

Biodiversity

BIODIVERSITY MANAGEMENT	IRMA	TSM	CDP	RMI	ECR
REPORTING CATEGORIES	5	4	10	4	6
Management & mitigation	• Biodiversity management plan or equivalent that includes objectives, indicators, budget, and financing and addresses all phases of the project life cycle, including decommissioning and closure. • Baseline data. • Mitigation measures for new mines follow mitigation hierarchy of 1. Prioritizing avoidance of impacts on important biodiversity values and priority ecosystem services and ecological processes and habitats necessary to support them 2. Where impacts are not avoidable, minimizing impacts to the extent possible 3. Restoring biodiversity, ecosystem services and the ecological processes and habitats that support them, and 4. As a last resort, offsetting the residual impacts • Documentation of the mitigation strategies reviewed during assessment, and rationale for selecting options for new mines • Documentation of the restoration strategies reviewed, and rationale for selecting options for existing mines • Documentation of additional conservation actions reviewed, and rationale for selecting options for existing mines	• Facility level biodiversity conservation planning and implementation	• Biodiversity action plans to manage impacts on biodiversity (provide detail on projects) • Measurable and time-bound targets related to commitment(s) to reduce or avoid impacts on biodiversity (provide detail and progress) • Avoidance and/or minimization as strategies to prevent or mitigate significant adverse impacts on biodiversity (provide company-specific examples) • Significant impacts on biodiversity mitigated through restoration (provide detail) • Implementation or support for additional conservation actions (provide detail)	• Track, review, and act to improve performance on protecting mining-affected biodiversity and ecosystems. • Tracks and discloses data, against targets and across successive time periods, on performance • Audit and/or review effectiveness of measures taken • Responsive action, based on audits and/or reviews, to improve effectiveness of measures taken	• Environmental management plan promoting ecologically sustainable development through conservation and ecologically sustainable use of natural resources • Recovery plan (a) to stop decline of, and support recovery and survival of, species or ecological community, including action to protect important populations; protect and restore habitat and manage and reduce threatening processes and (b) management practices to avoid significant adverse impact on species or ecological community.
Screening and impact assessment	• Screening report or equivalent and other relevant documentation. • Boundaries of legally protected areas, key biodiversity areas, natural ecosystems areas of modified habitat, natural habitat and critical habitat, in the mines actual or proposed area of influence • Biodiversity, ecosystem services and protected areas impact assessment and other relevant documentation • Data on baseline status of biodiversity, ecosystem services and conservation values in protected areas. • Methods for identifying potentially significant impacts on and risks to biodiversity, ecosystem services and values in protected areas, as relevant. • Documentation of mitigation strategies reviewed during assessment (including avoidance), rationale for particular options. • Documentation of opportunities for partnerships and additional conservation actions reviewed during assessment, and rationale for particular options.	• Significant direct and indirect positive and negative impacts: i. Species affected; ii. Extent of areas impacted; iii. Duration of impacts; iv. Reversibility or irreversibility of the impacts. • Nature of significant direct and indirect impacts on biodiversity: ζ Construction or use of manufacturing plants, mines, and transport infrastructure ζ Pollution (introduction of substances that do not naturally occur in the habitat from point and non-point sources) ζ Introduction of invasive species, pests, and pathogens ζ Reduction of species ζ Habitat conversion ζ Changes in ecological processes outside the natural range of variation (such as salinity or changes in groundwater level).	• Biodiversity impacts and risks of mining projects assessed before project development stage • Procedures for identifying and assessing biodiversity-related impacts and risks.	• Track, review, and act to improve performance on protecting mining-affected biodiversity and ecosystems. • Track and disclose data, against targets and across successive time periods, on performance • Audit and/or review effectiveness of measures taken • Responsive action, based on audits and/or reviews, to improve effectiveness of measures taken	• Environmental Impact Assessment documents that identify threatened species and threatened ecological communities impacted by mine site activities. • Identification of critical habitat.
Location and proximity		• For each operational site adjacent to protected areas and areas of high biodiversity value outside protected areas: ζ Geographic location; ζ Subsurface and underground land owned, leased, or managed; ζ Position in relation to protected area or high biodiversity value area outside protected areas; ζ Type of operation (office, manufacturing or production, or extractive) ζ Size of operational site in km2 (or another unit, if appropriate) ζ Biodiversity value characterized by attribute of protected area or area of high biodiversity value outside protected area (terrestrial, freshwater, or maritime ecosystem) ζ Biodiversity value characterized by listing of protected status (such as IUCN Protected Area Management Categories, Ramsar Convention, national legislation).	• Mining project area and area of land disturbed for each mining project ζ project(s) type, ζ location, and ζ mining method(s) used		• Operational description, location maps, proximity to threatened species, threatened ecological communities, and critical habitat

Biodiversity

BIODIVERSITY MANAGEMENT CONTINUED	IRMA	CERA	TSM	CDP	ECR
REPORTING CATEGORIES	5	1	4	10	6
Mine closure		• Environmental policy to ensure the preservation of biodiversity and sustainable mine closure • Demonstrated compliance with national environmental laws and regulations regarding biodiversity and mine closure • Due diligence process to identify hazards and mitigate related risks • Material key performance indicators and measure performance against these • Public disclosure of performance against key indicators			
Stakeholder engagement	• Records of stakeholder participation in consultations related to the biodiversity management plan, mitigation options, conservation actions, monitoring programs, and corrective actions			• Stakeholders considered in biodiversity-related risk assessments	• Recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity • Promote use of indigenous people's knowledge of biodiversity with involvement of, and in cooperation with the owners of knowledge.
Strategic risk assessment				• Corporate-level procedure to assess biodiversity-related risks to business • Biodiversity risks with the potential to have a substantive financial or strategic impact on business • Biodiversity-related opportunities with the potential to have a substantive financial or strategic impact on business	
Governance and disclosure			• Corporate commitment and accountabilities to support the management of biodiversity conservation issues.	• Position(s) of individual(s) on board with responsibility for biodiversity-related issues. • Public commitment(s) to reduce or avoid impacts on biodiversity • Biodiversity issues integrated into a long-term strategic business plan • Highest management-level position(s) or committee(s) with responsibility for biodiversity-related issues • Incentives to C-suite employees or board members for the management of biodiversity-related issues (provide detail)	

Biodiversity

BIODIVERSITY MONITORING & REPORTING	IRMA	TSM	GRI	CDP	RMI	ECR
REPORTING CATEGORIES	5	4	3	10	4	6
Monitoring	• Monitoring plan or equivalent that includes indicators, and monitoring schedule. • Monitoring records showing dates of activities and findings. • Records documenting independent reviews	• Biodiversity conservation reporting includes policy, monitoring and conservation initiatives.			• Track, review and act to improve performance on protecting mining-affected biodiversity and ecosystems. • Track and disclose data, against targets and across successive time periods, on performance	• Monitoring performance against environmental management plan
Offsets				• Residual impacts of projects compensated through biodiversity offsets (provide detail)		
Reporting and verification		• Biodiversity conservation reporting includes policy, monitoring and conservation initiatives.	• Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk: i. Critically endangered, ii. Endangered, iii. Vulnerable, iv. Near threatened, v. Least concern.	• Reporting boundary for which biodiversity-related issues are being reported; geographical areas, business units or mining projects excluded (report and describe the potential for biodiversity-related risk.) • Policy that includes biodiversity-related issues (describe the scope and content) • Verification of biodiversity-related information reported (which data points and standards used)		• Environmental compliance reporting against environmental management plan
Violations				• Fines, enforcement orders, and/or other penalties for violation of biodiversity-related regulations (provide details and plans for resolving them)		

PROTECTED AREAS	IRMA	CDP	RMI
REPORTING CATEGORIES	5	10	4
Protected areas	• New mines not located in or adversely affect World Heritage Sites (WHS), areas on a State Party's official Tentative List for WHS Inscription, IUCN protected area management categories I-III, or core areas of UNESCO biosphere reserves • Existing mines located in the above areas ensure activities during the remaining mine life cycle will not permanently and materially damage the integrity of special values for which the area was designated or recognized • Documentation of legal permit to mine, including the date that mine began if already operational. • Protected area management plan. • Records of additional conservation actions implemented by the company in the area. • Assessment of potential impacts of mining on the special values in the protected area. • Credentials of those conducting or reviewing the assessment (names, organisation, curriculum vitae or similar).	• Details of mining projects located in or near legally protected and internationally recognized areas	• Corporate level commitment, endorsed by senior management to not explore or mine in World Heritage Sites and to respect other terrestrial, wetland and marine protected areas that are designated to conserve cultural or natural heritage, not use riverine, lake or marine disposal of tailings, not engage in or support deep seabed exploration and mining

APPENDIX 2: DETAILED SOCIAL COMPARISON TABLES

Cultural heritage

CULTURAL HERITAGE	IRMA	CERA	ECR
REPORTING CATEGORIES	4	1	1
Management plan	• Cultural heritage management plan or its equivalent (e.g., a section on cultural heritage included in the mining project's environmental and social management plan).		
Screening and assessment	• Documentation of cultural heritage screening process and outcomes with potential risks or impacts clearly identified according to each category of replicable, non-replicable and critical cultural heritage • Documentation of cultural heritage assessment process. • Documented evidence of consideration of all feasible mitigation measures, including avoidance, and rationale for decisions made. • Documents (e.g., maps, studies) that show that exploration activities and mining are not in the listed protected areas, or do not adversely impact those areas.	• The organisation shall implement a human and community rights due diligence process to identify hazards and mitigate related risks belonging to cultural heritage protection.	Under the Environment Protection and Biodiversity Conservation Act 1999: • Identification and assessment of any direct and/or indirect impacts to natural, historic, and indigenous places of 'national significance'. ζ the scale of the action and its impacts ζ the intensity of the action and its impacts ζ the duration and frequency of the action and its impacts State and territory requirements vary.
Employee training	• Records or documentation of employee trainings (e.g., materials, attendance records, etc.) on cultural awareness, site recognition and care, and cultural heritage management (including trainings on procedures mentioned in 3.7.7.2).		
Stakeholder engagement	• Stakeholder mapping exercise to identify those who may have an interest in cultural heritage. • Documentation of participatory exercise to identify potential risks and impacts to cultural heritage in consultation with relevant stakeholders. • Minutes of consultation meetings, sign-in sheets, and/or documented stakeholder communications • Company procedure for sharing information with stakeholders. • Evidence of communications to relevant stakeholders regarding the location of publicly available materials and how they can be accessed • Records confirming that relevant stakeholders have been provided with access upon request. • Free, Prior and Informed Consent agreement (or similar agreement) that includes provisions related to company's commercial use of the indigenous peoples' cultural heritage.		

Employee protection, fair labour, and terms of work

EMPLOYEE HIRES & TURNOVER	GRI	DJSI
REPORTING CATEGORIES	14	15
Total employees		• The number of people employed on a full time and part-time basis by the company.
Hire rate	• Total number and rate of new employee hires during the reporting period, by age group, gender, and region.	• Total number of new employee hires • Percentage of open positions filled by internal candidates • Average hiring cost/FTE. • Additional credit will be granted for relevant publicly available evidence.
Turnover rate	• Total number and rate of employee turnover during the reporting period, by age group, gender, and region.	• Total employee turnover rate as a percentage of total employees. • Voluntary employee turnover rate as a percentage of total employees. • Data coverage as a percentage of all FTEs globally. • Data breakdown by age, gender, management level, race, ethnicity (if available).
Equitable hiring		• Share in total workforce of racial and ethnic self-identifications, or nationalities and other minorities as a percentage of total workforce • Share in all management positions as a percentage of total management workforce.
Development programs		• Name and description of program • Quantitative impact of business benefits • % of FTEs participating • Must provide supporting evidence but evidence doesn't have to be public.
Employee benefits	• Benefits which are standard for full-time employees of the organisation but are not provided to temporary or part-time employees, by significant locations of operation. Including life insurance, health care, disability, and invalidity cover, leave, retirement provision, stock ownership.	
Leave entitlements	• Total number of employees that were entitled to parental leave, by gender. • Total number of employees that took parental leave, by gender. • Total number of employees that returned to work after parental leave ended, by gender. • Total number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work, by gender.	
Transition assistance	• Transition assistance programs provided to facilitate continued employability and the management of career endings resulting from retirement or termination of employment.	
Employee engagement		• Percentage of actively engaged employees (data for the last 4 years). • Data coverage as percentage of total employees.

Employee protection, fair labour, and terms of work

EMPLOYEE HIRES & TURNOVER CONT.	GRI	DJSI	RMI
REPORTING CATEGORIES	14	15	12
Strategic workforce planning		• Detailed description of the company's Strategic Workforce Planning (SWP). • Companies that have more than one relevant process in place should report on the one that they perceive as the most strategic and for which they can provide the best description of the opportunity • The process, tools, techniques, methods, models used and their outcomes.	
Performance and career reviews	• Percentage of total employees by gender and by employee category who received a regular performance and career development review during the reporting period.	• Please indicate the type and employee coverage (% of employees covered) of the individual performance appraisals used for individual performance related compensation.	
People analytics		• Disclosure of the use of people analytics in any of the following applications: ζ measuring employment performance ζ strategic workforce planning ζ workforce skills gaps ζ recruiting & hiring ζ flight risks to improve retention ζ competitive intelligence ζ organisational network analysis	
Human capital ROI		• Company profitability in relation to total human capital expenses	
National skills base initiatives			• Systems to ensure its operations support STEM education and technical/vocational skills development among the wider population in producing countries, through partnerships with in-country institutions. • Systems to ensure its operations support technical and managerial skills development of its local workforces in producing countries.

Employee protection, fair labour, and terms of work

EMPLOYEE PROTECTION	IRMA	GRI	DJSI	RMI
REPORTING CATEGORIES	12	14	15	12
Employee safety				• Provide appropriate safety equipment to all employees and the people who work for contractors, at no cost to them • Provide suitable sanitation and changing facilities to all its employees and the people who work for contractors • Ensure that all women workers have access to suitable sanitation and changing facilities that are safe and separated from those used by male workers
Discrimination & harassment	• Documented anti-harassment policy/procedure. • Records of communications and/or trainings on anti-harassment and anti-discrimination for workers and management. • Records of worker grievances, and any company follow-up.	• Total number of incidents of discrimination during the reporting period • Status of the incidents and actions taken with reference to the following: ζ Incident reviewed by the organisation ζ Remediation plans are being implemented ζ Remediation plans that have been implemented, with results reviewed through routine internal management review processes ζ Incident no longer subject to action.	• Details of publicly available non-discrimination and anti-harassment policy. • Measures, defined escalation process, corrective action, disciplinary action, number of incidents of discrimination and harassment. • We expect companies to have a statement explicitly prohibiting both sexual and non-sexual harassment.	
Disciplinary policy & procedures	• Description of disciplinary procedures. • Documented evidence of communications with all workers informing them of the disciplinary procedures • Anti-harassment policy or disciplinary procedure or equivalent that prohibits the use of corporal punishment, harsh or degrading treatment, sexual or physical harassment, mental, physical or verbal abuse, coercion or intimidation of workers during disciplinary actions. • Documented disciplinary actions, notices, hearings, minutes or equivalent. • Records of worker grievances, and company follow- up.			

Employee protection, fair labour, and terms of work

EMPLOYEE PROTECTION CONT.	IRMA	GRI	RMI
REPORTING CATEGORIES	12	14	12
Notice periods	• Retrenchment policy/procedures. • Records of communications with workers providing them notice of termination of employment contracts. • Payroll records. • Records of full and final settlement payments for outstanding back pay, social security benefits, and pension contributions to affected employees.	• Minimum number of weeks' notice typically provided to employees and their representatives prior to the implementation of significant operational changes that could substantially affect them • For organisations with collective bargaining agreements, report whether the notice period and provisions for consultation and negotiation are specified in collective agreements.	
Retrenchment	• Retrenchment policy/procedures. • Retrenchment plan. • Records of consultations and communications with workers (e.g., meetings, correspondence) during the development of retrenchment plans. • Documentation of analysis of alternatives to retrenchment. • Documentation of steps taken to reduce the impact of retrenchment on workers. • Collective bargaining agreement or equivalent. • Records of agreements with workers' representatives. • Anti-discrimination procedure. • Records of worker grievances, and any company follow- up		
Grievance mechanisms	• Grievance policy/procedures. • Demonstrated ways to lodge grievances, e.g., hotlines, grievances boxes, etc. • Evidence that the operating company informs workers of grievance mechanism when they are hired • Documented evidence of accessibility of the grievance mechanism to all workers, or efforts to improve accessibility • Records of grievances lodged/investigated.		• Provide details on the grievance mechanism for employees and the people who work for contractors to register complaints/grievances • Ensure that male and female staff members are available for receiving and processing worker grievances so that women workers can speak to someone of the same sex • Track and discloses data, against targets and across successive time periods, on the functioning and uptake of its grievance mechanisms for workers, including the number and nature of complaints and actions taken in response • Discuss with employees, contractors' workers and their representatives the measures taken to avoid the repetition of the same complaints/grievances • Audits and/or reviews, based on complainants' perspective, the effectiveness of grievance mechanisms for workers

Employee protection, fair labour, and terms of work

EXPLOITATION	IRMA	CERA	TSM	GRI	RMI
REPORTING CATEGORIES	12	6	2	14	12
Child labour policy and risk management	• No children (i.e., persons under the age of 18) are employed to do hazardous work and no children under the age of 15 are employed to do non-hazardous work. ζ Occupational health and safety risk assessment that includes risks to children's physical and mental health. ζ Recruitment / hiring procedure. ζ Age verification procedure. ζ Age verification records. ζ Risk assessment of workplace hazards. ζ Documented job descriptions. ζ Employment contracts.	• Policy to ensure respect for human rights and commitment to community development • Due diligence process to identify hazards and mitigate related risks • Identify key performance indicators and measure performance against them • Public disclosure of performance against indicators	• Member companies have processes in place that are commensurate to the jurisdictional risks to ensure that no child under the age of 18 engages in work that by its nature or circumstances in which it is carried out is likely to jeopardize the health, safety or morals of young persons as defined in national law or regulation and that no child under the age of 15 is employed.	• Type and location of operations and suppliers considered to have significant risk for incidents of: i. child labour; ii. young workers exposed to hazardous work. • Measures were taken by the organisation in the reporting period intended to contribute to the effective abolition of child labour.	• Systems to identify and assess potential risks of all forms of forced, compulsory, trafficked and child labour in areas of operations and the entire supply chain • Systems to develop strategies and plans to address identified risks • Track the implementation of strategies and plans
Forced labour policy and risk management	• Forced labour and human trafficking prevention procedure. • Employment contracts. • Payroll records showing wage deductions. • Workplace internal rules and regulations. • Accommodation rules if applicable. • Contracts with recruitment agencies if applicable. • Disciplinary procedures. • Disciplinary punishment records. • Termination records. • Records of worker grievances or stakeholder grievances (e.g., reports of forced labour being used in the mining project), and company follow-up.	• Policy to ensure respect for human rights and commitment to community development • Due diligence process to identify hazards and mitigate related risks • Identify key performance indicators and measure performance against them • Public disclosure of performance against indicators	• Member companies have in place processes that are commensurate to jurisdictional risk to ensure forced labour is not used.	• Type and location of operations and suppliers considered to have significant risk for incidents of forced or compulsory labour • Measures were taken by the organisation in the reporting period intended to contribute to the elimination of all forms of forced or compulsory labour.	• Systems to identify and assess potential risks of all forms of forced, compulsory, trafficked and child labour in areas of operations and the entire supply chain • Systems to develop strategies and plans to address identified risks • Tracks the implementation of strategies and plans

Employee protection, fair labour, and terms of work

FAIR LABOUR & TERMS OF WORK	IRMA	CERA	GRI	RMI
REPORTING CATEGORIES	12	6	14	12
HR policy	• Documented evidence of implementation of the human resources policies and procedures. • Proof of communication of policies and procedures to workers and management. • Employee handbook.			
Renumeration	• Remuneration policies and procedures. • Documentation on national overtime wage rates. • Documentation on national minimum wage rates. • Collective bargaining agreements and/or employment contracts • Payroll records, pay rates, documented evidence of payment to employees • Records of worker grievances or stakeholder grievances, and company follow-up. • Workers shall be provided with: ζ Pay slips. ζ Remuneration policies and procedures. ζ Employment contracts.	• A policy to ensure the implementation of appropriate working conditions • Due diligence process to identify hazards and mitigate related risks • Identify key performance indicators and measure performance against them • Public disclosure of performance against indicators	• Ratios of standard entry level wage by gender compared to local minimum wage	• Assess the wage level that is necessary for workers and their families to afford a decent life • Ensure the wages of all employees meet or exceed this decent living wage level • Engage with contractors to ensure the wages of all the people who work for them also get paid a decent living wage level • Publicly disclose the lowest salary level for female and male workers for each job level
Working hours and conditions	• The operating company shall ensure that: ζ Regular working hours do not exceed eight hours per day, or 48 per week (or averaged over a three-week period). ζ Workers are provided with at least 24 consecutive hours off in every 7- day period; and ζ Overtime is consensual and limited to 12 hours a week. • Exceptions shall be allowed at mines in remote locations if: ζ A freely negotiated collective bargaining agreement is in force that allows variances to the rest and/or overtime hours above; and ζ Through consultations with workers' representatives, a risk management process that includes a risk assessment for extended working hours is established to minimize the impact of longer working hours on the health, safety and welfare of workers. • Annual paid holiday of at least three working weeks per year, and maternity leave of no less than 14 weeks (unless stipulated by national law or collective bargaining agreement) • Collective bargaining agreement. • Time records. • Working hour policy. • Employment contracts. • Working hour schedule. • Leave policy. • Documentation of relevant national law. • Collective bargaining agreements where applicable. • Payroll records.	• A policy to ensure the implementation of appropriate working conditions • Due diligence process to identify hazards and mitigate related risks • Identify key performance indicators and measure performance against them • Public disclosure of performance against indicators		• Publicly disclose the average hours worked per worker and per day

Employee protection, fair labour, and terms of work

FAIR LABOUR & TERMS OF WORK	CERA	GRI	DJSI
REPORTING CATEGORIES	6	14	15
Gender pay indicators		• Ratio of the basic salary and remuneration of women to men for each employee category, by significant locations of operation. • The definition used for 'significant locations of operation'.	• Average salaries for men and women at different salary scales (i.e., Executive, management, non-management). • Gender pay gap • Bonus pay gap.
Gender workforce breakdown			• Share of women in total workforce (% of total workforce) • Share of women in management positions total and breakdown of share in junior, top management, • Share of women in management positions in revenue-generating functions (e.g., sales as a % of all such managers), • Share of women in STEM related positions. • At least one public target for one representation level.
Career training and development	• A policy to ensure the implementation of appropriate working conditions • Due diligence process to identify hazards and mitigate related risks • Identify key performance indicators and measure performance against them • Public disclosure of performance against indicators	• Type and scope of programs implemented, and assistance provided to upgrade employee skills. • Average hours of training that the organisation's employees have undertaken during the reporting period, by: ζ gender ζ employee category	• Average hours per FTE of training and development • Average amount spend per FTE on training and development. • This information must be publicly available. • Not applicable for companies with less than 100 employees. • Data breakdown by categories such as (age, gender, management level, race, ethnicity, nationality and type of training) will earn extra sustainability points.

Employee protection, fair labour, and terms of work

FAIR LABOUR & TERMS OF WORK	IRMA	CERA	DJSI	RMI
REPORTING CATEGORIES	12	6	15	12
Freedom of association	• Freedom of association policy (or equivalent) that allows employees to exercise their right to freedom of association. • Records of agreements with workers representatives and workers' organisations, including collective bargaining agreement. • Employment contract that allows employees to exercise their right to freedom of association. • Records of communication/training of employees on freedom of association policy. • Documented evidence (e.g., communications) that the operating company provides workers' representatives and workers' organisations with the information needed for meaningful negotiation in a timely manner. • Evidence of access to facilities needed to carry out their functions in the workplace by worker representatives. • Meeting minutes between mine management and worker representatives. • Evidence that the operating company informs workers of their rights when they are hired and that they are free to join a workers' organisation of their choosing without any negative consequences or retaliation from the operating company • Recruitment and dismissal procedures and records. Employment contracts (e.g., permanent employees, contractors, and temporary workers). • Records or documentation demonstrating compliance with labour and social security laws and regulations. • Records of worker grievances, and any company follow-up.	• A policy to ensure the implementation of appropriate working conditions • Due diligence process to identify hazards and mitigate related risks • Identify key performance indicators and measure performance against them • Public disclosure of performance against indicators	• Percentage of employees covered by collective bargaining agreements • Employees who are eligible but are not actually covered by collective bargaining agreements should be excluded from the count.	• Access to designated areas for labour organisers to meet with workers • Formal collective bargaining agreements • Freedom of association commitments that allow union meetings on site
Anti-discrimination and equal opportunity in recruitment	• Employment or other policy that contains information on anti-discrimination, equal opportunity, and fair treatment in employment. • Recruitment and dismissal procedures and records. • Employment contracts or agreements, including with recruitment agencies. • Records of worker grievances, and any company follow-up.			• Targets regarding diversity and inclusivity in recruitment and employment practices
Automation and technology change				• Systems to ensure operations identify and assess the implications of automation and technological change for workers • Systems in place to ensure operations develop strategies and plans to address the identified implications • Track the implementation of these strategies and plans

Employee protection, fair labour, and terms of work

LOCAL EMPLOYMENT & SUPPORT	GRI	RMI
INDICATOR	14	12
Local employment from affected communities		• Publicly disclose the number of people from affected communities who work as employees • Publicly disclose the number of people from affected communities who work for contractors • Publicly disclose the number of women workers from affected communities who are hired as employees and hired by contractors
Local support through contractors and procurement		• The company has systems in place to ensure its operations encourage local entrepreneurship and support local business development, including for women. • The company has systems in place to ensure the conduct of its operation and develop local procurement opportunities, including for women. • The company has systems in place to ensure its operations conduct and disclose regular assessments of the impacts of their activities on women, youth and children. • Publicly disclose the number of women workers from affected communities who are hired as employees and hired by contractors
Senior management hired from the local community	• Proportion of senior management hired from the local community	• Publicly disclose the number of people from affected communities who work as employees and contractors who have been promoted to more senior positions

Occupational health & safety

OCCUPATIONAL HEALTH & SAFETY	IRMA	CERA	TSM	GRI	RMI
REPORTING CATEGORIES	9	3	4	10	8
Formal OHS policies, agreements, and management plans	• Induction, training, and information materials communicating all significant hazards associated with the areas may enter and tasks that workers may undertake, records of workers who have attended training sessions (in languages understandable to workers) • Records of workers that have received briefing and full, functioning PPE and the work tasks they may undertake • Records of PPE inspections and list of locations of first aid kits in workplaces. • Documented procedure of the means for emergency transport from the workplace • Documentation of arrangement with a medical facility to respond to workplace injuries or occupational illnesses and how workers can access facilities. • A shift supervision policy document for each shift. • Documented procedure to identify and track at any time the probable locations of all persons who are underground if applicable. Unique OHS risks: • Documented risk assessment that includes assessment of risks to vulnerable workers. • A policy document that states intent to ensure no worker undertake work that is hazardous to them as a result of their specific needs. • A policy document that states intent to introduce controls to de-risk all tasks and work areas to accommodate persons with specific needs that present unique occupational health and safety risks. • Training and information materials that are delivered to management and workers to help them to understand the unique occupational health and safety hazards • Risk management plan • Documentation of monitoring that has been undertaken to confirm that controls implemented to reduce risks to particular workers are being effective. • Guidance document for management to identify workers with specific needs that might present unique occupational health and safety risks. • Records of worker or stakeholder grievances, and any company follow- up.	• Implement a policy to ensure appropriate health and safety conditions within the workplace • Due diligence process to identify hazards and mitigate related risks • The organisation shall comply with all national requirements related to occupational health and safety.	• Confirm that processes have been established to effectively plan for and manage safety and health controls to prevent the occurrence of incidents, acknowledging safety and health is a shared responsibility, and hazard identification, risk assessment and the establishment of effective controls are integral to an effective management system.	A statement of whether an occupational health and safety management system has been implemented, including whether: • the system has been implemented because of legal requirements and, if so, a list of the requirements; • The system has been implemented based on a recognized risk management and/or management system standards/guidelines and, if so, a list of the standards/guidelines. • A description of the scope of workers, activities, and workplaces covered by the occupational health and safety management system, and an explanation of whether and, if so, why any workers, activities, or workplaces are not covered. • A description of the processes for worker participation and consultation in the development, implementation, and evaluation of the occupational health and safety management system, and for providing access to and communicating relevant information on occupational health and safety to workers. • Where formal joint management-worker health and safety committees exist, a description of their responsibilities, meeting frequency, decision-making authority, and whether and, if so, why any workers are not represented by these committees.	• Provide appropriate safety equipment to all its employees and the people who work for contractors, at no cost to them • Provide suitable sanitation and changing facilities to all its employees and the people who work for contractors • Ensure that all women workers have access to suitable sanitation and changing facilities that are safe and separated from those used by male workers • Publicly disclose the average hours worked per worker and per day
Inspections, monitoring, performance, and mitigation	• Records of meetings or communications of the joint health and safety committee (e.g. meeting minutes, written correspondence, agreements). • Records of inspections of the working environment carried out by the operating company and workers' representatives (e.g., date, areas inspected, findings, participants, etc.). • Records of worker grievances (e.g., complaints or lack thereof regarding participation in workplace inspections), and any company follow-up. • Certificate or recognition of professional competency of the person or company that designed and conducts workplace monitoring and worker health surveillance. • Documentation of health surveillance procedures. • Policy and/or procedures related to disclosure and confidentiality of workers' medical information. • Records of sampling results from a ISO/IEC 17025 certified or nationally accredited laboratory. • Procedure document for identifying where national or ACGIH exposure limits have been exceeded and for notifying affected workers."	• Identify material key performance indicators and measure performance against them; public disclosure of performance against indicators.	• Confirm that safety and health performance are regularly monitored and reported both internally and externally. • Confirm that continual improvement targets have been established at each facility to move toward zero harm and that performance relative to targets is assessed. If a facility has had a fatality within the reporting year, it is not eligible for Level A or higher. • Confirm that the facility has established clear accountability for safety and health management and performance, and that safety and health commitments have been established and clearly communicated to employees, contractors, and suppliers.	• A description of the processes used to identify work-related hazards and assess risks on a routine and non-routine basis, and apply the hierarchy of controls in order to eliminate hazards and minimize risks, including: ζ how the organisation ensures the quality of these processes, including the competency of persons who carry them out ζ how the results of these processes are used to evaluate and continually improve the occupational health and safety management system. • A description of the processes for workers to report work-related hazards and hazardous situations, and an explanation of how workers are protected against reprisals. • A description of the policies and processes for workers to remove themselves from work situations that they believe could cause injury or ill health, and an explanation of how workers are protected against reprisals.	

Occupational health & safety

OCCUPATIONAL HEALTH & SAFETY CONTINUED	IRMA	CERA	TSM	GRI	RMI
REPORTING CATEGORIES	9	3	4	10	8
OHS training	• Induction, training, and information materials provided to workers. • Records of workers who have received induction. • Records of workers who have received training.	• Implement a policy to ensure appropriate health and safety conditions within the workplace.	• Processes have been established to effectively train employees and contractors on safety and health to ensure they are competent in identifying hazards and preventing incidents and they understand that safety and health is a shared responsibility, and that safety behaviour is integral to controlling risk.	• A description of any occupational health and safety training provided to workers, including generic training as well as training on specific work-related hazards, hazardous activities, or hazardous situations.	• Ensure all employees and the people who work for contractors receive the instructions that are necessary to perform their work safely and without injury • Provide training to workers, at no cost to them, to develop their technical skills • Ensure access for women workers to all training programmes and learning opportunities • Involve all employees and people who work for contractors in testing its emergency response plans

Occupational health & safety

WORK RELATED INJURIES & ILLNESS	IRMA	TSM	GRI	RMI
REPORTING CATEGORIES	10	4	10	8
Work related fatalities	• A policy document explaining the operating company's compensation package for work related injuries and illnesses. • Records of workplace injuries, fatalities, accidents and dangerous occurrences (including description of the incidents, investigations, and remedial actions taken in response). • Records of communications (e.g., reports filed) with competent authorities related to workplace injuries, fatalities, accidents and dangerous occurrences as defined by national laws or regulations. • Records of remuneration of workers that incurred illnesses or injuries as a result of employment at the mine. • Documentation of worker rehabilitation programs (either in-house or external to the mine, e.g., government-led). • Proof of compensation payments to workers that incurred illnesses or injuries as a result of employment at the mine. • Records of worker or stakeholder grievances (e.g., complaints or lack thereof regarding inadequate compensation for work-related injuries or illnesses), and any company follow-up.	• If a facility has had a fatality within the reporting year, it is not eligible for Level A or higher.	• The number and rate of fatalities as a result of work-related injury including for all workers who are not employees but whose work and/or workplace is controlled by the organisation: ζ The number and rate of fatalities as a result of work-related injury; ζ The main types of work-related injury ζ The number of hours worked. • The work-related hazards that pose a risk of high-consequence injury, including: ζ how these hazards have been determined ζ which of these hazards have caused or contributed to high-consequence injuries during the reporting period ζ actions taken or underway to eliminate these hazards and minimize risks using the hierarchy of controls. ζ Any actions taken or underway to eliminate other work-related hazards and minimize risks using the hierarchy of controls. • Whether the rates have been calculated based on 200,000 or 1,000,000 hours worked. • Whether and, if so, why any workers have been excluded from this disclosure, including the types of worker excluded. • Any contextual information necessary to understand how the data have been compiled, such as any standards, methodologies, and assumptions used.	• Publicly disclose the number and circumstances of the injuries and deaths of its employees that happen at the workplace • Publicly disclose the number and circumstances of the injuries and deaths of people who work for contractors that happen at the workplace • Have a joint occupational safety and health committee composed by workers' and employer's representatives to assess risks and investigate incidents • Ensure that women workers are represented in the joint occupational safety and health committee

Occupational health & safety

WORK RELATED INJURIES & ILLNESS CONTINUED	IRMA	GRI	RMI
REPORTING CATEGORIES	10	10	8
Work related injuries	• A policy document explaining the operating company's compensation package for work related injuries and illnesses. • Records of workplace injuries, fatalities, accidents and dangerous occurrences (including a description of the incidents, investigations, and remedial actions taken in response). • Records of communications (e.g., reports filed) with competent authorities related to workplace injuries, fatalities, accidents and dangerous occurrences as defined by national laws or regulations. • Records of remuneration of workers that incurred illnesses or injuries as a result of employment at the mine. • Documentation of worker rehabilitation programs (either in-house or external to the mine, e.g., government-led). • Proof of compensation payments to workers that incurred illnesses or injuries as a result of employment at the mine. • Records of worker or stakeholder grievances (e.g., complaints or lack thereof regarding inadequate compensation for work-related injuries or illnesses), and any company follow-up.	• The number and rate of fatalities as a result of work-related injury including for all workers who are not employees but whose work and/or workplace is controlled by the organisation: ζ The number and rate of recordable work-related injuries ζ The main types of work-related injury ζ The number of hours worked. • The work-related hazards that pose a risk of high-consequence injury, include: ζ how these hazards have been determined ζ which of these hazards have caused or contributed to high-consequence injuries during the reporting period ζ actions taken or underway to eliminate these hazards and minimize risks using the hierarchy of controls. ζ Any actions taken or underway to eliminate other work-related hazards and minimize risks using the hierarchy of controls. • Whether the rates have been calculated based on 200,000 or 1,000,000 hours worked. • Whether and, if so, why any workers have been excluded from this disclosure, including the types of worker excluded. • Any contextual information necessary to understand how the data have been compiled, such as any standards, methodologies, and assumptions used.	• Publicly disclose the number and circumstances of the injuries and deaths of its employees that happen at the workplace • Publicly disclose the number and circumstances of the injuries and deaths of people who work for contractors that happen at the workplace • Have a joint occupational safety and health committee composed of workers and employer representatives to assess risks and investigate incidents • Ensure that women workers are represented in the joint occupational safety and health committee
Work related illness and disease	• Records of remuneration of workers that incurred illnesses or injuries as a result of employment at the mine. • Documentation of worker rehabilitation programs (either in-house or external to the mine, e.g., government-led). • Proof of compensation payments to workers that incurred illnesses or injuries as a result of employment at the mine.	• For all employees of the organisation and workers who are not employees but whose work and/or workplace are controlled by the organisation ζ The number of fatalities as a result of work-related ill health ζ The number of cases of recordable work-related ill health ζ The main types of work-related ill health. • The work-related hazards that pose a risk of ill health, include: ζ how these hazards have been determined ζ which of these hazards have caused or contributed to cases of ill health during the reporting period ζ actions taken or underway to eliminate these hazards and minimize risks using the hierarchy of controls ζ Whether and, if so, why any workers have been excluded from this disclosure, including the types of worker excluded. ζ Any contextual information necessary to understand how the data have been compiled, such as any standards, methodologies, and assumptions used.	

Occupational health & safety

OTHER OHS INDICATORS	IRMA	GRI	RMI
REPORTING CATEGORIES	9	10	8
Worker OHS coverage		• The number and percentage of all employees and workers who are not employees but whose work and/or workplace is controlled by the organisation, who are covered by an OHS system • Whether the system has been internally or externally audited • Whether and, if so, why any workers have been excluded from this disclosure, including the types of worker excluded. • Any contextual information necessary to understand how the data have been compiled, such as any standards, methodologies, and assumptions used.	
Harassment and violence towards women			• Systems to ensure operations take specific measures to prevent: ζ Intimidation and moral harassment of women workers ζ Sexual harassment of women workers ζ Gender-related violence against women workers • Ensure the provision of working clothes and personal protective equipment that are appropriate for women's bodies to all women employees and the women who work for contractors • Provide gender-awareness training for all their employees and the people who work for contractors
Occupational health services	• Induction, training and information materials are provided to workers. • Documentation of assistance and programs to support worker health and safety, including worker mental health. • For 3.2.4.3: • Records of facilities that are available to workers. • Records of the number and gender of employees that have access to the facilities. • Records of worker grievances (e.g., complaints or lack thereof regarding cleanliness, accessibility and safety of facilities), and any company follow-up.	• A description of the occupational health services' functions that contribute to the identification and elimination of hazards and minimization of risks, and an explanation of how the organisation ensures the quality of these services and facilitates workers' access to them.	
Non-occupational health services		• An explanation of how the organisation facilitates workers' access to non-occupational medical and health care services, and the scope of access provided. • A description of any voluntary health promotion services and programs offered to workers to address major non-work-related health risks, including the specific health risks addressed, and how the organisation facilitates workers' access to these services and programs.	

Occupational health & safety

OHS ENGAGEMENT	IRMA	RMI
REPORTING CATEGORIES	9	8
Stakeholder engagement	• List of workplaces where informational materials are displayed. • Training and promotional materials delivered to management and workers affirming workers' rights. • Grievance policy and procedures. • Records of worker grievances (e.g. complaints or lack thereof regarding reprisals for attempting to exercise rights related to the protection of worker health and safety), and any company follow-up. • Procedures for workers to communicate the input to OH&S representatives or to the operating company. • Records of meetings between OH&S representatives and management (e.g. meeting minutes, attendance sheets, lists of issues raised). • Records of feedback provided and decisions the operating company have taken in response to input provided at meetings between OH&S workers' representatives and company representatives. • Records of correspondence between workers and the company on issues of concern, feedback provided and decisions taken by the company in response to issues raised. • Documentation of procedures in place to protect workers from reprisal when exercising their rights. • Documentation of the processes or systems that exist to enable workers' representatives to participate in matters relating to occupational health and safety. • Records of communications with workers' representatives informing them of their ability to participate in processes or systems, or access certain information or resources such as independent experts. • Records of worker grievances, and any company follow-up.	• Systems to ensure operations engage with worker representatives to collaboratively identify, assess, avoid, and mitigate health and safety risks to the workforce.

Engagement

ENGAGEMENT PRINCIPLES		OECD DUE DILIGENCE: GUIDANCE FOR STAKEHOLDER ENGAGEMENT IN THE EXTRACTIVE SECTOR
CATEGORY THEMES	REPORTING CATEGORIES	24
ENGAGEMENT APPROPRIATENESS & EFFECTIVENESS	**Efficient and effective management**	• Percentage of conclusions or agreements reached that are not later refuted • Percentage of stakeholders participating in engagement activities that feel the process was fairly conducted
	Appropriate activities	• Degree to which engagement priorities reflect the perspectives of stakeholders and key partners • Level of involvement of stakeholders in planning engagement activities • Number of issues that are discussed and addressed with stakeholders proactively versus reactively • Degree to which challenges to engagement are anticipated during the planning stage
	Realistic and appropriate timelines	• Ease of process in adapting timeframes in response to contextual issues • Timing of initial contact with stakeholder groups in relation to project plans • Average length of notice stakeholders are given regarding meetings and other engagement activities
	Addressing adverse impacts	• Percentage of stakeholders adversely impacted who feel adverse impacts have been adequately addressed • Percentage of stakeholders who feel channels for raising grievances are accessible, equitable and effective • Rate of reoccurring issues related to stakeholder engagement processes
	Following through on outcomes	• Percentage of commitments met • Level of stakeholder satisfaction with enterprise performance with regard to its commitments • Length/frequency of delays in meeting commitments
ENGAGEMENT MONITORING & EVALUATION	**Relevant and effective monitoring and evaluation mechanisms**	• Ability to assess strength of relationships with different stakeholders and accomplishment of objectives with regard to stakeholder engagement
	Objective, effective, and participatory evaluation	• Degree of participation of stakeholders in the design and execution of M&E activities
	Credible external verification	• Verification is conducted by a third party recognised by all stakeholders as being objective.
	Investigation and mitigation of shortcomings	• Rate of reoccurring issues related to stakeholder engagement processes • Progress based on assessment criteria of M&E frameworks over time

ENGAGEMENT PRINCIPLES CONT.		OECD DUE DILIGENCE: GUIDANCE FOR STAKEHOLDER ENGAGEMENT IN THE EXTRACTIVE SECTOR
CATEGORY THEMES	REPORTING CATEGORIES	24
ENGAGEMENT SUPPORT SYSTEMS	**Appropriate aims and objectives**	• The degree to which aims, and objectives are clear, realistic, and aligned with corporate policy and international standards
	Appropriate resourcing of activities	• Ratio of resources needed to resources attained for stakeholder engagement
	Adequate support for stakeholder participation	• Quality and relevance of support provided to stakeholders for engagement purposes • Responsiveness to requests from stakeholders for support
	Stakeholder communication and access to information	• Degree to which information provided to stakeholders corresponds to what they view as material • Degree to which information is presented in formats accessible by the population (e.g. use of local language, use of various media) • Ability of a range of stakeholders to explain and communicate material aspects of the project, such as what the anticipated impacts are, and how the engagement process is structured • Level of comfort of stakeholders with how information concerning them is managed
	Personnel treatment of stakeholders	• Number of complaints from stakeholders based on inappropriate personnel conduct • Frequency of interaction wiTh stakeholders outside the workplace (through frequenting local restaurants, etc.) • Degree of comfort stakeholders feel in interacting with enterprise personnel as displayed through comfort in sharing views and conduct towards engagement personnel

Engagement

COMMUNITY ENGAGEMENT	IRMA	GRI	RMI	ECR
REPORTING CATEGORIES	13	3	9	1
Local community engagement	The operating company shall foster two-way dialogue and meaningful engagement with stakeholders by: a. Providing relevant information to stakeholders in a t imely manner; b. Including participation by site management and subject-matter experts when addressing concerns of significance to stakeholders; c. Engaging in a manner that is respectful, and free from manipulation, interference, coercion or intimidation; d. Soliciting feedback from stakeholders on issues relevant to them; and e. Providing stakeholders with feedback on how the company has taken their input into account. • The operating company shall report back to affected communities and stakeholders on issues raised during engagement processes. • Stakeholder engagement plan and engagement procedure • Stakeholder mapping reports/records. • Stakeholder database. • Stakeholder tracking reports/records. • Minutes of meetings with stakeholders from relevant company departments.	• Percentage of operations with implemented local community engagement, impact assessments, and/or development programs, including the use of: ζ social impact assessments, including gender impact assessments, based on participatory processes ζ environmental impact assessments and ongoing monitoring ζ public disclosure of results of environmental and social impact assessments ζ local community development programs based on local communities' needs ζ stakeholder engagement plans based on stakeholder mapping ζ broad based local community consultation committees and processes that include vulnerable groups ζ works councils, occupational health and safety committees and other worker representation bodies to deal with impacts	• The company tracks, reviews and acts to improve the quality of its relationships with affected communities.	• The main report clearly describes the project, summarises the findings of any community engagement and the detailed assessment of the impacts of the project including mitigation measures
Management of concerns related to tax		• Stakeholder engagement and management of concerns related to tax		
Mine closure engagement			• Ensure affected communities are kept informed of when the mining operation will stop or close • Involve affected communities in the development of rehabilitation and post-closure plans • Ensure affected communities have agreed on the rehabilitation and post-closure plans for communities • Actively involve women from affected communities in the development and validation of rehabilitation and post-closure plans	
Grievance mechanisms		• Formal local community grievance processes	• A grievance mechanism must be in place for affected communities and individuals to register complaints and grievances • Ensure that male and female staff members are available for receiving and processing community grievances so that women from affected communities can speak to someone of the same sex • Publicly disclose the number and types of complaints/grievances registered by affected communities and individuals • Discuss with affected communities the measures taken to avoid repetition of the same complaints/grievances	

Engagement

COMMUNITY ENGAGEMENT	IRMA	CDP	OECD DUE DILIGENCE	RMI
REPORTING CATEGORIES	13	2	24	9
Engagement with ASM entities	• Stakeholder engagement strategy • Records of ASM stakeholders consulted • Records of local community stakeholders affected by interactions ASM and/or between LSM and ASM consulted • Materials used to promote the operational-level grievance mechanism for ASM and local communities, and an explanation of the distribution method used.	• Describe your engagement approach to artisanal and small-scale mining (ASM) during the reporting year.		• Systems to ensure operations facilitate engagement with artisanal and small-scale mining (ASM) communities and activities in and around their operations
Fostering positive relationships & opportunities				• Systems to ensure operations develop opportunities to support technical assistance programmes and/or alternative livelihood programmes for ASM miners in and around their operations.
Scoping and impact assessment	• A scoping report or equivalent documenting the company's research into the legal, social and environmental context in which ASM is operating. • Documentation of efforts to identify ASM entities and operations in close proximity to the mining project. • Assessment report (or equivalent) documenting analysis of the significance of the identified potential risks and impacts. • Risk management plan (or equivalent) that documents actions to be taken to mitigate/minimize identified significant risks associated with each ASM entity with whom the LSM has a commercial relationship. • List of metrics used to measure the social and environmental impacts of ASM entities. • Reports documenting the results of monitoring of the effectiveness of mitigation strategies. • Updates to the risk management plan (or equivalent) and/or the operating company's strategy to assist ASM entities in accessing technical assistance and financial investments to facilitate changes to their practices.	• Identify artisanal and small-scale mining (ASM) operations active in your mining project areas or in their area of influence		
Appropriate and effective engagement activities			• The aims of engagement could be: ζ regularisation/formalisation of ASM ζ establishment of alternative livelihood programs ζ execution of resettlement action plan for ASM miners ζ purchasing programmes for ASM mineral products ζ employment of ASM as workers ζ segregation of the concession.	
Understanding context and identifying stakeholders			• Enterprises should identify the extent and scale of artisanal miners that may be impacted by their operations. • Identify the nature of ASM activity • Investigate and report on the legal status of ASM activity • Report on demographics and relations • Report on the human rights context	

Engagement

ENGAGEMENT WITH WOMEN	IRMA	CERA	OECD DUE DILIGENCE	RMI
REPORTING CATEGORIES	13	3	24	9
Appropriate and effective engagement activities	• Stakeholder consultation plan. • Stakeholder engagement procedure. • Stakeholder management procedure. • Stakeholder mapping reports/records. • Scoping reports. • Environmental Impact Assessment reports.	• The process of stakeholder communication should be proactive, accountable, inclusive and transparent, so the organisation can perform to the best of its ability whilst promoting development opportunities for its stakeholders, including its employees.	• Personnel undertaking stakeholder engagement should consult gender disaggregated data and identify gender issues during preliminary research to ensure engagement activities and strategies are designed and implemented to appropriately account for gender dynamics. • Stakeholder facing personnel should consider how impacts may vary across stakeholders based on their gender and identify the most at vulnerable stakeholders in this regard. • Enterprises should aim for gender balance in staffing for stakeholder engagement. • When selecting modes of engagement, enterprises should include forms of engagement that are more likely to result in equal participation by men and women.	
Monitoring and evaluation	• Stakeholder engagement reports. • Records of communication with stakeholders. • Documented meeting minutes or recordings and attendance records. • Reports or summaries of stakeholder input and company feedback to stakeholders. • Stakeholder analysis reports/records.		• Number of women in leadership positions within the stakeholder group engaged by the enterprise. • Total number of women within the stakeholder groups engaged by the enterprise (disaggregated by intersecting factors, such as age, socio- economic status, disability and literacy). • Level of satisfaction with stakeholder engagement activities, by gender. • Level of involvement in activities, such as consultative meetings, participatory monitoring, agreement-making, by gender.	• Track, review and act to improve performance in managing any impacts of operational activities on women.
Stakeholder involvement in engagement design	• The operating company shall collaborate with stakeholders, including representatives from affected communities, to design and form stakeholder engagement mechanism(s)(e.g., a permanent advisory committee, or committees dedicated to specific issues), to provide stakeholder oversight of the mining project's environmental and social performance, and/or input to the company on issues of concern to stakeholders. • Records of communication with stakeholders. • Documented meeting minutes or recordings. • Meeting attendance records. • Reports or summaries of stakeholder input and company feedback to stakeholders. • Stakeholder analysis reports/records.	• The process of stakeholder communication should be proactive, accountable, inclusive, and transparent, so the organisation can perform to the best of its ability whilst promoting development opportunities for its stakeholders, including its employees.		

Engagement

ENGAGEMENT WITH WOMEN CONT.	IRMA	CERA	OECD DUE DILIGENCE	RMI
REPORTING CATEGORIES	13	3	24	9
Strengthening capacity	• The operating company shall offer to collaborate with stakeholders from affected communities to assess their capacity to effectively engage in consultations, studies, assessments, and the development of mitigation, monitoring and community development strategies. Where capacity gaps are identified, the operating company shall offer appropriate assistance to facilitate effective stakeholder engagement. • Records of communication with stakeholders. • Documented meeting minutes or recordings. • Meeting attendance records. • Capacity building training materials and records, and/or correspondence with any collaborators • Records of funding or other in-kind support to stakeholders • Reports or summaries of stakeholder input and company feedback to stakeholders.	• The process of stakeholder communication should be proactive, accountable, inclusive, and transparent, so the organisation can perform to the best of its ability whilst promoting development opportunities for its stakeholders, including its employees.		
Understanding context and identifying stakeholders	• The operating company shall demonstrate that efforts have been made to understand community dynamics in order to prevent or mitigate community conflicts that might otherwise occur as a result of company engagement processes. • Community development project or program documentation. • Venn diagrams of community groups/sub- groups from stakeholder analyses. • Stakeholder engagement reports. • Records of communication with stakeholders. • Documented meeting minutes or recordings. • Stakeholder analysis reports/records. • Stakeholder mapping reports/records.			• Systems to ensure operations take specific measures to enable the participation of women, youth, and persons with disabilities in discussions and decision-making on matters that may impact them.
Grievance mechanisms	• Grievance mechanism/policies and procedure. • Records of lodged grievances.	• Due diligence process to identify hazards and mitigate related risks regarding stakeholder expectations	• Diversity and quality of sources consulted • Frequency of re-identification of impacted stakeholder groups in response to project changes, feedback from relevant groups and misalignment with expected results • Degree to which stakeholder representative perspectives align with group perspectives	

Engagement

ENGAGEMENT WITH INDIGENOUS COMMUNITIES	IRMA	TSM	OECD DUE DILIGENCE	RMI
REPORTING CATEGORIES	13	4	24	8
Understanding context and identifying stakeholders	• Records of meetings and other forms of consultations with indigenous peoples or others who were consulted to help identify potentially affected indigenous peoples. • Lists of documents reviewed during the identification of potentially affected indigenous peoples. • Documents, websites or other materials used by the operating company to disclose/inform indigenous peoples about the mining project concepts and proposed activities. • Records of meetings, presentations or other venues where the operating company disclosed to indigenous peoples any project information and/or discussed or provided information about indigenous peoples' right to FPIC. • Stakeholder analysis reports/records, stakeholder mapping reports/records, scoping reports, Environmental Impact Assessment Reports.	• Confirmation that processes are in place to identify COI (including indigenous communities and organisations) affected or perceived to be affected by the company's operations and activities or who have a genuine interest in the performance and activities of a company and/or operation. • Processes should ensure that COIs are reconsidered periodically throughout the facility's life.	• Consider the unique characteristics of indigenous peoples and identify the collective rights claimed by indigenous peoples, as well as the human rights of indigenous individuals who are potentially impacted by activities. • Consultation should also explore intangible value associated with sacred sites or areas of cultural significance. • Indigenous peoples may have unique cultural values and characteristics which should be considered and respected when conducting engagement with them. • It should be recognised that indigenous groups may comprise individuals who experience adverse impacts differently and include more vulnerable groups, such as women and children, to whom special attention during the engagement process would be expected. • Indigenous peoples may speak unique dialects or rely on oral tradition for communicating information which can lead to difficulties in effectively communicating information, and may require innovative methods of consultation and engagement. • In addition to consultation with technical personnel and local sources, legal expertise should be sought to clarify any legal obligations with regard to engagement with indigenous peoples. • Stakeholder facing personnel should also consult with indigenous peoples themselves and experts on the particular indigenous group with due regard for objectivity.	
Appropriate, effective, and meaningful engagement	• Stakeholder consultation plan, stakeholder engagement procedure, the stakeholder management procedure • Records of communications with stakeholder advocates or specialists with local knowledge and expertise. • Documented meeting minutes or recordings, and meeting attendance records • Reports or summaries of stakeholder input and company feedback to stakeholders. • Grievance mechanism/policies and procedure. • Records of lodged grievances) • Records of meetings and other forums with indigenous peoples' representatives and other indigenous community members where the issues that were discussed. • Records of input provided by indigenous peoples on the issues identified • Records of various types of outreach undertaken to create meaningful opportunities for engagement for all affected indigenous community members (including those who are vulnerable or marginalized).	• Confirm that processes have been established to support the development and maintenance of meaningful relationships with COI (including indigenous communities and organisations) to gain mutual understanding of viewpoints, build effective relationships, and create shared value and mutual benefits. • Mining facilities are actively building meaningful relationships and implementing engagement and decision-making processes with indigenous communities. • This includes aiming to achieve free, prior, and informed consent (FPIC) for impacts on rights of directly affected indigenous peoples before proceeding with development and maintaining FPIC throughout the life of the project. • This indicator also confirms that efforts are made to ensure that indigenous peoples have equitable access to opportunities with the company. • Furthermore, this indicator seeks to ensure that management and designated employees are educated on the history of indigenous peoples and receive skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism.		• Where applicable, the company has systems in place to ensure its operations design and implementation, through inclusive participation, strategies and plans to respect the rights, interests, and needs of indigenous peoples potentially affected by its operations, in line with the UN Declaration on the Rights of Indigenous Peoples. • Where applicable, the company tracks, reviews and acts to improve its performance in respecting the rights and aspirations of indigenous peoples and avoiding adverse impacts on their livelihoods and heritage.

Engagement

ENGAGEMENT WITH INDIGENOUS COMMUNITIES CONT.	IRMA	TSM	OECD DUE DILIGENCE	RMI
REPORTING CATEGORIES	13	4	24	8
Free Prior and Informed Consent (FPIC)	FPIC Due Diligence: ζ Legal analysis of the host government (State) laws or policies related to FPIC for indigenous peoples. ζ Report on whether or not the host country carried out consultation and/or consent processes with potentially affected indigenous peoples prior to granting access to mineral resources (e.g., leasing minerals to private companies, offering mineral concessions, issuing exploration licences, etc.). ζ Documentation of communications of findings from company due diligence research (e.g., minutes from public meetings with stakeholders and rights holders where information was shared, an internet link to the summary of findings, correspondence with stakeholders and rights holders sharing the information, etc.). ζ Communications from indigenous peoples requesting or demanding that FPIC discussions relating to the mining project not proceed. ζ Evidence that the operating company ceased pursuing the proposed mining project after receiving communications from indigenous peoples requesting that FPIC process be stopped. ζ Communications from indigenous peoples expressing that they are open to renewing FPIC discussions related to the proposed mining project. Determine FPIC Processes ζ Records of meetings or other forms of communication with indigenous peoples' representatives to determine whether they preferred a coordinated FPIC process or a separate process for their particular group. ζ If the potentially affected indigenous peoples have an FPIC protocol in place or under development, the operating company shall abide by it ζ Copy of the indigenous peoples' FPIC protocol. ζ Copy of report, document or recording that outlines the FPIC process to be followed. Public reporting ζ Publicly available copy of the report, document or recording that outlines the FPIC process that was followed. ζ Publicly available copy of the report, document or recording that discloses the outcome of the FPIC process. ζ Record of communication from indigenous peoples' representatives requesting that the FPIC process not be disclosed publicly.	• Aiming to achieve free, prior, and informed consent (FPIC) for impacts on rights of directly affected Indigenous peoples before proceeding with development and maintaining FPIC throughout the life of the project.	• Agree with affected indigenous peoples on a consultation process for working towards seeking indigenous peoples' FPIC. • Consult on, and agree on, what constitutes appropriate consent for affected indigenous peoples in accordance with their governance institutions, customary laws and practices • Engage in the process of seeking consent as soon as possible during project planning, before activities for which consent should be sought commence or are authorised, including in the context of exploration activities. • Recognise the process of seeking FPIC as iterative rather than a one-off discussion. • Provide all information relating to the activity to indigenous communities in a manner that is timely, objective, accurate and understandable to them. • Document commitments/agreements that have been reached, including, as relevant, specification of what activities consent has been granted for or withheld, any conditions attached to consent, and areas of ongoing negotiation, and share them with the indigenous community in a timely manner in form and language they can understand. • Determine what action(s) can be taken in the event that: a) indigenous peoples refuse to enter into negotiations and b) indigenous peoples do not agree/give their consent for activities in their territory • All personnel that may come into contact with indigenous peoples should be trained to demonstrate respect for their culture, way of life, governance systems, traditional knowledge, and rights to and special connection with their lands, territories and natural resources. • Resources to support engagement with indigenous peoples (e.g. technical and legal support, community capacity building, local facilitators as well as compensation for costs to communities of engaging in the process) should be determined in consultation with indigenous peoples and agreed to by them throughout the engagement process. • Potentially impacted indigenous peoples should be consulted and their full and effective participation, as described in this Guidance, sought in designing engagement activities	• The company commits to respect the right of indigenous peoples to Free, Prior and Informed Consent (FPIC), and to support the extension of the principle of FPIC to other project-affected groups.
Meeting FPIC commitments	• Documentation of commitments made in the FPIC agreement, and information on the status of those commitments (e.g., have they been met, are the being implemented as expected, has there been some or no progress made, etc.). • Records of any efforts undertaken by indigenous peoples to monitor the implementation of the FPIC agreement. • Records of any meetings held to discuss implementation of the FPIC agreement or the status of implementation of various terms and conditions in the agreement. • Records of meetings, consultations, forums, communications with indigenous peoples regarding the mining project. • Records of any complaints or grievances from indigenous peoples and the company's responses and remedies.			
Grievance mechanisms	• Grievance mechanism/policies and procedure. • Records of lodged grievances • Records of any complaints or grievances from indigenous peoples and the company's responses and remedies.	• Confirmation that there are processes in place to receive, track, and respond to incidents, concerns, and feedback from COI (including indigenous communities and organisations), leading to stronger relationships and building trust.	• Processes for addressing grievances should be culturally appropriate and developed with due consideration to, or make use of, the impacted indigenous people's own procedures.	

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