MASTER THESIS

Social Life Cycle Impact Assessment of PEM and Alkaline Electrocatalysts Used to Generate Hydrogen

Thesis

21/08/2023

Leeuwarden, Netherlands

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Abstract

In the realm of entrepreneurship, innovation stands as a pivotal factor driving business success, especially in the renewable energy sector where addressing climate change is imperative. The global shift towards sustainable practices has brought hydrogen generation to the forefront, with electrolysis emerging as a favoured method due to its efficiency, scalability, and compatibility with renewable sources. This study delves into the unexplored dimension of social sustainability within Responsible Innovation, utilizing the Social Life Cycle Assessment (SLCA) framework developed by the United Nations Environment Programme (UNEP) to evaluate the social impacts of metals used in Alkaline (Ni, Ni-Fe) and Proton Exchange Membrane (PEM) (Pt, Ir) electrocatalysts for hydrogen production.

By employing a comprehensive life cycle approach and knowing that the mining represents a crucial supplier of key materials to manufacture electrocatalytic systems that generate Hydrogen, this research assesses the compliance of mining companies with international best practices, shedding light on the social sustainability of hydrogen generation technologies. Through the development of a dedicated Excel tool incorporating recommended practices, a checklist methodology is employed, enabling a binary assessment of companies' implementation of and commitment to these practices.

The findings demonstrate a distinct contrast between Nickel and Nickel-Iron and Platinum and Iridium, highlighting varying degrees of social responsibility. Nickel and Nickel-Iron showcase higher compliance with international practices, suggesting a potential for more positive social impacts compared to Platinum and Iridium. This divergence is attributed to geographical factors and the unique dynamics within each mining operation's location.

The study's significance lies in its contribution to Responsible Innovation by incorporating Social Sustainability within its scope. It underscores the importance of using frameworks like SLCA to assess social impacts and drive responsible practices in the hydrogen generation sector. Additionally, the developed tool holds promise for future research and practical applications, aiding innovators in making socially responsible choices and material selections for sustainable development.

Acknowledging certain limitations, such as data collection methodologies and interpretation of assessment criteria, the study maintains a strong foundation for further enhancement and refinement of the tool. Future research directions include broader applications of the tool, comparisons of metals' social responsibility scores across various organizations, and the exploration of a wider range of metals for a more comprehensive understanding of their social implications.

In conclusion, this thesis unveils the intricate relationship between innovation, sustainability, and social responsibility within the evolving landscape of hydrogen generation. By adopting a holistic approach and leveraging the SLCA framework, it highlights the role of Responsible Innovation in shaping a more sustainable future and presents a tool with potential to guide responsible choices in material selection and innovation practices.

Acknowledgement

I want to sincerely thank my parents for their everlasting love and support, which has kept me motivated throughout this research adventure.

I would like to express my profound gratitude to my primary supervisor, Dr. Laura Franco Garcia, for giving me the priceless chance to participate in an engaging NWO project and for exposing me to the outstanding and encouraging interdisciplinary research group. I owe a debt of gratitude to everyone who contributed to this NWO Research Project by working together to refine the findings, including Dr. Middelveld Senna, Dr. Konrad Kornelia, Dr. Marco Altomare, Dr. Andreas Weber, Dr. Georgios Katsoukis, Dr. Christoph Baeumer, and Dr. Aayan Banerjee. Dr. Garcia's keen insights, extensive experience, and expert guidance in the realm of SLCA have been instrumental in shaping my research and refining the results.

I would like to express my sincere gratitude to the research group members, whose active involvement and intelligent observations during our workshops broadened my knowledge and improved the caliber of my study. I would especially like to thank Dr. Middeveld Senna for organizing these sessions and offering priceless insights that helped me to improve my work.

My secondary advisor, Dr. Athanasios Votsis, whose insightful observations and many points of view gave my thesis depth and significantly improved its caliber, has my sincere gratitude.

My sincere thanks go to Aidin Bayazian, a classmate, whose knowledge in data processing was really helpful. His help in developing a powerful Excel tool for data processing significantly aided in the success of this study.

Without their encouragement, support, and contributions, my thesis would not have been feasible. Their combined impact has played a significant role in influencing my academic career and adding to the important findings of this research.

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1. Introduction

This section explores how innovation drives business success in tackling climate change, with a focus on hydrogen generation as a promising renewable energy source. Three types of hydrogen generation processes are outlined: brown/grey, blue, and green hydrogen, with water splitting as the most effective process for green hydrogen. Three electrolysis methods are discussed: alkaline, PEM, and SOEC, with PEM electrolysis as a promising alternative due to its efficiency and design, but high cost of materials. The section goes on to emphasizes on hydrogen generation as a key focus for innovation in addressing climate change. The section identifies the use of an integrated risk-benefit assessment to consider the product side of innovation in the RI or RRI framework. It highlights the need to focus on a social perspective rather than an economic perspective in evaluating the balance between advantages and disadvantages of a technology or innovation. The concept of social sustainability is introduced, and the Social Life Cycle Assessment (SLCA) is identified as a significant tool for assessing the social dimension of sustainability. The section concludes by discussing the problem statement of the study, which aims to assess the life cycle sustainability implications of integrating PEM electrolysis as an energy source in the Netherlands. The research objective and research question are also outlined, along with sub-questions that aim to identify the social impacts of specific electrocatalysts used to generate hydrogen.

1.1 Background

The past three decades has seen a surge of interest in innovation to establish and sustain competitive advantages. Innovation is widely viewed as a crucial aspect of entrepreneurship and a vital driver of business success (Johannessen et al., 2001). West et al., 2014 defines Innovation as "The process of creating, developing, and implementing new ideas or concepts that provide value to individuals, organizations, or society."

The Current focus of innovation globally is directed towards tackling climate change and is only set to increase in the coming years (2021: The Mainstreaming Of Climate Finance And Innovation, n.d.) (Global Risks Report 2021 | World Economic Forum | World Economic Forum, n.d.). The spotlight of innovation is on renewable energy as one of the frontrunners in tackling climate change (Global Risks Report 2021 | World Economic Forum | World Economic Forum, n.d.).

1.1.1 Hydrogen Generation

As the world seeks to transition to a low-carbon energy system, increasing attention is being paid to hydrogen generation as a viable source of renewable energy(*Green Hydrogen, The Fuel Of The Future, Set For 50-Fold Expansion*, n.d.) (Gielen et al., 2019). There are three types of hydrogen generation processes based on source:

- 1. Brown/Grey Hydrogen: Produced by Fossil Fuels (natural gas) and generates the highest carbon emissions of the three. (*The Clean Hydrogen Future Has Already Begun Analysis IEA*, n.d.)
- 2. Blue Hydrogen: Utilizes a combination of grey hydrogen whose carbon emissions are captured, stored, and reused (*The Clean Hydrogen Future Has Already Begun Analysis IEA*, n.d.)
- 3. Green Hydrogen: Generated from renewable energy sources such as biomass or water and does not produce any carbon emissions in the process (*The Clean Hydrogen Future Has Already Begun Analysis IEA*, n.d.)

IRENA's report (2019) writes clean hydrogen is experiencing a surge in political and business interest, as evidenced by the growing number of policies and projects dedicated to its development worldwide. In the pursuit of clean energy, green hydrogen has emerged as a particularly promising option, given its capacity to produce energy without greenhouse gas emissions, and as a result, it is receiving significant attention (IRENA, 2019). Forbes estimates that by 2050, green hydrogen has the potential to provide a quarter of the world's energy demands and create a market opportunity worth up to 10 trillion US dollars. The two well-known processes used to generate green hydrogen based on source are Biomass and Water splitting (Nikolaidis & Poullikkas, 2016).

Water splitting is considered to be more effective than biomass due to its energy efficiency, scalability, zero carbon emissions and endless supply of raw material (water) (European Commission Joint Research Centre [JRC], 2018). Hydrogen generated from water splitting can be generated through three processes Electrolysis, Thermolysis and Photolysis (Nikolaidis & Poullikkas, 2016). Electrolysis is gaining a lot of attention as the best method for producing hydrogen when compared to thermolysis and photolysis, because of its high efficiency in converting energy, ability to use renewable sources, well-established technology, ability to be scaled up easily, and its cost-effectiveness (Accenture, n.d.) (European Commission Joint Research Centre [JRC], 2018). The three well known methods for electrolysis to generate hydrogen are:

- Alkaline Electrolysis: water is added to the cathode where it is divided into two components hydrogen (H2) and hydroxide ions (OH-). The hydrogen is then separated from the water, while the hydroxide ions move through the electrolyte to the anode where they combine to produce oxygen (O2) (Nikolaidis & Poullikkas, 2016).
- Proton Exchange Membrane (PEM) Electrolysis: Water is brought to the anode, where it is separated into positively charged particles called protons (or hydrogen ions, H+). These protons then move through a membrane to the cathode, where they combine to form hydrogen gas (H2). Meanwhile, oxygen is left behind and remains with the original water molecule (Nikolaidis & Poullikkas, 2016)
- Solid Oxide Electrolysis Cell (SOEC): Is a process that uses electricity and a solid oxide electrolyte to split water into hydrogen and oxygen gas at high temperatures and under high pressure. It allows for efficient separation of hydrogen and oxygen ions (Zheng et al., 2021).

The figure below (Figure 1) provides a basic overview of the working of each of these electrolysis processes for Hydrogen generation.

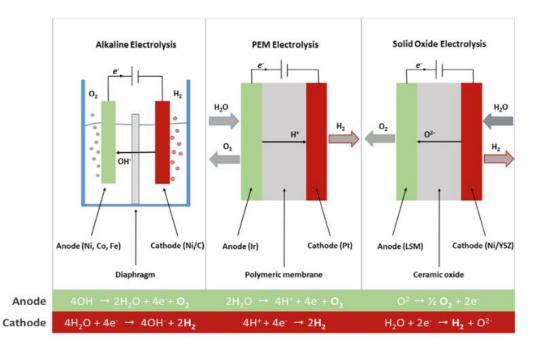


Figure 1: Overview of each electrolysis process used to generate Hydrogen. Image is obtained from (Sapountzi et al., 2017a)

Although alkaline water electrolysis is widely used for hydrogen generation, PEM water electrolysis is a promising alternative because it can be more efficient, produces purer hydrogen, has a more compact design, and offers faster start-up times. The main disadvantages of PEM are the high cost of membranes and catalysts (Sapountzi et al., 2017b). PEM is a highly promising technology for producing large amounts of hydrogen because it has a wide range of current densities that allow for efficient and flexible operation, even at high differential pressures. Its excellent dynamic response and high turndown ratios making it a key innovation focus for future sustainable energy systems (Minke et al., 2021). As one of potential innovations that could be integrated into the global energy system its impacts could have unforeseen consequences.

1.1.2 Responsible Innovation

Collingridge, 1979 introduces the idea of entrenchment of technology by writing when a technology is first being developed, it may be difficult to determine if it is harmful enough to justify stopping its development. However, if concerns about its impact arise later on, experience has shown that it becomes nearly impossible to control the spread of the technology if it is still being actively promoted. (Collingridge, 1979) further goes on elucidate that when a new technology is introduced, it causes adjustments in other related technologies, making it challenging to control. The process of controlling the new technology requires extensive and costly modifications to many other technologies. Thus, decisions made early on to develop the new technology are challenging to reverse, as it becomes deeply ingrained in existing technologies due to the interactions between them. He raises the dilemma on how do we assess the impacts of technology across the environment and society before integrating it into the world?

One system of thinking that emerged and could be considered is the concept of Responsible Innovation (RI) or Responsible Research and Innovation (RRI). Although questions of scientific responsibility and social control of technology have been discussed and dealt with in the period following WWII, there is presently a growing emphasis on the concept of RI and its related terms, such as RRI (Fisher & Rip, 2013). The concept of RRI was bought into the spotlight by the United States (USA) and the European Union (EU) to tackle the ethical implications of technologies such as Genetically Modified Organisms (GMO) or Nanotechnology (Owen et al., 2012).

Owen et al., 2012 uses the RI definition "a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)." RI or RRI has four main tenets or focus which are anticipation, reflection, deliberation and responsiveness (Thorstensen & Forsberg, 2016).

(Thorstensen & Forsberg, 2016) further elaborates that the concept of RRI encompasses both the process and product aspects of innovation, although these perspectives are distinct. The process side deals with how to anticipate and involve stakeholders, among other things, and has been extensively studied in fields like Technology Assessment (TA) and Science and Technology Studies (STS), which have helped to lay the foundation for RRI. In contrast, the product side focuses on the specific outcomes of innovation and has been more closely examined in fields like economics and environmental science but is less frequently discussed in the context of RRI.

According to Stilgoe et al. 2013, to consider the product side of innovation in the RI or RRI framework, an integrated risk-benefit assessment can be useful. This type of analysis would consider the potential risks and benefits associated with a particular technology or innovation. However, it should differ from traditional risk-cost benefit analyses in its methodology. Von Schomberg, 2013 highlights that the focus should be on a social perspective rather than an economical perspective. RRI methods do not have explicit guidelines for evaluating the balance between advantages and disadvantages of a technology or innovation. Nevertheless, the sustainability discipline may provide techniques to address this (Thorstensen & Forsberg, 2016). The Social Perspective in the sustainability field or Social Sustainability that holds an important yet not well explored dimension in RRI (Thorstensen & Forsberg, 2016).

1.1.3 Social Sustainability

The World Economic Forum (WEF) defines Social Sustainability as "the institutions, policies, and factors that enable all members of society to experience the best possible health, participation, and security; and that maximize their potential to contribute to and benefit from the economic prosperity of the country in which they live." (*Global Competitiveness Report 2020 | World Economic Forum*, n.d.). Social Life Cycle Assessment (SLCA), developed by the United Nations Environment Program, is a significant tool for assessing the social dimension of sustainability (*Sustainable Development*, n.d.-a) (Thorstensen & Forsberg, 2016).

SLCA as defined by the UNEP is a method used to evaluate the potential social and socioeconomic impacts, both positive and negative, that a product may have throughout its entire life cycle. This assessment includes all stages, from the extraction of raw materials to final disposal, and covers aspects such as manufacturing, distribution, use, re-use, and recycling (*Sustainable Development*, n.d.-a). (Benoît Norris & Revéret, 2015) further highlights SLCA as a useful tool for evaluating Social Responsibility because it offers a detailed analysis of a product's social impact. Taking a product life cycle perspective helps prevent the transfer of negative impacts from one stage of the cycle to another or from one social issue to another. This makes S-LCA a valuable addition to social responsibility evaluations. SLCA has been gaining a lot attention throughout the world especially as a great tool for RRI since it complements Environment Life Cycle Assessment (ELCA) (*Sustainable Development*, n.d.-a) (Thorstensen & Forsberg, 2016).

1.2 Problem Statement

The development of PEM electrolysis as a hydrogen generation technology offers numerous advantages over traditional Alkaline Electrolysis. However, its reliance on rare and expensive metals like Iridium and Platinum raises concerns about the social impact of these metals in the production process. This study aims to assess the life cycle sustainability implications of integrating PEM electrolysis as an energy source in the Netherlands and provide the results for responsible and sustainable technology adoption.

1.3 Research Objective

- 1. To establish a framework of social indicators for assessing the impact of electrochemical catalysts (specifically iridium, platinum, nickel, and nickel iron) on human rights throughout the supply chain, from cradle to gate.
- 2. To collect evidence for each social indicator identified in the framework and quantify the impact on human rights using the established standard.

1.4 Research Question

What social impacts from a sustainability perspective can be identified using Social Life Cycle Assessment on electrocatalysts used to generate hydrogen?

Sub Research Questions:

- 1. What are the Social Impacts of Iridium Catalyst?
- 2. What are the Social Impacts of Platinum Catalyst?
- 3. What are the Social Impacts of Nickel Catalyst?
- 4. What are the Social Impacts of Nickel Iron Catalyst?
- 5. Comparison of the social impacts through Scenarios?

2. Theoretical Framework

Social Life Cycle Assessment (SLCA) is defined by UNEP as "a technique/method that evaluates the social and socio-economic impacts of a product throughout its entire life cycle, including extraction, manufacturing, use, and disposal. SLCA can be used alone or combined with ELCA to provide a complete evaluation of a product's impact" (*Sustainable Development*, n.d.-a). UNEP further goes on to state that SLCA does not aim to determine whether a product should be manufactured or not, and it does not claim to provide guidance at that level. Its purpose is to record the usefulness of the product, but it does not have the capacity or role to advise on decision-making at that level. While data on the social circumstances of production, usage, and disposal may contribute to deliberation on the subject, it is unlikely to be enough to serve as a basis for decision-making (*Sustainable Development*, n.d.-a).

SLCA's methodology draws from or is similar to Environment Life Cycle Assessment (ELCA). For a successful SLCA the key parameter are functional unit, geographic location of each process, Stakeholders, uncertainty & subjectivity and Impact assessment (*Sustainable Development*, n.d.-a)

Functional unit: They both require a functional unit they differ when it comes to presenting results, ELCA always showcases results in the form of functional units whereas SLCA cannot do so because since this process utilizes information regarding the features or qualities of processes or companies that cannot be measured in terms of the output of a single unit of the process (*Sustainable Development*, n.d.-a).

Geographic location of Individual Process: Knowledge about the exact geographic location of unit processes is crucial or at least highly desirable. While generic hotspot evaluations can be done at a country level, conducting case-specific S-LCA requires more precise and detailed geographic information (*Sustainable Development*, n.d.-a).

Stakeholders: This plays a huge role since it helps us identify the social impact categories of each stakeholder at every step of the products life cycle (*Sustainable Development*, n.d.-a).

Uncertainty and Subjectivity: SLCA like ELCA targets to minimize uncertainty in the output generated from the assessment. Since ELCA deals with physical quantities uncertainty can be kept to a minimum. But in the case of S-LCA, subjective data may be more suitable and relevant in certain cases. For instance, data related to worker reports on how much control they have over their working conditions and schedules may be inherently subjective but empirically linked to social outcomes of interest. In such cases, using objective data like variability in observed worker arrival times or other proxies for perceived control over their work environment would increase uncertainty in the results rather than reducing it (*Sustainable Development*, n.d.-a).

Impact Assessment: S-LCA deals with both favourable and unfavourable effects of the product life cycle, and it does so for two reasons. Firstly, favourable impacts are often significant. Secondly, it encourages performance beyond mere compliance with regulations, international agreements, certification standards, and other requirements (*Sustainable Development*, n.d.-a).

There are three important steps that the UNEP highlights an important process to follow that is essential for conducting the assessment which is identifying the indicators (This is a part of the scope phase in SLCA) for the SLCA framework:

1. Defining the Social Impact:

UNEP defines social impacts as the results of positive or negative pressures on the wellbeing of stakeholders. These impacts arise from social relationships and interactions that occur in the context of an activity, such as production, consumption, or disposal, as well as from actions taken by stakeholders to prevent or reinforce them, such as enforcing safety measures(*Sustainable Development*, n.d.-a).

2. Classification of Social and Socio-Economic Indicators:

S-LCA assessment requires subcategories as they form the foundation for determining what should be included or excluded. These subcategories (as shown in figure 2 below) are socially relevant characteristics or themes and are classified based on impact categories and stakeholders. The evaluation of subcategories involves the use of inventory indicators that are quantifiable by units of measurement or variables (*Sustainable Development*, n.d.-a).

Stakeholder categories	Subcategories		
Stakeholder "worker"	Freedom of Association and Collective Bargaining Child Labour Fair Salary Working Hours Forced Labour Equal opportunities/Discrimination Health and Safety Social Benefits/Social Security		
Stakeholder "consumer"	Health & Safety Feedback Mechanism Consumer Privacy Transparency End of life responsibility		
Stakeholder "local community"	Access to material resources Access to immaterial resources Delocalization and Migration Cultural Heritage Safe & healthy living conditions Respect of indigenous rights Community engagement Local employment Secure living conditions		
Stakeholder "society"	Public commitments to sustainability issues Contribution to economic development Prevention & mitigation of armed conflicts Technology development Corruption		
Value chain actors* not including consumers	Fair competition Promoting social responsibility Supplier relationships Respect of intellectual property rights		

Figure 2: Stakeholder categories and Subcategories as defined by UNEP. Image taken from (Sustainable Development, n.d.-a)

3. The development of subcategories for social and socio-economic impacts assessment of products:

UNEP advises SLCA users to identify relevant international instruments as a reference to define categories, subcategories, and inventory indicators in S-LCA. International conventions, such as those on Human Rights and Workers' Rights, can serve as a suitable basis for establishing a framework of S-LCA indicators. These conventions are important instruments that have been developed through negotiations between countries and represent a universal set of social criteria. By referencing them, S-LCA can ensure a comprehensive and globally recognized approach to assessing social impacts (*Sustainable Development*, n.d.-a)

Using the steps mentioned above the table represented in figure 2 showcases the assessment system that will be followed according to the UNEP.

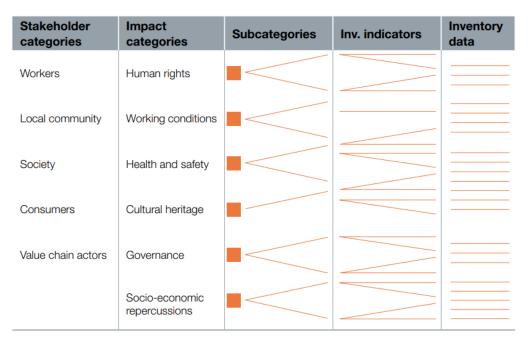


Figure 3: Assessment system as per UNEP from categories to unit of measurement. Image taken from (Sustainable Development, n.d.-a)

The methodology as provided by the UNEP for SLCA is divided into 4 parts goal and scope of the study, inventory analysis, impact assessment, and interpretation (*Sustainable Development*, n.d.-b). Figure 4 taken from the UNEP provides a brief explanation of each of these parts while highlighting the differences the key variations between ELCA and SLCA.

Phase of the study	Characteristics			
	The product utility is required to be described in functional terms, both in E-LCA and S-LCA. S-LCA goes further by also requiring that practitioners consider the social impacts of the product use phase and function.			
	Whereas E-LCA encourages involvement of stakeholders (beyond the commissioners) in the peer review of the study, S-LCA encourages that such "external" stakeholders be involved in providing input on impacts, within the assessment itself.			
Goal and scope	In S-LCA, justification needs to be presented when a subcategory is not included in the study. In E-LCA this is not a requirement.			
	The subcategories are classified both by stakeholder categories and by impact categories in S-LCA. In E-LCA they are classified only by impacts categories.			
	Whereas both E-LCA and S-LCA impact assessment methods may be sensitive to location, no E-LCA LCIA methods are site-specific, and E-LCA methods often define and use categories of location types that depend on physical factors such as geography type or population density. S-LCA may require site-specific LCIA in some cases, and may also need information about "political" attributes, such as the country and its laws.			
	The activity variables ²⁹ data is collected and used more often in S-LCA than in E-LCA (e.g. number of working hours for estimating the share of each unit process in the product system). In E-LCA , activity variables are used when data about impacts is not available.			
Life Cycle Inventory	The subjective data is sometimes in S-LCA the most appropriate information to use. Bypassing subjective data in favor of more "objective" data would introduce greater uncertainty in the results, not less.			
inventory	The balance between quantitative, qualitative and semi-quantitative data will generally be different.			
	The data sources will differ (coming from stakeholders).			
	The data collection steps and methods vary (e.g. the irrelevance of mass balances).			
	The characterization models are different.			
Life Cycle	The use of performance reference points is specific to S-LCA, e.g. thresholds.			
Impact	S-LCA encounters both positive and negative impacts of the product life cycle, beneficial impacts in E-LCA seldom occur.			
	The significant issues will differ.			
Interpretation	The addition of information on the level of engagement of stakeholders in S-LCA.			

Figure 4: Summary and Key differences between Environment LCA and Social LCA. Image taken from (Sustainable Development, n.d.-b)

3. Research Methodology

The Social Life Cycle Assessment (SLCA) Framework developed by the United Nations Environment Programme (UNEP) is the chosen framework for this research(*Sustainable Development*, n.d.-b). Its purpose is to evaluate and compare the social impacts of different metals used in hydrogen catalysts. Specifically, the study will compare the social impacts of Iridium and Platinum versus Nickel and Nickel Iron. To address the sub research questions, a brief methodology (outlined in Table 1) will be used.

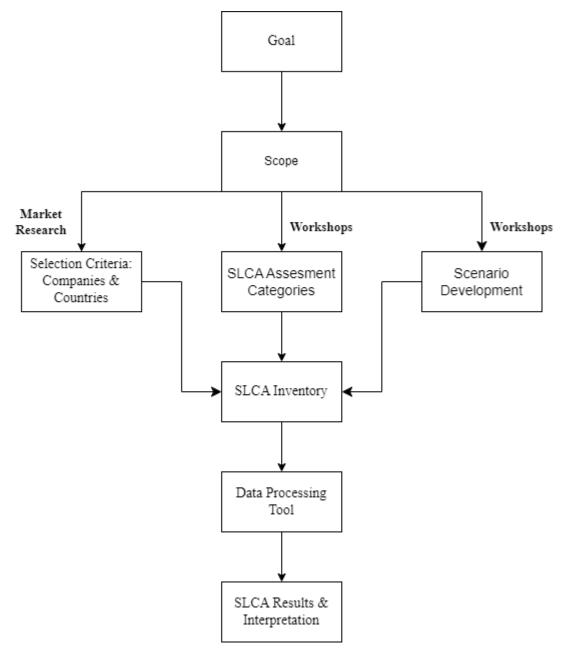
Research Sub Question	Data/Information to answer the question	Sources of Data	Accessing Data
What are the Social Impacts of Iridium Catalyst?	Measuring Social Impacts on Stakeholders in the Supply Chain	Secondary Data from Literature Reviews, Annual Reports, News Articles and Policy Documents	Secondary Data published articles, reports and policy documents
What are the Social Impacts of Platinum Catalyst?	Measuring Social Impacts on Stakeholders in the Supply Chain	Secondary Data from Literature Reviews, Annual Reports, News Articles and Policy Documents	Secondary Data published articles, reports and policy documents
What are the Social Impacts of Nickel Catalyst?	Measuring Social Impacts on Stakeholders in the Supply Chain	Secondary Data from Literature Reviews, Annual Reports, News Articles and Policy Documents	Secondary Data published articles, reports and policy documents
What are the Social Impacts of Nickel Iron Catalyst?	Measuring Social Impacts on Stakeholders in the Supply Chain	Secondary Data from Literature Reviews, Annual Reports, News Articles and Policy Documents	Secondary Data published articles, reports and policy documents

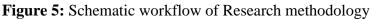
Table 1: Brief methodology approach towards answering the sub questions.

The research sub-questions in this table aim to investigate the social impacts of different types of catalysts used in various industries. Specifically, the sub-questions focus on measuring the social impacts on stakeholders in the supply chain. To answer these questions, secondary data from literature reviews, annual reports, news articles, and policy documents will be accessed. The sources of data for all sub-questions are the same, and the data will be collected from published articles, reports, and policy documents. Overall, the aim is to identify and evaluate the social impacts of different types of catalysts, and to determine any potential social implications that may arise from their use in the supply chain.

The SLCA framework developed by UNEP comprises four main stages: goal and scope, inventory analysis, impact assessment, and interpretation (Sustainable Development, n.d.-b). This section

will focus on the first two stages: goal and scope, and inventory analysis. The subsequent sections, which covers results and discussion, will address the third and fourth stages, namely impact assessment and interpretation. The subsequent diagram (Figure 5) illustrates the workflow guiding this thesis development, with each step elaborated in the following sections.





3.1 Goal and Scope of Social LCA

As outlined in the theoretical framework, this SLCA study adopts UNEP's defined goal and scope parameters for sustainable development (Sustainable Development, n.d.-b).

3.1.1 Goal

The goal of this SLCA is to identify and present the social impacts (positive and negative) of the metals used in PEM Electrolysis, specifically Iridium and Platinum, and Alkaline Electrolysis, namely Nickel Iron and Nickel to electrochemists. The impacts are used in comparison to assess the social sustainability of each hydrogen generation technology, with Iridium compared to Nickel Iron and Platinum compared to Nickel. To achieve this goal, the study will focus on the metals used to manufacture the Anodes (Iridium and Nickel Iron) and Cathodes (Platinum and Nickel) in PEM Alkaline Electrolysis, respectively and (Sapountzi et al.. 2017b). The functional unit for this SLCA is defined as the amount of catalyst (measured in milligrams) required to produce one kilogram of hydrogen. The catalysts considered are Nickel, Nickel Iron, Platinum, and Iridium.

3.1.2 Scope

The essential component of the scope is setting the boundary of the system to be assessed (Sustainable Development, n.d.-b). The boundary of the SLCA to be conducted for each of the catalyst metals is cradle to gate (Sustainable Development, n.d.-b). This boundary is defined because there is no full-scale commercial hydrogen generation plant using PEM electrolysis in the world that can be used to assess the consumer and end of life (grave) phase of the PEM catalyst. Since the goal of this SLCA is to compare the catalysts of PEM and Alkaline electrolysis it is important to choose commercially developed processes. The boundary of the supply chain is highlighted in figure 6

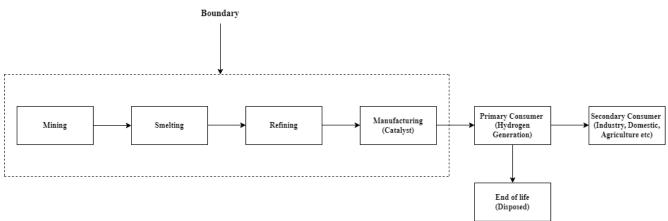


Figure 6: Boundary of the system for each catalyst.

Now that the boundaries are defined the second step is to identify the country for each unit process (unit process example: mining of Platinum) and top 3 companies in that country for each unit process that the SLCA will be focused on. To identify the country and top 3 companies the following criteria needs to be assessed while conducting a literature review. This literature review will utilize grey literature that consists of international reports on location of raw materials globally, market reports, annual reports, and scientific literature of the catalysts to identify countries and companies that meet the criteria. Table 2 defines the criteria used for choosing the

country and top 3 companies below. A literature review elaborates on why the country and the companies were chosen.

Catalyst	Unit Process	Criteria for country	Country	Criteria for	Top 3
				Company	Companies
Platinum	Mining	Highest Production in		Highest market	
		tons globally		Share	
				A minimum of 3	
				years of annual	
				reports must be	
				available	-
				Global Supplier	
	Smelting &	Highest Production in		Highest market	
	Refining	tons globally		Share	-
				A minimum of 3	
				years of annual	
				reports must be	
				available	_
				Global Supplier	
	Manufacturing	Highest Production in tons globally		Highest market	
	(PEM Catalyst)			Share	_
				A minimum of 3	
				years of annual	
				reports must be	
				available	_
				Global Supplier	
Iridium	Mining	Highest Production in		Highest market	
		tons globally		Share	
				A minimum of 3	
				years of annual	
				reports must be	
				available	_
				Global Supplier	
	Smelting & Refining	Highest Production in		Highest market	
		tons globally		Share	
				A minimum of 3	
				years of annual	
				reports must be	
				available	4
				Global Supplier	
	Manufacturing	Highest Production in		Highest market	
	(PEM Catalyst)	tons globally		Share	

Table 2: The Criteria used to identify the country and 3 companies for each unit process from cradle to gate.

Nickel	Mining	Highest Production in tons globally	A minimum of 3 years of annual reports must be available Global Supplier Highest market Share
			A minimum of 3 years of annual reports must be available Global Supplier
	Smelting & Refining	Highest Production in tons globally	Highest market Share A minimum of 3 years of annual reports must be available Global Supplier
	Manufacturing (Alkaline Electrocatalyst)	Highest Production in tons globally	Highest market Share A minimum of 3 years of annual reports must be available Global Supplier
Iron	Mining	Highest Production in tons globally	Highest market Share A minimum of 3 years of annual reports must be available Global Supplier
	Smelting & Refining	Highest Production in tons globally	Highest market Share A minimum of 3 years of annual reports must be available Global Supplier
	Manufacturing* (Alkaline Electrocatalyst)	Highest Production in tons globally	Highest market Share A minimum of 3 years of annual

reports must be available	
Global Supplier	

*Represents Nickel Iron Alloy

Now that the location of each unit process to be assessed in the SLCA will be identified the next step as defined by UNEP is to identify the stakeholders' categories, subcategories, indicators, and the unit of measurement for the indicator(*Sustainable Development*, n.d.-b). The relationship between stakeholders' categories, subcategories and indicators is explained in the theoretical framework section. For this SLCA, I will be using the predefined Stakeholder categories and subcategories identified by the UNEP and PSILCA (*Sustainable Development*, n.d.-b), (*PSILCA v.3 Database Documentation*, n.d.). Table 3 show cases the Stakeholder categories and subcategories

Table 3:	Stakeholder	Categories	and subcategories	S
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Stakeholder	Subcategories
Categories	
Workers	Child Labour
	Forced Labour
	Fair Salary
	Working Time
	Discrimination
	Health and Safety
	Social Benefits, Legal Issues
	Workers' Rights
Value Chain	Fair Competition
Actors	Corruption
	Promoting Social Responsibility
Society	Contribution to economic
, , , , , , , , , , , , , , , , , , ,	development
	Health and Safety
	Prevention and mitigation of conflicts
	Health and Safety
Local Community	Safe and healthy living conditions

Local employment
Migration
GHG Footprints
Environmental Footprints
Labour Footprints

From this list of subcategories in table 3, 10 subcategories are defined. The subcategories are already defined since this thesis contributes the data obtained from the SLCA to a larger research project.

The project is titled "Socio-technical pathways and material choices for a responsible electrification of the production of chemicals and fuels". The aim of this research is This research project aims to develop innovative electrochemical processes and electrolysers for sustainable production of "green" chemicals using renewable electricity. It explores socio-technical configurations for applications like bio-oil upgrading and chemical synthesis, evaluating their environmental and societal impacts. By integrating constructive technology assessment and lifecycle thinking, the study involves stakeholders and anticipates future pathways. The research seeks to align with ongoing electrochemical investigations and contribute to environmentally responsible chemical industry advancements (socio-technical pathways and material choices for a responsible electrification of the production of chemicals and fuels | nwo, n.d.).

This thesis centres on the social dimension of the research project. The parameters presented below have been curated from a series of workshops attended by an interdisciplinary team. This team collectively established the parameters for the thesis project. The predefined subcategories include:

- 1. Fair Competition
- 2. Promoting Social Responsibility
- 3. Prevention and mitigation of armed conflicts
- 4. Discrimination
- 5. Public commitments to sustainability issues
- 6. Corruption
- 7. End-of-life responsibility
- 8. Safe and healthy living conditions
- 9. Local employment
- 10. Health and safety

Using this predefined set of subcategories an assessment table (Table 10) is developed using the framework stated by UNEP and PSILCA database (*Sustainable Development*, n.d.-b), (*PSILCA v.3 Database Documentation*, n.d.). Table 4 constitutes Stakeholder categories, Subcategories, Indicators, and unit of measurements for the indicators.

Table 4: Assessment Table

Stakeholder Categories	Subcategories	Indicators
Worker	Discrimination	Women in Workforce
		Gender Equity
	Health and	Historically Disadvantaged People (HDP) Accident Rate at
	Safety	Workplace
		Fatal Accidents at Workplace
		Health an Safety Measures
Value Chain Actors	Fair Competition	Presence of anti- competitive behaviour and Fair Competition
	Corruption	Business Ethics, Anti Corruption and Transparency
	End of life Responsibility	Mine Closure and Post Closure Viability

	Promoting Social Responsibility	Responsible Contracting and Sourcing
	Public commitments to sustainability issues	CSR commitments and Social Development
Society	Prevention and mitigation of conflicts	Prevention of Conflict and Mitigation
Local Community	Safe and healthy living conditions	Community Engagement and Wellbeing Local Employment

With the assessment table defined the next step is to integrate predefined scenarios into the SLCA to understand the social impacts for each catalyst and the variations in impact with each scenario. The scenarios like the subcategories have already been defined by the larger research project. The three defined scenarios are:

- 1. Current status of the PEM and Alkaline Electrolysis technology
- 2. Improved efficiency (lesser milligrams of catalyst required to generate 1 kg of Hydrogen) of PEM and Alkaline Electrocatalysts in the future.
- 3. Integrating Recycling as source of Raw materials; figure 7 illustrates the new boundary of the system below.

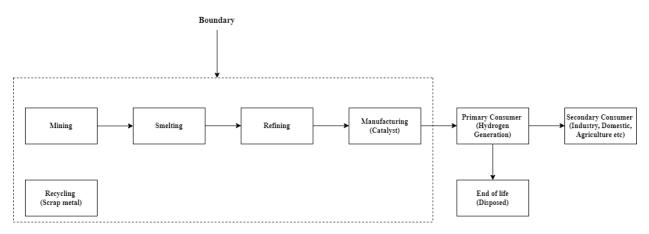


Figure 7: Recycling as part of the system Boundary

The final step of the scope is to design a score card using the format stated by the UNEP (Sustainable Development, n.d.-b). Table 5 showcases a score card ranging from -2 to +2, with 0 as the baseline or the bare minimum that needs to be achieved by the company. This score card as per UNEP SLCA framework translates the data obtained in assessment table (table 10) to quantifiable comparable social impacts of each of the catalysts(*Sustainable Development*, n.d.-b).

Score	Practice
+2	Best practices in the industry or best practices stated by relevant International Organization
+1	Regular Audits and Reporting
0	Policies in place that met the criteria stated by the National Government
-1	Policies in place cases identified or reported
-2	No policies in place

 Table 5: Scorecard Format

3.2 Social Life Cycle Inventory

Now that the scope of the SLCA has been outlined, data collection of relevant information required as mentioned in the assessment table (Table 10). The inventory of data that needs to be collected constitutes of Annual Reports, company press release, ESG Index, National Policies, News articles from national and international news stations to name a few. Since all the data collected is expected to be secondary data, the quality of the data needs to be assessed using a suitable data quality criterion, relevant quality matrix that will be used is identified from SLCA pilot projects conducted by life cycle initiative that utilized GRI foundation's standards for sustainable reporting such as transparency, balance, accuracy etc (*Pilot Projects on Guidelines for SOCIAL LIFE CYCLE ASSESSMENT OF PRODUCTS AND ORGANIZATIONS 2022*, n.d.).

3.3 Data Processing

The data processing stage will involve using Excel to convert qualitative data into quantitative data in the form of the scorecard presented in Table 5. A set of Excel formulas will be employed to transform the inventory data input into an output representing the scorecard range of -2 to +2. Additionally, Excel formulas will generate graphs illustrating the quantified social impacts for each indicator, enabling a comparison of social impacts between the catalysts. To ensure the software's usability and useful features, a focus group comprising electrochemists from the University of Twente will test the set of Excel formulas. The focus group's feedback will be used to improve the Excel process before retesting the refined process with the focus group for validation. The data processing stage will not proceed until ethical approval has been obtained.

3.4 Social Life Cycle Impacts and Interpretation

As per UNEP guidelines for SLCA Once the data quality is assessed as per the assessment table (table 4) is filled using the units of measurements stated (Sustainable Development, n.d.-b). The table 5 (scorecard) is used to translate the data into quantifiable social impacts that showcases positive or negative social impacts of the system assessed within the defined boundary for each catalyst. The assessment will utilize the three scenarios mentioned in the scope to compare PEM catalysts (Iridium and Platinum) with Alkaline catalysts (Nickel and Nickel Iron) to identify which technology has the least social impacts for each scenario.

3.5 Limitations

The primary limitation identified comes from the broad spectrum of the of the catalysts assessed and the industries assessed it is difficult to use primary data (interviews, surveys, and site visits) to understand the situation on the ground. Therefore, this research is limited to reported data (secondary data) from companies, countries, and international organizations, that will provide a macroscopic view rather than a microscopic view. The second limitation identified is the difficulty in identifying countries and companies that are the leading players in manufacturing PEM and Alkaline countries. This is highlighted Appendix I with respect to not being able to find 3 companies that meet the criteria set in table 2 due to market recency of this technology. The third limitation identified is the boundary of the life cycle to be assessed, usually LCA for Environment or Social conducts a cradle to grave assessment. This is not possible in this case due to the fact that PEM hydrogen generation technology is in its development phase and has no scaled up commercial projects as of yet. Thus, there is no data available to assess the social impacts of the consumption and end of life phase. This has led to the scope of the LCA limited to "Cradle to Gate" assessment.

4. Results

The Results section of this research provides a comprehensive overview of the findings derived from the investigation into the social impacts of various metals used in hydrogen catalysts. The selection of companies for the Social Life Cycle Assessment (SLCA) is outlined, highlighting the criteria and rationale behind the choice of countries and companies. The study delves into the literature review of catalysts, focusing on Platinum and Iridium as integral components of Platinum Group Metals (PGM), which have gained prominence in technology development, particularly hydrogen generation. The global production landscape of these metals is discussed, emphasizing South Africa's significance in Platinum and PGM production, with companies like Northam Platinum Limited, Anglo American Platinum Limited, and Impala Platinum Holdings Limited emerging as key players. Meanwhile, the burgeoning field of PEM Electrocatalysts spotlights the United Kingdom, led by ITM Power, as a hub for their production.

The pivotal role of Nickel (Ni) is underscored, as it finds widespread use in modern infrastructure and technology, and Indonesia emerges as the largest global producer. Noteworthy companies in Nickel production, such as Sumitomo Metal Mining, PT Vale Indonesia Tbk, and PT ANTAM, are examined. The prominence of Iron in various industries is elucidated, with Australia standing out as the world's largest producer. Leading producers of Iron in Australia, including Rio Tinto, Broken Hill Proprietary (BHP), and Fortescue Metals Group, are highlighted.

The section progresses to detail the development of a dedicated Excel processing tool, collaboratively created with a focus group, for assessing the social responsibility of the selected companies. This tool incorporates a checklist aligned with international best practices and indicators. The social responsibility scores computed through this tool for the mining companies are presented, with individual scores per indicator provided. The resultant average social responsibility scores for Platinum, Iridium, Iron, and Nickel mining companies are depicted through tables and graphs, shedding light on their respective compliance with standard requirements and best practices.

Comparative graphs elucidate the social responsibility scores for Platinum, Iridium, Nickel, and Iron mining companies. These graphs underscore trends in social responsibility performance across different indicators. Notably, the average social responsibility score for Nickel mining companies remains consistently above the baseline, indicating strong compliance with standards. In contrast, Platinum and Iridium mining companies demonstrate varying levels of compliance across indicators. The impact of geographical locations and industry regulations on these scores is discussed.

4.1 Selection of Companies

Using the criteria stated from table 2, countries and companies have been selected for the Social Life Cycle Assessment. This section will give a brief understanding of how each company was selected.

Table 6: The Criteria used to identify the country and 3 companies for each unit process from cradle to gate.

Catalyst	Unit Process	Criteria for country	Country	Criteria for Company	Top 3 Companies
Platinum Minir	Mining	Highest Production in tons globally	South Africa	Highest market Share	-Northam Platinum Limited
				A minimum of 3 years of annual reports must be available	-Anglo American Platinum
				Global Supplier	Limited
					-Impala Platinum Holdings Limited
	Smelting & Refining	Highest Production in tons globally	South Africa	Highest market Share	-Northam Platinum
				A minimum of 3 years of annual reports must be available	 Limited -Anglo American
				Global Supplier	Platinum
				A minimum of 3 years of annual reports must be available	 Limited -Impala Platinum
				Global Supplier	Holdings Limited
Iridium	Mining	Highest Production in tons globally	South Africa	Highest market Share	-Northam Platinum
				A minimum of 3 years of annual reports must be available	 Limited -Anglo American
				Global Supplier	

					Platinum Limited
					-Impala Platinum Holdings Limited
	Smelting & Refining	Highest Production in tons globally	South Africa	Highest market Share A minimum of 3 years of annual	-Northam Platinum Limited
				reports must be available	-Anglo American
				Global Supplier A minimum of 3 years of annual reports must be available	Platinum Limited -Impala Platinum
				Global Supplier	Holdings Limited
Nickel	Mining	Highest Production in tons globally	Indonesia	Highest market Share	-Sumitomo Metal Mining,
				A minimum of 3 years of annual reports must be available	-PT Vale Indonesia Tbk
				Global Supplier	-PT ANTAM
	Smelting & Refining	Highest Production in tons globally	Indonesia	Highest market Share	-Sumitomo Metal Mining,
				A minimum of 3 years of annual reports must be available	-PT Vale Indonesia Tbk
				Global Supplier	

				A minimum of 3 years of annual reports must be available Global Supplier	-PT ANTAM
Iron	Mining	Highest Production in tons globally	Australia	Highest market Share A minimum of 3 years of annual reports must be available Global Supplier	-Rio Tinto -Broken Hill Proprietary -Fortescue Metals Group
	Smelting & Refining	Highest Production in tons globally	Australia	Highest market Share A minimum of 3 years of annual reports must be available Global Supplier	Rio Tinto -Broken Hill Proprietary -Fortescue Metals Group

Literature Review of Catalyst Metals

Platinum and Iridium

Platinum and Iridium are members of Platinum Group Metals (PGM) which constitute of Platinum (Pt), Palladium (Pd), Rhodium (Rh), Ruthenium (Ru), Iridium (Ir) and osmium (Os). The PGM elements have received a lot of attention globally due to their growing application in technology development such as hydrogen generation (Rao & Reddi, 2000). As per British Geological Survey Report in 2020, South Africa is the world's largest producer of Platinum (Produced 111,993 kg of platinum in 2020) and platinum group metals (Produced 46,835kg of PGM in 2020), while Russia as per the report produced 23,500 kg of platinum and Zimbabwe produced in 2020 making it the second largest producer of platinum (BGS, 2016). As per Mordor Intelligence reports on global platinum company of the top players located in South Africa are Northam Platinum Limited, Anglo-American Platinum Limited and Impala Platinum Holdings Limited(*Platinum Market Size & Share Analysis - Industry Research Report - Growth Trends*, n.d.). Each of the companies mentioned have published at least three annual reports. The table 7 below showcases what functions each of the company offers and the source. Table 8 shows company and links to their annual reports' repository.

Companies	Unit Process	Insource (Y/N)	Source
Anglo	Mining	Yes	https://www.angloamericanplatinum.com/
American Platinum	Smelting	Yes	https://www.angloamericanplatinum.com/
Limited	Refining	Yes	https://www.angloamericanplatinum.com/
Impala	Mining	Yes	https://www.implats.co.za/
Platinum Holdings	Smelting	Yes	https://www.implats.co.za/
Limited	Refining	Yes	https://www.implats.co.za/
Northam	Mining	Yes	https://www.northam.co.za/
Platinum Limited	Smelting	Yes	https://www.northam.co.za/
	Refining	No*	https://www.northam.co.za/

Table 7: Companies and their operations

*Northam platinum Limited has an outsourcing contract with another company for precious metal refining

 Table 8: Annual Reports Repository

Companies	Annual Reports Repository
Anglo American Platinum Limited	https://www.angloamericanplatinum.com/investors/reports- archive/2022
Impala Platinum Holdings Limited	https://www.implats.co.za/corporate-reports-results-and- presentations.php
Northam Platinum Limited	https://www.northam.co.za/investors-and- media/publications/annual-reports

South Africa as mentioned before is the highest producer of Platinum and PGM and the companies with mines in South Africa namely Northam Platinum Limited, Anglo-American Platinum Limited and Impala Platinum Holdings Limited are global players and have a minimum of 3 years of Annual reports thus meeting the criteria set in Table 2.

Nickel and Nickel-Iron

(Mudd, 2010) highlights the importance of Nickel (Ni) writing about its essential integration in modern infrastructure and technology, primarily in stainless steel, nickel-based alloys, casting and alloy steels, electroplating, and rechargeable batteries. It is mostly commonly found in ores, in laterite ores(Mudd, 2010). As per British Geological Survey Report in 2020, Indonesia produced 816,700 kgs of nickel making it the largest producer and Russia produced 237,300 kgs of Nickel making it the second largest producer in the world(BGS, 2016). Mining Technology uses Global Data insights on the Nickel production industry to showcase the leading producers of Nickel in Indonesia which are Sumitomo Metal Mining, PT Vale Indonesia Tbk (Subsidiary of Vale) and PT ANTAM (*Nickel in Indonesia*, n.d.).

Companies	Unit Process	Insource (Y/N)	Source	
Sumitomo Metal Mining	Mining	Yes	https://www.smm.co.jp/en/	
	Smelting	Yes	https://www.smm.co.jp/en/	
	Refining	Yes	https://www.smm.co.jp/en/	
PT Vale Indonesia Tbk	Mining	Yes	https://www.vale.com/	
	Smelting	Yes	https://www.vale.com/	
	Refining	Yes	https://www.vale.com/	
PT ANTAM	Mining	Yes	https://antam.com/en	
	Smelting	Yes	https://antam.com/en	
	Refining	Yes	https://antam.com/en	

Table 9: Companies and their operations

Iron as per British Geological Survey Report in 2020, Australia produced 918,063,223 kgs of Iron ore making it the largest producer of Iron ore in the world in 2020, China produced 845,000,000 kgs of Iron Ore making it the second largest producer in the world in 2020 (BGS, 2016). Mining Technology uses GlobalData insights on the Iron ore mining industry to showcase the leading producers of Iron in Australia which are Rio Tinto, Broken Hill Proprietary (BHP) and Fortescue Metals Group (*Iron Ore in Australia*, n.d.). Largest iron smelting and refining country and leading companies needs to be identified. The table 10 below showcases what functions each of the company offers and the source. Table 11 is the cumulative list of companies identified for Nickel and Iron production with the links to their annual reports' repository.

Companies	Unit Process	Insource (Y/N)	Source	Intext Citation
Rio Tinto	Mining	Yes	Company Website	(Rio Tinto About, n.d.)
	Smelting	Yes	Company Website	(Rio Tinto About, n.d.)
	Refining	Yes	Company Website	(Rio Tinto About, n.d.)
Broken Hill Proprietary	Mining	Yes	Company Website	(<i>Iron Ore </i> <i>BHP</i> , n.d.)
	Smelting	Yes	Company Website	(Iron Ore BHP, n.d.)
	Refining	Yes	Company Website	(Iron Ore BHP, n.d.)
Fortescue Metals Group	Mining	Yes	Company Website	(Our Operations Fortescue Metals Group Ltd, n.d.)
	Smelting	Yes	Company Website	(Our Operations Fortescue Metals Group Ltd, n.d.)
	Refining	Yes	Company Website	(Our Operations Fortescue Metals Group Ltd, n.d.)

 Table 10: Companies and their operations

 Table 11: Annual Reports Repository

Companies	Annual Reports Repository
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Sumitomo Metal Mining	Integrated Report Investors Sumitomo Metal Mining Co., Ltd. (smm.co.jp)
PT Vale Indonesia Tbk	Annual and Sustainability Reports - Vale
PT ANTAM	PT ANTAM Tbk Annual Reports
Rio Tinto	Annual Report (riotinto.com)
Broken Hill Proprietary	Annual reporting BHP
Fortescue Metals Group	Announcements and Reports Fortescue Metals Group Ltd (fmgl.com.au)

4.2 Data Processing Tool

As described in section 3.3, a dedicated Excel processing tool will be developed with the assistance of a focus group from the research project associated with this thesis. The Excel tool will consist of a checklist for each indicator presented in table 4, incorporating recommended practices from international organizations. Each checklist item will have a binary function (yes or no), where a "yes" indicates that the company has implemented these practices and publicly committed to following them. The checklist is based on the best practices outlined by various international organizations.:

International Labor Organization (ILO): Since 1919, ILO has been dedicated to setting worldwide labour standards to promote equitable and fruitful job prospects for men and women, ensuring freedom, equality, security, and dignity (Introduction to International Labour Standards, n.d.)

Responsible mining Foundation (RMF): is an independent research organization that supports the continuous improvement of ethical mining practices across the sector. They accomplish this by developing tools and frameworks, providing information of public interest, and fostering open and fruitful dialogue between mining corporations and other stakeholders. (RMI | Leading Practices | RMI Report 2022, n.d.)

International Council on Mining Metals (ICMM): The Mining Principles established by ICMM offer extensive guidance on environmental, social, and governance practices within the mining industry. Comprising 39 Performance Expectations and 9 position statements, these principles aim to align mining operations with global sustainability targets such as the UN Sustainable Development Goals and the Paris Agreement. Through rigorous site-level validation and credible sustainability reporting, the Mining Principles seek to optimize the positive impact on communities while effectively addressing societal concerns.(ICMM - Our Principles, n.d.)

Extractive Industries Transparencies Initiatives (EITI): EITI standards are based on the EITI principles that focus on the responsible utilization of natural resources can drive sustainable

economic growth and poverty reduction, but mismanagement can have adverse impacts. It is the responsibility of sovereign governments to manage resource wealth for the benefit of their citizens, while transparency in government revenues and expenditures can inform choices for sustainable development (The Global Standard for the Good Governance of Oil, Gas and Mineral Resources EITI STANDARD 2023 Part 1: Principles and Requirements, 2023).

The Organization for Economic Cooperation and Development (OECD): Is an international organization, they collaborate with governments, policymakers, and citizens to establish evidence-based international standards and address various social, economic, and environmental challenges. They provide a platform for data analysis, knowledge sharing, and best-practice exchange (About the OECD - OECD, n.d.)

Voluntary human rights and security: is a joint endeavor by governmental bodies, commercial enterprises, and non-governmental groups. It is intended to help mining, oil, and gas firms secure their operations while preserving human rights. To ensure that the security of corporate premises complies with human rights norms, the guiding principles emphasize completing extensive human rights risk assessments and collaborating with both public and private security services. (The Voluntary Principles on Security and Human Rights - United States Department of State, n.d.)

International Finance Corporation Performance Standards (IFC-PS): establishes minimal standards for projects that are largely located in emerging economies with regard to social, environmental, and corporate governance concerns in order to successfully manage associated risks. (International Finance Corporation (IFC), n.d.).

Sustainability Accounting Standards Board (SASB): The SASB Standards are developed to systematically identify and establish consistent reporting guidelines for sustainability concerns that hold the greatest significance for investors when making decisions. These standards are tailored to address industry-specific sustainability issues across 77 different sectors (Download SASB Standards - SASB, n.d.)

International Standards Organization (ISO): is an international organization charged with developing and disseminating standards. These standards provide generally agreed policies and requirements for disciplines including quality control, environmental management, and data security. They encourage global trade and collaboration while assisting firms in establishing consistency, efficiency, and safety in their operations (ISO - Standards, n.d.).

Global Reporting Initiative (GRI): The GRI Standards are internationally recognized as the leading approach for public reporting on economic, environmental, and social impacts. By adhering to these standards, organizations can provide transparent information about their role in sustainable development, including both positive and negative contributions. The Standards serve as a benchmark for disclosing sustainability-related information and promote accountability and awareness in reporting practices (GRI - Standards, n.d.).

United Nations Global Compact (UNGC): The cornerstone of corporate sustainability is the UN Global Compact's Ten Principles, which emphasize a values-driven approach to business operations. These recommendations, which deal with labor, the environment, and anti-corruption,

tell moral businesses to uphold these standards consistently across all of their operations. By implementing these values into their strategies, policies, and processes and creating an environment of integrity, businesses may fulfill their fundamental obligations to people and the environment while setting the groundwork for long-term success. (The Ten Principles | UN Global Compact, n.d.).

The above-mentioned organizations and initiatives were used to develop the checklists for each indicator as shown from table (12) to table (25). A brief description of the stakeholder subcategory, indicator (Refer table 4) and the checklist developed will be provided below:

Sub-category "Discrimination": The goal of the subcategory is to evaluate equal opportunity management practices and the existence of discrimination in the opportunities that firms provide to their employees as well as in the working environment (Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicators that will be measured are Women in Workforce, Gender Equity and Historically Disadvantaged People (as mentioned in table 4).

Check List	Y/N	Keywords in the Report
"Establishing or enhancing diversity policies with clear targets for inclusion and results reporting"(Balcazar et al., n.d.)	No	Female Employees
"attaining gender equality in recruitment policies and processes" (<i>Principle 6 UN</i> <i>Global Compact,</i> n.d.)	Yes	Women, Training and Devlopment
"implementing gender inclusive networks, career development and mentoring programmes" (<i>GRI - Resource</i> <i>Center</i> , n.d.)	Yes	Trainings
"Formal statement of following relevant international standards and Practices"(Balcazar et al., n.d.)	Yes	promote, Reporting, Approach

Table 12: Women in	Workforce checklist
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"Developing equitable promotion and retention policies"(GRI - Standards, n.d.)	Yes	Talent management, improving office environment
"Grievance Mechanisms for Gender Discrimination" (Balcazar et al., n.d.)	Yes	Grievance, Grievance mechanism
"Tracks and discloses data, against targets and across successive time periods, on the percentage of women at board and senior management levels" (<i>GRI</i> - <i>Standards</i> , n.d.)	Yes	Number of Employees Based on Employment Status and Gender, Board of Directors, Women in Management
External Audits and Review(Balcazar et al., n.d.)	Yes	External Auditor
"Has Information been shared to employees on the grievance mechanism need to combine this" (Balcazar et al., n.d.)	Yes	Grievance Mechanism
"Formal Statement: Gender Equality Policy" (Balcazar et al., n.d.)	Yes	Number of Employees Based on Employment Status and Gender
"Are the External suppliers aware of this grievance mechanism" (Balcazar et al., n.d.)	Yes	Grievance Mechanism
No cases of of gender discrimination/Harassment in past 5 years	No	Cases
"Employee training on Gender Discrimination"(<i>GRI - Standards,</i> n.d.)	Yes	Trainings (promoting equality and awareness)

Table 13: Gender Equity Checklist

Check List	Y/N	Keywords in the Report

"Performance review by international Organization Collaboration"(<i>RMI</i> Leading Practices <i>RMI</i> Report 2022, n.d.)	Yes	Bloomberg Index
Gender Equity commitment through International Organizations	Yes	Gender Equality Index (Bloomberg)
"Renumeration Committee addressing gender wage gap" (<i>RMI Leading Practices RMI Report 2022</i> , n.d.)	Yes	Renumeration, Wage Pay gap
External Audits and Review	Yes	External Audit
"Tracks and discloses data, across successive time periods, on its performance on managing the impacts of its activities on women"(<i>IFC</i> <i>Performance Standards on</i> <i>Environmental and Social</i> <i>Sustainability</i> , 2012)	Yes	Gender, Women, Impact, Assessment (Social Way Toolkit)
Gender Wage Gap Reported to be 1:1	No	Gender Pay Gap
Gender Wage Gap Policy/Statement(<i>The Ten</i> <i>Principles UN Global Compact,</i> n.d.)	Yes	Gender Pay Gap
Grievance Mechanisms for Harassment/Discrimination (<i>RMI Leading Practices RMI Report 2022</i> , n.d.)	Yes	Grievance Mechanism but for all including harassment and Discrimination (Gender Based Discrimination)
No cases of Gender Wage Pay Gap (External Source)	Yes	Cases

"Has Information been shared to employees on the grievance mechanism" (Balcazar et al., n.d.)	Yes	Grievance Mechanism
"Are the External suppliers aware of this grievance mechanism" (<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	No	Grievance Mechanism
"Employee training on Sexual Harassment" (<i>GRI - Standards,</i> n.d.)	Yes	Awareness Training

Table 14: Historically Disadvantaged People checklist

Check List	Y/N	Keywords in the Report
"Take specific measures to reflect its non-discrimination policies in their terms and conditions" (<i>The Text of the</i> <i>Declaration and Its Follow-up</i> (<i>DECLARATION</i>), n.d.)	Yes	Discrimination
"Take specific measures to implement trainings to raise awareness of discrimination among management staff and workers or take other actions aiming at preventing and addressing issues of discrimination in the workplace" (<i>RMI</i> Leading <i>Practices</i> <i>RMI Report 2022</i> , n.d.)	Yes	Awareness Trainings
"Set targets regarding diversity and inclusivity in its recruitment and employment practices" (<i>GRI - Standards,</i> n.d.)	No	Targets

Upholding the fundamental ILO convention on discrimination (No. 111)	Yes	Inclusive, Diversity, International Labour Organization
"The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Organise, including by granting access to designated areas for labour organisers to meet with workers" (International Finance Corporation (IFC), n.d.)	Yes	Collective Bargaining
"The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Collective bargaining, including by developing formal collective bargaining agreements" (IFC Performance Standards on Environmental and Social Sustainability, 2012)	Yes	Collective Bargaining
"The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Freedom of association, including by allowing union meetings on site"(<i>GRI</i> - <i>Resource Center</i> , n.d.)	No	Collective Bargaining, Union

Subcategory "Worker Health and Safety": This Subcategory aims to assess the frequency of occurrences as well as the efficiency of management strategies and preventative actions. In this context, any work-related event, regardless of severity, that led to or had the potential to lead to harm, disease, or death is referred to as an incident(Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicators used to asses this are Accidents at the Workplace, Fatal Accidents at the work place and Health and Safety at the Workplace.

 Table 15: Accident Rate at Workplace checklist

Check List	Y/N	Keywords in the Report
"Accident Rate at Workplace total Reported"(<i>GRI - Resource</i> <i>Center</i> , n.d.)	Yes	Accident Rate, Lost Time Injuries (LTI)
"Discloses the number of mining-related injuries among its workforce, across successive time periods" (<i>GRI - Resource</i> <i>Center</i> , n.d.)	Yes	Accident Rate, Lost Time Injuries (LTI)
"Discloses such information on a site-disaggregated basis"(RMI Leading Practices RMI Report 2022, n.d.)	Yes	Accident Rate, Lost Time Injuries (LTI)
"Confirms that its Accident Rate reporting includes Accidents of contract workers as well as employees" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	No	Accident Rate, Lost Time Injuries (LTI)
"Evaluation on Accidents and how to prevent it"(<i>RMI</i> / <i>Leading Practices</i> / <i>RMI Report</i> 2022, n.d.)	No	Accident Rate, Lost Time Injuries (LTI), Accident

 Table 16: Fatal Accidents at the workplace checklist

Check List	Y/N	Keywords in the Report
Fatal Accidents at Workplace total Reported(<i>GRI - Standards,</i> n.d.)	Yes	Fatal Accidents

"Discloses the number of mining-related high potential incidents, serious injuries and fatalities among its workforce, across successive time periods"(<i>GRI - Standards</i> , n.d.)	Yes	Fatal Accidents
Discloses such information on a site-disaggregated basis(<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Fatal Accidents
"Confirms that its fatalities reporting includes fatalities of contract workers as well as employees"(RMI Leading Practices RMI Report 2022, n.d.)	No	Fatal Accidents, Contractors
Evaluation on Accidents and how to prevent it(<i>RMI</i> / <i>Leading</i> <i>Practices</i> / <i>RMI Report 2022</i> , n.d.)	No	Fatal Accidents, Contractors

Table 17: Health and Safety at the Workplace Checklist

Check List	Y/N	Keywords in the Report
"Assigned senior management or board-level responsibilities and accountability for carrying out this commitment" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Code of Conduct, Code
Monitoring Psychological Hazards(<i>GRI - Standards,</i> n.d.)	Yes	Code, Fatigue, Psychological, Hazard, Health (Look for strategies that show assessments), Mental Health
prevention of occupational diseases(<i>GRI - Standards,</i> n.d.)	Yes	Occupation, Occupational Hazard

health surveillance and risk- based monitoring programmes (<i>GRI - Standards,</i> n.d.)	Yes	Health monitoring, risk-based monitoring
"Identify and assess health and safety risks to the workforce" (IFC Performance Standards on Environmental and Social Sustainability, 2012)	Yes	Occupational Risk Assessment
"Track the implementation of these strategies and plans" (IFC Performance Standards on Environmental and Social Sustainability, 2012)	No	Need to share a detailed approach to track these strategies (will be given in depth in the risk assessment and risk management section in safety or Health)
"Formalised its commitment, that is endorsed by senior management, to ensure safe and healthy working conditions" (IFC Performance Standards on Environmental and Social Sustainability, 2012)	Yes	Code of Conduct, Safety Compliance, Accountability
"Develop strategies and plans to avoid, minimise and mitigate these risks" (<i>RMI</i> <i>Leading</i> <i>Practices</i> <i>RMI Report 2022</i> , n.d.)	Yes	Risk Assessment and mitigation
External Audits and Review	Yes	
Required Safety Equipment (PPE)(<i>GRI - Standards,</i> n.d.)	Yes	Protective Equipment
Health and Safety Policy (<i>GRI - Standards,</i> n.d.)	Yes	Health and Safety management system, Health, and Safety Policies
Regular Health and Safety Training(<i>GRI - Standards,</i> n.d.)	Yes	Safety training

Gender Specific PPE on all mining Sites(<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	No	Protective, Gender Equipment (needs to specify gender-based PPE)
Reported cases of negligent safety rules leading to accidents(<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	Yes	Accident, negligence, incidents
Gender Appropriate Sanitation Facilities (<i>RMI</i> / <i>Leading</i> <i>Practices</i> / <i>RMI Report 2022</i> , n.d.)	No	Facilities, Sanitation, Provision
Health Services(RMI Leading Practices RMI Report 2022, n.d.)	Yes	Health Services, awareness, initiatives
Reported cases of negligent safety rules leading to accidents	No	Incidents, accidents, negligence

Subcategory "Fair Competition": This subcategory looks at whether the company's competitive attempts are carried out morally and in line with the laws that forbid monopolistic practices, anti-competitive activity, and anti-trust actions(Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is Presence of anti-Competitive Behavior and Fair Competition.

Table 18: Presence of Anti-competitive Behaviour and Fair competition

Check List	Y/N	Keywords in the Report
"Has systems in place to ensure its operations identify and map stakeholders operating in Artisanal Small-Scale Mining ASM activities around its operations" (<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	Yes	Stakeholder engagement
"Has systems in place to ensure its operations develop strategies and plans to engage with identified stakeholders, including through the establishment of engagement	Yes	Stakeholder engagement

agreements where		
appropriate" (RMI Leading		
Practices RMI Report 2022,		
n.d.)		
"Systematically tracks the	Yes	Stakeholder engagement
implementation of these		
strategies and plans" (RMI /		
Leading Practices RMI Report		
<i>2022,</i> n.d.)		
"Policies against Anti	Yes	anti - competitive
competitive behaviour" (GRI		
206 Anti competitive Behaviour)		
(<i>GRI - Standards,</i> n.d.)		
No cases of anti competitive	Yes	Grievance, Incident, code of
behaviour in the past 3 years		conduct
"Assess the need for, and	Yes	Community engagement
feasibility of, providing technical		
and/or livelihood support to		
ASM miners around their		
sites"(RMI Leading Practices		
RMI Report 2022, n.d.)		Community on account
"Develop strategies and plans	No	Community engagement
according to these assessments" (IFC Performance		
Standards on Environmental		
and Social Sustainability, 2012)		
"Engage with ASM miners in	Νο	Community engagement
these needs assessments and in		community engagement
the development of any		
strategies and plans"(<i>GRI</i> -		
Resource Center, n.d.)		

Subcategory "Corruption": This Subcategory examines any signs of an organization's involvement in corrupt activities and assesses if it has put in place enough safeguards to prevent corruption (Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is Business Ethics, Anti-Corruption and Transparency.

Table 19: Business Ethics, Anti-Corruption and Transparency

Check List	Y/N	Keywords in the Report
"Formalised its commitment, that is endorsed by senior management, to prevent all direct and indirect forms of bribery and corruption". (<i>GRI</i> - <i>Resource Centre</i> , n.d.)(<i>The Ten</i> <i>Principles</i> <i>UN Global Compact</i> , n.d.)	Yes	Corruption
"Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and compile information on all material payments, at the appropriate levels of government, by country and by project".(<i>RMI Leading</i> <i>Practices RMI Report 2022</i> , n.d.)	Yes	Corruption, Extractive Industries Transparency Initiative
"Assigned senior management or board-level responsibilities and accountability for carrying out this commitment" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Ethics Committee
"Committed financial and staffing resources to implement this commitment" (<i>RMI</i> / <i>Leading Practices</i> / <i>RMI Report</i> 2022, n.d.)	Yes	Corruption, Bribery
"Tracks and discloses data, across successive time periods, on its prevention of bribery and corruption, including number and nature of incidents and actions taken in response" (<i>GRI</i> - <i>Standards</i> , n.d.)	Yes	Corruption
"Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption"(<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	Yes	Bribery, corruption, Audits, Compliance

No cases of Corruption or whistleblowing in the past 3 years	No	Corruption
"Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption?" (ICMM - Our Principles, n.d.)	Yes	Corrective Action, Corruption
"Tracks and discloses data, across successive time periods, on the functioning and uptake of its whistleblowing mechanisms, including number and nature of incidents and actions taken in response" (<i>RMI</i> / Leading Practices / <i>RMI</i> <i>Report 2022</i> , n.d.)	Yes	Corruption
Audits and/or reviews the effectiveness of its whistleblowing mechanisms	Yes	Bribery, corruption, Audits, Compliance
"Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms" (<i>RMI Leading</i> <i>Practices RMI Report 2022</i> , n.d.)	Yes	Audits, compliance, risk assessment
"Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g., those of subsidiary or branch entities) it is known in that place" (GRI 201)(<i>GRI - Resource Centre</i> , n.d.)	Yes	Tax and Economic Value, Economic Contribution

"Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions"(The Global Standard for the Good Governance of Oil, Gas and Mineral Resources EITI STANDARD 2023 Part 1: Principles and Requirements, 2023)	Yes	Low Tax
"Discloses all tax benefits and tax holidays received at local and national levels in all tax jurisdictions where it has registered entity" ((<i>The Global</i> <i>Standard for the Good</i> <i>Governance of Oil, Gas and</i> <i>Mineral Resources EITI</i> <i>STANDARD 2023 Part 1:</i> <i>Principles and Requirements,</i> 2023)	No	Tax Benefits, Deductions

Subcategory "End of Life Responsibility": This Subcategory evaluates how well a company deals with the societal effects of a product or service's end-of-life. It entails giving customers precise and frank information about sensible end-of-life options. Producers might occasionally be in charge of waste reclamation, recycling, or safe disposal(Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is Mine Closure and Post Viability.

Table 20: Mine Closure and Post Viability

Y/N	Keywords in the Report
Yes	mine closure
	-

"Develop post-closure transition management plans from the earliest stage and in consultation with local stakeholders, aimed at ensuring continued livelihood viability for affected communities" (<i>RMI </i> <i>Leading Practices RMI Report</i>	Yes	mine closure
2022, n.d.) "Consider post-mining land-use opportunities in the development of these management plans"(<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	mine closure
"Identify, from the earliest stage, the impacts their closure will have for workers" (<i>GRI</i> - <i>Standards</i> , n.d.)	Yes	mine closure
"Develop post-closure transition management plans, from the earliest stage, ensuring continued livelihood viability for workers" (<i>GRI - Standards</i> , n.d.)	Yes	mine closure
"Develop partnerships with government, other industries or companies to address workers' livelihood needs"(<i>GRI</i> - <i>Standards</i> , n.d.)	Yes	mine closure
"Tracks and discloses data, across successive time periods, on its implementation of progressive rehabilitation plans throughout its operations" (RMI Leading Practices RMI Report 2022, n.d.)	Yes	mine closure
Audits and/or reviews its performance on progressive mine rehabilitation	No	mine closure
"Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve its performance on progressive	No	mine closure

mine rehabilitation"(RMI Leading Practices RMI Report 2022, n.d.)		
"Discloses financial surety arrangements for the closure of all its operations, related to workers and communities" (<i>RMI</i> / Leading Practices / <i>RMI</i> <i>Report 2022</i> , n.d.)	No	mine closure
"Discloses financial arrangements to ensure coverage of longer-term socio- economic aspects of post- closure"(<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	Νο	mine closure
"Discloses this information on a project-disaggregated basis" (<i>RMI Leading Practices </i> <i>RMI Report 2022</i> , n.d.)	No	mine closure

Subcategory "Promoting Social Responsibility": This Subcategory seeks to gauge the degree to which the business encourages social responsibility throughout its supplier chain and in its own operations. It evaluates how well the business manages its suppliers in a socially responsible manner, which includes monitoring, auditing, and offering training as needed. This category also looks at whether the business takes the necessary remedial actions with suppliers as necessary(Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to evaluate this is Responsible Contracting and Sourcing.

Table 21: Responsible	Contracting and Sourcing
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Check List	Y/N	Keywords in the Report
"Can the company demonstrate at the corporate level that it has systems in place to identify and assess risks related to its suppliers and contractors on: Human rights issues and Labour Issues" (UNGC Principle 2, VPs	Yes	Responsible procurement, procurement, supply chain

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B7, GRI 308; 407; 412; 414) (<i>GRI</i>		
- Standards, n.d.), (The Ten		
Principles UN Global Compact,		
n.d.)		
11.0.)		
"Can the company demonstrate	Yes	Responsible procurement,
at the corporate level that it has		procurement, supply chain
systems in		procurement, supply chain
-		
place to identify and assess risks		
related to its suppliers and		
contractors on: Environmental		
Issues" (GRI - Resource Centre,		
n.d.)		
"Tracks and discloses data,	Yes	Procurement, Local
against targets and across		Procurement
successive time		
periods, on its national and		
supranational procurement,		
showing proportions		
and amounts spent"(RMI /		
Leading Practices RMI Report		
<i>2022,</i> n.d.)		
"Audits and/or reviews the	Yes	Audit, Tax Audit
effectiveness of its measures		
taken to develop procurement		
opportunities for suppliers at		
national and/or supranational		
levels?" (<i>RMI</i> / <i>Leading Practices</i>		
RMI Report 2022, n.d.)		
	N -	Deview Audit
"Takes responsive action, based	No	Review, Audit
on the findings of these audits		
and/ or reviews, to seek to		
improve the effectiveness of its		
measures taken to develop		
procurement opportunities for		
suppliers at national and/or		
supranational levels"(RMI /		
Leading Practices RMI Report		
2022, n.d.)		
	Vac	Posponsible produktors ant
"Has systems in place to identify	Yes	Responsible procurement,
and assess potential risks of all		procurement, supply chain
forms of forced, compulsory,		
trafficked and child labour in its		
areas of operations and entire		
supply chain" (GRI - Standards,		
n.d.)		
1		

"Has systems in place to develop strategies and plans to address these identified risks" (<i>GRI - Standards</i> , n.d.)	Yes	Responsible procurement, procurement, supply chain
"Systematically tracks the implementation of these strategies and plans"(GRI - Standards, n.d.)	Yes	Responsible, Procurement, Supply chain
"Has systems in place to ensure its operations develop strategies and plans to develop local procurement opportunities"(<i>GRI - Standards</i> , n.d.)	Yes	Local Procurement
"Has systems in place to ensure its operations actively include women in these strategies and plans" (<i>GRI - Standards</i> , n.d.)	No	Women, Local Procurement, Female
"Systematically tracks the implementation of these strategies and plans"(GRI - Standards, n.d.)	No	Women, Local Procurement, Female

Subcategory "Public commitments to sustainability issues": This Subcategory assesses how committed a company is to reduce its environmental and social impact. When opposed to internal goals just, public pledges have higher relevance and accountability (Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is CSR Commitments and Social Development.

Table 22: CSR	Commitments	and Social	Development
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Check List	Y/N	Keywords in the Report
"Formalised its commitment, that is endorsed by senior management, to take account of national and supranational socio-economic development plans in making its mining-	Yes	Socio-economic Development

related investment and business decisions in producing countries, with the aim of enhancing socio-economic development". (<i>IFC</i> <i>Performance Standards on</i> <i>Environmental and Social</i> <i>Sustainability</i> , 2012) "Assigned senior management or board-level responsibilities	Yes	Socio-economic Development
and accountability for carrying out this commitment"(<i>GRI</i> - <i>Resource Centre</i> , n.d.)		
"Committed financial and staffing resources to implement this commitment"(<i>GRI -</i> <i>Resource Centre</i> , n.d.)	Yes	Socio-economic Development
"Has systems in place to ensure its operations work with sub- national producing country governments to identify socio- economic development priorities where they can play a collaborative role" (IFC Performance Standards on Environmental and Social Sustainability, 2012)	Yes	Socio-economic Development, socio-economic, socio- economic benefits
"Has systems in place to ensure its operations develop strategies and plans to address these development priorities in collaboration with the sub- national governments?" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Socio-economic Development, socio-economic, socio- economic benefits
"Systematically tracks the implementation of these strategies and plans, collaboratively with the sub- national governments" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Regional Government, Government, Socio-economic

"Identify R&D priorities to address socio-economic and environmental impacts of mining within producing countries" (<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.) "Develop R&D programmes to	Yes	Socio-economic, NGO, Academia, Opportunities Socio-economic, NGO,
address these priorities"(<i>RMI</i> <i>Leading Practices</i> <i>RMI Report</i> 2022, n.d.)		Academia, Opportunities
"Track the implementation of these R&D programmes" (<i>RMI</i> <i>Leading Practices</i> <i>RMI Report</i> 2022, n.d.)	Yes	Socio-economic, NGO, Academia, Opportunities
"Support STEM education among the wider population in collaboration with in-country institutions" (<i>RMI</i> Leading <i>Practices</i> <i>RMI Report 2022</i> , n.d.)	Yes	School, Education, Academia
"Support technical/vocational skills development among the wider population in collaboration with in-country institutions" (<i>GRI - Standards</i> , n.d.)	Yes	School, Education, Academia, Student, Technical, Vocational
"Demonstrate alignment of their skills development efforts with the national skills development agenda" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Education, Vocational, National
"Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries" (<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	Yes	Socio-economic, NGO, Academia, Opportunities
"Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries"(GRI - Standards, n.d.)	No	Manager, Managerial skill

"Systematically tracks the implementation of their skills development programmes" (GRI - Standards, n.d.)	Yes	Socio-economic, NGO, Academia, Opportunities
"Has systems in place to ensure its operations develop strategies and plans to develop local entrepreneurship and businesses" (The Ten Principles UN Global Compact, n.d.)	Yes	Businesses, Enterprises, Entrepreneurship
"Has systems in place to ensure its operations actively include women in these strategies and plans" (<i>RMI</i> / <i>Leading Practices</i> / <i>RMI Report 2022</i> , n.d.)	Yes	Women, Female, Gender
"Systematically tracks the implementation of these strategies and plans"(<i>RMI</i> <i>Leading Practices</i> <i>RMI Report</i> 2022, n.d.)	Yes	Socio-economic, NGO, Academia, Opportunities

Subcategory "Prevention and Mitigation of Conflict": This Subcategory assesses how much the organization is involved in actual or future disputes. It takes into account both the favorable and unfavorable effects that the organization may have on the escalation of conflicts(Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is Prevention of Conflict and Mitigation.

Table 23: Prevention of Conflict and Mitigation

Check List	Y/N	Keywords in the Report
"The entity shall disclose the percentage and grade (in percentage metal content) of proved reserves and probable reserves that are located in or near areas of active conflict. Security and human rights" (Sustainability Accounting Standard Sustainable Industry Classification System [®] (SICS [®]) EM-MM Metals & Mining, 2023)	No	Conflict, areas of conflict

"The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to: Use of free, prior, and informed consent (or consultation) processes"(<i>GRI</i> - <i>Resource Centre</i> , n.d.)	Yes	Indigenous people
"The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to: Upholding International Labour Organization (ILO) Convention No. 169" (<i>The Text of the</i> <i>Declaration and Its Follow-up</i> (<i>DECLARATION</i>), n.d.)	No	International Labour Organization
"The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to: The establishment of project grievance mechanisms"(<i>IFC</i> <i>Performance Standards on</i> <i>Environmental and Social</i> <i>Sustainability</i> , 2012)	Yes	Grievance mechanism, whistleblowing
"The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to: The establishment of formal community agreements"(The Ten Principles UN Global Compact, n.d.)	Yes	Lease agreements

		1
"Implementation of Voluntary	Yes	Voluntary Principles on Security
Principles on Security and		and Human Rights
Human Rights".(The Voluntary		
Principles on Security and		
Human Rights - United States		
Department of State, n.d.)		
"Describing its approach	No	Supply chain, Audit, third party
according to the Five-Step		audit
Framework outlined in the		
OECD Due Diligence Guidance		
for Responsible Supply Chains		
of Minerals from Conflict-		
Affected and High-Risk		
Areas" (OECD, 2020)		
"Tracks and discloses data,	No	Security
across successive time periods,		
on its performance on		
preventing and remedying		
human rights abuses related to		
its security management" (IFC		
Performance Standards on		
Environmental and Social		
Sustainability, 2012)		
"Audits and/or reviews the	No	Security
effectiveness of its measures		
taken to prevent and remedy		
human rights abuses related to		
its security management"(RMI		
Leading Practices RMI Report		
2022, n.d.)		
"Takes responsive action, based	No	Security
on the findings of these audits		
and/ or reviews, to seek to		
improve the effectiveness of its		
measures taken to prevent and		
remedy human rights abuses		
related to its security		
management"(<i>RMI</i> <i>Leading</i>		
Practices RMI Report 2022,		
n.d.)		
	l	

Subcategory "Safe and Healthy Living Conditions": This Subcategory assesses how organizations affect public health and safety. It includes both the operational environment's general level of safety and its effect on public health (Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is "Community Engagement and Wellbeing."

 Table 24: Community Engagement and wellbeing Checklist

Check List	Y/N	Keywords in the Report
"Formalised its commitment, that is endorsed by senior management, to respect human rights in accordance with the UNGCs" (<i>The Ten Principles</i> / UN Global Compact, n.d.)	Yes	UNGC, Human Rights
"Assigned senior management or board-level responsibilities and accountability for carrying out this commitment" (<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Committee, board member, Human Rights
"Committed financial and staffing resources to implement this commitment"(<i>RMI</i> / <i>Leading Practices</i> / <i>RMI Report</i> 2022, n.d.)	Yes	Committee, board member, Human Rights
"Has systems in place to ensure its operations identify and assess salient impacts of their activities on human rights" (Sustainability Accounting Standard Sustainable Industry Classification System ® (SICS ®) EM-MM Metals & Mining, 2023)	Yes	Gap Analysis, Risk Assessment, Impact assessment
"Has systems in place to ensure its operations develop strategies and plans to prevent, mitigate and account for how they address these identified impacts" (Sustainability Accounting Standard Sustainable Industry Classification System ® (SICS ®) EM-MM Metals & Mining, 2023)	Yes	Risk Assessment, Gap Analysis

"Systematically tracks the	Voc	Rick Accordment Con Analysia
"Systematically tracks the	Yes	Risk Assessment, Gap Analysis
implementation of these		
strategies and		
plans" (Sustainability Accounting		
Standard Sustainable Industry		
Classification System [®] (SICS [®])		
EM-MM Metals & Mining,		
2023)		
"Tracks and discloses data,	No	mine-site, mine, human rights
across successive time periods,		
on its performance on		
managing human rights issues,		
including mine-site-		
disaggregated data on the		
implementation of human		
rights due diligence		
processes" (Sustainability		
Accounting Standard		
Sustainable Industry		
Classification System [®] (SICS [®])		
EM-MM Metals & Mining,		
2023)	No	Audite Deviewe
Audits and/or reviews its	No	Audits, Reviews
performance on managing		
human rights issues(<i>RMI</i> /		
Leading Practices RMI Report		
2022, n.d.)		
"Can the company demonstrate	No	Community Engagement
at the corporate level that it has		
systems in place to ensure its		
operations take specific		
measures to enable the		
participation of Women in		
discussions and decision-making		
on matters that may impact		
them"(RMI Leading Practices		
RMI Report 2022, n.d.)		
"Can the company demonstrate	Yes	Youth
at the corporate level that it has		
systems in place to ensure its		
operations take specific		
measures to enable the		
participation of Youth in		
discussions and decision-making		
on matters that may impact		
them"(RMI Leading Practices		
RMI Report 2022, n.d.)		
nivii nepuit 2022, 11.0.)		

"Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Persons with disabilities in discussions and decision-making on matters that may impact them"(<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	No	Community Engagement, Disability
"Can the company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on women?"(<i>RMI Leading</i> <i>Practices RMI Report 2022,</i> n.d.)	Νο	Impact, Risk, Women
"Can the company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on youth?"(<i>RMI Leading Practices</i> <i> RMI Report 2022</i> , n.d.)	Νο	Impact, Risk, Youth
"Can the company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on children?"(<i>RMI</i> <i>Leading</i> <i>Practices</i> <i>RMI Report 2022</i> , n.d.)	No	Impact, Risk, Children
"Has systems in place to ensure its operations conduct and disclose regular assessments of their impacts on community health" (IFC Performance Standards on Environmental and Social Sustainability, 2012)	Yes	Risk Assessment, Gap Analysis

(1)	Mart	
"Has systems in place to ensure	Yes	Risk Assessment, Gap Analysis
its operations develop		
strategies and plans to address		
these impact" (IFC Performance		
Standards on Environmental		
and Social Sustainability, 2012)		
"Systematically tracks the	Yes	Risk Assessment, Gap Analysis
implementation of these		
strategies and plans" (IFC		
Performance Standards on		
Environmental and Social		
Sustainability, 2012)		
"Has systems in place to ensure	Yes	Risk Assessment, Gap Analysis
its operations identify and		
assess their adverse impacts on		
land use and access to land by		
affected communities" (The Ten		
-		
Principles UN Global Compact,		
n.d.)		
"Has systems in place to ensure	Yes	Risk Assessment, Gap Analysis
its operations develop		
strategies and plans to minimise		
and mitigate these adverse		
impacts" (Sustainability		
Accounting Standard		
Sustainable Industry		
Classification System [®] (SICS [®])		
EM-MM Metals & Mining,		
2023)		
"Systematically tracks the	Yes	Risk Assessment, Gap Analysis
implementation of these		
strategies and		
plans" (Sustainability Accounting		
Standard Sustainable Industry		
Classification System [®] (SICS [®])		
EM-MM Metals & Mining,		
2023)		
"Develop and maintain	Yes	Emergency Planning
emergency preparedness and		
response plans" (<i>GRI - Resource</i>		
<i>Centre</i> , n.d.)		
	Vac	Emergency Planning
"Systematically engage with	Yes	
local stakeholders (e.g., local		
authorities and communities) in		
the design of emergency		
response plans" (GRI - Resource		
<i>Centre,</i> n.d.)		

"Systematically ongage with	No	Emergency Planning Posnence
"Systematically engage with local stakeholders in the testing		Emergency Planning, Response
of these response plans"(GRI - Resource Centre, n.d.)		
"Regularly assess, against	Yes	Noise
	105	Noise
baseline values, the noise and		
vibration levels generated by		
their activities"(RMI Leading		
Practices RMI Report 2022,		
n.d.)	No.	Naiaa
"Develop strategies and plans	Yes	Noise
to limit the impacts of noise and		
vibration generated by their		
activities in the surrounding		
areas"(RMI Leading Practices		
/ RMI Report 2022, n.d.)		Naisa
"Systematically engage with	No	Noise
affected communities and other		
stakeholders in the		
development of these		
strategies" (RMI Leading		
Practices RMI Report 2022,		
n.d.)	Na	Naisa
"Tracks and discloses data,	No	Noise
across successive time periods,		
on the functioning and uptake		
of its grievance mechanisms for		
communities, including number		
and nature of complaints and		
actions taken in response" (RMI		
Leading Practices RMI		
Report 2022, n.d.)	Ne	Neise
"Audits and/or reviews, based	No	Noise
on complainants' perspective,		
the effectiveness of its		
grievance mechanisms for		
communities" (RMI Leading		
Practices RMI Report 2022,		
n.d.)	Ne	Neise
"Takes responsive action, based	No	Noise
on the findings of these audits		
and/or reviews, to seek to		
improve the effectiveness of its		
grievance mechanisms for		
communities" (RMI Leading		
Practices RMI Report 2022,		
n.d.)		

Subcategory "Local Employment": This subcategory evaluates the involvement of an organization in influencing local employment either directly or indirectly (Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 - Life Cycle Initiative, n.d.). The indicator used to assess this is Local Employment

Check List	Y/N	Keywords in the Report
"Does the company publicly disclose the number of its employees hired from local communities"(<i>GRI - Standards</i> , n.d.)	No	Employees, workers, Local workers, Local employees
"Does the company publicly disclose the number of its contract workers hired from local communities"(<i>GRI</i> - <i>Standards</i> , n.d.)	No	Employees, workers, Local workers, Local employees, contract employees, contract, contract workers
"Does the company publicly disclose the number of women workers hired from local communities"(<i>RMI</i> <i>Leading</i> <i>Practices</i> <i>RMI Report 2022</i> , n.d.)	No	Employees, workers, Local workers, Local employees, Women
"Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries" (The Ten Principles UN Global Compact, n.d.)	Yes	School, Education, Academia, Student, Technical, Vocational
"Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries"(The Ten Principles UN Global Compact, n.d.)	No	Manager, Managerial skill
"Systematically tracks the implementation of their skills development programmes" (The Ten Principles UN Global Compact, n.d.)	Yes	Socio-economic, NGO, Academia, Opportunities

 Table 25: Local Employment Checklist

"Support STEM education among the wider population in collaboration with in-country institutions" (<i>RMI</i> <i>Leading</i> <i>Practices</i> <i>RMI Report 2022</i> , n.d.)	Yes	School, Education, Academia
"Support technical/vocational skills development among the wider population in collaboration with in-country institutions"(<i>GRI - Standards</i> , n.d.; <i>RMI Leading Practices </i> <i>RMI Report 2022</i> , n.d.)	Yes	School, Education, Academia, Student, Technical, Vocational
"Demonstrate alignment of their skills development efforts with the national skills development agenda"(<i>RMI </i> <i>Leading Practices RMI Report</i> 2022, n.d.)	Yes	Education, Vocational, National
Local Employment Initiatives (ICMM - Our Principles, n.d.)	Yes	Local Employment, Employment, Job sites

4.2.1 Score Generator

The checklist in the Excel tool generates a score ranging from -2 to +2 based on the number of "yes" answers recorded in the respective columns. A score of -2 indicates the least compliance, while +2 signifies that the company demonstrates most of the best practices in their reports and formal statements. Conditional formatting in Excel was used to facilitate this process. For a more detailed explanation, refer to Figure (8) and Figure (9) which depict the score generator tool used for the Women in Workforce checklist in Table (12). Utilizing "Women in workforce" subcategory the no of practices (13) listed in Table (12), with an interval of 2.6 defining the score assigned for a set number of "yes" answer, as illustrated in Figure (9).

No of Yes for	conditional fo	rmatting
2	10,5	13
1	7,9	10,4
0	5,3	7,8
-1	2,7	5,2
-2	0	2,6

Figure 8: Number of Yes for Conditional Formatting

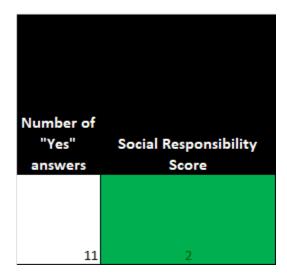


Figure 9: Social Responsibility Score

4.3 Social Responsibility Scores

The Social Responsibility scores for the companies listed in Table (26) were computed using the aforementioned Excel tool. The checklists for individual companies and each indicator can be found in Appendix I. Utilizing the data from Table (26), Table (27) was created to present the average social responsibility of companies operating in the mining sectors of Platinum & Iridium, Iron, and Nickel.

Stakeholder Categories	Sub-Categories	Indicators	Anglo America n (Pt and Ir mining)	North Ham Platinu m (Pt and Ir mining)	RioTi nto (Fe mini ng)	Broken Hill Propri etary (Fe mining)	Vale (Ni Mini ng)	Sumito mo (Ni mining)
Worker	Equal Opportunity/Dis crimination	Women in Work Force	2	1	2	1	1	1
		Gender Equity	2	0	0	1	1	-1
		Historically Disadvanta ged People	1	2	1	1	2	2
Value Chain Actor	Health and Safety	Accidents at the Workplace	0	-1	1	1	1	2
		Fatalities in the Workplace	0	-1	0	1	1	2
		Health Safety measures	1	1	1	1	0	0
	Fair Competition	Presence of anti- competitiv e behaviour and Fair Competitio n	1	1	0	2	2	2
	Corruption	Business Ethics, Anti Corruption and Transparen cy	2	-1	1	2	2	0

Table 26: Social Responsibility Score per company

	End of Life Responsibility	Mine Closure and Post Closure Viability	0	-1	0	1	2	-2
	Promoting Social Responsibility	Responsibl e Contractin g and Sourcing	1	0	0	2	1	1
	Public Commitments to Society Welfare	CSR commitme nts and Social Developme nt	2	2	1	2	0	1
Society	Prevention of Conflict and Mitigation	Prevention of Conflict and Mitigation	-1	-2	1	-1	1	-1
Local Community	Safe and Health Living Conditions	Communit y Health and Wellbeing	0	-1	1	1	1	0
	Local Employment	Local Employme nt	0	1	1	0	-1	1

 Table 27: Average social Responsibility Score per metal

Stakeholder Categories	Sub-Categories	Indicators	Value Pt & Ir	Value Ni	Value Fe
Worker	Equal	Women in Work Force	1.5	1	1,.5
	Opportunity/Discrimination	Gender Equity	1	0	0.5
		Historically	1.5	2	1
		Disadvantaged People			
Value Chain	Health and Safety	Accidents at the	-0.5	1.5	1
Actor		Workplace			
		Fatalities in the	-0.5	1.5	0.5
		Workplace			
		Health Safety	1	0	1
		measures			
	Fair Competition	Presence of anti-	1	2	1
		competitive behaviour			
		and Fair Competition			

	Corruption	Business Ethics, Anti Corruption and Transparency	0.5	1	1.5
	End of Life Responsibility	Mine Closure and Post Closure Viability	-0.5	0	0.5
	Promoting Social Responsibility	Responsible Contracting and Sourcing	0.5	1	1
	Public Commitments to Society Welfare	CSR commitments and Social Development	2	0.5	1.5
Society	Prevention of Conflict and Mitigation	Prevention of Conflict and Mitigation	-1.5	0	0
Local Community	Safe and Health Living Conditions	Community Health and Wellbeing	-0.5	0.5	1
	Local Employment	Local Employment	0.5	0	0.5

The data from Table (27) was used to generate comparative graphs, presented below in Figure (10). These graphs depict the social responsibility scores for Platinum mining and Nickel mining, based on the average scores of companies operating in each respective metal category.

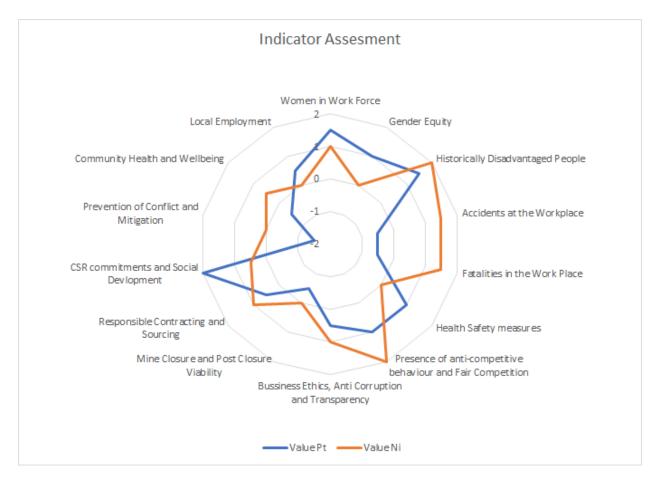


Figure 10: Indicator Assessment, Platinum vs Nickel

The figure above shows an overall trend where the average social responsibility score for Nickel mining companies remains above the baseline of "0", indicating compliance with standard requirements outlined in Table 5 (Scorecard). However, the average social responsibility score for Platinum mining companies falls short of the baseline for five indicators, including workplace accidents, workplace fatalities, mine closure and post-closure viability, prevention of conflict and mitigation, and community health and wellbeing. Out these indicators, the score drops below "-1" for the indicator prevention of conflict and mitigation. Notably, Nickel mining companies achieve a "+2" social responsibility score for two indicators: Historically Disadvantaged people and Presence of Anti-Competitive behaviour and Fair Competition. On the other hand, Platinum mining companies achieve a "+2" score for only one indicator, which is CSR commitment and social development. Additionally, Nickel mining companies attain a "+1" score for five indicators, while Platinum mining companies receive a "+1" score for four indicators.

The data from Table (27) was used to generate comparative graphs presented below in Figure (11). These graphs illustrate the social responsibility scores for Iridium mining, as well as Nickel and Iron mining (since Nickel Iron alloy primarily consists of Nickel and Iron cite this). The scores are based on the averages of companies operating in each respective metal category.

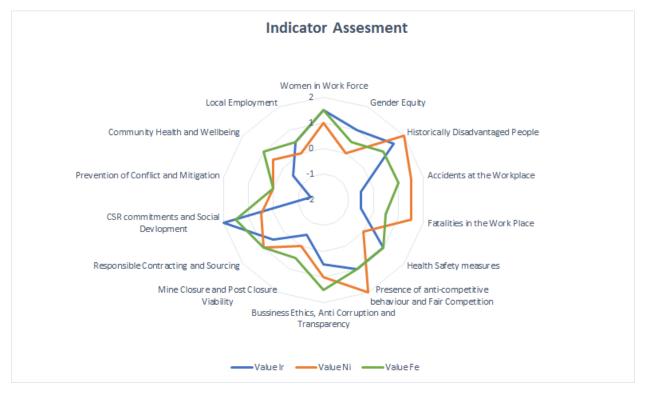


Figure 11: Indicator Assessment, Iridium vs Nickel-Iron

The figure above illustrates an overall trend where the average social responsibility scores for Nickel mining companies and Iron mining companies consistently meet or exceed the baseline requirement of "0" as specified in Table 5 (Scorecard). However, the average social responsibility

score for Iridium mining companies falls below the baseline for five indicators, including workplace accidents, workplace fatalities, mine closure and post-closure viability, prevention of conflict and mitigation, and community health and wellbeing. Notably, the prevention of conflict and mitigation indicator has a score below "-1" for Iridium mining. Furthermore, the graph reveals that Iron mining companies have consistently maintained a score above the baseline of "0" for most indicators, with the exception of prevention of conflict and mitigation. Interestingly, none of the indicators have achieved a "+2" score for Iron mining companies. On the other hand, Nickel mining companies obtain a "+2" social responsibility score for two indicators: Historically Disadvantaged people and Presence of Anti-Competitive behaviour and Fair Competition. In contrast, Iridium mining companies achieve a "+2" score for only one indicator, which is CSR commitment and social development. Additionally, Nickel mining companies obtain a "+1" score for five indicators, while Iridium mining companies receive a "+1" score for four indicators.

5. Discussion

In this section, we will investigate and answer the five sub-research questions, namely: "What are the Social Impacts of Iridium Catalyst?", "What are the Social Impacts of Platinum Catalyst?", "What are the Social Impacts of Nickel Iron Catalyst?", and "Comparison of the social impacts through Scenarios?". The first four research questions will be addressed by analysing the obtained social responsibility scores presented in the results section and providing insights into the observed trends. The fifth sub-research question will be approached by utilizing the social responsibility scores to gain understanding of the three selected scenarios for the Social Life Cycle Assessment, as described in section 3 methodology. These scenarios include:

- 1. Status of the PEM and Alkaline Electrolysis technology
- 2. Improved efficiency (lesser milligrams of catalyst required to generate 1 kg of Hydrogen) of PEM and Alkaline Electrocatalysts in the future.
- 3. Integrating Recycling as source of Raw materials.

In addition, this section will evaluate the methodology employed and the formulated checklist. Furthermore, it will explore and address any potential limitations that may arise from utilizing the Excel tool for assessing social responsibility scores.

It is important to note that the results and discussion for scenario 1 and scenario 2 will remain the same since we are doing type 1 SLCA which as state by UNEP that while both ELCA (Environmental Life Cycle Assessment) and SLCA (Social Life Cycle Assessment) require a functional unit, they differ in terms of presenting results. ELCA always presents results in the form of functional units since it focuses on quantifiable outputs. On the other hand, SLCA cannot adopt the same approach because it involves assessing information related to the characteristics or attributes of processes or companies that cannot be measured solely based on the output of a single unit (*Sustainable Development*, n.d.-a). This means that since ELCA's results are dependent on the functional unit (In our case it is milligrams of metal required to generate 1kg of Hydrogen) the results that would reflect the impact of reducing the number of milligrams of metal required to generate 1 kg of Hydrogen. Whereas Type I SLCA (used in the thesis) as mentioned by UNEP uses subjective data such as best practices of a company with respect to recruitment which will not reflect scenario 2. Type II SLCA could be used to identify the impacts of scenario 2 since the scope of type II encompasses indirect social impacts of the industry (*Sustainable Development*, n.d.-a) such as impact on the economy of the country.

5.1 Social Impacts of Platinum vs Nickel

In the analysis presented in Section 4, a significant trend emerges from Figure 10: Nickel consistently maintains a social responsibility score at or above the baseline score of "0" for all selected indicators, whereas Platinum's score falls below "0" for five indicators. One potential explanation for this trend in Nickel mining can be attributed to recent regulatory measures and governance practices implemented in Indonesia. Notably, the impact of a new amendment to Indonesia's Mining Act in 2020, as discussed in the article (*View of Indonesia Green Mining Industry*,

n.d.), highlights that mining businesses are now required to obtain permits for all operations, including sales, transportation, and mining. The amendment also introduces reclamation requirements aimed at enhancing environmental quality and community empowerment. Article 6 of the Mining Act empowers the Central Government to establish policies, regulations, conduct research, issue business regulations, provide guidance and supervision, and set policies for production, marketing, utilization, conservation, cooperation, partnership, and community empowerment, indicating increased government interventions that benefit the development and enforcement of environmental and social sustainability practices in the mining sector. Furthermore, Indonesia's membership with the EITI (*Indonesia | EITI*, n.d.) has played a role in improving transparency within the mining industry, potentially contributing to enhanced compliance with standard and best practices.

Platinum mining, in contrast, exhibits scores below the baseline of "0" for five indicators, with one indicator even reaching "-1.5," indicating minimal compliance with standard or best practices. This lower performance could potentially be attributed to less stringent regulations and enforcement in South Africa. The article by (Cronjé & Chenga, 2009) demonstrates the difficulties in bridging the gap between theory and practice in social responsibility and sustainable development. This disparity is attributed to a number of factors, including acculturation stress, power dynamics, communication, and competing objectives. It is difficult to execute a consistent strategy to social development in South Africa because of the many mining operations and distinctive histories of the communities. In contrast to quick fixes, the authors place a strong emphasis on the necessity for a process-oriented approach to corporate social responsibility and development. These elements might have played a role in the laxer regulations and enforcement seen in South Africa's platinum mining industry.

Surprisingly, two indicators related to workplace accidents and fatalities received scores below the baseline "0" for platinum, despite a positive score of "+1" for Health and Safety. On the other hand, the expected low scores were observed for indicators such as mine closure and post-viability and prevention and mitigation of conflict. This aligns with the Responsible Mining Index framework, which highlights the limited enforcement of best practices in these areas by international organizations (*RMI | Leading Practices | RMI Report 2022*, n.d.)The significance of addressing these issues is emphasized in a study by(Syahrir et al., 2021), which discusses the adverse impacts of abrupt mine closures on mining-dependent communities. However, the research also suggests that resilient communities and effective governance can help mitigate these impacts. To tackle these challenges, the author recommends that policymakers and mining companies prioritize interventions aimed at fostering resilience and creating robust mining communities.

Drawing upon the insights provided in the results from Figure (9) and the previous discussion comparing Platinum and Nickel, we can apply these findings to scenario one, which represents the present conditions. To evaluate the social impacts based on the generated social responsibility scores, we refer to Figure 3, which outlines stakeholder categories, impact categories subcategories, and indicators as defined by UNEP (Sustainable Development, n.d.-a). Assessing

the social impact categories, it becomes apparent that Nickel exhibits generally lower negative impacts on social sustainability in comparison to Platinum.

5.2 Social Impacts of Iridium vs Nickel-Iron

As discussed in Table 6 of the results section, the mining companies with the highest market share in platinum mining also hold the highest market share in platinum group metals (PGM), which includes iridium. Therefore, the trends observed for platinum can be applied to iridium, as they are both mined by the same companies listed in Table 6. Nickel-Iron (Ni-Fe) is an alloy primarily composed of nickel and iron (Hall, 1959). The social responsibilities of nickel have already been discussed in the previous section. Regarding iron mining industries, as shown in figure 10, their social responsibility scores consistently remain above the baseline of "0", indicating compliance with standard practices. This can be attributed to Australia's stringent regulations, strong emphasis on community engagement, and thorough impact assessment, which contribute to the importance of a social license and effective corporate social responsibility (Robinson et al., 2020).

In terms of the indicator for prevention of mine closure and post-viability, mining companies also received low scores due to the lack of best practices in mine closure and rehabilitation of closed mines. This issue was highlighted by previous research findings, which showed that regulatory regimes generally address social issues despite the absence of explicit language in legislation or policy directives. It was also found that regulators primarily rely on initial approval procedures to address social impacts, with stakeholder engagement taking precedence over impact management and evidence-based analysis once approval is granted. Consequently, mining businesses have relatively few restrictions, enabling them to enter indefinite care and maintenance mode or sell their assets, as stringent regulatory measures are not present in the later stages of the project life cycle. As a result, the costs associated with mine closure are often excluded from the planning processes throughout the mine's lifespan (Vivoda et al., 2019).

Utilizing the insights obtained from Figure (11) and the previous analysis comparing Iridium and Nickel-Iron, we can apply these findings to scenario one, representing the present conditions. To assess the social impacts based on the generated social responsibility scores, we refer to Figure 3, which delineates stakeholder categories, impact categories subcategories, and indicators according to UNEP (Sustainable Development, n.d.-a). Analysing the social impact categories, it becomes evident that Nickel generally exhibits lower negative impacts on social sustainability compared to Iridium. The same trend can be observed for Iron, suggesting that Nickel-Iron would likely have fewer social impacts based on the social responsibility score compared to Iridium.

Based on the data analysed in this thesis, Nickel and Nickel-Iron have demonstrated the least social impact compared to Platinum and Iridium in both scenarios outlined in the methodology section. This leads to the conclusion that metals used for Alkaline catalysts (Ni, Ni-Fe) may have a lower social impact in comparison to metals used for PEM catalysts (Pt, Ir).

6. Conclusion

In the realm of entrepreneurship, innovation is widely acknowledged as a crucial element that drives business success (Johannessen et al., 2001). With the global focus on addressing climate change, renewable energy has emerged as a prominent domain for innovation, with hydrogen generation gaining particular attention as a sustainable energy source (Global Risks Report 2021 | World Economic Forum | World Economic Forum, n.d.). Electrolysis has gained significant recognition as the preferred method for hydrogen production due to its high energy conversion efficiency, compatibility with renewable sources, scalability, and cost-effectiveness (Accenture, n.d.).

While Responsible Innovation is considered a potential approach to prevent carbon lock-in and promote sustainable practices, it does not offer explicit guidelines for assessing the trade-offs between the benefits and drawbacks of technological innovations (Collingridge, 1979). However, the field of sustainability provides potential approaches to address this challenge, with Social Sustainability being an important but relatively unexplored dimension in Responsible Innovation (Thorstensen & Forsberg, 2016).

To assess the social sustainability of electrocatalysts used in hydrogen generation, the study utilized the Social Life Cycle Assessment (SLCA) framework developed by UNEP (Sustainable Development, n.d.-a). The research aimed to identify the social impacts associated with the metals used in Alkaline electrocatalysts (Ni, Ni-Fe) and PEM electrocatalysts (Pt, Ir), employing the UNEP SLCA framework and developing an Excel tool based on international standards and best practices.

The results and discussion section evaluated the obtained data, leading to the conclusion that Nickel and Nickel-Iron demonstrated higher compliance with international best practices, suggesting a greater potential for positive social impacts compared to Platinum and Iridium. Consequently, it can be inferred that Alkaline Electrocatalysts currently exhibit higher social sustainability potential than PEM Electrocatalysts.

Overall, this study highlights the significance of innovation in addressing climate change and the role of sustainability frameworks, such as SLCA, in evaluating social impacts and promoting responsible practices in the hydrogen generation sector.

6.1 Reflections

An intriguing perspective that emerges from this research involves the impact of geographical location and its potential contribution to varying social responsibility scores. In the context of sustainability transitions, Environmental Innovation and Societal Transitions (Elsevier, n.d.) explore this idea, highlighting the role of niche development and geographical uniqueness in contrast to regime dynamics. This study underscores the importance of inter-organizational relationships and location specificity in sustainability transitions, presenting theoretical and empirical insights. This chapter's findings on the geography of inter-organizational linkages suggest a plausible explanation for the notable divergence in social responsibility scores between

companies mining Pt and Ir versus those mining Ni and Ni-Fe, potentially due to their respective locations (*Environmental Innovation and Societal Transitions / Journal / ScienceDirect.Com by Elsevier*, n.d.).

As mentioned initially by this paper the findings from this paper would be used by the larger research project mentioned in section 3 which focuses on Responsible Innovation. (Thorstensen & Forsberg, 2016) explains further that although these perspectives are different, the idea of RRI incorporates both the process and product components of innovation. The process side, which addresses, among other things, how to anticipate and involve stakeholders, has been thoroughly explored in disciplines like Technology Assessment (TA) and Science and Technology Studies (STS), which have contributed to the development of RRI. The product side, on the other hand, is more concerned with the precise results of innovation and has received greater attention in disciplines like economics and environmental science, although it is less commonly discussed in the context of RRI. He further goes on to specify Social Sustainability, often known as the Social Perspective in the sustainability area, is a significant yet underexamined feature in RRI. (Coffav et al., 2022) strengthens this stance by writing about the key challenges in forecasting and assessing sustainability impacts for new ventures include dealing with intractable uncertainties, addressing the wicked nature of sustainability challenges, and avoiding greenwashing or quick fixes. Traditional approaches to forecasting often assume a causal logic, which may not capture the effectuation processes at work in sustainability-focused innovation.

This research could shed some light on utilizing social life cycle assessment as an effective tool to assess and forecast potential social sustainability impacts that could rise in the supply chain. There has been growing support for utilizing SLCA as an effective assessment tool for assessing social impacts in RRI, because it provides a thorough examination of a product's social impact, (Benoît Norris & Revéret, 2015) further emphasizes the value of SLCA as a tool for assessing social responsibility. The transfer of harmful effects from one stage of the cycle to another or from one societal concern to another can be avoided by adopting a product life cycle viewpoint. As a result, S-LCA is a useful complement to assessments of social responsibility. Since it supports the Environment Life Cycle Assessment (ELCA) (Sustainable Development, n.d.-a) (Thorstensen & Forsberg, 2016), SLCA has been receiving a lot of attention internationally.

6.2 Limitations

It is crucial to acknowledge the limitations associated with this research concerning the method of data collection, the Excel tool used, and the validity of the obtained scores. The data collection methodology for Social Life Cycle Assessment, as described by the Methodological Sheets for Subcategories in Social Life Cycle Assessment (S-LCA) 2021 by the Life Cycle Initiative, incorporates a combination of data from company's open access documents such as sustainability reports, code of conducts, annual reports, etc., to assess the company's formal commitments and practices against international best practices recommended by organizations like GRI. Additionally, data is collected through interviews with employees and local communities in the company's operational area to understand the successful implementation of these practices and identify potential areas of concern. However, it is important to note that this research was limited

to desktop research, relying solely on open access documents, and did not provide insights into the actual on-ground realities of the company's actions.

The second limitation pertains to the Excel tool used for assessing the collected data. This limitation can be divided into two parts. Firstly, the interpretation of each checklist item may vary from person to person, as raised by the focus group involved in developing the Excel tool. To mitigate this issue, I incorporated keywords to reduce uncertainty caused by differing interpretations, although some variability may still persist. Secondly, the formal commitments required by the checklist, such as the "International Labour Organization Convention 169" for the indicator "Prevention of conflict and mitigation," (GRI - Resource Center, n.d.) were not found in the reports of the company under study. However, relevant commitments to similar standards and organizations, such as the United Nations Declaration of Rights of Indigenous People and IFC Performance Standard 7, were identified. In this case, Rio Tinto did not have a formal commitment to following ILO Convention 169 but had other pertinent commitments (GRI - Resource Center, n.d.). The question arises whether it is appropriate to allow some flexibility or adhere strictly to the established standards.

The final limitation identified in this research pertains to the validity of the tool and the obtained scores. To evaluate the validity, it is essential to crosscheck the scores with those obtained by other organizations, such as the Responsible Mining Index. This comparison helps determine whether the provided score aligns with others, thereby assessing the validity of the tool and the scores obtained.

6.2Future Research

I strongly believe that the tool developed in this study has the potential for further improvement and can be valuable for researchers and product innovators seeking to gain a preliminary understanding of the social impacts associated with the materials they intend to use in product development or process improvement. It is my hope that this tool will guide them in making socially responsible choices by identifying materials with the least social impact. Furthermore, this tool can be utilized for additional research, enabling the assessment of other metals, and comparing their scores against social impact, social responsibility, or social compliance scores generated by various organizations. Such further investigation would contribute to a more comprehensive evaluation of social implications in material selection and decision-making processes.

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Annexure I: SLCA Tool checklist figures per company

This section constitutes of the figures of the checklist for each company and their compliance.

Anglo American (Pt and Ir):

Women in Work Force		
		Keywords in the
Check List	Y/N	Report
Establishing or enhancing diversity policies with clear targets for inclusion and results reporting	No	Female Employees
		Women, Training and
attaining gender equality in recruitment policies and processes	Yes	Devlopment
implementing gender inclusive networks, career development and mentoring programmes	Yes	Trainings
		promote, Reporting,
Formal statement of following relevant international standards and Practices	Yes	Approach
		Talent management,
		improving office
developing equitable promotion and retention policies	Yes	environment
		Grievance, Grievance
Grievance Mechanisms for Gender Discrimination	Yes	mechanism Number of
		Employees Based on
Tracks and discloses data, against targets and across successive time periods, on the percentage of		Employment Status
women at board and senior management levels?	Yes	and Gender, Board of
External Audits and Review	Yes	External Auditor
External Addits and Review	res	External Auditor
		Grievance
Has Information been shared to employees on the grievance mechanism need to combine this	Yes	Mechanism
		Number of
		Employees Based on
Formal Obstances to Can des Formality Dellay		Employment Status and Gender
Formal Statement: Gender Equality Policy	Yes	and Gender
		Grievance
Are the External suppliers aware of this grievance mechanism	Yes	Mechanism
No cases of of gender discrimination/Harassment in past 5 years	No	Cases
		.
		Trainings (promoting equality and
Employee training on Gender Discrimination	Yes	awareness)
	.05	awarenessj

Figure 12: Women in Workforce

Gender Equity		
Check List	Y/N	Keywords in the Report
Performance review by international Organization Collaboration	Yes	Bloomberg Index
		Gender
		Equality
Gender Equity comittment through International Organizations	Yes	Index (Bloomberg)
		Renumerati
		on, Wage
Renumeration Committee addressing gender wage gap	Yes	Pay gap
External Audits and Review	Yes	External Aud
		Women,
Tracks and discloses data, across successive time periods, on its performance on managing the		Impact, Assesment
impacts of its activities on women	Yes	(Social Way
		Gender Pay
Gender Wage Gap Reported to be 1:1	No	Gap
		Gender Pay
Gender Wage Gap Policy/Statement	Yes	Gap Grievance
		Mechanism
Grievance Mechanisms for Harassment/Discrimination	Yes	but for all including
		°
No cases of Gender Wage Pay Gap (External Source)	Yes	Cases
		Grievance
Has Information been shared to employees on the grievance mechanism	Yes	Mechanism
		Grievance
Are the External suppliers aware of this grievance mechanism	No	Mechanism
		Awareness
Employee training on Sexual Harassment	Yes	Training

Figure 13: Gender Equity

Historically Disadvantaged People		
Check List	Y/N	Keywords in the Report
Take specific measures to reflect its non-discrimination policies in their terms and conditions	Yes	Discrimination
Take specific measures to implement trainings to raise awareness of discrimination among management staff and workers or take other actions aiming at preventing and addressing issues of discrimination in the workplace	Yes	Awareness Trainings
Set targets regarding diversity and inclusivity in its recruitment and employment practices	No	Targets
		Inclusive,
		Diversity,
		International
under al direction from description (III) (Conservation on a director in alternation (III) (III)	N	Labour
Upholding the fundamental ILO convention on discrimination (No. 111)	Yes	Organization
The company has systems in place to ensure its operations actively respect the rights of workers to		
organise, collective bargaining and freedom of association needs to Provide: Organise, including		Collective
by granting access to designated areas for labour organisers to meet with workers	Yes	Bargaining
The company has systems in place to ensure its operations actively respect the rights of workers to		
organise, collective bargaining and freedom of association needs to Provide: Collective	1	Collective
bargaining, including by developing formal collective bargaining agreements	Yes	Bargaining
Surganning, metading by developing formal concerve barganning agreements	105	Darganilig
The company has systems in place to ensure its operations actively respect the rights of workers to		
organise, collective bargaining and freedom of association needs to Provide: Freedom of		Collective
association, including by allowing union meetings on site	No	Bargaining, Unio

Figure 14: Historically Disadvantaged People

Accident Rate at Workplace		
Check List	Y/N	Keywords in the Report
		Accident Rate
		Lost Time
Accident Rate at Workplace total Reported	Yes	Injuries (LTI)
		Accident Rate
Discloses the number of mining-related injuries among its workforce, across successive time		Lost Time
periods	Yes	Injuries (LTI)
		Accident Rate, Lost Time
Discloses such information on a site-disaggregated basis	Yes	Injuries (LTI)
		injunes (211)
		Accident Rate,
Confirms that its Accident Rate reporting includes Accidents of contract workers as		Lost Time
well as employees	No	Injuries (LTI)
		Accident Rate
		Lost Time
		Injuries (LTI),
Evaluation on Accidents and how to prevent it	No	Accident

Figure 15: Accident Rate at Workplace

Fatal Accidents at Workplace		
Check List	Y/N	Keywords in the Report
		Fatal
Fatal Accidents at Workplace total Reported	Yes	Accidents
Discloses the number of mining-related high potential incidents, serious	N	Fatal
injuries and fatalities among its workforce, across successive time periods	Yes	Accidents
		Fatal
Discloses such information on a site-disaggregated basis	Yes	Accidents
		Fatal
		Accidents,
	No	Contractors
		Fatal
		Accidents,
Evaluation on Accidents and how to prevent it	No	Contractors

Figure 16: Fatal Accidents at Workplace

Health and Safety at the work place		
		Keywords in the
Check List	Y/N	Report
Assigned senior management or board-level responsibilities and accountability for carrying out		Code of Conduct,
his commitment	Yes	Code
		Psychological,
		Hazard, Health
Nonitoring Psycholgical Hazards	Yes	(Look for stratergies that
	100	stratergies that
		Occupation,
		Occupational
in of occupational diseases	Yes	Hazard
		Health
rveillance and risk-based monitoring		monitoring, risk
les	Yes	based monitoring
		Occupational Risk
dentify and assess health and safety risks to the workforce	Yes	Assessment Need to share a
		detailed approach
		to track these
Frack the implementation of these strategies and plans	No	stratergies(will be
		Code of Conduct,
Formalised its commitment, that is endorsed by senior management, to ensure safe and healthy		Safety Compliance
working conditions	Yes	Accountability
		Risk Assement and
Develop strategies and plans to avoid, minimise and mitigate these risks	Yes	mitigation
External Audits and Review	Yes	
	N	Protective
Required Safety Equipments (PPE)	Yes	Equipment Health and Safety
		management
		system, Health an
Health and Safety Policy	Yes	Safety Policies
Regular Health and Safety Training	Yes	Safety training
		Protective, Gende Equipment (need
		to specify genede
Sender Specific PPE on all mining Sites	No	based PPE)
		Accident,
Reported cases of negligent safety rules leading to accidents	Yes	negligence, incidents
reported dates of reging in survey rates redding to doliderius	100	Facilities,
		Sanitation,
Sender Appropriate Sanitation Facilities	No	Provision Health Services,
		awareness,
lealth Services	Yes	initiatives
		Incidents,
	1	accidents,

Figure 17: Health and Safety at the Workplace

Presence of anti-competitive behaviour and Fair Competi	ition	
Check List	Y/N	Keywords in the Report
Has systems in place to ensure its operations identify and map stakeholders operating in Artisanal Small Scale Mining ASM activities around its operations	Yes	Stakeholder engagement
Has systems in place to ensure its operations develop strategies and plans to engage with identified stakeholders, including through the establishment of engagement agreements where appropriate	Yes	Stakeholder engagement
ematically tracks the implementation of these strategies and plans	Yes	Stakeholder engagement
Policies against Anti competitve behaviour (GRI 206 Anti competitive Behaviour)	Yes	anti - competitive
No cases of anti competive behaviour in the past 3 years (GRI 206)	Yes	Grievance, Incident, code of conduct
Assess the need for, and feasibility of, providing technical and/or livelihood support to ASM miners around their sites	Yes	Community engagement
		Community
Develop strategies and plans according to these assessments	No	engagement
Engage with ASM miners in these needs assessments and in the development of any strategies and plans	No	Community engagement

Figure 18: Presence of Anti-Competitive Behaviour and Fair Competition

Bussiness Ethics, Anti Corruption and Transparency		
		Keywords in
Check List	Y/N	the Report
ormalised its commitment, that is endorsed by senior management, to prevent all direct and		
ndirect forms of bribery and corruption. (UNGC Principle 10		
GRI 205)	Yes	Corruption,
		Extractive
Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and		Industries
compile information on all material payments, at the appropriate levels of government, by		Transparent
country and by project.	Yes	y Initiative
Assigned senior management or board-level responsibilities and accountability for carrying out		Ethics
this commitment	Yes	Committee
		Corruption,
Committed financial and staffing resources to implement this commitment	Yes	Bribery
Tracks and discloses data, across successive time periods, on its prevention of bribery and		
corruption, including number and nature of incidents and actions taken in response	Yes	Corruption
		Bribery,
Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect		corruption, Audits,
forms of bribery and corruption	Yes	Compliance
No cases of Corruption or whistleblowing in the past 3 years	No	Corruption
Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to		Corrective
improve the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption?	Yes	Action, Corruption
Tracks and discloses data, across successive time periods, on the functioning and uptake of its		conuption
whistleblowing mechanisms, including number and nature of incidents and actions taken in		
response	Yes	Corruption
		Bribery,
		corruption,
		Audits,
Audits and/or reviews the effectiveness of its whistleblowing mechanisms	Yes	Compliance
		Audits, compliance
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to		risk
improve the effectiveness of its whistleblowing mechanisms	Yes	assesment
Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies)		Economic
and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI		Value,
201)	Yes	Economic
Reports on its approach to tax transparency, including its strategy relating to its presence in any	Voc	Low Torr
low-tax jurisdictions	Yes	Low Tax Tax
		Benefits,
Discloses all tax benefits and tax holidays received at local and national levels in all tax		

Figure 19: Business Ethics, Anti-Corruption and Transparency

Mine Closure and Post Closure Viability		
		Keywords in
Check List	Y/N	the Report
Identify, from the earliest stage and in consultation with local stakeholders, the impacts their		mine
closure will have on affected communities	Yes	closure
		mine
Develop post-closure transition management plans from the earliest stage and in consultation with local stakeholders, aimed at ensuring continued livelihood viability for affected communities	Yes	closure
	103	ciosare
Consider next mining land use expertunities in the development of these measurement plans	Ver	mine
Consider post-mining land-use opportunities in the development of these management plans	Yes	closure
		mine
Identify, from the earliest stage, the impacts their closure will have for workers	Yes	closure
Develop post-closure transition management plans, from the earliest stage, ensuring continued		mine
livelihood viability for workers	Yes	closure
'		
Develop partnerships with government, other industries or companies to address workers' livelihood needs	Voc	mine
	Yes	closure
Tracks and discloses data, across successive time periods, on its implementation of progressive		mine
rehabilitation plans throughout its operations	Yes	closure
		mine
Audits and/or reviews its performance on progressive mine rehabilitation	No	closure
The second second second state finds for the second s		
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve its performance on progressive mine rehabilitation	No	mine closure
mprove to performance on progressive nine rendomation		c.obure
Discloses financial surety arrangements for the closure of all its operations, related to workers and		mine
communities	No	closure
Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of		mine
post-closure	No	closure
		mine
Discloses this information on a project-disaggregated basis	No	closure

Figure 20: Mine closure and Post Viability

Responsible Contracting and Sourcing		
		Keywords in the
Check List	Y/N	Report
Can the company demonstrate at the corporate level that it has systems in place to identify and		
assess risks related to its suppliers and contractors on: Human rights issues and Labour Issues(Responsible
UNGC Principle 2		procurement,
• VPs B7		procurement,
• GRI 308; 407; 412; 414)	Yes	supply chain
		Responsible
		procurement,
Can the company demonstrate at the corporate level that it has systems in		procurement,
place to identify and assess risks related to its suppliers and contractors on: Environemtal Issues	Yes	supply chain
r		
Tracks and discloses data, against targets and across successive time		Procurement,
periods, on its national and supranational procurement, showing proportions		Local
and amounts spent	Yes	Procurement
Audits and/or reviews the effectiveness of its measures taken to develop procurement	N	audia Tau audi
opportunities for suppliers at national and/or supranational levels?	Yes	Audit, Tax Audi
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve	•	
the effectiveness of its measures taken to develop procurement opportunities for suppliers at		
national and/or supranational levels	No	Review, Audit
		Responsible
		procurement,
Has systems in place to identify and assess potential risks of all forms of forced, compulsory,		procurement,
trafficked and child labour in its areas of operations and entire supply chain	Yes	supply chain
		Responsible
		procurement,
		procurement,
Has systems in place to develop strategies and plans to address these identified risks	Yes	supply chain
		Responsible ,
		Procurement,
Systematically tracks the implementation of these strategies and plans	Yes	Supply chain
Has systems in place to ensure its operations develop strategies and plans to develop local		Local
procurement opportunities	Yes	Procurement
р		
		Women, Local
		Procurment,
Has systems in place to ensure its operations actively include women in these strategies and plans	No	Female
, , , , , , , , , , , , , , , , , , , ,		
		Women, Local
		Procurment,
Systematically tracks the implementation of these strategies and plans	No	Female

Figure 21: Responsible Contracting and Sourcing

CSR commitments and Social Devlopment		
Check List	Y/N	Keywords in the Report
ormalised its commitment, that is endorsed by senior management, to take account of national ind supranational socio-economic development plans in making its mining-related investment		
and business decisions in producing countries, with the aim of enhancing socio-economic		Socio-economic
development. (IFC PS 1.11)	Yes	Devlopment
Assigned senior management or board-level responsibilities and accountability for carrying out his commitment	Yes	Socio-economic Devlopment
		benopment
Committed financial and staffing resources to implement this commitment	Yes	Socio-economic Devlopment
ter nichtens in allem te annum ite annutiens undt uite site actional annelusien acusto.		Socio-economic
las systems in place to ensure its operations work with sub-national producing country overnments to identify socio-economic development priorities where they can play a		Devlopment, soci economic, socio-
ollaborative role	Yes	economic benefit
	1	Socio-economic
		Devlopment, soci
las systems in place to ensure its operations develop strategies and plans to address these		economic, socio-
levelopment priorities in collaboration with the sub-national governments?	Yes	economic benefit
		Regional
		Government,
systematically tracks the implementation of these strategies and plans, collaboratively with the sub-national governments	Yes	Government, Soc economic
ab-national governments	ies -	economic
		Socio-economic,
dentify R&D priorities to address socio-economic and environmental impacts of mining within		NGO, Academia,
producing countries	Yes	Oppurtunities
		Socio-economic,
		NGO, Academia,
Develop R&D programmes to address these priorities	Yes	Oppurtunities
		Socio-economic,
rack the implementation of these BPD programmer	Yes	NGO, Academia,
rack the implementation of these R&D programmes	Tes	Oppurtunities
		School, Education
ation with in-country institutions	Yes	Academia
		School, Education
		Academia, Stude
upport technical/vocational skills development among the wider population in collaboration vith in-country institutions	Yes	Technical, Vocational
		Education,
Demonstrate alignment of their skills development efforts with the national skills development		Vocational,
genda	Yes	National
		Socio-economic,
las systems in place to ensure its operations support technical skills development of its local		NGO, Academia,
vorkforces in producing countries	Yes	Oppurtunities
las systems in place to ensure its operations support managerial skills development of its local vorkforces in producing countries	No	Manager, Managerial skill
windores in producing countries		Socio-economic,
		NGO, Academia,
ystematically tracks the implementation of their skills development programmes	Yes	Oppurtunities
		Bussinesses,
		Enterprises,
	Vee	Entrepreneurship
	Yes	
	Yes	Women, Female.
		Women, Female, Gender
ntrepreneurship and businesses		Gender
ias systems in place to ensure its operations develop strategies and plans to develop local entrepreneurship and businesses men in these strategies and plans		

Figure 22: CSR Commitments and Social Development

Risk of Conflicts and Mitigation		
Check List	Y/N	Keywords in the Report
		Report
The entity shall disclose the percentage and grade (in percentage metal content) of proved		
reserves and probable reserves that are located in or near areas of active conflict. Security and		Conflict, areas
human rights (SASB)	No	of conflict
The entity shall describe its due diligence practices and procedures with respect to indigenous		
rights of communities in which it operates or intends to operate, with Respect to : Use of free,		Indigenous
orior, and informed consent (or consultation) processes	Yes	people
······································		
The entity shall describe its due diligence practices and procedures with respect to indigenous		International
rights of communities in which it operates or intends to operate, with Respect to : Upholding		Labour
International Labour Organization (ILO) Convention No. 169	No	Organization
The entity shall describe its due diligence practices and procedures with respect to indigenous		Grievance
rights of communities in which it operates or intends to operate, with Respect to : The establishment of project grievance mechanisms	Yes	mechanism, whistleblow
	res	whistleblow
The entity shall describe its due diligence practices and procedures with respect to indigenous		
rights of communities in which it operates or intends to operate, with Respect to : The	V	Lease
establishment of formal community agreements	Yes	agreements Voluntary
		Principles on
		Security and
mplementation of Voluntary Principles on Security and Human Rights.	Yes	Human Rights
		Supply chain,
Describing its approach according to the Five-Step Framework outlined in the OECD Due Diligence	2	Audit, third
Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	No	party audit
Taraha and diadaan dada amaa amaa kin kina mariada aa ika aaɗama ara ar waxaa di		
Tracks and discloses data, across successive time periods, on its performance on preventing and	No	Socurity
remedying human rights abuses related to its security management	No	Security
Audits and/or reviews the effectiveness of its measures taken to prevent and remedy human		
rights abuses related to its security management	No	Security
······		
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improv	e	
the effectiveness of its measures taken to prevent and remedy human rights abuses related to its		
security management	No	Security

Figure 23: Risk of Conflicts and Mitigation

Inter test Y/4 Expected ormalised its commitment, that is endorsed by senior management, to respect human rights in conductive with the UNGS Yes UNGC-Human Right sagend senior management or board-level responsibilities and accountability for carrying out its is commitment Yes Committee, board member, Human Rights assigned senior management or board-level responsibilities and accountability for carrying out its is commitment Yes Committee, board member, Human Rights assigned senior management or board-level responsibilities and accountability for carrying out its is commitment Yes Committee, board member, Human Rights assigned senior place to ensure its operations identify and assess salient impacts of their activities assigned senior they address these identified impacts Yes Risk Assessment, Ga Analysis as systems in place to ensure its operations identify and assess salient impacts of thuman rights and account for how they address these identified impacts Yes Risk Assessment, Ga Analysis assigned senior they address these identified impacts Yes Risk Assessment, Ga Analysis No assigned senior they address the approximation of those attrategies and place to ensure its inthe company demonstrate at the corporate level that it has systems in place to ensure its performance in the address of the address of the addressoft on addressoft No No No <t< th=""><th></th><th></th><th></th></t<>			
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rievance mechanisms for communities, including number and nature of complaints and actions aken in response No Noise sudits and/or reviews, based on complainants' perspective, the effectiveness of its grievance echanisms for communities No Noise akes responsive action, based on the findings of these audits and/or reviews, to seek to improve	Systematically engage with affected communities and other stakeholders in the development of th		Noise
udits and/or reviews, based on complainants' perspective, the effectiveness of its grievance No Noise akes responsive action, based on the findings of these audits and/or reviews, to seek to improve	Tracks and discloses data, across successive time periods, on the functioning and uptake of its grievance mechanisms for communities, including number and nature of complaints and actions		
nechanisms for communities No Noise akes responsive action, based on the findings of these audits and/or reviews, to seek to improve	taken in response Audits and/or reviews, based on complainants' perspective, the effectiveness of its grievance	No	Noise
			Noiro
he effectiveness of its grievance mechanisms for communities No Noise	mechanisms for communities	NO	NOISE

Figure 24: Community Engagement and wellbeing

Local Employment		
Check List	Y/N	Keywords in the Report
		Employees,
		workers, Local
		workers, Local
hired from local communities	No	employees,
		workers, Local
		workers, Local
Does the company publicly disclose the number of its contract workers hired from local		employees, contra
communities	No	employees,
		Employees,
		workers, Local
		workers, Local
rs hired from local communities	No	employees, Wome
		School, Education,
		Academia, Student
Has systems in place to ensure its operations support technical skills development of its local		Technical,
workforces in producing countries	Yes	Vocational
Has systems in place to ensure its operations support managerial skills development of its local		Manager,
workforces in producing countries	No	Managerial skill
		-
		Socio-economic,
		NGO, Academia,
ent programmes	Yes	Oppurtunities
		School, Education,
tion with in-country institutions	Yes	Academia
		School, Education,
		Academia, Student
Support technical/vocational skills development among the wider population in collaboration		Technical,
with in-country institutions	Yes	Vocational
Demonstrate alignment of their skills development efforts with the national skills development		Education,
agenda	Yes	Vocational, Nation
		Local Employment,
		Employment, Job
	Yes	sites

Figure 25: Local Employment

Northam (Pt):

Women in Work Force		
Check List	Y/N	Keywords in the Report
		Female Employees (Find a target % they
		are trying to reach
		and search if they
		have a year they want to reach this
		by), Women (Check
		for target values and
Establishing or enhancing diversity policies with clear targets for inclusion and results reporting	Yes	%)
		Women, Training and Devlopment (Check
		for Targets initiatives
		and Formal
attaining gender equality in recruitment policies and processes	Yes	statements/ policies),
around Senael educity in recontinent bounces and brocesses		pondicity
		Trainings (promoting
		inclusivity and
		awareness), Women
		(Women focused career devlopment
implementing gender inclusive networks, career development and mentoring programmes	Yes	courses), Inclusive
		promote, Reporting,
		Approach (Check the
		types of reporting
		standards they formally state that
Formal statement of following relevant international standards and Practices	Yes	they adhere to)
		Talent management,
		improving office environment
		(Practices to retain
		talent), promote
		(check if they mention that is in
		line with any
developing equitable promotion and retention policies	Yes	national or internal
		Grievance, Grievance
		mechanism (focused
Grievance Mechanisms for Gender Discrimination	Yes	on women)
		Employees Based on
		Employment Status
Tracks and discloses data, against targets and across successive time periods, on the percentage of women at board and senior management levels?	Yes	and Gender, Board of Directors (Gender),
		chectors (dender),
External Audits and Review	No	External Auditor
Has Information been shared to employees on the grievance mechanism need to combine this	No	Grievance Mechanism
		Number of
		Employees Based on
		Employment Status
Formal Statement: Gender Equality Policy	Yes	and Gender Grievance
Are the External suppliers aware of this grievance mechanism	No	Mechanism
No cases of of gender discrimination/Harassment in past 5 years	Yes	Cases
une cases of or ⁹ Euroci, discrimination/marassineur, in hast 3 Agais	163	Trainings (promoting
		equality and
Employee training on Gender Discrimination	Yes	awareness)

Figure 26:Women in Workforce

Gender Equity		
Check List	Y/N	K
		Keywords in the Report
		the nepore
		Bloomberg
Gender Equity comittment through International Organizations	No	Index
		Gender
		Equality
		Index
Renumeration Committee addressing gender wage gap	Yes	(Bloomberg
	1	
	1	
	1	
		Renumerati
		on, Wage
External Audits and Review	No	Pay gap
Tracks and discloses data, across successive time periods, on its performance on managing the		
impacts of its activities on women	No	External Aud
		Gender,
		Women,
		Impact,
		Assesment
		(Social Way
Gender Wage Gap Reported to be 1:1	No	Toolkit)
	1	Gender Pav
Gender Wage Gap Policy/Statement	No	Gender Pay Gap
oenuer wage oap Policy/statement		Gab
		Gender Pay
Grievance Mechanisms for Harassment/Discrimination	No	Gap
		Mechanism
		but for all
No cases of Gender Wage Pay Gap (External Source)	Yes	including
	Yes	Cases
has mormation been shared to employees on the grievance mechanism	1	
has information been shared to employees on the gnevance mechanism		1
has information been shared to employees on the grevance mechanism		
		Grievance
	Yes	Mechanism
Are the External suppliers aware of this grievance mechanism		Mechanism Grievance
Has Information been shared to employees on the grievance mechanism Are the External suppliers aware of this grievance mechanism Employee training on Sexual Harassment	Yes	Mechanism

Figure 27:Gender Equity

Historically Disadvantaged People		
		Keywords in
Check List	Y/N	the Report
Fake specific measures to implement trainings to raise awareness of discrimination among		
management staff and workers or take other actions aiming at preventing and addressing issues o	f	Awareness
discrimination in the workplace	Yes	Trainings
· · · · ·		
Set targets regarding diversity and inclusivity in its recruitment and employment practices	Yes	Targets
ter targets regarding diversity and inclusivity in its red difficient and employment practices	Tes	Targets
		Inclusive.
		Diversity,
		Internationa
		Labour
Upholding the fundamental ILO convention on discrimination (No. 111)	Yes	Organization
The company has systems in place to ensure its operations actively respect the rights of workers t	0	
organise, collective bargaining and freedom of association needs to Provide: Organise, including		Collective
by granting access to designated areas for labour organisers to meet with workers	Yes	Bargaining
		Collective
The company has systems in place to ensure its operations actively respect the rights of workers t	D	Bargaining,
organise, collective bargaining and freedom of association needs to Provide: Collective		South Africar
pargaining, including by developing formal collective bargaining agreements	Yes	Law
The company has systems in place to ensure its operations actively respect the rights of workers t		Collective
organise, collective bargaining and freedom of association needs to Provide: Freedom of		Bargaining,
association, including by allowing union meetings on site	Yes	Union

Figure 28: Historically Disadvantaged People

Accident Rate at Workplace		
Check List	Y/N	Keywords in the Report
		Accident Rate,
Discloses the number of mining-related injuries among its workforce, across successive time		Lost Time
periods	Yes	Injuries (LTI)
		Accident Rate
		Lost Time
Discloses such information on a site-disaggregated basis	No	Injuries (LTI)
		Accident Rate
Confirms that its Accident Rate reporting includes Accidents of contract workers as		Lost Time
well as employees	No	Injuries (LTI)
		Accident Rate,
		Lost Time
Evaluation on Accidents and how to prevent it	No	Injuries (LTI), Accident
Evaluation on Accidents and now to prevent it	1.0	Accident

Figure 29:Accident Rate at the Workplace

Fatal Accidents at Workplace		
Check List	Y/N	Keywords in the Report
Discloses the number of mining-related high potential incidents, serious		Fatal
injuries and fatalities among its workforce, across successive time periods	Yes	Accidents
Discloses such information on a site-disaggregated basis	No	Fatal Accidents
rorkers as	No	Fatal Accidents, Contractors
		Fatal
		Accidents,
Evaluation on Accidents and how to prevent it	No	Contractors

Figure 30: Fatal Accidents at the Workplace

		Keywords
Check List	Y/N	the Repor
		Code,
		Fatigue,
		Psycholog I, Hazard,
		Health (Lo
		for
		stratergies
		that show
Ionitoring Psycholgical Hazards	Yes	assesmen
		Occupatio
ntion of occupational diseases	Yes	Occupatio I Hazard
		Health monitorin
surveillance and risk-based monitoring		isk based
mmes	Yes	monitorin
		Occupatio I Risk
dentify and assess health and safety risks to the workforce	Yes	Assessme
dentity and assessment and safety risks to the workforce	Tes	Need to
		share a
		detailed
		approach
		track thes
		stratergie
		will be giv
		in depth i
rack the implementation of these strategies and plans	No	the risk Code of
		Conduct,
ormalised its commitment, that is endorsed by senior management, to ensure safe and healthy		Safety
vorking conditions	Yes	Complian
		Risk
		Assement
		and
		land
Nevelon stategies and plans to avoid minimize and mitigate these risks	No	
Develop strategies and plans to avoid, minimise and mitigate these risks	No	
	No	mitigatior
External Audits and Review	No	Protective
External Audits and Review		Protective Equipmen
External Audits and Review	No	Protective Equipmen Health an
External Audits and Review	No	mitigation Protective Equipmen Health an Safety
External Audits and Review	No	mitigation Protective Equipmen Health an Safety
External Audits and Review	No	mitigation Protective Equipmen Health an Safety managem t system,
External Audits and Review	No	mitigation Protective Equipmen Health an Safety managem t system,
External Audits and Review	No	Protective Equipmer Health an Safety managem t system, Health an Safety Policies
tealth and Safety Policy	No Yes Yes	mitigation Protective Equipmen Health an Safety managem t system, Health an Safety Policies Safety
tealth and Safety Policy	No Yes	mitigation Protective Equipmer Health an Safety Health an Safety Policies Safety training
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training	No Yes Yes	mitigation Protective Equipmer Health an Safety Health an Safety Policies Safety training
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training	No Yes Yes Yes	mitigation Protective Equipmer Health an Safety managem t system, Health an Safety Policies Safety training Protective Gender
Develop strategies and plans to avoid, minimise and mitigate these risks External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites	No Yes Yes Yes No	mitigation Protective Equipmer Health an Safety managem t system, Health an Safety Policies Safety Protective Gender Accident, negligenc
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training	No Yes Yes Yes	mitigation Protective Equipmen Health ans Safety Mealth ans Safety Policies Safety Training Protective Gender
External Audits and Review Required Safety Equipments (PPE) Realth and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites	No Yes Yes Yes No	mitigation Protective Equipmen Health an Safety Policies Safety Protective Gender Accident, negligeno. incidents Facilities,
External Audits and Review Required Safety Equipments (PPE) Regular Health and Safety Training Sender Specific PPE on all mining Sites Reported cases of negligent safety rules leading to accidents	No Yes Yes No Yes	mitigation Protective Equipmen Health ans Safety Policies Safety Protective Gender Accident, negligenc incidents Facilities, Santation
equired Safety Equipments (PPE)	No Yes Yes Yes No	mitigation Protective Equipmer Health an Safety Policies Safety Protective Gender Accident, negligenc incidents Facilities,
External Audits and Review External Audits and Review External Audits and Review External Safety Equipments (PPE) External Safety Policy External	No Yes Yes No Yes No	mitigation Protective Equipmen Health an Safety managem t system, Health an Safety Policies Safety training Protective Gender Accident, negligenc incidents Sanitation Provision Services,
xternal Audits and Review equired Safety Equipments (PPE) lealth and Safety Policy legular Health and Safety Training sender Specific PPE on all mining Sites leported cases of negligent safety rules leading to accidents	No Yes Yes No Yes	mitigation Protective Equipmer Health an Safety managem t system, Health an Safety Policies Safety training Protective Gender Accident, negligenc incidents Facilities, Sanitation

Figure 31: Health and Safety at the Workplace

Presence of anti-competitive behaviour and Fair Competition	_	
Check List	Y/N	Keywords in the Report
Has systems in place to ensure its operations develop strategies and plans to engage with identified stakeholders, including through the establishment of engagement agreements where		Stakeholder engagement, Community
appropriate	Yes	engagement
		Stakeholder engagement, Community
ematically tracks the implementation of these strategies and plans	Yes	Engagement
Policies against Anti competitve behaviour (GRI 206 Anti competitive Behaviour)	Yes	anti - competitive
<u> </u>		
No cases of anti competive behaviour in the past 3 years (GRI 206)	Yes	Grievance, Incident, code of conduct
No cases of anti competive benaviour in the past 3 years (GRI 206)	Yes	conduct
Assess the need for, and feasibility of, providing technical and/or livelihood support to ASM miners around their sites		Community
miners around their sites	Yes	engagement
	N==	Community
Develop strategies and plans according to these assessments	Yes	engagement
Engage with ASM miners in these needs assessments and in the development of any strategies and plans	No	Community engagement

Figure 32: Presence of Anti-Competitive Behaviour and Fair Competition

Check List V/0 the Report Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and compile information on all material payments, at the appropriate levels of government, by contry and by project. No Assigned senior management or board-level responsibilities and accountability for carrying out this commitment Yes Ethics Committee, Ithics Committee financial and staffing resources to implement this commitment Yes Tracks and discloses data, across successive time periods, on its prevention of bribery and corruption, including number and nature of incidents and action taken in response No Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption No No cases of Corruption or whistleblowing in the past 3 years Yes Tacks and discloses data, across successive time periods, on the functioning and undirect forms of bribery and corruption? No No cases of Corruption or whistleblowing in the past 3 years Yes Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No No Corruption No Corruption Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No No Corruption No Corruption	Bussiness Ethics, Anti Corruption and Transparency		
Check List V/0 the Report Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and compile information on all material payments, at the appropriate levels of government, by contry and by project. No Assigned senior management or board-level responsibilities and accountability for carrying out this commitment Yes Ethics Committee, Ithics Committee financial and staffing resources to implement this commitment Yes Tracks and discloses data, across successive time periods, on its prevention of bribery and corruption, including number and nature of incidents and action taken in response No Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption No No cases of Corruption or whistleblowing in the past 3 years Yes Tacks and discloses data, across successive time periods, on the functioning and undirect forms of bribery and corruption? No No cases of Corruption or whistleblowing in the past 3 years Yes Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No No Corruption No Corruption Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No No Corruption No Corruption			
Publicly support the implementation of the Extractive industries Transparency initiative (EIT) and compile information on all material payments, at the appropriate levels of government, by country and by project. No Corruption, Extractive industries compile information on all material payments, at the appropriate levels of government, by y initiative commitment Ethics Assigned senior management or board-level responsibilities and accountability for carrying out this commitment Yes Ethics Committed financial and staffing resources to implement this commitment Yes Corruption, erview Tracks and discloses data, across successive time periods, on its prevention of bribery and corruption, including number and nature of incidents and actions taken in response No Corruption, corruption, adults, and/or reviews the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption or whistleblowing in the past 3 years Yes Corruption, adults, and/or reviews, to seek to improve the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption or whistleblowing in the past 3 years Yes Corruption corruption, and cannot basis of the findings of thesa audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms Corruption, corruption, and cannot basis of the findings of thesa audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms Corruption, corruption, and cannot basis of the findings of thesa audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms C			Keywords in
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and corruption? No Corruption Tracks and discloses data, across successive time periods, on the functioning and uptake of its whistleblowing mechanisms, including number and nature of incidents and actions taken in response No Corruption Audits and/or reviews the effectiveness of its whistleblowing mechanisms No Corruption Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No Audits, compliance, risk assesment Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI Yes) Tax and Economic Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Benefits,			
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Audits and/or reviews the effectiveness of its whistleblowing mechanisms No Bribery, corruption, Audits and/or reviews the effectiveness of its whistleblowing mechanisms No Audits, compliance, risk assessment Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No Audits, compliance, risk assessment Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI Pessonic Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Benefits, Tax			
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Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to Audits, compliance, risk Improve the effectiveness of its whistleblowing mechanisms No assesment Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) Tax and Reports on its approach to tax transparency, including its strategy relating to its presence in any No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Benefits,	Audits and/or reviews the effectiveness of its whistleblowing mechanisms	No	
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No assesment Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Tax	,		
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Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No assesment Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Tax			
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms No assessment Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions Yes Economic Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Benefits,			
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and under what names (e.g. those of subsidiary or branch entities) it is known in that place (GRI Yes Economic Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Benefits,		No	
Reports on its approach to tax transparency, including its strategy relating to its presence in any low-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Benefits,			
Iow-tax jurisdictions No Low Tax Discloses all tax benefits and tax holidays received at local and national levels in all tax Tax Benefits,		Yes	Economic
Discloses all tax benefits and tax holidays received at local and national levels in all tax Benefits,		No	Low Tax
Discloses all tax benefits and tax holidays received at local and national levels in all tax Benefits,			
jurisdictions where it has registered entity(ies No Deductions	Discloses all tax benefits and tax holidays received at local and national levels in all tax		
	jurisdictions where it has registered entity(ies	No	Deductions

Figure 33: Business Ethics, Anti-Corruption and Transparency

Mine Closure and Post Closure Viability		
heck List	Y/N	Keywords i the Report
		mine
		closure,
		Closure, Rehabilitat
levelop post-closure transition management plans from the earliest stage and in consultation vith local stakeholders, aimed at ensuring continued livelihood viability for affected communities	No	on
· · · · · · · · · · · · · · · · · · ·		
		mine
ionsider post-mining land-use opportunities in the development of these management plans	No	closure
		mine
dentify, from the earliest stage, the impacts their closure will have for workers	Yes	closure
evelop post-closure transition management plans, from the earliest stage, ensuring continued velihood viability for workers	No	mine closure
evelop partnerships with government, other industries or companies to address workers'		mine
ivelihood needs	No	closure
racks and discloses data, across successive time periods, on its implementation of progressive		mine
ehabilitation plans throughout its operations	No	closure
		mine
		closure
udits and/or reviews its performance on progressive mine rehabilitation	No	ciosare
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to		mine
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation	No	mine closure
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to	No	mine
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and	No	mine closure mine
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and	No	mine closure mine
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and	No	mine closure mine
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and ommunities	No	mine closure mine closure

Figure 34: Mine closure and Post Closure Viability

neck List		
	Y/N	Keywords in th Report
in the company demonstrate at the corporate level that it has systems in ace to identify and assess risks related to its suppliers and contractors on: Environemtal Issues	Yes	Responsible procurement, procurement, supply chain
acks and discloses data, against targets and across successive time priods, on its national and supranational procurement, showing proportions id amounts spent	No	Procurement, Local Procurement
udits and/or reviews the effectiveness of its measures taken to develop procurement portunities for suppliers at national and/or supranational levels?	No	Audit, Tax Aud
kes responsive action, based on the findings of these audits and/ or reviews, to seek to improve e effectiveness of its measures taken to develop procurement opportunities for suppliers at		
tional and/or supranational levels	No	Review, Audit
as systems in place to identify and assess potential risks of all forms of forced, compulsory, afficked and child labour in its areas of operations and entire supply chain	Yes	Responsible procurement, procurement, supply chain Responsible
as systems in place to develop strategies and plans to address these identified risks	Yes	procurement, procurement, supply chain
stematically tracks the implementation of these strategies and plans	No	Responsible , Procurement, Supply chain
as systems in place to ensure its operations develop strategies and plans to develop local ocurement opportunities	Yes	Local Procurement Women, Local
is systems in place to ensure its operations actively include women in these strategies and plans	No	Procurment,
stematically tracks the implementation of these strategies and plans		Women, Local Procurment,

Figure 35: Responsible Contracting and Sourcing

CSR commitments and Social Devlopment		
Chock List	Y/N	Keywords the Report
Check List	T/N	ше кероп
		Socio-
Assigned senior management or board-level responsibilities and accountability for carrying out		economic
this commitment	Yes	Devlopme
		Socio-
Committed financial and staffing resources to implement this commitment	Yes	economic Devlopme
S		Socio- economic
		Devlopme
		, socio-
Has systems in place to ensure its operations work with sub-national producing country		economic, socio-
governments to identify socio-economic development priorities where they can play a		economic
collaborative role	Yes	benefits
		economic
		Devlopme
		economic,
Has systems in place to ensure its operations develop strategies and plans to address these		socio-
development priorities in collaboration with the sub-national governments?	Yes	economic
		Regional Governme
		,
		Governme
Systematically tracks the implementation of these strategies and plans, collaboratively with the sub-national governments	Yes	, Socio- economic
Sub-hattonal governments		Socio-
14-14: 6 . D ^o D		economic, NGO,
Identify R&D priorities to address socio-economic and environmental impacts of mining within producing countries	No	Academia
-		Socio-
		economic,
		NGO,
		Academia, Oppurtuni
Develop R&D programmes to address these priorities	No	es
		Socio-
		economic,
		NGO,
		Academia Oppurtun
Track the implementation of these R&D programmes	No	es
ation with in-country institutions	Yes	School, Education
ation with m-country Institutions		Concertion
		School,
		Education Academia
		Student,
Support technical/vocational skills development among the wider population in collaboration		Technical,
with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development	Yes	Vocationa Education
	Yes	Vocationa
agenda		Socio-
las systems in place to ensure its operations support technical skills development of its local	Yes	economic, Manager,
Has systems in place to ensure its operations support technical skills development of its local		Manager, Manageria
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries		-
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local	Yes	skill
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local	Yes	economic,
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries		economic, NGO,
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries Systematically tracks the implementation of their skills development programmes	Yes Yes	economic, NGO, Academia
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries Systematically tracks the implementation of their skills development programmes Has systems in place to ensure its operations develop strategies and plans to develop local	Yes	economic, NGO, Academia, Enterprise
agenda Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries Systematically tracks the implementation of their skills development programmes Has systems in place to ensure its operations develop strategies and plans to develop local entrepreneurship and businesses	Yes Yes	economic, NGO, Academia, Enterprise Entrepren Women,
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries Systematically tracks the implementation of their skills development programmes Has systems in place to ensure its operations develop strategies and plans to develop local	Yes Yes	economic, NGO, Academia, Enterprise Entrepren

Figure 36: CSR Commitments and Social Development

Dick of Conflicts and Militation				
Risk of Conflicts and Mitigation				
		Keywords in		
Check List	Y/N	the Report		
The entity shall describe its due diligence practices and procedures with respect to indigenous				
rights of communities in which it operates or intends to operate, with Respect to : Use of free,		Indigenous		
prior, and informed consent (or consultation) processes	No	people		
The aptitus shall describe its due diligence practices and presedures with respect to indigenous		Internationa		
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : Upholding		l Labour		
International Labour Organization (ILO) Convention No. 169	No	Organization		
The entity shall describe its due diligence practices and procedures with respect to indigenous		Grievance		
rights of communities in which it operates or intends to operate, with Respect to : The establishment of project grievance mechanisms	No	mechanism, whistleblow		
establishment of project gnevance mechanisms	NO	whistleblow		
The entity shall describe its due diligence practices and procedures with respect to indigenous				
rights of communities in which it operates or intends to operate, with Respect to : The		Lease		
establishment of formal community agreements	No	agreements		
		Voluntary		
		Principles		
		on Security and Human		
nentation of Voluntary Principles on Security and Human Rights.	No	Rights		
		Supply		
Describing its approach according to the Five-Step Framework outlined in the OECD Due Diligence		chain, Audit, third party		
Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	No	audit		
		1		
Tracks and discloses data, across successive time periods, on its performance on preventing and				
remedying human rights abuses related to its security management	No	Security		
Audits and/or reviews the effectiveness of its measures taken to prevent and remedy human				
rights abuses related to its security management	No	Security		
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve		,		
the effectiveness of its measures taken to prevent and remedy human rights abuses related to its	No	Security		

Figure 37: Risk of Conflicts and Mitigation

Community Engagement and Wellbeing		
		Keywords in the
st	Y/N	Report
		Committee.
Assigned senior management or board-level responsibilities and accountability for carrying out		board member,
this commitment	Yes	Human Rights
		Committee,
ted financial and staffing resources to implement this commitment	Yes	board member, Human Rights
		Gap Analysis, Risk Assesment,
Has systems in place to ensure its operations identify and assess salient impacts of their activities	No	Impact assesment
on human rights	NO	assesment
Has systems in place to ensure its operations develop strategies and plans to prevent, mitigate and account for how they address these identified impacts	No	Risk Assesment, Gap Analysis
itically tracks the implementation of these strategies and plans	No	Risk Assesment, Gap Analysis
Tracks and discloses data, across successive time periods, on its performance on managing human		,
rights issues, including mine-site-disaggregated data on the implementation of human rights due		mine-site, mine
diligence processes	No	human rights
nd/or reviews its performance on managing human rights issues	No	Audits, Reviews
Can the company demonstrate at the corporate level that it has systems in place to ensure its		
operations take specific measures to enable the participation of Women in discussions and decision-making on matters that may impact them	No	Community Engagement
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Youth in discussions and decision-	No	Youth
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Persons with disabilities in		Community
discussions and decision-making on matters that may impact them	No	Engagement, Disability
Can your company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on	No	Impact, Risk, Women
Can your company demonstrate at the corporate level that it has systems in place to ensure its		Impact, Risk,
operations: Conduct and disclose regular assessment of the impacts of their activities on Can your company demonstrate at the corporate level that it has systems in place to ensure its	No	Youth
operations: Conduct and disclose regular assessment of the impacts of their activities on children?	No	Impact, Risk, Children
Has systems in place to ensure its operations conduct and disclose regular assessments of their impacts on community health	No	Risk Assesment, Gap Analysis
		Risk Assesment,
ems in place to ensure its operations develop strategies and plans to address these impact		Gap Analysis Risk Assesment,
itically tracks the implementation of these strategies and plans Has systems in place to ensure its operations identify and assess their adverse impacts on land use	No	Gap Analysis Gap Analysis,
and access to land by affected communities	No	land use
Has systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts	No	Risk Assesment, Gap Analysis KISK Assesment,
itically tracks the implementation of these strategies and plans	No	Gap Analysis
) and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the	Yes	Emergency Emergency
design of emergency response plans	No	Planning Emergency
Itically engage with local stakeholders in the testing of these response plans	No	Emergency Planning,Respor
Regularly assess, against baseline values, the noise and vibration levels generated by their activities	Yes	Noise
Develop strategies and plans to limit the impacts of noise and vibration generated by their activities in the surrounding areas	Yes	Noise
Systematically engage with affected communities and other stakeholders in the development of these strategies	No	Noise
Tracks and discloses data, across successive time periods, on the functioning and uptake of its	140	noise
grievance mechanisms for communities, including number and nature of complaints and actions taken in response	No	Noise
Audits and/or reviews, based on complainants' perspective, the effectiveness of its grievance mechanisms for communities	No	Noise
Takes responsive action, based on the findings of these audits and/or reviews, to seek to improve		
the effectiveness of its grievance mechanisms for communities	No	Noise

Figure 38: Community Engagement and Wellbeing

		Keywords in
heck List	Y/N	the Report Employees
		workers,
		Local
		workers.
		Local
		employees
		contract
		employees
oes the company publicly disclose the number of its contract workers hired from local communitie	No	contract,
		workers,
		Local
		workers,
		Local
		employees
ooes the company publicly disclose the number of women workers hired from local communities	No	Women
		School,
		Education,
		Academia,
		Student,
las systems in place to ensure its operations support technical skills development of its local		Technical,
vorkforces in producing countries	Yes	Vocational
las systems in place to ensure its operations support managerial skills development of its local vorkforces in producing countries	Yes	Manager, Managerial skill
	Yes	Socio- economic, NGO, Academia, Oppurtunit es
ystematically tracks the implementation of their skills development programmes		School,
ystematically tracks the implementation of their skills development programmes		
ystematically tracks the implementation of their skills development programmes		Education,
	No	
upport STEM education among the wider population in collaboration with in-country institutions	No	Education, Academia School, Education, Academia, Student,
upport STEM education among the wider population in collaboration with in-country institutions in upport sechnical/vocational skills development among the wider population in collaboration		Education, Academia School, Education, Academia, Student, Technical,
upport STEM education among the wider population in collaboration with in-country institutions in upport sechnical/vocational skills development among the wider population in collaboration	No Yes	Education, Academia School, Education, Academia, Student,
upport STEM education among the wider population in collaboration with in-country institutions in upport sechnical/vocational skills development among the wider population in collaboration		Education, Academia School, Education, Academia, Student, Technical, Vocational Education,
upport STEM education among the wider population in collaboration with in-country institutions in upport sechnical/vocational skills development among the wider population in collaboration	Yes	Education, Academia School, Education, Academia, Student, Technical, Vocational

Figure 39: Local Employment

Vale (Nickel)

Women in Work Force		
		Keywords in the
Check List	Y/N	Report
		Female Employees,
		Target (Find a target
		% they are trying to
		reach and search if
		they have a year the
		want to reach this
		by), Women (Check
		for target values and
Establishing or enhancing diversity policies with clear targets for inclusion and results reporting	Yes	%)
		Recruitment (In line
attaining gender equality in recruitment policies and processes	Yes	with ILO)
		inclusivity and
implementing gender inclusive networks, career development and mentoring programmes	No	awareness), Womer
		promote, Reporting
		Approach (Check the
		types of reporting
		standards they
		formally state that
		they adhere to)
		International Labou
Formal statement of following relevant international standards and Practices	Yes	Orgainization
0		
		Talent management
		improving office
		environment
		(Practices to retain
		talent), promote
		(check if they
		mention that is in
		line with any
		national or internal
developing equitable promotion and retention policies	No	bodies criteria)
		Grievance, Grievanc
		mechanism (focuse
Grievance Mechanisms for Gender Discrimination	No	on women)
		Number of
		Employees Based or
		Employment Status
		and Gender, Board
		Directors (Gender),
Tracks and discloses data, against targets and against targets of a second		
Tracks and discloses data, against targets and across successive time periods, on the percentage of	Vec	Women in
women at board and senior management levels?	Yes	Management
External Audits and Daview	Voc	External Auditor
External Audits and Review	Yes	External Auditor
		Grievance
		Mechanism, Whistle
Has Information been shared to employees on the grievance mechanism	Yes	Blower
		Number of
		Employees Based o
		Employment Status
Formal Statement: Gender Equality Policy	Yes	and Gender
		Crievenee
And the Enternal sumplime summer of this minutes and the	N	Grievance
Are the External suppliers aware of this grievance mechanism	Yes	Mechanism
No cases of of gender discrimination/Harassment in past 5 years	No	Cases
		Training of Conservation
<u> </u>		
		Trainings (promoting equality and

Figure 40: Women in Workforce

Gender Equity		
Check List	Y/N	Keywords in the Report
Check List	T/N	the Report
Performance review by international Organization Collaboration	Yes	
· •		
		Gender Equality
		Index
Gender Equity comittment through International Organizations	No	(Bloomberg
		Renumerati
		on, Wage
Renumeration Committee addressing gender wage gap	No	Pay gap,
		External
External Audits and Review	Yes	Audit
		Gender.
		Women,
		Impact,
		Assesment
Tracks and discloses data, across successive time periods, on its performance on managing the		(Social Way
impacts of its activities on women	No	Toolkit)
		Gender Pay
Gender Wage Gap Reported to be 1:1	Yes	Gap
		Gender Pay
Gender Wage Gap Policy/Statement	Yes	Gap Grievance
		but for all
		including
		but for all including harassment
Grievance Mechanisms for Harassment/Discrimination	Yes	but for all including harassment and
Grievance Mechanisms for Harassment/Discrimination	Yes	but for all including harassment and
	Yes	but for all including harassment and
		but for all including harassment and Discriminati
Grievance Mechanisms for Harassment/Discrimination No cases of Gender Wage Pay Gap (External Source)		but for all including harassment and Discriminati
		but for all including harassment and Discriminati Cases
No cases of Gender Wage Pay Gap (External Source)	Yes	but for all including harassment and Discriminati Cases Grievance
No cases of Gender Wage Pay Gap (External Source)		but for all including harassment and Discriminati Cases
No cases of Gender Wage Pay Gap (External Source)	Yes	but for all including harassment and Discriminati Cases Grievance
No cases of Gender Wage Pay Gap (External Source)	Yes	but for all including harassment and Discriminati Cases Grievance Mechanism
No cases of Gender Wage Pay Gap (External Source) Has Information been shared to employees on the grievance mechanism	Yes	but for all including harassment and Discriminati Cases Grievance
No cases of Gender Wage Pay Gap (External Source) Has Information been shared to employees on the grievance mechanism	Yes Yes	but for all including harassment and Discriminati Cases Grievance Mechanism Grievance
	Yes Yes	but for all including harassment and Discriminati Cases Grievance Mechanism Grievance

Figure 41: Gender Equity

Historically Disadvantaged People		
		Keywords in
Check List	Y/N	the Report
		Discrimination
Take specific measures to reflect its non-discrimination policies in their terms and conditions	Yes	n,
Take specific measures to implement trainings to raise awareness of discrimination among management staff and workers or take other actions aiming at preventing and addressing issues o	f	Awareness
discrimination in the workplace	No	Trainings
Set targets regarding diversity and inclusivity in its recruitment and employment practices	Yes	Targets Diversity,
Upholding the fundamental ILO convention on discrimination (No. 111)	Yes	Internationa
The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Organise, including by granting access to designated areas for labour organisers to meet with workers	Yes	Collective Bargaining
The company has systems in place to ensure its operations actively respect the rights of workers to		
organise, collective bargaining and freedom of association needs to Provide: Collective		Collective
	Yes	Bargaining,
pargaining, including by developing formal collective bargaining agreements		
	0	Collective
oargaining, including by developing formal collective bargaining agreements The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Freedom of	p	Collective Bargaining,

Figure 42: Historically Disadvantaged People

Accident Rate at Workplace		
Check List	Y/N	Keywords in the Report
		Accident Rate
Accident Rate at Workplace total Reported	Yes	Lost Time
		Accident Rate
Discloses the number of mining-related injuries among its workforce, across successive time perio	Yes	Injuries (LTI)
		Accident Rate
Discloses such information on a site-disaggregated basis	Yes	Injuries (LTI)
irms that its fatalities reporting includes fatalities of contract workers as		Lost Time
as employees	Yes	Injuries (LTI)
		Accident Rate Lost Time Injuries (LTI),
Evaluation on Accidents and how to prevent it	No	Accident

Figure 43: Accident Rate at the Workplace

Fatal Accidents at Workplace		
Check List	Y/N	Keywords i the Report
		Fatal
Accident Rate at Workplace total Reported	Yes	Accidents
Discloses the number of mining-related high potential incidents, serious		Fatal
injuries and fatalities among its workforce, across successive time periods	Yes	Accidents
		Fatal
Discloses such information on a site-disaggregated basis	Yes	Accidents
irms that its fatalities reporting includes fatalities of contract workers as		Accidents,
as employees	Yes	Contractors
		Fatal Accidents,
Evaluation on Accidents and how to prevent it	No	Contractor

Figure 44: Fatal Accidents at the Workplace

Health and Safety at the work place	_	
		Keywords i
Check List	Y/N	the Report
Assigned senior management or board-level responsibilities and accountability for carrying out		Code of
his commitment	Yes	Conduct,
		Fatigue,
		Psychologic I, Hazard,
		Health (Loc
		for
		stratergies
		that show
Vonitoring Psycholgical Hazards	No	assesment: Mental
		Occupation
		Occupation
ion of occupational diseases	No	l Hazard
urveillance and risk-based monitoring Imes	Yes	monitoring isk based
lilles	res	ISK Daseu
		Occupation
		I Risk
dentify and assess health and safety risks to the workforce	No	Assessmen
		share a
		detailed
		approach t
		track these
		stratergies will be give
		in depth in
		the risk
		assement
Frack the implementation of these strategies and plans	No	and risk
Formalised its commitment, that is endorsed by senior management, to ensure safe and healthy		Conduct, Safety
vorking conditions	Yes	Compliance
		Risk Assement
		Risk Assement and
Develop strategies and plans to avoid, minimise and mitigate these risks	No	Risk Assement
		Risk Assement and
Develop strategies and plans to avoid, minimise and mitigate these risks External Audits and Review	No Yes	Risk Assement and
		Risk Assement and
		Risk Assement and mitigation
External Audits and Review	Yes	Risk Assement and mitigation Protective
		Risk Assement and mitigation
External Audits and Review	Yes	Risk Assement and mitigation Protective Equipment Health and Safety
External Audits and Review Required Safety Equipments (PPE)	Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme
External Audits and Review	Yes	Risk Assement and mitigation Protective Equipment Health and Safety
External Audits and Review Required Safety Equipments (PPE)	Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system,
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy	Yes Yes Yes	Risk Assement and mitigation Protective Equipment Health and Safety Safety Safety
External Audits and Review Required Safety Equipments (PPE)	Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training	Yes Yes Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training Gender
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy	Yes Yes Yes Yes	Risk Assement and mitigation Protective Equipment Health and Safety training Gender Equipment Accident, Accident,
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites	Yes Yes Yes Yes No	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training Gender Equipment Accident, negligence
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training	Yes Yes Yes Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training Gender Equipment Accident, negligence incidents
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites	Yes Yes Yes Yes No	Risk Assement and mitigation Protective Equipment Health and Safety training Gender Equipment Accident, negligence incidents Facilities,
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Gender Specific PPE on all mining Sites Reported cases of negligent safety rules leading to accidents	Yes Yes Yes No Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training Gender Equipment Accident, negligence Incidents Facilities, Santation,
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites	Yes Yes Yes Yes No	Risk Assement and mitigation Protective Equipment Health and Safety training Gender Equipment Accident, negligence incidents Facilities,
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Gender Specific PPE on all mining Sites Reported cases of negligent safety rules leading to accidents	Yes Yes Yes No Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training Gender Equipment Accident, negligence incidents Facilities, Sanitation, Provision
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites Reported cases of negligent safety rules leading to accidents Sender Appropriate Sanitation Facilities	Yes Yes Yes No Yes No	Risk Assement and mitigation Protective Equipment Health and Safety training Gender Equipment Accident, Safetyettraining Gender Equipment Accidents Facilities, Sanitation, Provision Health Services, awareness
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Gender Specific PPE on all mining Sites Reported cases of negligent safety rules leading to accidents	Yes Yes Yes No Yes	Risk Assement and mitigation Protective Equipment Health and Safety manageme t system, Safety training Gender Equipment Accident, Sanitation, Provision Health Services, awareness, initiatives
External Audits and Review Required Safety Equipments (PPE) Health and Safety Policy Regular Health and Safety Training Sender Specific PPE on all mining Sites Reported cases of negligent safety rules leading to accidents Sender Appropriate Sanitation Facilities	Yes Yes Yes No Yes No	Risk Assement and mitigation Protective Equipment Health and Safety training Gender Equipment Accident, Safetyettraining Gender Equipment Accidents Facilities, Sanitation, Provision Health Services, awareness

Figure 45: Health and Safety at the Workplace

		Keywords in the
Check List	Y/N	Report
Has systems in place to ensure its operations identify and map stakeholders operating in Artisana		Stakeholder
Small Scale Mining ASM activities around its operations	Yes	engagement
Has systems in place to ensure its operations develop strategies and plans to engage with dentified stakeholders, including through the establishment of engagement agreements where appropriate	Yes	Stakeholder engagement
Are policies implemented and practices to prevent bribery, corruption and to publicly disclose		Stakeholder
facilitation payments.	Yes	engagement
Systematically tracks the implementation of these strategies and plans	Yes	anti - competitiv
Policies against Anti competitve behaviour	Yes	Grievance, Incident, code of conduct
No cases of anti competive behaviour in the past 3 years	Yes	Community engagement
		00
Assess the need for, and feasibility of, providing technical and/or livelihood support to ASM		Community
miners	Yes	engagement
miners	Yes	
Develop strategies and plans according to these assessments	Yes	engagement
Engage with ASM miners in these needs assessments and in the development of any strategies	1	
and plans	Yes	

Figure 46: Presence of Anti-Competitive Behaviour and Fair Competition

Check List	Y/N	Keywords i the Report
Formalised its commitment, that is endorsed by senior management, to prevent all direct and	1718	the keport
indirect forms of bribery and corruption	Yes	Corruption
Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and compile information on all material payments, at the appropriate levels of government, by country and by project.	Yes	Corruption, Extractive Industries Transparen y Initiative
Assigned senior management or board-level responsibilities and accountability for carrying out this commitment	Yes	Ethics Committee
		Corruption
Committed financial and staffing resources to implement this commitment	Yes	Bribery
Tracks and discloses data, across successive time periods, on its prevention of bribery and corruption, including number and nature of incidents and actions taken in response	Yes	Corruption
Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption No cases of Corruption or whistleblowing in the past 3 years	Yes	Bribery, corruption, Audits, Compliance
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove the effectiveness of its measures taken to prevent all direct and indirect forms of bribery and corruption? Tracks and discloses data, across successive time periods, on the functioning and uptake of its	Yes	Corrective Action, Corruption
whistleblowing mechanisms, including number and nature of incidents and actions taken in	Yes	Corruption Bribery, corruption,
Audits and/or reviews the effectiveness of its whistleblowing mechanisms	Yes	Audits, Compliance Audits, compliance
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms	Yes	risk assesment Economic
Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) and under what names (e.g. those of subsidiary or branch entities) it is known in that place Reports on its approach to tax transparency, including its strategy relating to its presence in any	Yes	Value, Economic
low-tax jurisdictions	Yes	Low Tax
Discloses all tax benefits and tax holidays received at local and national levels in all tax jurisdictions where it has registered entity(ies	Yes	Benefits, Deductions

Figure 47: Business Ethics, Anti-Corruption and Transparency

thesk tist YN the Berge Healthy, from the earliest stage and in consultation with local stakeholders, the impacts their docure will have on affected communities The Berge Healthy docure Develop post-closure transition management plans from the earliest stage and in consultation with local stakeholders, aimed at ensuring continued livelihood viability for affected communities Yes mine docure Consider post-mining land-use opportunities in the development of these management plans dentify, from the earliest stage, the impacts their closure will have for workers Yes mine docure Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine docure Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine docure Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine docure Develop partnerships with government, other industries or companies to address workers' ivelihood needs Yes mine docure Tracks and discloses data, across successive time periods, on its implementation of progressive elabilitation plans throughout its operations Yes docure Discloses financial surety arrangements for the closure of all its operations, related to workers and mine mormunities Yes docure <th></th> <th></th> <th></th>			
dentify, from the earliest stage and in consultation with local stakeholders, the impacts their ves rine closure will have on affected communities Yes closure Develop post-closure transition management plans from the earliest stage and in consultation with local stakeholders, aimed at ensuring continued livelihood viability for affected communities Yes mine Consider post-mining land-use opportunities in the development of these management plans Yes dosure dentify, from the earliest stage, the impacts their closure will have for workers Yes dosure Develop post-closure transition management plans, from the earliest stage, ensuring continued livelihood viability for workers Yes mine Develop post-closure transition management plans, from the earliest stage, ensuring continued livelihood viability for workers Yes mine Develop post-closure transition management plans, from the earliest stage, ensuring continued livelihood viability for workers Yes mine Develop partnerships with government, other industries or companies to address workers' Yes mine rakes and discloses data, across successive time periods, on its implementation of progressive dosure Yes dosure Multist and/or reviews its performance on progressive mine rehabilitation Yes mine dosure	Check List	Y/N	Keywords i the Report
docure will have on affected communities Yes docure Develop post-closure transition management plans from the earliest stage and in consultation with local stakeholders, aimed at ensuring continued livelihood viability for affected communities Yes mine Consider post-mining land-use opportunities in the development of these management plans Yes mine closure Yes docure Develop post-closure transition management plans, from the earliest stage, ensuring continued Yes mine docure Yes docure docure Develop post-closure transition management plans, from the earliest stage, ensuring continued Yes mine docure Yes docure docure Develop post-closure transition management plans, from the earliest stage, ensuring continued Yes mine closure Yes mine closure Develop partnerships with government, other industries or companies to address workers' Yes mine reveloces data, across successive time periods, on its implementation of progressive Yes docure budits and/or reviews its performance on progressive mine rehabilitation Yes docure budits and/or reviews its performance on progressive mine rehabilitation Yes docure Discloses financial surely arrangements for the closure of all its operations, related to workers and closure		1/1	
with local stakeholders, aimed at ensuring continued livelihood viability for affected communities Yes closure consider post-mining land-use opportunities in the development of these management plans Yes closure dentify, from the earliest stage, the impacts their closure will have for workers Yes closure Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine Develop partnerships with government, other industries or companies to address workers' Yes dosure Develop needs Yes mine dosure Closure Yes mine dosure Develop partnerships with government, other industries or companies to address workers' Yes mine closure Yes dosure dosure Audits and/or reviews its performance on progressive mine rehabilitation Yes dosure Discloses financial surety arrangements for the closure of all its operations, related to workers and rouce communities Yes dosure Discloses financial arrangements to ensure coverage of longer-ter		Yes	
with local stakeholders, aimed at ensuring continued livelihood viability for affected communities Yes closure consider post-mining land-use opportunities in the development of these management plans Yes closure dentify, from the earliest stage, the impacts their closure will have for workers Yes closure Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers Yes mine Develop partnerships with government, other industries or companies to address workers' Yes mine dosure Yes dosure dosure Audits and/or reviews its performance on progressive mine rehabilitation Yes dosure Discloses financial surety arrangements for the closure of all its operations, related to workers and governe Yes dosure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of Yes mine dosure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of Yes mine dosure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of yes Y			
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dentify, from the earliest stage, the impacts their closure will have for workers Yes closure Develop post-closure transition management plans, from the earliest stage, ensuring continued livelihood viability for workers Yes closure Develop partnerships with government, other industries or companies to address workers' Yes closure Develop partnerships with government, other industries or companies to address workers' Yes closure Develop partnerships with government, other industries or companies to address workers' Yes closure Tracks and discloses data, across successive time periods, on its implementation of progressive rehabilitation plans throughout its operations Yes closure Audits and/or reviews its performance on progressive mine rehabilitation Yes closure closure Discloses financial surety arrangements for the closure of all its operations, related to workers and yes mine closure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of socie-closure mine closure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of yes closure mine Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of yes closure closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a project-disaggregated	Consider post-mining land-use opportunities in the development of these management plans	Yes	
Develop post-closure transition management plans, from the earliest stage, ensuring continued ves mine closure closure Develop partnerships with government, other industries or companies to address workers' Yes closure Yes Develop partnerships with government, other industries or companies to address workers' Yes closure Yes fixeds and discloses data, across successive time periods, on its implementation of progressive rehabilitation plans throughout its operations Yes Audits and/or reviews its performance on progressive mine rehabilitation Yes closure rakes responsive action, on the basis of the findings of these audits and/or reviews, to seek to more rehabilitation Yes closure Discloses financial surety arrangements for the closure of all its operations, related to workers and ves Yes closure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of social arrangements to ensure coverage of longer-term socio-economic aspects of closure Yes closure Discloses this information on a project-disaggregated basis Yes closure mine Discloses this information on a project-disaggregated basis Yes closure closure Closure Yes closure mine closure	Identify from the earliest stage the impacts their elecure will have for west-	Vor	
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Takes responsive action, on the basis of the findings of these audits and/or reviews, to seek to improve its performance on progressive mine rehabilitation Yes closure Discloses financial surety arrangements for the closure of all its operations, related to workers and communities Yes closure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of post-closure Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information enter static corporate level that it has systems in place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine Yes closure Can the company demonstrate at the corporate level that it has systems in place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine Yes closure			mine
Improve its performance on progressive mine rehabilitation Yes closure Discloses financial surety arrangements for the closure of all its operations, related to workers and closure mine Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of poost-closure Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a mergers, acquisitions and disposals covers: Salient mine closure Discloses this information on a project-disaggregated basis Yes closure Discloses this information on a mergers, acquisitions and disposals covers: Salient mine closure Disclose to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine closure Can the company demonstrate at the corporate level that it has systems in mine closure closure Can the company demonstrate at the corporate level that it has systems in mine closure closure	Audits and/or reviews its performance on progressive mine rehabilitation	Yes	
Discloses financial surety arrangements for the closure of all its operations, related to workers and resonancial surety arrangements for the closure of all its operations, related to workers and closure closure Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of post-closure Discloses this information on a project-disaggregated basis Discloses this due diligence on mergers, acquisitions and disposals covers: Salient social and the company demonstrate at the corporate level that it has systems in Discloses this closure Can the company demonstrate at the corporate level that it has systems in Discloses this due diligence on the company demonstrate at the corporate level that it has systems in Discloses the disclose the		Vor	
Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of ves closure closure Discloses this information on a project-disaggregated basis Discloses this information on a project-disaggregated basis ves closure its due diligence on mergers, acquisitions and disposals covers: Salient ves closure closure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine closure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine closure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine closure its due diligence on mergers, acquisitions and signosals covers: Salient social and mine closure its due diligence on mergers, acquisitions and signosals covers: Salient social and mine closure Can the company demonstrate at the corporate level that it has systems in	Discloses financial surety arrangements for the closure of all its operations, related to workers and		mine
Discloses this information on a project-disaggregated basis Discloses this information on a project-disaggregated basis Discloses the surver its due diligence on mergers, acquisitions and disposals covers: Salient Pres Con the company demonstrate at the corporate level that it has systems in Diace to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and mine mine Cover Can the company demonstrate at the corporate level that it has systems in Can the company demonstrate at the corporate level that it has systems in		Yes	
place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient Yes closure environmental issues Yes closure Can the company demonstrate at the corporate level that it has systems in blace to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and human rights issues Yes closure Can the company demonstrate at the corporate level that it has systems in	post-closure	Yes	
environmental issues Yes closure Can the company demonstrate at the corporate level that it has systems in place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and unman rights issues Yes closure Can the company demonstrate at the corporate level that it has systems in		Yes	
Can the company demonstrate at the corporate level that it has systems in place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and human rights issues Yes closure Can the company demonstrate at the corporate level that it has systems in			
Can the company demonstrate at the corporate level that it has systems in	environmental issues Can the company demonstrate at the corporate level that it has systems in place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient social and		mine
place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient mine	Can the company demonstrate at the corporate level that it has systems in	res	
	place to ensure its due diligence on mergers, acquisitions and disposals covers: Salient governance issues		

Figure 48: Mine closure and Post Closure Viability

Responsible Contracting and Sourcing		
		Keywords in th
Check List	Y/N	Report
Can the company demonstrate at the corporate level that it has systems in	¥	Responsible
place to identify and assess risks related to its suppliers and contractors on: Human rights issues	Yes	procurement,
		Responsible procurement,
Can the company demonstrate at the corporate level that it has systems in		procurement,
place to identify and assess risks related to its suppliers and contractors on: Labour Issues	Yes	supply chain
Tracks and discloses data, against targets and across successive time		Procurement,
periods, on its national and supranational procurement, showing proportions		Local
and amounts spent	Yes	Procurement
Audits and/or reviews the effectiveness of its measures taken to develop procurement		
opportunities for suppliers at national and/or supranational levels?	Yes	Audit, Tax Audi
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve the effectiveness of its measures taken to develop procurement opportunities for suppliers at national and/or supranational levels	Yes	Review, Audit
Has systems in place to identify and assess potential risks of all forms of forced, compulsory, trafficked and child labour in its areas of operations and entire supply chain	Yes	Responsible procurement, procurement, supply chain procurement, procurement,
Has systems in place to develop strategies and plans to address these identified risks	Yes	supply chain
Systematically tracks the implementation of these strategies and plans Has systems in place to ensure its operations develop strategies and plans to develop local procurement opportunities	Yes	Responsible , Procurement, Supply chain Local Procurement
· · ·	1	
Has systems in place to ensure its operations actively include women in these strategies and plans	Yes	Women, Local Procurment, Female
	No.	Women, Local Procurment,
Systematically tracks the implementation of these strategies and plans	Yes	Female

Figure 49: Responsible Contracting and Sourcing

		Keywords in
Check List Formalised its commitment, that is endorsed by senior management, to take account of national	Y/N	the Report Socio-
romansee is communent, that is encorsed by senior management, to take account or national and supranational socio-economic development plans in making its mining-related investment	Yes	economic
Assigned senior management or board-level responsibilities and accountability for carrying out this commitment	Yes	Socio- economic Devlopmen Socio- economic
Committed financial and staffing resources to implement this commitment	Yes	Devlopmen
governments to identify socio-economic development priorities where they can play a	×	economic
collaborative role Has systems in place to ensure its operations develop strategies and plans to address these	Yes	Devlopmen Socio- economic Devlopmen , socio- economic, socio- economic
development priorities in collaboration with the sub-national governments?	Yes	benefits
Systematically tracks the implementation of these strategies and plans, collaboratively with the sub-national governments	Yes	Regional Governmen , Governmen , Socio- economic economic,
Identify R&D priorities to address socio-economic and environmental impacts of mining within producing countries	Yes	NGO, Academia,
		Socio- economic, NGO, Academia, Oppurtuniti
Develop R&D programmes to address these priorities	Yes	es Socio-
Track the implementation of these R&D programmes	Yes	economic, School, Education, Academia
ollaboration with in-country institutions	Yes	School,
Support technical/vocational skills development among the wider population in collaboration with in-country institutions	Yes	Education, Academia, Student,
Demonstrate alignment of their skills development efforts with the national skills development agenda	Yes	Education, Vocational, National
Has systems in place to ensure its operations support technical skills development of its local	Vor	economic, NGO.
workforces in producing countries Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries	Yes	NGO, Manager, Managerial skill
Systematically tracks the implementation of their skills development programmes	Yes	economic, NGO, Academia, Bussinesse
Has systems in place to ensure its operations develop strategies and plans to develop local entrepreneurship and businesses	Yes	Enterprises Entreprene rship
ude women in these strategies and plans	Yes	Women, Female, Gender Socio-
Systematically tracks the implementation of these strategies and plans	Yes	economic, NGO, Academia, Oppurtuniti es

Figure 50: Responsible Sourcing and Contracting

Risk of Conflicts and Mitigation		
		Keywords i
Check List	Y/N	the Report
The entity shall disclose the percentage and grade (in percentage metal content) of proved		Conflict,
reserves that are located in or near areas of active conflict.	Yes	areas of
The entity shall describe its due diligence practices and procedures with respect to indigenous		
rights of communities in which it operates or intends to operate, with Respect to : Use of free,		Indigenous
prior, and informed consent (or consultation) processes	Yes	people
		Internation
The entity shall describe its due diligence practices and procedures with respect to indigenous		l Labour
rights of communities in which it operates or intends to operate, with Respect to :	Yes	Organizatio
rights of communities in which it operates or intends to operate, with Respect to : The		mechanism
establishment of project grievance mechanisms	Yes	whistleblov
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : The establishment of formal community agreements	Yes	Lease agreements
ation of Voluntary Principles on Security and Human Rights.	Yes	Voluntary Principles on Security and Human Rights chain, Audi
Describing its approach according to the Five-Step Framework outlined in the OECD Due Diligence		third party
Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	Yes	audit
Tracks and discloses data, across successive time periods, on its performance on preventing and remedying human rights abuses related to its security management Audits and/or reviews the effectiveness of its measures taken to prevent and remedy human	Yes	Security
rights abuses related to its security management	Yes	Security
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve the effectiveness of its measures taken to prevent and remedy human rights abuses related to its security management	Yes	Security
security management	lies -	security

Figure 51: Risk of Conflict and Mitigation

Check List	Y/N	Keywords in th Report
Formalised its commitment, that is endorsed by senior management, to respect human rights in accordance with the UNGCs	Yes	UNGC, Human Rights
Assigned senior management or board-level responsibilities and accountability for carrying out this commitment	Yes	Committee, board member Human Rights Committee,
Committed financial and staffing resources to implement this commitment	Yes	board member Human Rights
Has systems in place to ensure its operations identify and assess salient impacts of their activities		Risk Assesmen
on human rights	Yes	Impact
Has systems in place to ensure its operations develop strategies and plans to prevent, mitigate		Risk Assesmen
and account for how they address these identified impacts	Yes	Gap Analysis
		Risk Assesmen
Systematically tracks the implementation of these strategies and plans	Yes	Gap Analysis
Tracks and discloses data, across successive time periods, on its performance on managing human rights issues, including mine-site-disaggregated data on the implementation of human rights due dillgence processes	Yes	mine-site, min human rights
Audits and/or reviews its performance on managing human rights issues	Yes	Audits, Review
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Women in discussions and	Yes	Community Engagement
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Youth in discussions and decision envices one system when the vice more them.		Youth
making on matters that may impact them Can the company demonstrate at the corporate level that it has systems in place to ensure its	Yes	
operations take specific measures to enable the participation of Persons with disabilities in discussions and decision-making on matters that may impact them	Yes	Community Engagement, Disability
Can your company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on women?	Yes	Impact, Risk, Women
operations: Conduct and disclose regular assessment of the impacts of their activities on γouth?	Yes	Impact, Risk, Youth
Can your company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on children?	Yes	Impact, Risk, Children
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes	Risk Assesmer Gap Analysis
Has systems in place to ensure its operations develop strategies and plans to address these impac	Yes	Risk Assesmen Gap Analysis
Systematically tracks the implementation of these strategies and plans	Yes	Risk Assesmen Gap Analysis
Has systems in place to ensure its operations identify and assess their adverse impacts on land use		Risk Assesmen
and access to land by affected communities Has systems in place to ensure its operations develop strategies and plans to minimise and mitgate these adverse impacts	Yes	Gap Analysis Risk Assesmen Gap Analysis
	Yes	Risk Assesmen Gap Analysis
Systematically tracks the implementation of these strategies and plans	L.	Emergency Planning Emergency
Develop and maintain emergency preparedness and response plans	Yes	
Develop and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the	Yes	Planning Emergency
Develop and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans Systematically engage with local stakeholders in the testing of these response plans	Yes Yes	Planning Emergency Planning,Resp se
Develop and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans Systematically engage with local stakeholders in the testing of these response plans Regularly assess, against baseline values, the noise and vibration levels generated by their activiti	Yes Yes eYes	Planning Emergency Planning,Resp se Noise
Develop and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans Systematically engage with local stakeholders in the testing of these response plans Regularly assess, against baseline values, the noise and vibration levels generated by their activiti Develop strategies and plans to limit the impacts of noise and vibration generated by their activiti Systematically engage with affected communities and other stakeholders in the development of t Systematically engage with affected communities and other stakeholders in the development of the	Yes Yes Yes	Planning Emergency Planning,Resp se
Develop and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans Systematically engage with local stakeholders in the testing of these response plans Regularly assess, against baseline values, the noise and vibration levels generated by their activiti Develop strategies and plans to limit the impacts of noise and vibration generated by their activiti Systematically engage with affected communities and other stakeholders in the development of t Systematically engage with affected communities and other stakeholders in the development of t staken in response.	Yes Yes Yes	Planning Emergency Planning,Resp se Noise Noise
Systematically tracks the implementation of these strategies and plans Develop and maintain emergency preparedness and response plans Systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans Systematically engage with local stakeholders in the testing of these response plans Regularly assess, against baseline values, the noise and vibration levels generated by their activiti Develop strategies and plans to limit the impacts of noise and vibration generated by their activiti Systematically engage with affected communities and other stakeholders in the development of t Tracks and discloses data, across successive time periods, on the functioning and uptake of its grevance mechanisms for communities, including number and nature of complaints and actions taken in response Audits and/or reviews, based on complainants' perspective, the effectiveness of its grievance mechanisms for communities.	Yes Yes Yes Yes	Planning Emergency Planning,Resp se Noise Noise Noise

Figure 52: Community Engagement and Wellbeing

Local Employment		
		Keywords
ck List	Y/N	the Report
	1/1	
		workers,
		Local
s the company publicly disclose the number of its employees hired from local communities	Yes	workers,
		workers,
		Local
		workers,
		Local
		employee
		contract
		employee
		contract,
Does the company publicly disclose the number of its contract workers hired from local		contract
communities	Yes	workers
communities	res	Employees
		workers,
	N	
s the company publicly disclose the number of women workers hired from local communities	Yes	Local
Has systems in place to ensure its operations support technical skills development of its local		Education,
workforces in producing countries	Yes	Academia,
Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries	Yes	Manager, Manageria skill
tematically tracks the implementation of their skills development programmes	Yes	Socio- economic, NGO, Academia, Oppurtuni es School.
		Education,
	Yes	Academia
port STEM education among the wider population in collaboration with in-country institutions	1	School,
port STEM education among the wider population in collaboration with in-country institutions		
port STEM education among the wider population in collaboration with in-country institutions		
port STEM education among the wider population in collaboration with in-country institutions		Education,
port STEM education among the wider population in collaboration with in-country institutions		Education, Academia,
		Education, Academia, Student,
Support technical/vocational skills development among the wider population in collaboration		Education, Academia, Student, Technical,
Support technical/vocational skills development among the wider population in collaboration with in-country institutions	Yes	Education, Academia, Student, Technical, Vocational
Support technical/vocational skills development among the wider population in collaboration with in-country institutions	Yes	Education, Academia, Student, Technical, Vocational
Support technical/vocational skills development among the wider population in collaboration with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development	Yes	Education, Academia, Student, Technical, Vocational Education,
Support technical/vocational skills development among the wider population in collaboration with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development		Education, Academia, Student, Technical, Vocational Education,
port STEM education among the wider population in collaboration with in-country institutions Support technical/vocational skills development among the wider population in collaboration with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development agenda		Education, Academia, Student, Technical, Vocational Education, Vocational
Support technical/vocational skills development among the wider population in collaboration with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development		Education, Academia, Student, Technical, Vocational Education, Vocational Local
Support technical/vocational skills development among the wider population in collaboration with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development		Education, Academia, Student, Technical, Vocational Education, Vocational Local

Figure 53: Local Employment

Sumitomo (Nickel)

Women in Work Force		
womentn workfolde		
Check List	Y/N	Keywords in the Report
Check List	17 N	1
		Female Employees (Find a target % they
		are trying to reach
		and search if they
		have a year they
		want to reach this
		by), Women (Check
Establishing or enhancing diversity policies with clear targets for inclusion and results reporting	No	for target values and %)
Establishing of enhancing diversity policies with clear targets for inclusion and results reporting	110	Women, Training and
		Devlopment (Check
		for Targets initiatives
		and Formal statements/
attaining gender equality in recruitment policies and processes	Yes	policies),
attaining gender equality in recruitment policies and processes	Tes	poncies),
		Trainings (promoting
		inclusivity and
		awareness), Women
		(Women focused
implementing gender inclusive networks, career development and mentoring programmes	Yes	career devlopment courses), Inclusive
implementing gender inclusive networks, career development and mentoring programmes	162	
		promote, Reporting,
		Approach (Check the
		types of reporting standards they
		formally state that
		they adhere to) (ILO
Formal statement of following relevant international standards and Practices	Yes	tripatrite)
		Talent management,
		improving office
		(Practices to retain
		talent), promote
		(check if they
		mention that is in
		line with any national or internal
developing equitable promotion and retention policies	Yes	bodies criteria)
developing equitable promotion and retention poncies	165	boules citteriaj
		Grievance, Grievance
		mechanism (focused
Grievance Mechanisms for Gender Discrimination	No	on women)
		Number of
		Employees Based on
		Employment Status and Gender, Board of
		Directors (Gender),
Tracks and discloses data, against targets and across successive time periods, on the percentage	of	Women in
women at board and senior management levels?	Yes	Management
External Audits and Review	Yes	External Auditor
Has Information been shared to employees on the grievance mechanism	No	Grievance Mechanism
nas mormation been snared to employees on the grievance mechanism	NO	
		Number of
		Employees Based on Employment Status
Formal Statement: Gender Equality Policy	Yes	and Gender
		Grievance
Are the External suppliers aware of this grievance mechanism	No	Mechanism
No access of of gonder discrimination / Jacobs month in part 5 years	Voc	Caror
No cases of of gender discrimination/Harassment in past 5 years	Yes	Cases
		Trainings (promoting
Employee training on Gender Discrimination	No	equality and awareness)
employee daming on dender oberinnation	NO	lawareness)

Figure 54: Women in the Workforce

Gender Equity		
Check List	Y/N	Keywords in the Report
		Bloomberg
Performance review by international Organization Collaboration	Yes	Index, EITI
		Gender Equality
		Index
Gender Equity comittment through International Organizations	Yes	(Bloomberg)
		Renumerati on, Wage
Renumeration Committee addressing gender wage gap	Yes	Pay gap
External Audits and Review	No	External Aud
Tracks and discloses data, across successive time periods, on its performance on managing the impacts of its activities on women	No	Gender, Women, Impact, Assesment (Social Way Toolkit)
		Gender Pay
Gender Wage Gap Reported to be 1:1	No	Gap
Gender Wage Gap Policy/Statement	No	Gender Pay Gap Grievance Mechanism but for all including harassment and
Grievance Mechanisms for Harassment/Discrimination	No	Discriminati
No cases of Gender Wage Pay Gap (External Source)	Yes	Cases
Has Information been shared to employees on the grievance mechanism	No	Grievance Mechanism
Are the External suppliers aware of this grievance mechanism	No	Grievance Mechanism
		Awareness
Employee training on Sexual Harassment	No	Training

Figure 55: Gender Equity

Historically Disadvantaged People		
Check List	Y/N	Keywords in the Report
Take specific measures to reflect its non-discrimination policies in their terms and conditions	Yes	
Take specific measures to implement trainings to raise awareness of discrimination among management staff and workers or take other actions aiming at preventing and addressing issues of discrimination in the workplace	Yes	Discrimination, Your Voice grievance mechanism, continual monitoring o ethnicity and disability applicants and population in company
Set targets regarding diversity and inclusivity in its recruitment and employment practices	No	Awareness Trainings
Upholding the fundamental ILO convention on discrimination (No. 111)	Yes	Targets
The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Organise, including by granting access to designated areas for labour organisers to meet with workers	Yes	Inclusive, Diversity, International Labour Organization
The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Collective bargaining, including by developing formal collective bargaining agreements	Yes	Collective Bargaining Collective
The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Freedom of association, including by allowing union meetings on site	Yes	Bargaining, South Africar Law

Figure 56: Historically Disadvantaged people

Accident Rate at Workplace		
Check List	Y/N	Keywords in the Report
		Lost Time
Accident Rate at Workplace total Reported	Yes	Injuries (LTI)
		Accident Rate
Discloses the number of mining-related injuries among its workforce, across successiv	in time perio Vec	Lost Time Injuries (LTI)
Discloses the number of mining-related injuries, among its workforce, across succession	ve time perio res	injuries (cri)
		Accident Rate Lost Time
Discloses such information on a site-disaggregated basis	Yes	Injuries (LTI)
energy see manual of a state of segment of a state of second s		
		Accident Rate
5		Lost Time
	Yes	Injuries (LTI)
		Accident Rate
		Lost Time
		Injuries (LTI),
Evaluation on Accidents and how to prevent it	Yes	Accident

Figure 57: Accident Rate at the Workplace

Fatal Accidents at Workplace		
Check List	Y/N	Keywords in the Report
		Fatal
Accident Rate at Workplace total Reported	Yes	Accidents
Discloses the number of mining-related high potential incidents, serious		Fatal
injuries and fatalities among its workforce, across successive time periods	Yes	Accidents
		Fatal
Discloses such information on a site-disaggregated basis	Yes	Accidents
		Fatal
es reporting includes fatalities of contract workers as		Accidents,
	Yes	Contractors
		Fatal
		Accidents,
Evaluation on Accidents and how to prevent it	Yes	Contractors

Figure 58: Fatal Accidents at the workplace

Health and Safety at the work place		
Check List	Y/N	Keywords in the Report
Assigned senior management or board-level responsibilities and accountability for carrying out		Conduct,
this commitment	Yes	Code
		Code,
		Fatigue, Psychologic
		l, Hazard,
		Health (Loo for
		stratergies
		that show assesments
		, Mental
Monitoring Psycholgical Hazards	No	Health
		Occupation
	Yes	Occupation I Hazard
		Health monitoring
onitoring	Yes	isk based monitoring
	Tes	monitoring
		Occupation I Risk
Identify and assess health and safety risks to the workforce	No	Assessmen
		Need to share a
		detailed
		approach to track these
		stratergies(
		will be give in depth in
Track the implementation of these strategies and plans	No	the risk assement
		Code of Conduct,
		Safety
Formalised its commitment, that is endorsed by senior management, to ensure safe and healthy		Compliance Accountabi
working conditions	Yes	ty
		Risk
		Assement and
Develop strategies and plans to avoid, minimise and mitigate these risks	No	mitigation
External Audits and Review	Yes	
		Protective Equipment
Required Safety Equipments (PPE)	Yes	Health and
		Safety manageme
		t system,
		Health and Safety
Health and Safety Policy	Yes	Policies
		Safety
Regular Health and Safety Training	Yes	training Protective,
		Gender
Gender Specific PPE on all mining Sites	No	Equipment Accident,
Departed error of positions refer unlar loading to	Vac	negligence, incidents
Reported cases of negligent safety rules leading to accidents	Yes	Facilities,
		Sanitation,
Gender Appropriate Sanitation Facilities	No	Provision
		Health
		Services,
Health Services	No	awareness, initiatives
		Incidents,
	1	accidents,

Figure 59: Health and Safety at the workplace

Presence of anti-competitive behaviour and Fair Competition		
Check List	Y/N	Keywords in the Report
as systems in place to ensure its operations identify and map stakeholders operating in Artisana	1	Stakeholder
mall Scale Mining ASM activities around its operations	Yes	engagement
las systems in place to ensure its operations develop strategies and plans to engage with		
dentified stakeholders, including through the establishment of engagement agreements where		Stakeholder
appropriate	Yes	engagement
Are policies implemented and practices to prevent bribery, corruption and to publicly disclose		
acilitation payments.	Yes	corruption
Systematically tracks the implementation of these strategies and plans	Yes	Corruption, Risl
Policies against Anti competitve behaviour	Yes	Competitive
		Grievance, Incident, code c
No cases of anti competive behaviour in the past 3 years	Yes	conduct
		Artisnal Scale Mining, ASM,
assess the need for, and feasibility of, providing technical and/or livelihood support to ASM		Community
niners	Yes	Engagement
		Artisnal Scale
		Mining, ASM,
		Community
Develop strategies and plans according to these assessments Engage with ASM miners in these needs assessments and in the development of any strategies	Yes	Community Engagement Artisnal Scale

Figure 60: Presence of Anti - Competitive Behaviour and Fair Competition

	N/N	Keywords the Report
Check List Formalised its commitment, that is endorsed by senior management, to prevent all direct and	Y/N	the Report
indirect forms of bribery and corruption	Yes	Corruption
		Corruption Extractive
Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and		Industries
compile information on all material payments, at the appropriate levels of government, by	Yes	Transpare y Initiative
country and by project.	res	y mitiative
		Ethics
Assigned senior management or board-level responsibilities and accountability for carrying out		Committe
this commitment	Yes	Ethics
		Corruption
Committed financial and staffing resources to implement this commitment	Yes	Bribery
Tracks and discloses data, across successive time periods, on its prevention of bribery and		
corruption, including number and nature of incidents and actions taken in response	Yes	Corruption
		Bribery,
Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect		corruption Audits,
forms of bribery and corruption	No	Compliand
No cases of Corruption reported in the past 3 years	Yes	Corruption
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to		Corrective
improve the effectiveness of its measures taken to prevent all direct and indirect forms of bribery		Action,
and corruption?	No	Corruption
Tracks and discloses data, across successive time periods, on the functioning and uptake of its whistleblowing mechanisms, including number and nature of incidents and actions taken in	Yes	Whistleblo , grievance
o meanance, and nature and nature of modelles and activity taken in	1	corruption
Audits and/or reviews the effectiveness of its whistleblowing mechanisms	No	Audits,
		Audits,
Takes responsive artion on the basis of the findings of these audits and/or reviews, to seek to		complianc risk
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to improve the effectiveness of its whistleblowing mechanisms	No	assesmen
· • •		Economic
Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies)	Value,
and under what names (e.g. those of subsidiary or branch entities) it is known in that place	No	Economic
Reports on its approach to tax transparency, including its strategy relating to its presence in any		Low Tax,
low-tax jurisdictions	No	Low-Tax
		Tax
		Benefits, Deduction
	1	Tax
Discloses all tax benefits and tax holidays received at local and national levels in all tax		1 dA

Figure 61: Bussiness Ethics, Anti-Corruption and Transparency

heck List	Y/N	Keywords i the Report
dentify, from the earliest stage and in consultation with local stakeholders, the impacts their		mine
	No	closure
evelop post-closure transition management plans from the earliest stage and in consultation		mine
vith local stakeholders, aimed at ensuring continued livelihood viability for affected communities	No	closure
		mine
consider post-mining land-use opportunities in the development of these management plans	No	closure
		1
		mine
dentify, from the earliest stage, the impacts their closure will have for workers	No	closure
senting, nonrate carnesestage, the impacts their dosare with have for workers	140	closure
		mine
evelop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers	No	closure
venhood vlability for workers	NU	ciosure
vevelop partnerships with government, other industries or companies to address workers'	Ne	mine
	No	mine closure
	No	
velihood needs	No	
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive		closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive	No No	closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive		closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive		closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive		closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive		closure mine closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations	No	closure mine closure mine
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation		mine closure mine closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to	No	closure mine closure mine closure mine
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation	No	closure mine closure dosure mine closure
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation liscloses financial surety arrangements for the closure of all its operations, related to workers and	No No	closure mine closure closure mine closure closure, De
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation liscloses financial surety arrangements for the closure of all its operations, related to workers and	No	closure mine closure closure mine closure closure, De
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation liscloses financial surety arrangements for the closure of all its operations, related to workers and	No No	closure mine closure closure mine closure closure, De
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation liscloses financial surety arrangements for the closure of all its operations, related to workers and	No No	closure mine closure closure mine closure closure, De
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation liscloses financial surety arrangements for the closure of all its operations, related to workers and	No No	closure mine closure closure mine closure closure, De
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation liscloses financial surety arrangements for the closure of all its operations, related to workers and	No No	closure mine closure closure mine closure closure, De
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations sudits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation viscloses financial surety arrangements for the closure of all its operations, related to workers and ommunities	No No	closure mine closure mine closure mine
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and ommunities biscloses financial arrangements to ensure coverage of longer-term socio-economic aspects of	No No No	closure mine closure mine closure dosure closure, De characteriz
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and ommunities biscloses financial arrangements to ensure coverage of longer-term socio-economic aspects of	No No	closure mine closure closure mine closure closure, Do characteriz mine
velihood needs racks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations udits and/or reviews its performance on progressive mine rehabilitation akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation iscloses financial surety arrangements for the closure of all its operations, related to workers and ommunities biscloses financial arrangements to ensure coverage of longer-term socio-economic aspects of	No No No	closure mine closure closure closure closure, closure closure, closure, closure, closure, closure, closure closure, closure, clos

Figure 62: Mine Closure and Post Closure Viability

Check List	Y/N	Keywords in Report
an the company demonstrate at the corporate level that it has systems in		procurement
lace to identify and assess risks related to its suppliers and contractors on: Human rights issues	Yes	procurement
ian the company demonstrate at the corporate level that it has systems in lace to identify and assess risks related to its suppliers and contractors on: Labour Issues	Yes	Responsible procurement procurement supply chain
Tracks and discloses data, against targets and across successive time seriods, on its national and supranational procurement, showing proportions and amounts spent	Yes	Procurement Local Procurement
Audits and/or reviews the effectiveness of its measures taken to develop procurement	Vor	Audit, Tax Audit, Responsible Sourcing
pportunities for suppliers at national and/or supranational levels?	Yes	Sourcing
akes responsive action, based on the findings of these audits and/ or reviews, to seek to improve he effectiveness of its measures taken to develop procurement opportunities for suppliers at ational and/or supranational levels	No	Review, Audi
tas systems in place to identify and assess potential risks of all forms of forced, compulsory,		Responsible procurement procurement
rafficked and child labour in its areas of operations and entire supply chain	Yes	supply chain
las systems in place to develop strategies and plans to address these identified risks	Yes	Responsible procurement procurement supply chain
		- appry critin
ystematically tracks the implementation of these strategies and plans las systems in place to ensure its operations develop strategies and plans to develop local rocurement opportunities	Yes	Responsible , Procurement Supply chain Local Procurement
		Procurment,
las systems in place to ensure its operations actively include women in these strategies and plans	No	Female
		Women, Loca Procurment,
ystematically tracks the implementation of these strategies and plans	No	Female

Figure 63: Responsible Contracting and Sourcing

Check List	Y/N	Keywords ir the Report
and supranational socio-economic development plans in making its mining-related investment and business decisions in producing countries, with the aim of enhancing socio-economic	No	economic Devlopmen
Assigned senior management or board-level responsibilities and accountability for carrying out this commitment	Yes	Socio- economic Devlopmen
Committed financial and staffing resources to implement this commitment	Yes	Socio- economic Devlopmen economic
Has systems in place to ensure its operations work with sub-national producing country governments to identify socio-economic development priorities where they can play a collaborative role	Yes	Devlopmen , socio- economic, socio- economic benefits
Has systems in place to ensure its operations develop strategies and plans to address these development priorities in collaboration with the sub-national governments?	Yes	Socio- economic Devlopmen , socio- economic, socio- economic benefits
Systematically tracks the implementation of these strategies and plans, collaboratively with the sub-national governments	Yes	Regional Governmer , Governmer , Socio- economic
identify R&D priorities to address socio-economic and environmental impacts of mining within producing countries	Yes	Socio- economic, NGO, Academia, Oppurtunit es
Develop R&D programmes to address these priorities	Yes	Socio- economic, NGO, Academia, Oppurtuniti es
		Socio-
Frack the implementation of these R&D programmes ort STEM education among the wider population in collaboration with in-country institutions	Yes	economic, Education, Academia
Support technical/vocational skills development among the wider population in collaboration with in-country institutions	No Yes	School, Education, Academia, Student, Technical, Vocational
Demonstrate alignment of their skills development efforts with the national skills development genda	Yes	Education, Vocational, National Socio-
Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries	Yes	economic, NGO,

Figure 64: CSR Commitments and Social Development

Risk of Conflicts and Mitigation		
Check List	Y/N	Keywords in the Report
The entity shall disclose the percentage and grade (in percentage metal content) of proved		areas of
reserves that are located in or near areas of active conflict.	No	conflict
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : Use of free, prior, and informed consent (or consultation) processes	Yes	Indigenous people
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : Upholding International Labour Organization (ILO) Convention No. 169	No	Internation I Labour Organizatio
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : The establishment of project grievance mechanisms	No	Grievance mechanism whistleblov
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : The establishment of formal community agreements	No	Lease agreements Community agreements
Implementation of Voluntary Principles on Security and Human Rights.	Yes	Voluntary Principles on Security and Human Rights
Describing its approach according to the Five-Step Framework outlined in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	Yes	Supply chain, Audi third party audit
Tracks and discloses data, across successive time periods, on its performance on preventing and remedying human rights abuses related to its security management Audits and/or reviews the effectiveness of its measures taken to prevent and remedy human rights abuses related to its security management	No	Security
the effectiveness of its measures taken to prevent and remedy human rights abuses related to its	1	

Figure 65: Risk of Conflicts and Mitigation

		Keywords in t
check List Formalised its commitment, that is endorsed by senior management, to respect human rights in	Y/N	Report UNGC, Human
accordance with the UNGCs	No	Rights
Assigned senior management or board-level responsibilities and accountability for carrying out		Committee, board membe
his commitment	No	Human Rights
		Committee,
committed financial and staffing resources to implement this commitment	No	board membe Human Rights
		Gap Analysis, Risk Assesme
las systems in place to ensure its operations identify and assess salient impacts of their activities on human rights	Yes	Impact assesment
n numan rights	res	assesment
las systems in place to ensure its operations develop strategies and plans to prevent, mitigate		Risk Assesme Gap Analysis,
and account for how they address these identified impacts	Yes	Due Diligence
		Risk Assesme
ystematically tracks the implementation of these strategies and plans	Yes	Gap Analysis
racks and discloses data, across successive time periods, on its performance on managing human		mine-site, mi
ights issues, including mine-site-disaggregated data on the implementation of human rights due liligence processes	No	human rights
Audits and/or reviews its performance on managing human rights issues	No	Audits, Review
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Women in discussions and	No	Community
operations take specific measures to enable the participation of Youth in discussions and decision-		
naking on matters that may impact them	No	Youth
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Persons with disabilities in		Community
liscussions and decision-making on matters that		Engagement,
nay impact them Can your company demonstrate at the corporate level that it has systems in place to ensure its	No	Disability
operations: Conduct and disclose regular assessment of the impacts of their activities on		Impact, Risk,
vomen? can your company demonstrate at the corporate level that it has systems in place to ensure its	No	Women
operations: Conduct and disclose regular assessment of the impacts of their activities on outh?	No	Impact, Risk, Youth
Can your company demonstrate at the corporate level that it has systems in place to ensure its		Internet and
perations: Conduct and disclose regular assessment of the impacts of their activities on hildren?	No	Impact, Risk, Children
las systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes	Risk Assesme Gap Analysis
	1	Risk Assesme
		Gap Analysis
as systems in place to ensure its operations develop strategies and plans to address these impact	Yes	
	Yes Yes	Risk Assesmer Gap Analysis
tas systems in place to ensure its operations develop strategies and plans to address these impact ystematically tracks the implementation of these strategies and plans		Gap Analysis
ystematically tracks the implementation of these strategies and plans has systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities		Gap Analysis Risk Assesme Gap Analysis
ystematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use nd access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and	Yes	Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis
ystematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use nd access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and nitigate these adverse impacts	Yes Yes Yes	Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Risk Assesme
ystematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use nd access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and nitigate these adverse impacts ystematically tracks the implementation of these strategies and plans	Yes Yes Yes	Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Emergency
ystematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts ystematically tracks the implementation of these strategies and plans pevelop and maintain emergency preparedness and response plans ystematically tracks the implementation of these strategies and plans pevelop and maintain emergency preparedness and response plans ystematically engage with local stakeholders (e.g. local authorities and communities) in the	Yes Yes Yes Yes Yes	Risk Assesme Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Emergency Planning Emergency
ystematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts ystematically tracks the implementation of these strategies and plans pevelop and maintain emergency preparedness and response plans ystematically tracks the implementation of these strategies and plans pevelop and maintain emergency preparedness and response plans ystematically engage with local stakeholders (e.g. local authorities and communities) in the	Yes Yes Yes	Gap Analysis Gap Analysis Gap Analysis Risk Assesmei Gap Analysis Risk Assesmei Gap Analysis Emergency Planning Emergency Planning
ystematically tracks the implementation of these strategies and plans as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations develop strategies and plans to minimise and illigate these adverse impacts ystematically tracks the implementation of these strategies and plans evelop and maintain emergency preparedness and response plans ystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans	Yes Yes Yes Yes Yes	Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Emergency Planning Emergency Planning, Resp
ystematically tracks the implementation of these strategies and plans has systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts systematically tracks the implementation of these strategies and plans by the matcally tracks the implementation of these strategies and plans by the strategies adverse of the strategies and plans by the strategies of the strategies and plans by the strategies of the strategies and communities in the lesign of emergency response plans	Yes Yes Yes Yes Yes	Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Emergency Planning Emergency Planning Emergency
vstematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts vystematically tracks the implementation of these strategies and plans Develop and maintain emergency preparednes and response plans vystematically rengage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans vystematically engage with local stakeholders in the testing of these response plans	Yes Yes Yes Yes Yes Yes	Gap Analysis Risk Assesmer Gap Analysis Risk Assesmer Gap Analysis Emergency Planning Emergency Planning Emergency Planning, Resp se
ystematically tracks the implementation of these strategies and plans has systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts systematically tracks the implementation of these strategies and plans by the matcally tracks the implementation of these strategies and plans by the strategies adverse of the strategies and plans by the strategies of the strategies and plans by the strategies of the strategies and communities in the lesign of emergency response plans	Yes Yes Yes Yes Yes Yes	Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Risk Assesme Gap Analysis Emergency Planning Emergency Planning, Resp
vstematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities las systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts systematically tracks the implementation of these strategies and plans pevelop and maintain emergency preparedness and response plans pevelop and maintain emergency preparedness and response plans ystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans systematically engage with local stakeholders in the testing of these response plans tegularly assess, against baseline values, the noise and vibration levels generated by their activitie	Yes Yes Yes Yes Yes Yes No	Gap Analysis Risk Assesmer Gap Analysis Risk Assesmer Gap Analysis Emergency Planning Emergency Planning Emergency Planning, Resp se
vstematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use after systems in place to ensure its operations develop strategies and plans to minimise and nitigate these adverse impacts systematically tracks the implementation of these strategies and plans bystematically tracks the implementation of these strategies and plans bystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans systematically engage with local stakeholders in the testing of these response plans explanally assess, against baseline values, the noise and vibration generated by their activitie systematically engage with affected communities of noise and vibration generated by their activitie	Yes Yes Yes Yes Yes No	Gap Analysis Gap Analysis Gap Analysis Risk Assesmer Gap Analysis Emergency Flanning Planning Planning Planning Planning Naise Noise
vstematically tracks the implementation of these strategies and plans las systems in place to ensure its operations identify and assess their adverse impacts on land use after systems in place to ensure its operations develop strategies and plans to minimise and after systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts ystematically tracks the implementation of these strategies and plans pevelop and maintain emergency preparedness and response plans ystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans ystematically engage with local stakeholders in the testing of these response plans evelop strategies and plans to limit the impacts of noise and vibration generated by their activitie ystematically engage with affected communities and other stakeholders in the development of th racks and discloses data, across successive time periods, on the functioning and uptake of its revence meanisms for communities, including number and nature of complaints and actions	Yes Yes Yes Yes Yes Yes No No	Gap Analysis Risk Assesmer Gap Analysis Risk Assesmer Gap Analysis Risk Assesmer Gap Analysis Emergency Planning Emergency Planning Emergency Planning Noise Noise Grievance Grievance
stematically tracks the implementation of these strategies and plans as systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts ystematically tracks the implementation of these strategies and plans bevelop and maintain emergency preparedness and response plans ystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans ystematically engage with local stakeholders in the testing of these response plans equilarly assess, against baseline values, the noise and vibration levels generated by their activitie ystematically engage with affected communities and other stakeholders in the development of ti racks and discloses data, across successive time periods, on the functioning and uptake of its	Yes Yes Yes Yes Yes No	Gap Analysis Gap Analysis Gap Analysis Gap Analysis Gap Analysis Gap Analysis Emergency Planning Emergency Planning Emergency Planning Noise Noise Noise Noise

Figure 66: Community Engagement and Wellbeing

		Konverde
Check List	Y/N	Keywords in the Report
		thenepore
Does the company publicly disclose the number of its employees hired from local communities	Yes	Employees, v
Does the company publicly disclose the number of its contract workers hired from local communitie	No	Employees, \
Does the company publicly disclose the number of women workers hired from local communities	No	Employees, \
		School,
		Education,
		Academia,
		Student,
Has systems in place to ensure its operations support technical skills development of its local		Technical,
workforces in producing countries	Yes	Vocational
		Manager,
Has systems in place to ensure its operations support managerial skills development of its local		Managerial
workforces in producing countries	Yes	skill
		Socio-
		economic,
		NGO
		NGO, Academia.
		NGO, Academia, Oppurtuniti
Systematically tracks the implementation of their skills development programmes	Yes	Academia,
Systematically tracks the implementation of their skills development programmes	Yes	Academia, Oppurtuniti
Systematically tracks the implementation of their skills development programmes	Yes	Academia, Oppurtuniti
Systematically tracks the implementation of their skills development programmes	Yes	Academia, Oppurtuniti
Systematically tracks the implementation of their skills development programmes	Yes	Academia, Oppurtuniti es
Systematically tracks the implementation of their skills development programmes	Yes	Academia, Oppurtuniti
Systematically tracks the implementation of their skills development programmes Support STEM education among the wider population in collaboration with in-country institutions		Academia, Oppurtuniti es School,
		Academia, Oppurtuniti es School, Education, Academia
		Academia, Oppurtuniti es School, Education, Academia School,
		Academia, Oppurtuniti es School, Education, Academia School, Education,
		Academia, Oppurtuniti es School, Education, Academia School,
		Academia, Oppurtuniti es School, Education, Academia School, Education, Academia,
Support STEM education among the wider population in collaboration with in-country institutions		Academia, Oppurtuniti es School, Education, Academia School, Education, Academia, Student, Technical, Vocational
Support STEM education among the wider population in collaboration with in-country institutions Support technical/vocational skills development among the wider population in collaboration with in-country institutions	No	Academia, Oppurtuniti es School, Education, Academia School, Education, Academia, Student, Technical, Vocational Education,
Support STEM education among the wider population in collaboration with in-country institutions Support technical/vocational skills development among the wider population in collaboration	No	Academia, Oppurtuniti es School, Education, Academia School, Education, Academia, Student, Technical, Vocational

Figure 67: Local Employment

Rio Tinto (Iron)

Women in Work Force		
		Keywords in the
Check List	Y/N	Report
Establishing or enhancing diversity policies with clear targets for inclusion and results reporting	Yes	Female Employees,
	N	Recruitment (In line
attaining gender equality in recruitment policies and processes	Yes	with ILO)
		Trainings Momon
implementing gender inclusive networks, career development and mentoring programmes	No	Trainings , Women, Inclusive
implementing Bender morative networks, career development and mentoring programmes		inclusive.
		promote, Reporting,
		Approach,
		International Labour
Formal statement of following relevant international standards and Practices	Yes	Orgainization
		Talent management, improving office
		environment
		(Practices to retain
		talent), promote
		(check if they
		mention that is in
		line with any
		national or internal
developing equitable promotion and retention policies	Yes	bodies criteria)
		Grievance, Grievance
Grievance Mechanisms for Gender Discrimination	Yes	mechanism
		Number of
		Employees Based on
		Employment Status
		and Gender, Board of
Tracks and discloses data, against targets and across successive time periods, on the percentage of	Ver	Directors (Gender),
women at board and senior management levels?	Yes	Women in
External Audite and Bavious	Vec	External Auditor
External Audits and Review	Yes	External Auditor
		Grievance Mochanism Whistle
Has Information been shared to employees on the grievance mechanism	Yes	Mechanism, Whistle Blower
nas mornation been shared to employees on the gnevalue methalism	105	Number of
		Employees Based on
		Employment Status
Formal Statement: Gender Equality Policy	Yes	and Gender
		Grievance
Are the External suppliers aware of this grievance mechanism	Yes	Mechanism
No second statistical in the first statistical in the second statistic		
No cases of of gender discrimination/Harassment in past 5 years	No	Cases
		Trainings (promoting
Employee training on Gender Discrimination	Yes	equality and awareness)
employee daming on dender bischmination	163	awareness)

Figure 68: Women in the Workforce

Gender Equity		
Check List	Y/N	Keywords in
Check List	Y/N	the Report
		Bloomberg
Performance review by international Organization Collaboration	No	Index
		Gender
		Equality
		Index
Gender Equity comittment through International Organizations	Yes	(Bloomberg
		Renumerat
		on, Wage
Renumeration Committee addressing gender wage gap	Yes	Pay gap
Rendmeration committee addressing gender wage gap	Tes	Faygap
		External
External Audits and Review	No	Audit
		Gender,
		Women,
Tracks and discloses data, across successive time periods, on its performance on managing the		Impact,
impacts of its activities on women	No	Assesment
		Gender Pay
Gender Wage Gap Reported to be 1:1	Yes	Gap
		Gender Pay
Gender Wage Gap Policy/Statement	Yes	Gap Grievance
		Mechanism
		but for all
		including
		harassment
Grievance Mechanisms for Harassment/Discrimination	Yes	and
No cases of Gender Wage Pay Gap (External Source)	No	Cases
0,		
		Grievance
Has Information been shared to employees on the grievance mechanism	Yes	Mechanism
· · · · · · · · · · · · · · · · · · ·		
		Grievance
Are the External suppliers aware of this grievance mechanism	Yes	Mechanism
Are the External suppliers aware of this grievance mechanism	Yes	Awareness

Figure 69: Gender Equity

Historically Disadvantaged People		
Check List	Y/N	Keywords in the Report
		Discriminatio
Take specific measures to reflect its non-discrimination policies in their terms and conditions	Yes	n,
Take specific measures to implement trainings to raise awareness of discrimination among		
management staff and workers or take other actions aiming at preventing and addressing issues of		Awareness
discrimination in the workplace	No	Trainings
Set targets regarding diversity and inclusivity in its recruitment and employment practices	No	Targets
		Diversity,
		Internationa
Upholding the fundamental ILO convention on discrimination (No. 111)	Yes	Labour
The company has systems in place to ensure its operations actively respect the rights of workers to		
organise, collective bargaining and freedom of association needs to Provide: Organise, including		Collective
by granting access to designated areas for labour organisers to meet with workers	Yes	Bargaining
The company has systems in place to ensure its operations actively respect the rights of workers to		
organise, collective bargaining and freedom of association needs to Provide: Collective		Collective
bargaining, including by developing formal collective bargaining agreements	Yes	Bargaining,
The company has systems in place to ensure its operations actively respect the rights of workers to		Collective
organise, collective bargaining and freedom of association needs to Provide: Freedom of		Bargaining,
association, including by allowing union meetings on site	Yes	Union

Figure 70: Historically Disadvantaged People

Accident Rate at Workplace		
Check List	Y/N	Keywords in the Report
		Accident Rate,
		Lost Time
Accident Rate at Workplace total Reported	Yes	Injuries (LTI)
		Accident Rate,
		Lost Time
Discloses the number of mining-related injuries among its workforce, across successive time perio	Yes	Injuries (LTI)
		Accident Rate.
		Lost Time
Discloses such information on a site-disaggregated basis	Yes	Injuries (LTI)
		Accident Rate,
rkers as		Lost Time
	Yes	Injuries (LTI)
		A said set Date
		Accident Rate,
		Lost Time
		Injuries (LTI),
Evaluation on Accidents and how to prevent it	No	Accident

Figure 71: Accident Rate at the Workplace

Fatal Accidents at Workplace		
Check List	Y/N	Keywords in the Report
		Fatal
Accident Rate at Workplace total Reported	Yes	Accidents
Discloses the number of mining-related high potential incidents, serious		Fatal
injuries and fatalities among its workforce, across successive time periods	Yes	Accidents
		Fatal
Produces and the formation and a the discourse had been	Yes	Fatal Accidents
Discloses such information on a site-disaggregated basis	Yes	Fatal
		Accidents,
	No	Contractors
		Fatal
		Accidents,
Evaluation on Accidents and how to prevent it	No	Contractors

Figure 72: Fatal Accidents at the Workplace

Health and Safety at the work place		
Check List	Y/N	Keywords i the Report
		Code of
Assigned senior management or board-level responsibilities and accountability for carrying out		Conduct,
this commitment	Yes	Code
		Code,
		Fatigue, Psychologie
		I, Hazard,
Monitoring Psycholgical Hazards	Yes	Health (Loc
		Occupation
		Occupation
	Yes	l Hazard
		monitoring
		isk based
	Yes	monitoring
		Occupation
		l Risk
Identify and assess health and safety risks to the workforce	Yes	Assessmen
		Need to
		share a detailed
		approach to
		track these
		stratergies
		will be give
		in depth in
		the risk
Track the implementation of these strategies and plans	Yes	assement Code of
		Conduct,
Formalised its commitment, that is endorsed by senior management, to ensure safe and healthy		Safety
working conditions	Yes	Compliance
		Diele
		Risk Assement
		and
Develop strategies and plans to avoid, minimise and mitigate these risks	No	mitigation
		Assurance,
External Audits and Review	No	Review
		Protective
Required Safety Equipments (PPE)	Yes	Equipment
		Health and Safety
		manageme
Health and Safety Policy	Yes	t system,
		Safety
Regular Health and Safety Training	Yes	training
		Protective,
Gender Specific PPE on all mining Sites	No	Gender
		Accident,
Poported cares of pogligent refety gular leading to preidents	Vor	negligence
Reported cases of negligent safety rules leading to accidents	Yes	incidents
		Facilities,
		Sanitation,
Gender Appropriate Sanitation Facilities	No	Provision
		Health
		Services,
Unite Constant		awareness,
Health Services	Yes	initiatives Incidents,
		accidents,

Figure 73: Health and Safety at the Workplace

thetk list Y/N Beport As systems in place to ensure its operations identify and map stakeholders operating in Artisanal imall Scale Mining ASM activities around its operations Stakeholder engagement Stakeholder engagement As systems in place to ensure its operations develop strategies and plans to engage with dentified stakeholders, including through the establishment of engagement agreements where ppropriate Stakeholder ves Stakeholder engagement Are policies implemented and practices to prevent bribery, corruption and to publicly disclose acilitation payments. Yes corruption, Risk Vestematically tracks the implementation of these strategies and plans Yes corruption, Risk Policies against Anti competitive behaviour Yes conduct Volaces of anti competitive behaviour in the past 3 years Yes Anti-Competitive Engagement Avo cases of anti competive behaviour in the past 3 years Yes Anti-Competitive Engagement Avo cases of anti competive behaviour in the past 3 years Yes Anti-Competitive Engagement Avo cases of anti competive behaviour in the past 3 years Yes Anti-Competitive Engagement Avo cases of anti competive behaviour in the past 3 years Yes Anti-Competitive Engagement Avo cases of anti competive behaviour in the past 3 years	Presence of anti-competitive behaviour and Fair Competition		
Imail Scale Mining ASM activities around its operations No engagement Has systems in place to ensure its operations develop strategies and plans to engage with dentified stakeholders, including through the establishment of engagement agreements where ppropriate Yes Stakeholder engagement Are policies implemented and practices to prevent bribery, corruption and to publicly disclose acilitation payments. Yes corruption Vestematically tracks the implementation of these strategies and plans Yes Corruption, Risk Policies against Anti competitive behaviour Yes Corruption, Risk Vo cases of anti competitive behaviour in the past 3 years Yes Anti-Competitive Mining, ASM, Community No Engagement No Engagement Vescess of anti competive behaviour in the past 3 years Yes Anti-Competitive Mining, ASM, Community Assess the need for, and feasibility of, providing technical and/or livelihood support to ASM Community Community No Engagement No Engagement Mining, ASM, Community Develop strategies and plans according to these assessments No Engagement Mining, ASM, Community	Check List	Y/N	Keywords in the Report
Imail Scale Mining ASM activities around its operations No engagement Has systems in place to ensure its operations develop strategies and plans to engage with dentified stakeholders, including through the establishment of engagement agreements where ppropriate Yes Stakeholder engagement Are policies implemented and practices to prevent bribery, corruption and to publicly disclose acilitation payments. Yes corruption Vestematically tracks the implementation of these strategies and plans Yes Corruption, Risk Policies against Anti competitive behaviour Yes Corruption, Risk Vo cases of anti competitive behaviour in the past 3 years Yes Anti-Competitive Mining, ASM, Community No Engagement No Engagement Vescess of anti competive behaviour in the past 3 years Yes Anti-Competitive Mining, ASM, Community Assess the need for, and feasibility of, providing technical and/or livelihood support to ASM Community Community No Engagement No Engagement Mining, ASM, Community Develop strategies and plans according to these assessments No Engagement Mining, ASM, Community			
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dentified stakeholders, including through the establishment of engagement agreements where ppropriate ves Stakeholder engagement Are policies implemented and practices to prevent bribery, corruption and to publicly disclose acilitation payments. Ves corruption bystematically tracks the implementation of these strategies and plans Ves Corruption, Risk Policies against Anti competitive behaviour Ves conduct No cases of anti competitive behaviour in the past 3 years Ves Anti-Competitive Arrisnal Scale Mining, ASM, Sases the need for, and feasibility of, providing technical and/or livelihood support to ASM No Engagement Prevelop strategies and plans according to these assessments No Engagement prigage with ASM miners in these needs assessments and in the development of any strategies Mining, ASM, Sases Sten end for, and feasibility of these assessments and in the development of any strategies Mining, ASM, Community No Engagement Sases No Engagement Sases Mining, ASM, Community Strategies Mining, ASM, Sases Strategies Mini			
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Artisnal Scale Mining, ASM, No Engagement Supervise		Vor	
acilitation payments. Yes corruption ivistematically tracks the implementation of these strategies and plans Yes Corruption, Risk Policies against Anti competitive behaviour Yes Conduct Vocases of anti competitive behaviour in the past 3 years Yes Anti-Competitive Avisses the need for, and feasibility of, providing technical and/or livelihood support to ASM Mining, ASM, Community No Engagement Artisnal Scale Mining, ASM, Community No Engagement	appropriate	res	engagement
acilitation payments. Yes corruption ivistematically tracks the implementation of these strategies and plans Yes Corruption, Risk Policies against Anti competitive behaviour Yes Conduct Voicases of anti competitive behaviour in the past 3 years Yes Anti-Competitive Avisses the need for, and feasibility of, providing technical and/or livelihood support to ASM Mining, ASM, Community No Engagement Artisnal Scale Mining, ASM, Community No Engagement	Are policies implemented and practices to prevent bribery, corruption and to publicly disclose		
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niners No Engagement Artisnal Scale Mining, ASM, Community Develop strategies and plans according to these assessments of any strategies Mining, ASM, Community Engage with ASM miners in these needs assessments and in the development of any strategies Mining, ASM,			
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Develop strategies and plans according to these assessments No Engagement Engage with ASM miners in these needs assessments and in the development of any strategies Mining, ASM,			Mining, ASM,
Ingage with ASM miners in these needs assessments and in the development of any strategies Mining, ASM,	Benefacilitation de la construction de la construction		
		NO	
	Engage with ASM miners in these needs assessments and in the development of any strategies and plans		

Figure 74: Presence of Anti-competitive Behaviour

Bussiness Ethics, Anti Corruption and Transparency		
		Keywords i the Report
Check List	Y/N	
Formalised its commitment, that is endorsed by senior management, to prevent all direct and		
ndirect forms of bribery and corruption	Yes	Corruption Corruption
		Extractive
Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and		Industries
compile information on all material payments, at the appropriate levels of government, by		Transparer
ountry and by project.	Yes	y Initiative
		Ethics
Assigned senior management or board-level responsibilities and accountability for carrying out		Committee
his commitment	Yes	Ethics
		Corruption
Committed financial and staffing resources to implement this commitment	Yes	Bribery
Fracks and discloses data, across successive time periods, on its prevention of bribery and		
corruption, including number and nature of incidents and actions taken in response	Yes	Corruption
		Bribery,
		corruption
Audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect		Audits,
forms of bribery and corruption	Yes	Compliance
No cases of Corruption reported in the past 3 years	Yes	Corruption
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to		Corrective
mprove the effectiveness of its measures taken to prevent all direct and indirect forms of bribery		Action,
and corruption?	No	Corruption
whistleblowing mechanisms, including number and nature of incidents and actions taken in response	Yes	Corruption
caponac	res	corruption
		Audits,
Audits and/or reviews the effectiveness of its whistleblowing mechanisms	No	Complianc
		Audits,
rakes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to		compliance risk
mprove the effectiveness of its whistleblowing mechanisms	No	assesment
Discloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies)	1	Economic
ind under what names (e.g. those of subsidiary or branch entities) it is known in that place	Yes	Value,
Reports on its approach to tax transparency, including its strategy relating to its presence in any		Low Tax,
ow-tax jurisdictions	No	Low-Tax
		Benefits,
Discloses all tax benefits and tax holidays received at local and national levels in all tax		Deduction
urisdictions where it has registered entity(ies	Yes	Tax

Figure 75: Bussiness Ethics, Anti-Competition and Transparency

Mine Closure and Post Closure Viability		
check List	Y/N	Keywords in the Report
	1718	the Report
Identify, from the earliest stage and in consultation with local stakeholders, the impacts their		mine
closure will have on affected communities	Yes	closure
Develop post-closure transition management plans from the earliest stage and in consultation		mine
with local stakeholders, aimed at ensuring continued livelihood viability for affected communities	Yes	closure
		mine
Consider post-mining land-use opportunities in the development of these management plans	Yes	closure
	N	mine
Identify, from the earliest stage, the impacts their closure will have for workers	Yes	closure
Develop post-closure transition management plans, from the earliest stage, ensuring continued livelihood viability for workers	Yes	mine closure
Develop partnerships with government, other industries or companies to address workers'		mine
livelihood needs	Yes	closure
Tracks and discloses data, across successive time periods, on its implementation of progressive		mine
rehabilitation plans throughout its operations	Yes	closure
Audits and/or reviews its performance on progressive mine rehabilitation	No	mine closure
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to		mine
improve its performance on progressive mine rehabilitation	No	closure
		closure, De
Discloses financial surety arrangements for the closure of all its operations, related to workers and communities	No	characteriza ion
communities	NO	ion
Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of		mine
post-closure	No	closure
		mine
Discloses this information on a project-disaggregated basis	No	closure

Figure 76: Mine Closure and Post Closure Viability

Check List	Y/N	Keywords in th Report
		procurement,
Can the company demonstrate at the corporate level that it has systems in		procurement,
place to identify and assess risks related to its suppliers and contractors on: Human rights issues	Yes	supply chain
		Responsible
		procurement.
Can the company demonstrate at the corporate level that it has systems in		procurement.
place to identify and assess risks related to its suppliers and contractors on: Labour Issues	Yes	supply chain
place to ruenting and assess risks related to its suppliers and contractors on. Labour issues	res	supply chain
Tracks and discloses data, against targets and across successive time		Procurement,
periods, on its national and supranational procurement, showing proportions		Local
and amounts spent	No	Procurement
		Audit,
Audits and/or reviews the effectiveness of its measures taken to develop procurement		Responsible
opportunities for suppliers at national and/or supranational levels?	No	Sourcing
fakes responsive action, based on the findings of these audits and/ or reviews, to seek to improve		
the effectiveness of its measures taken to develop procurement opportunities for suppliers at		
national and/or supranational levels	No	Review, Audit
		Responsible
		procurement,
		procurement, procurement,
	Yes	procurement, procurement, supply chain
	Yes	procurement, procurement, supply chain Responsible
	Yes	procurement, procurement, supply chain Responsible procurement,
rafficked and child labour in its areas of operations and entire supply chain		procurement, procurement, supply chain Responsible procurement, procurement,
rafficked and child labour in its areas of operations and entire supply chain	Yes	procurement, procurement, supply chain Responsible procurement,
rafficked and child labour in its areas of operations and entire supply chain		procurement, procurement, supply chain Responsible procurement, procurement,
rafficked and child labour in its areas of operations and entire supply chain		procurement, procurement, supply chain Responsible procurement, procurement, supply chain
rafficked and child labour in its areas of operations and entire supply chain		procurement, procurement, supply chain Responsible procurement, procurement, supply chain Responsible ,
rafficked and child labour in its areas of operations and entire supply chain has systems in place to develop strategies and plans to address these identified risks systematically tracks the implementation of these strategies and plans	Yes	procurement, procurement, supply chain Responsible procurement, supply chain Responsible , Procurement,
rafficked and child labour in its areas of operations and entire supply chain tas systems in place to develop strategies and plans to address these identified risks systematically tracks the implementation of these strategies and plans tas systems in place to ensure its operations develop strategies and plans to develop local	Yes	procurement, supply chain Responsible procurement, supply chain Responsible , Procurement, Supply chain
rafficked and child labour in its areas of operations and entire supply chain Has systems in place to develop strategies and plans to address these identified risks Systematically tracks the implementation of these strategies and plans Has systems in place to ensure its operations develop strategies and plans to develop local procurement opportunities	Yes Yes	procurement, procurement, supply chain Responsible procurement, supply chain Procurement, Supply chain Procurement, local supplier Women, Local Procurement,
Has systems in place to identify and assess potential risks of all forms of forced, compulsory, trafficked and child labour in its areas of operations and entire supply chain Has systems in place to develop strategies and plans to address these identified risks Systematically tracks the implementation of these strategies and plans Has systems in place to ensure its operations develop strategies and plans to develop local procurement opportunities	Yes Yes	procurement, procurement, supply chain Responsible procurement, supply chain Responsible , Procurement, Supply chain Procurement, local supplier Women, Local
rafficked and child labour in its areas of operations and entire supply chain Has systems in place to develop strategies and plans to address these identified risks Systematically tracks the implementation of these strategies and plans Has systems in place to ensure its operations develop strategies and plans to develop local procurement opportunities	Yes Yes	procurement, procurement, supply chain Responsible procurement, supply chain Procurement, Supply chain Procurement, local supplier Women, Local Procurement,

Figure 77: Responsible Contracting and Sourcing

CSR commitments and Social Devlopment		
Check List	Y/N	Keywords in the Report
and supranational socio-economic development plans in making its mining-related investment		Socio-
and business decisions in producing countries, with the aim of enhancing socio-economic		economic
development	Yes	Devlopment
		Socio-
Assigned senior management or board-level responsibilities and accountability for carrying out		economic
this commitment	Yes	Devlopmen
		Socio- economic
Committed financial and staffing resources to implement this commitment	Yes	Devlopmen
Has systems in place to ensure its operations work with sub-national producing country		economic
governments to identify socio-economic development priorities where they can play a collaborative role	Yes	Devlopmen , socio-
		Socio- economic
		Devlopmen
Has systems in place to ensure its operations develop strategies and plans to address these		, socio-
development priorities in collaboration with the sub-national governments?	Yes	economic,
		Regional
		Governmen
		Governmen
Systematically tracks the implementation of these strategies and plans, collaboratively with the	Vac	, Socio-
sub-national governments	Yes	economic Socio-
		economic,
Identify R&D priorities to address socio-economic and environmental impacts of mining within producing countries	Yes	NGO, Academia.
producing countries	Yes	Academia, Socio-
		economic,
		NGO,
		Academia, Oppurtuniti
Develop R&D programmes to address these priorities	Yes	es
Track the implementation of these DPD programmer	Yes	economic, NGO,
Track the implementation of these R&D programmes	res	School,
		Education,
in-country institutions	No	Academia
		School, Education,
Support technical/vocational skills development among the wider population in collaboration		Academia,
with in-country institutions	Yes	Student,
Demonstrate alignment of their skills development efforts with the national skills development		Vocational,
agenda Has systems in place to ensure its operations support technical skills development of its local	No	National Socio-
workforces in producing countries	Yes	economic,
Has systems in place to ensure its operations support managerial skills development of its local		Manager, Managerial
workforces in producing countries	Yes	skill
		economic,
		NGO,
Systematically tracks the implementation of their skills development programmes	Yes	Academia,
		Bussinesses
Has systems in place to ensure its operations develop strategies and plane to develop local		Enterprises,
Has systems in place to ensure its operations develop strategies and plans to develop local entrepreneurship and businesses	Yes	Entreprene rship
, p		Women,
		Female,
ese strategies and plans	No	Gender
		Socio- economic,
		NGO,
		Academia,
		Oppurtuniti
Systematically tracks the implementation of these strategies and plans	No	es

Figure 78: CSR Commitments and Social Development

Risk of Conflicts and Mitigation		
		Keywords in
Check List	Y/N	the Report
		Conflict.
The entity shall disclose the percentage and grade (in percentage metal content) of proved		areas of
reserves that are located in or near areas of active conflict.	Yes	conflict
The entity shall describe its due diligence practices and procedures with respect to indigenous		
rights of communities in which it operates or intends to operate, with respect to : Use of free,		Indigenous
prior, and informed consent (or consultation) processes	Yes	people
The entity shall describe its due diligence practices and procedures with respect to indigenous		Internationa
rights of communities in which it operates or intends to operate, with Respect to : Upholding		l Labour
International Labour Organization (ILO) Convention No. 169	No	Organization
The entity shall describe its due diligence practices and procedures with respect to indigenous		Grievance
rights of communities in which it operates or intends to operate, with Respect to : The		mechanism,
establishment of project grievance mechanisms	Yes	whistleblow
		Lease
The entity shall describe its due diligence practices and procedures with respect to indigenous		agreements
rights of communities in which it operates or intends to operate, with Respect to : The		Community
establishment of formal community agreements	Yes	agreements
		Voluntary Principles on Security and Human
ementation of Voluntary Principles on Security and Human Rights.	Yes	Rights
		Supply
		chain, Audit
Describing its approach according to the Five-Step Framework outlined in the OECD Due Diligence		third party
Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	No	audit
Tracks and discloses data, across successive time periods, on its performance on preventing and remedying human rights abuses related to its security management	Yes	Security
Audits and/or reviews the effectiveness of its measures taken to prevent and remedy human		
rights abuses related to its security management	Yes	Security
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve		
the effectiveness of its measures taken to prevent and remedy human rights abuses related to its		
security management	Yes	Security

Figure 79: Risk of Conflicts and Mitigation

Community Engagement and Wellbeing : Formalised its commitment, that is endorsed by senior management, to respect human rights in procedure with the LIMCC.		
	Y/N	Keywords in the Report
accordance with the UNGCs	Yes	UNGC, Human Rights
Assigned senior management or board-level responsibilities and accountability for carrying out his commitment	Yes	Committee, board member, Human Rights
ed financial and staffing resources to implement this commitment	Yes	Committee, board member, Human Rights
Has systems in place to ensure its operations identify and assess salient impacts of their activities on human rights	Yes	Risk Assesment Impact assesment
Has systems in place to ensure its operations develop strategies and plans to prevent, mitigate and account for how they address these identified impacts	Yes	Risk Assesment Gap Analysis, Due Diligence
		Risk Assesment
ically tracks the implementation of these strategies and plans fracks and discloses data, across successive time periods, on its performance on managing human	Yes	Gap Analysis
ights issues, including mine-site-disaggregated data on the implementation of human rights due illigence processes	Yes	mine-site, mine human rights
d/or reviews its performance on managing human rights issues	No	Audits, Reviews
operations take specific measures to enable the participation of Women in discussions and decision-making on matters that may impact them	No	Community Engagement
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Youth in discussions and decision- making on matters that may impact them	No	Youth
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Persons with disabilities in discussions and decision-making on matters that		Community Engagement,
may impact them operations: conduct and disclose regular assessment of the impacts of their activities on women?	No	Disability Impact, Risk, Women
women: Can your company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on	No	Impact, Risk, Youth
Can your company demonstrate at the corporate level that it has systems in place to ensure its operations: Conduct and disclose regular assessment of the impacts of their activities on hildren?	No	Impact, Risk, Children
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes	Risk Assesment Gap Analysis
ms in place to ensure its operations develop strategies and plans to address these impact	Yes	Risk Assesment Gap Analysis
ically tracks the implementation of these strategies and plans	Yes	Risk Assesment Gap Analysis
	Yes	Risk Assesment
Has systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities		Gap Analysis
	Yes	
ind access to land by affected communities 4as systems in place to ensure its operations develop strategies and plans to minimise and		Risk Assesment Gap Analysis
and access to land by affected communities 4as systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts	Yes	Risk Assesment Gap Analysis Risk Assesment
ind access to land by affected communities As systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts ically tracks the implementation of these strategies and plans	Yes Yes	Risk Assesment Gap Analysis Risk Assesment Gap Analysis Emergency
ind access to land by affected communities 444 systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts 445 isolation of these strategies and plans 446 isolation of these strategies and plans 447 isolation of these strategies and plans 447 isolation of these strategies and plans 448 isolation of these strategies and plans 448 isolation of these strategies and plans 449 isolation of these strategies and plans 440 isolation of these strategies	Yes Yes	Risk Assesment Gap Analysis Risk Assesment Gap Analysis Emergency Planning Emergency Planning Emergency
Ind access to land by affected communities As systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts ically tracks the implementation of these strategies and plans ind maintain emergency preparedness and response plans systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans	Yes Yes Yes	Risk Assesment Gap Analysis Risk Assesment Gap Analysis Emergency Planning Emergency Planning,Respo
Ind access to land by affected communities As systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts ically tracks the implementation of these strategies and plans ind maintain emergency preparedness and response plans systematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans ically engage with local stakeholders in the testing of these response plans ically engage with local stakeholders in the testing of these response plans ically and advect the testing of these response plans ically and advect the output to be advected by their	Yes Yes Yes	Risk Assesment Gap Analysis Risk Assesment Gap Analysis Emergency Planning Emergency Planning,Respo se
Ind access to land by affected communities As systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts I cally tracks the implementation of these strategies and plans I cally tracks the implementation of these strategies and plans I cally tracks the implementation of these strategies and plans I cally tracks the implementation of these strategies and plans I cally tracks the implementation of these strategies and plans I cally tracks the implementation of these strategies and plans I cally tracks the implementation of these strategies and plans I cally engage with local stakeholders (e.g. local authorities and communities) in the leage of emergency response plans I cally engage with local stakeholders in the testing of these response plans Regularly assess, against baseline values, the noise and vibration levels generated by their citvities Develop strategies and plans to limit the impacts of noise and vibration generated by their citvities in the surrounding areas Systematically engage with affected communities and other stakeholders in the development of hese strategies I cally engage with affected communities and other stakeholders in the development of hese strategies I cally engage with affected communities I cally engage with affected communities I cally engage with affected communities I cally engage I cally engage with local stakeholders I cally engage I cally I	Yes Yes Yes Yes	Risk Assesment Gap Analysis Risk Assesment Gap Analysis Emergency Planning Emergency Planning, Respo se Noise
Ind access to land by affected communities As systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts ically tracks the implementation of these strategies and plans ind maintain emergency preparedness and response plans ivystematically engage with local stakeholders (e.g. local authorities and communities) in the design of emergency response plans ically engage with local stakeholders in the testing of these response plans ically engage with local stakeholders in the testing of these response plans ically engage with local stakeholders in the testing of these response plans Regularly assess, against baseline values, the noise and vibration levels generated by their ctivities in the surrounding areas Systematically engage with affected communities and other stakeholders in the development of	Yes Yes Yes Yes Yes	Risk Assesment Gap Analysis Risk Assesment Gap Analysis Emergency Planning Emergency Planning Emergency Planning,Respo se Noise

Figure 80: Community Engagement and Wellbeing

Local Employment		
		Keywords in
Check List	Y/N	the Report
Does the company publicly disclose the number of its employees hired from local communities	Yes	Employees, v
Does the company publicly disclose the number of its contract workers hired from local communit	ieNo	Employees, v
Does the company publicly disclose the number of women workers hired from local communities	Yes	Employees, v
		Education,
Has systems in place to ensure its operations support technical skills development of its local		Academia,
workforces in producing countries	Yes	Student,
		Manager,
Has systems in place to ensure its operations support managerial skills development of its local		Managerial
workforces in producing countries	Yes	skill
		Socio-
		economic,
		NGO,
		Academia, Oppurtuniti
Systematically tracks the implementation of their skills development programmes	Yes	es
,		
		School,
Support STEM education among the wider population in collaboration with in-country institutions	No	Education, Academia
support stein education among the wider population in conaboration with In-country Institutions	NU	School,
		Education,
		Academia,
		Student,
Support technical/vocational skills development among the wider population in collaboration	No.	Technical,
with in-country institutions	Yes	Vocational Vocational
Demonstrate alignment of their skills development efforts with the national skills development a	No	Vocational, National
servers and any men skills development error is with the notional skills development a		Employment
		,
Local Employment Initiatives	Yes	Employment

Figure 81:: Local Employment

Broken Hill Proprietary (Iron)

Women in Work Force		
al - Luta		
Check List	Y/N	Keywords in the
		Report
		Female Employees
		(Find a target % they
		are trying to reach
		and search if they
		have a year they
		want to reach this
		by), Women (Check for target values and
Establishing or enhancing diversity policies with clear targets for inclusion and results reporting	Yes	%)
establishing of enhancing diversity policies with clear targets for inclusion and results reporting	res	Women, Training an
		Devlopment (Check
		for Targets initiative
		and Formal
		statements/
attaining gender equality in recruitment policies and processes	Yes	policies),
		Trainings (many - t'-
		Trainings (promoting
		inclusivity and
		awareness), Womer (Women focused
		career devlopment
implementing gender inclusive networks, career development and mentoring programmes	No	courses), Inclusive
mplementing gender metasive networks, dareer development and mentoring programmes	110	promote, Reporting
		Approach (Check the
		types of reporting
		standards they
		formally state that
		they adhere to) (ILO
Formal statement of following relevant international standards and Practices	Yes	tripatrite)
· · · · · · · · · · · · · · · · · · ·		Talent management
		improving office
		environment
		(Practices to retain
		talent), promote
		(check if they
		mention that is in
developing equitable promotion and retention policies	Yes	line with any
		Grievance, Grievanc
		mechanism (focused
Grievance Mechanisms for Gender Discrimination	Yes	on women)
		Number of
		Employees Based or
		Employment Status
		and Gender, Board o
		Directors (Gender),
Tracks and discloses data, against targets and across successive time periods, on the percentage of		Women in
women at board and senior management levels?	Yes	Management
External Audits and Review	No	Extornal Auditor
External Address and Review	No	External Auditor
		Grievance
Has Information been shared to employees on the grievance mechanism	Yes	Mechanism
		Number of
		Employees Based or
Formal Statements Condex Foundity Dollar	Vac	Employment Status
Formal Statement: Gender Equality Policy	Yes	and Gender Grievance
Are the External suppliers aware of this grievance mechanism	Yes	Mechanism
are the external suppriers aware of this grievance methanism		
No sees of of sonder dissumination (Harasson at is not Evens	No	Casas
No cases of of gender discrimination/Harassment in past 5 years	No	Cases
		Trainings (promoting
Employee training on Gender Discrimination		equality and
	Yes	awareness)

Figure 82: Women in Workforce

tenumeration Committee addressing gender wage gap No Renumeration ON, Wage Pay gap Ves Pay gap External Audits and Review No External Audits and Review Fracks and discloses data, across successive time periods, on its performance on managing the master of its activities on women. Ves Sender Wage Gap Reported to be 1:1 No Gender Pay Gap Gender Wage Gap Reported to be 1:1 No Gender Pay Gap Sender Wage Gap Policy/Statement Yes On (Gender Pay Gap (External Source) Selevance Mechanisms for Harassment/Discrimination Yes On (Gender Vage Gap Reported to be 1:1) Selevance Mechanism for Harassment/Discrimination Yes On (Gender Vage Gap Reported to be 1:1) Selevance Mechanism for Harassment/Discrimination Yes On (Gender Vage Gap Reported to be 1:1)	Gender Equity		
Start Y/N bit Report Derformance review by international Organization Collaboration No Bioomberg Derformance review by international Organization Collaboration No Gender Derformance review by international Organization Collaboration No Gender Derformance review by international Organizations Yes Bioomberg Dender Equity comitment through international Organizations Yes Bioomberg Tenumeration Committee addressing gender wage gap Yes Renumeration on wanging the Pay gap Disternal Audits and Review No External Audits Starnal Audits and Review No External Audits Sender Wage Gap Reported to be 1:1 No Gender Pay Gap Dender Wage Gap Policy/Statement Yes Gender Pay Gap Sender Wage Gap Policy/Statement Yes Gender Pay Gap Sender Wage Gap Policy/Statement Yes Gender Pay Gap (External Source) Servence Mechanisms for Harassment/Discrimination Yes Gender Pay Gap (External Source) Servence Set of Gender Wage Pay Gap (External Source) Yes Greenace Stevance wechanism for Harassment/Discrimination Yes Greenace Stevance wechanism been shared to employees on the grevance mechanism Yes Mechanism Stevance wechanism be			
Derformance review by international Organization Collaboration No Homomorphane index, ETT No Index, ETT index figure Secondry Gender index figure Yes Bioomberg index figure Yes Bioomberg index figure Yes Bioomberg index figure Yes Bioomberg international Organizations Yes Bioomberg international Committee addressing gender wage gap Yes Pay gap international Audits and Review No External Audits and Review No fracks and discloses data, across successive time periods, on its performance on managing the yes Yes Tolktity index of its activities on women Yes Gender Pay Gap Gender Pay Gap index of its activities on women Yes Gender Pay Gap Modebanism index of its activities on women Yes Gender Pay Gap Modebanism index of its activities on women Yes Gender Pay Gap Modebanism index and dividue Gender Pay Gap (External Source) Yes Gree	the shates		
Performance review by international Organization Collaboration No Index, ETT Lender Equity comitment through international Organizations Yes Gender Equility index Lender Equity comitment through international Organizations Yes Renumeration on, Wage Lenumeration Committee addressing gender wage gap Yes Renumeration on, Wage External Audits and Review No External Audits and Review External Audits and Review No External Audits context and discloses data, across successive time periods, on its performance on managing the match of its activities on women Yes Sender Wage Gap Reported to be 1:1 No Gender Pay Gender Pay and and context and incloses for Harassment/Discrimination Sender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Gender Pay Gender Pay Sender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Gender Pay Gender Pay Sender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Gender Pay Gender Pay Sender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Gender Pay Gender Pay Sender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Audition Sender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Audition Sender Wage Gap Policy/Statement Yes Gender Pay Audition	LIBEER LISE	Y/N	
Zender Equity comitment through international Organizations Yes Bloomberg tenumeration Committee addressing gender wage gap Yes Renumeration on, Wage tenumeration Committee addressing gender wage gap Yes Renumeration on, Wage Disternal Audits and Review No External Audits and Review Tracks and discloses data, across successive time periods, on its performance on managing the vest Yes Gender Pay gap Internet Wage Gap Reported to be 1:1 No Gender Pay Gap Gender Pay Gap Defender Wage Gap Policy/Statement Yes Gender Pay Gap Gender Pay Gap Seases of Gender Wage Gap Policy/Statement/Discrimination Yes Gender Pay Gap Seases of Gender Wage Gap Policy/Statement/Discrimination Yes Gender Pay Gap Seases of Gender Wage Gap Reported to be 1:1 No Gender Pay Gap Seases of Gender Wage Gap Policy/Statement/Discrimination Yes Gender Fay Gap Stevance Mechanisms for Harassment/Discrimination Yes Gender Gap Yes Gender Fay Gap Gender Fay Gap Stevance Mechanism been shared to employees on the grievance mechanism Yes Gender Gap Yes Gender Fay Mechanism Gender Fay Mechanism Avameenses	Performance review by international Organization Collaboration	No	
Image: Equity constitute in through international Organizations Yes Equility index Index Renumeration Yes Renumeration on the second of the seco			
tenumeration Committee addressing gender wage gap Yes Pay gap Defender Wage Gap Review No External Audits and Review No Review No External Audits and Review No Revie	Gender Equity comitment through International Organizations	Yes	Equality
Internal Audits and Review No External Audits and Review No External Audits and Review fracks and discloses data, across successive time periods, on its performance on managing the yes Gender, Yuoman, Assessment (Social Way Ves Gender Pay iander Wage Gap Reported to be 1:1 No Gender Pay Gender Pay Gender Pay iender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Gender Pay issuess of Gender Wage Gap Policy/Statement Yes Gender Pay Gender Pay Gender Pay index wases of Gender Wage Gap Policy/Statement/Discrimination Yes Gender Pay Gender Pay Stevance Mechanisms for Harassment/Discrimination Yes Gender Gap Gender Gap to cases of Gender Wage Pay Gap (External Source) Yes Greenance Gender Gap tas information been shared to employees on the grievance mechanism Yes Greenance Gender Assessment text the External suppliers aware of this grievance mechanism Yes Asweeness Asweeness	Renumeration Committee addressing gender wage gap	Yes	
Tracks and discloses data, across successive time periods, on its performance on managing the maximum parts of its activities on women Gender, Women, Impact, Assesment (Isolai Way Yes Toolkit) Yes Toolkit) Tender Wage Gap Reported to be 1:1 No Gender Pay Gap Tender Wage Gap Policy/Statement Yes Gender Pay Gap Selevance Mechanisms for Harassment/Discrimination Yes Gender Pay Gap (External Source) Selevance Mechanism for Harassment/Discrimination Yes Gender Gap Vis cases of Gender Wage Gap Pay Gap (External Source) Yes Gender Gap Selevance Mechanisms for Harassment/Discrimination Yes Gender Gap Gender Gap Selevance Mechanism for Harassment/Discrimination Yes Mechanism Gender Gap Selevance Mechanism for Harassment/Discrimination Yes Mechanism Gender Gap Selevance Mechanism for Harassment/Discrimination Yes Gender Gap Gender Gap Selevance Mechanism Yes Mechanism Gender Gap Selevance Selevance Mechanism Yes Mechanism			
racks and discloses data, across successive time periods, on its performance on managing the linguit, Asserment (double way Yes Toolkit) Toolkit) Eender Wage Gap Reported to be 1:1 No Gender Pay Eender Wage Gap Policy/Statement Yes Gap Gender Pay Servance Mechanisms for Harassment/Discrimination Yes on (Gender Pay No Gender Pay Servance Mechanisms for Harassment/Discrimination Yes On (Gender Pay No cases of Gender Wage Pay Gap (External Source) Yes Greevance Asservance Mechanism Yes Mech	External Audits and Review	No	External Auc
Wes Toolkit) Jender Wage Gap Reported to be 1:1 No Gender Pay Jender Wage Gap Policy/Statement Gender Pay Gender Pay Jender Wage Gap Policy/Statement Yes Gender Pay Stevance Mechanisms for Harassment/Discrimination Yes On Gender Stevance Mechanisms for Harassment/Discrimination Yes On Gender Vo cases of Gender Wage Pay Gap (External Source) Yes On Gender stevance Mechanism Yes On Gender Mechanism Stevance Mechanisms for Harassment/Discrimination Yes Mechanism Gender Stevance Stevance Mechanism for Harassment/Discrimination Yes Mechanism Gender Stevance Stevance Mechanism Yes Mechanism Yes Mechanism Stevance Mechanism Yes Mechanism Awarenees Stevance Stevance Yes Mechanism Awarenees			Women, Impact, Assesment
Lender Wage Gap Reported to be 1:1 No Gap Jander Wage Gap Policy/Statement Gender Pay Gender Pay Jander Wage Gap Policy/Statement Yes Gender Pay Jander Wage Gap Policy/Statement Yes Gender Pay Service Mechanisms for Harassment/Discrimination Yes Mechanism Service Mechanisms for Harassment/Discrimination Yes Onscrimination Vo cases of Gender Wage Pay Gap (External Source) Yes Generation Vacases of Gender Wage Pay Gap (External Source) Yes Generation Ass Information been shared to employees on the grievance mechanism Yes Mechanism Aree the External suppliers aware of this grievance mechanism Yes Mechanism	Tracks and discloses data, across successive time periods, on its performance on managing the impacts of its activities on women	Yes	
Bender Wage Gap Policy/Statement Yes Gap Mechanism Mechanism Mechanism Mechanism Darie Version Mechanism Mechanism Mechanism Stevance Mechanisms for Harassment/Discrimination Yes On Gender Mechanism Stevance Mechanisms for Harassment/Discrimination Yes On Gender Mechanism Vo cases of Gender Wage Pay Gap (External Source) Yes Cases Greevance 4as Information been shared to employees on the grevance mechanism Yes Mechanism Are the External suppliers aware of this grievance mechanism Yes Mechanism	Gender Wage Gap Reported to be 1:1	No	
Mechanism but for all inducting harassmet and biocrimination ves on (Gender vo cases of Gender Wage Pay Gap (External Source) vo cases of Gender Wage Pay Gap (External Source) ves cases defender tas information been shared to employees on the grievance mechanism ves Mechanism the External suppliers aware of this grievance mechanism ves Mechanism the External suppliers aware of this grievance mechanism ves Mechanism	Gender Wage Gap Policy/Statement	Yes	Gender Pay Gap
Vo cases of Gender Wage Pay Gap (External Source) Ves Cases 4as Information been shared to employees on the grievance mechanism Ves Mechanism 4re the External suppliers aware of this grievance mechanism Ves Mechanism 4xe Mecha			Mechanism but for all including harassment
tas Information been shared to employees on the grievance mechanism Yes Mechanism Yes Advantsm Grievance the External suppliers aware of this grievance mechanism Yes Mechanism Yes Mechanism Avareness	Grievance Mechanisms for Harassment/Discrimination	Yes	on (Gender
Issue Yes Mechanism Yes Mechanism Are the External suppliers aware of this grievance mechanism Yes Mechanism Grievance Are the External suppliers aware of this grievance mechanism Yes Mechanism Avareness	No cases of Gender Wage Pay Gap (External Source)	Yes	
Are the External suppliers aware of this grievance mechanism Yes Mechanism Awareness	Has Information been shared to employees on the grievance mechanism	Yes	
	Are the External suppliers aware of this grievance mechanism	res	

Figure 83: Gender Equity

Historically Disadvantaged People		
Check List	Y/N	Keywords in the Report
		Discriminatio
Take specific measures to reflect its non-discrimination policies in their terms and conditions	Yes	n Discriminatio n, Your Voice grievance
		mechanism, continual monitoring of
Take specific measures to implement trainings to raise awareness of discrimination among		ethnicity and
management staff and workers or take other actions aiming at preventing and addressing issues of		disability
discrimination in the workplace	Yes	applicants
		Awareness
Set targets regarding diversity and inclusivity in its recruitment and employment practices	No	Trainings
Upholding the fundamental ILO convention on discrimination (No. 111)	No	Targets
The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: Organise, including by granting access to designated areas for labour organisers to meet with workers	Yes	Inclusive, Diversity, International Labour Organization
The company has systems in place to ensure its operations actively respect the rights of workers to organise, collective bargaining and freedom of association needs to Provide: collective bargaining, including by developing formal collective bargaining agreements The company has systems in place to ensure its operations actively respect the rights of workers to	Yes	Collective Bargaining
organise, collective bargaining and freedom of association needs to Provide: Freedom of		Collective
association, including by allowing union meetings on site	Yes	Bargaining,

Figure 84: Historically Disadvantaged people

Accident Rate at Workplace		
		Keywords in
Check List	Y/N	the Report
		Accident Rate
Accident Rate at Workplace total Reported	Yes	Lost Time
		Accident Rate
		Lost Time
Discloses the number of mining-related injuries among its workforce, across successive time period	Yes	Injuries (LTI)
		Accident Rate
		Lost Time
Discloses such information on a site-disaggregated basis	No	Injuries (LTI)
		Accident Rate
irms that its fatalities reporting includes fatalities of contract workers as	1	Lost Time
as employees	Yes	Injuries (LTI)
	1	Accident Rate
	1	Lost Time
	1	Injuries (LTI),
Evaluation on Accidents and how to prevent it	Yes	Accident

Figure 85: Accident Rate at Workplace

Check List Y/N Keywords in the Report the Report Accident Rate at Workplace total Reported Yes Accidents Discloses the number of mining-related high potential incidents, serious injuries and fatalities among its workforce, across successive time periods Yes Fatal Accidents
Accident Rate at Workplace total Reported Yes Accidents Discloses the number of mining-related high potential incidents, serious Fatal
Discloses such information on a site-disaggregated basis No Accidents
Fatal
Accidents,
Yes Contractor
Fatal Accidents.
Evaluation on Accidents and how to prevent it Yes Contractor

Figure 86: Fatal Accidents at Workplace

Health and Safety at the work place		Koursee
Check List	Y/N	Keywords the Report
Assigned senior management or board-level responsibilities and accountability for carrying out		Code of
his commitment	Yes	Conduct, Code,
		Fatigue,
		Psychologi
		l, Hazard,
		Health (Lo for
		stratergies
		that show
Nonitoring Psycholgical Hazards	Yes	assesment
		Occupation
		Occupation
ion of occupational diseases	Yes	l Hazard
		Health
urveillance and risk-based monitoring		monitorin isk based
imes	Yes	monitorin
		0
		Occupatio I Risk
dentify and assess health and safety risks to the workforce	Yes	Assessme
		Need to
		share a
		detailed
		approach t track these
		stratergies
		will be giv
rack the implementation of these strategies and plans	Yes	in depth i
		Code of Conduct,
		Safety
ormalised its commitment, that is endorsed by senior management, to ensure safe and healthy		Compliant
vorking conditions	Yes	Accountab
		Risk
		Assement and
evelop strategies and plans to avoid, minimise and mitigate these risks	No	mitigation
evelop strategies and plans to avoid, minimise and mitigate these risks	140	intigation
xternal Audits and Review	Yes	Audit
aguirad Safaty Equipments (DDE)	Vor	Protective
equired Safety Equipments (PPE)	Yes	Equipmen Safety
		managem
		t system,
lealth and Safety Policy	Yes	Health and
		Safety
egular Health and Safety Training	Yes	training
		Gender
ender Specific PPE on all mining Sites	No	Equipmen
		Accident,
eported cases of negligent safety rules leading to accidents	Yes	negligence incidents
eported cases of negligent safety rules reading to accidents	res	Facilities.
		Sanitation
ender Appropriate Sanitation Facilities	No	Provision
		Health
		Services, awareness
lealth Services	No	initiatives
		Incidents,
		accidents,

Figure 87: Health and safety at the Workplace

Presence of anti-competitive behaviour and Fair Competition		
		Keywords in the
Check List	Y/N	Report Stakeholder
Has systems in place to ensure its operations identify and map stakeholders operating in Artisanal Small Scale Mining ASM activities around its operations	Yes	engagement
Julian Jone mining AJM activities alound its operations		engagement
Has systems in place to ensure its operations develop strategies and plans to engage with identified stakeholders, including through the establishment of engagement agreements where appropriate	Yes	Stakeholder engagement
Are policies implemented and practices to prevent bribery, corruption and to publicly disclose facilitation payments.	Yes	corruption
Systematically tracks the implementation of these strategies and plans	Yes	Corruption, Risk
Policies against Anti competitve behaviour	Yes	Competitive
No cases of anti competive behaviour in the past 3 years	No	Grievance, Incident, code of conduct
Assess the need for, and feasibility of, providing technical and/or livelihood support to ASM miners	Yes	Artisnal Scale Mining, ASM, Community Engagement
Develop strategies and plans according to these assessments	Yes	Artisnal Scale Mining, ASM, Community Engagement Artisnal Scale Mining ASM
Engage with ASM miners in these needs assessments and in the development of any strategies and plans	Yes	Mining, ASM, Community

Figure 88: Presence of anti competitive behaviour and fair competition

		Keywords in
check List formalised its commitment, that is endorsed by senior management, to prevent all direct and	Y/N	the Report
	Yes	Corruption
Publicly support the implementation of the Extractive Industries Transparency Initiative (EITI) and ompile information on all material payments, at the appropriate levels of government, by ountry and by project.	Yes	Corruption, Extractive Industries Transparen y Initiative
Assigned senior management or board-level responsibilities and accountability for carrying out his commitment	Yes	Ethics Committee Ethics
Committed financial and staffing resources to implement this commitment	Yes	Corruption, Bribery
racks and discloses data, across successive time periods, on its prevention of bribery and orruption, including number and nature of incidents and actions taken in response	Yes	Corruption
audits and/or reviews the effectiveness of its measures taken to prevent all direct and indirect orms of bribery and corruption	Yes	Bribery, corruption, Audits, Compliance
No cases of Corruption reported in the past 3 years	No	Corruption
akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove the effectiveness of its measures taken to prevent all direct and indirect forms of bribery	Vee	Corrective Action,
Constances by	Yes	Corruption Whistleblo
racks and discloses data, across successive time periods, on the functioning and uptake of its vhistleblowing mechanisms, including number and nature of incidents and actions taken in	Yes	, grievance
Tacks and discloses data, across successive time periods, on the functioning and uptake of its vhistleblowing mechanisms, including number and nature of incidents and actions taken in esponse	Yes Yes	corruption, Audits,
Tacks and discloses data, across successive time periods, on the functioning and uptake of its vhistleblowing mechanisms, including number and nature of incidents and actions taken in esponse uddits and/or reviews the effectiveness of its whistleblowing mechanisms 'akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to	Yes	corruption, Audits, Audits, compliance risk
Tacks and discloses data, across successive time periods, on the functioning and uptake of its vhistleblowing mechanisms, including number and nature of incidents and actions taken in esponse audits and/or reviews the effectiveness of its whistleblowing mechanisms akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove the effectiveness of its whistleblowing mechanisms viscloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies)	Yes	corruption, Audits, Audits, compliance
Tacks and discloses data, across successive time periods, on the functioning and uptake of its whistleblowing mechanisms, including number and nature of incidents and actions taken in esponse uudits and/or reviews the effectiveness of its whistleblowing mechanisms akes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove the effectiveness of its whistleblowing mechanisms liscloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) liscloses its corporate structure mentioning all tax jurisdictions where it has registered entity(ies) here of its approach to tax transparency, including its strategy relating to its presence in any	Yes	corruption, Audits, Audits, compliance risk assesment Tax and

Figure 89: Business Ethics, Anti-Corruption and Transparency

	Mine Closure and Post Closure Viability		
Check List	Y/N	Keywords in the Report	
dentify, from the earliest stage and in consultation with local stakeholders, the impacts their		mine	
closure will have on affected communities	Yes	closure	
Develop post-closure transition management plans from the earliest stage and in consultation with local stakeholders, aimed at ensuring continued livelihood viability for affected communities	Yes	mine closure	
Consider post-mining land-use opportunities in the development of these management plans	Yes	mine closure	
		mine	
dentify, from the earliest stage, the impacts their closure will have for workers	Yes	closure	
Develop post-closure transition management plans, from the earliest stage, ensuring continued ivelihood viability for workers	Yes	mine closure	
Develop partnerships with government, other industries or companies to address workers' ivelihood needs	No	mine closure	
Fracks and discloses data, across successive time periods, on its implementation of progressive ehabilitation plans throughout its operations	Yes	mine closure	
		mine	
Audits and/or reviews its performance on progressive mine rehabilitation	Yes	closure	
Takes responsive action, on the basis of the findings of these audits and/ or reviews, to seek to mprove its performance on progressive mine rehabilitation	Yes	mine closure	
biscloses financial surety arrangements for the closure of all its operations, related to workers and communities	No	closure, De characteriza	
Discloses financial arrangements to ensure coverage of longer-term socio-economic aspects of		mine	
post-closure	No	closure mine	

Figure 90: Mine Closure and Post Closure Viability

Responsible Contracting and Sourcing		
		K
		Keywords in th
Check List Can the company demonstrate at the corporate level that it has systems in	Y/N	Report Responsible
place to identify and assess risks related to its suppliers and contractors on: Human rights issues	Vor	procurement,
piade to ruentiny and assess risks related to its suppliers and contractors on. Human rights issues	Yes	procurement,
Can the company demonstrate at the corporate level that it has systems in place to identify and assess risks related to its suppliers and contractors on: Labour Issues	Yes	Responsible procurement, procurement, supply chain
Tracks and discloses data, against targets and across successive time		Procurement,
periods, on its national and supranational procurement, showing proportions		Local Procurement
and amounts spent	Yes	Procurement
Audits and/or reviews the effectiveness of its measures taken to develop procurement opportunities for suppliers at national and/or supranational levels?	Yes	Audit, Tax Audit, Responsible Sourcing
Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve the effectiveness of its measures taken to develop procurement opportunities for suppliers at national and/or supranational levels	Yes	Review, Audit
Has systems in place to identify and assess potential risks of all forms of forced, compulsory, trafficked and child labour in its areas of operations and entire supply chain Has systems in place to develop strategies and plans to address these identified risks	Yes	Responsible procurement, procurement, supply chain Responsible procurement, procurement, supply chain
Systematically tracks the implementation of these strategies and plans Has systems in place to ensure its operations develop strategies and plans to develop local procurement opportunities	Yes Yes	Responsible , Procurement, Supply chain Local Procurement, local supplier Procurment,
Has systems in place to ensure its operations actively include women in these strategies and plans	No	Female Women, Local
	1	Procurment,
ystematically tracks the implementation of these strategies and plans		Female

Figure 91: Responsible Contracting and Sourcing

CSR commitments and Social Devlopment		
Check List	Y/N	Keywords the Report
ormalised its commitment, that is endorsed by senior management, to take account of national	T/N	Socio-
nd supranational socio-economic development plans in making its mining-related investment	Yes	economic
Assigned senior management or board-level responsibilities and accountability for carrying out his commitment	Yes	Socio- economic Devlopmer
Committed financial and staffing resources to implement this commitment	Yes	Socio- economic Devlopmen Socio- economic Devlopmen
Has systems in place to ensure its operations work with sub-national producing country governments to identify socio-economic development priorities where they can play a Ollaborative role	Yes	, socio- economic, socio- economic benefits economic
Has systems in place to ensure its operations develop strategies and plans to address these development priorities in collaboration with the sub-national governments?	Yes	economic Devlopmen , socio- economic, socio- economic benefits
systematically tracks the implementation of these strategies and plans, collaboratively with the sub-national governments	Yes	Regional Governmer , Socio- economic Socio- economic, NGO,
dentify R&D priorities to address socio-economic and environmental impacts of mining within producing countries	Yes	Academia, Oppurtuni Socio-
Develop R&D programmes to address these priorities	Yes	economic, NGO, Academia, Oppurtunit es
		economic,
Frack the implementation of these R&D programmes	Yes	NGO, Education.
Support STEM education among the wider population in collaboration with in-country institutions	No	Academia Education, Academia,
support technical/vocational skills development among the wider population in collaboration with in-country institutions Demonstrate alignment of their skills development efforts with the national skills development genda	Yes Yes	Student, Technical, Education, Vocational
genua Has systems in place to ensure its operations support technical skills development of its local workforces in producing countries	Yes	economic, NGO,
Has systems in place to ensure its operations support managerial skills development of its local workforces in producing countries	Yes	Manager, Manageria skill Socio-
systematically tracks the implementation of their skills development programmes	Yes	economic, NGO, Bussinesse
Has systems in place to ensure its operations develop strategies and plans to develop local entrepreneurship and businesses	Yes	Enterprise Entreprene rship
Has systems in place to ensure its operations actively include women in these strategies and plans	Yes	Women, Female, Gender
systematically tracks the implementation of these strategies and plans	No	Socio- economic, NGO, Academia, Oppurtuni es

Figure 92: CSR Commitments and Social Development

Risk of Conflicts and Mitigation		
		Keywords i
Check List	Y/N	the Report
The entity shall disclose the percentage and grade (in percentage metal content) of proved		Conflict,
reserves that are located in or near areas of active conflict.	No	areas of
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : Use of free, prior, and informed consent (or consultation) processes	Yes	Indigenous people
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : Upholding International Labour Organization (ILO) Convention No. 169	No	Internation I Labour Organizatio
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : The establishment of project grievance mechanisms	Yes	Grievance mechanism whistleblov
The entity shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, with Respect to : The establishment of formal community agreements	No	Lease agreements Community agreements
curity and Human Rights.	Yes	Voluntary Principles on Security and Human Rights
Describing its approach according to the Five-Step Framework outlined in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	Yes	Supply chain, Audi third party audit
Tracks and discloses data, across successive time periods, on its performance on preventing and remedying human rights abuses related to its security management	No	Security
Audits and/or reviews the effectiveness of its measures taken to prevent and remedy human rights abuses related to its security management Takes responsive action, based on the findings of these audits and/ or reviews, to seek to improve	No	Security
the effectiveness of its measures taken to prevent and remedy human rights abuses related to its security management	No	Security

Figure 93: Risk of Conflict and Mitigation

ormalised its commitment, that is endorsed by senior management, to respect human rights in	Y/N	Keywords in th Report
and a second s		UNGC, Human
ccordance with the UNGCs	Yes	Rights
Assigned senior management or board-level responsibilities and accountability for carrying out		Committee, board member
his commitment '	Yes	Human Rights
		Committee,
	Yes	board member Human Rights
	res	inumari tigrita
		Gap Analysis,
las systems in place to ensure its operations identify and assess salient impacts of their activities		Risk Assesmen
	Yes	assesment
		Risk Assesmen
las systems in place to ensure its operations develop strategies and plans to prevent, mitigate		Gap Analysis,
ind account for how they address these identified impacts	Yes	Due Diligence
		Risk Assesmen
	Yes	Gap Analysis
racks and discloses data, across successive time periods, on its performance on managing human		
ights issues, including mine-site-disaggregated data on the implementation of human rights due	No	mine-site, min
illigence processes	NO	human rights
	No	Audits, Review
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Women in discussions and		Community
lecision-making on matters that may impact them	No	Engagement
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Youth in discussions and decision-		
naking on matters that may impact them	No	Youth
Can the company demonstrate at the corporate level that it has systems in place to ensure its operations take specific measures to enable the participation of Persons with disabilities in		Community
fiscussions and decision-making on matters that		Engagement, Disability
Can your company demonstrate at the corporate level that it has systems in place to ensure its	No	Impact, Risk,
, ,	Yes	Women
operations: Conduct and disclose regular assessment of the impacts of their activities on routh?	No	Impact, Risk, Youth
Can your company demonstrate at the corporate level that it has systems in place to ensure its		
operations: Conduct and disclose regular assessment of the impacts of their activities on hildren?		
THE PLUE	Yes	Impact, Risk, Children
	Yes	Children
las systems in place to ensure its operations conduct and disclose regular assessments of their	Yes Yes	
las systems in place to ensure its operations conduct and disclose regular assessments of their		Children Risk Assesmen
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes	Children Risk Assesmen Gap Analysis Risk Assesmen
las systems in place to ensure its operations conduct and disclose regular assessments of their	Yes	Children Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen
ias systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations develop strategies and plans to minimise and	Yes Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Risk Assesmen
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations develop strategies and plans to minimise and	Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts	Yes Yes Yes Yes	Children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use nd access to land by affected communities its systems in place to ensure its operations develop strategies and plans to minimise and nitigate these adverse impacts	Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Chira Bark Assesmen Gap Analysis
as systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health , a address these impact , a address these impact , a address these impacts , a address these impacts on land use and access to land by affected communities , as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts , ystematically engage with local stakeholders (e.g. local authorities and communities) in the	Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use nd access to land by affected communities its systems in place to ensure its operations develop strategies and plans to minimise and nitigate these adverse impacts ystematically engage with local stakeholders (e.g., local authorities and communities) in the lesign of emergency response plans	Yes Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Planning Emergency Planning
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use nd access to land by affected communities its systems in place to ensure its operations develop strategies and plans to minimise and nitigate these adverse impacts ystematically engage with local stakeholders (e.g., local authorities and communities) in the lesign of emergency response plans	Yes Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Has systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and mitigate these adverse impacts ystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans segularly assess, against baseline values, the noise and vibration levels generated by their	Yes Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Planning Emergency Planning
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health Ass systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities Has systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts Sequent adverse impacts Sequent is a sequence of their Sequence of the sequence of th	Yes Yes Yes Yes Yes Yes Yes No	children Risk Assesmen Gap Analysis Risk Assesmen Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact Ass systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities ias systems in place to ensure its operations develop strategies and plans to minimise and initigate these adverse impacts 	Yes Yes Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health	Yes Yes Yes Yes Yes Yes Yes No	children Risk Assesmen Gap Analysis Risk Assesmen Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk
tas systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health > address these impact as systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities ias systems in place to ensure its operations develop strategies and plans to minimise and intiggate these adverse impacts 	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk
tas systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health 	Yes Yes Yes Yes Yes Yes Yes No	children Risk Assesmen Gap Analysis Risk Assesmen Sec Noise
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health - address these impact - address these impact - address these impacts - address these impacts - address these impacts - address to land by affected communities - address and plans to limit the impacts of noise and vibration levels generated by their - ctivities in the surrounding areas - address successive time periods, on the functioning and uptake of its - address and communities, including number and nature of complaints and actions - address - address	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk Risk
Has systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health as systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts instance to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts instances of the systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts instances of the systems in the systems of the systems in the design of emergency response plans tegularly assess, against baseline values, the noise and vibration levels generated by their citvities Develop strategies and plans to limit the impacts of noise and vibration generated by their citvities in the surrounding areas instead using the adverse time periods, on the functioning and uptake of its travane mechanisms for communities, including number and nature of complaints and actions in the surrounding and uptake of its travane mechanisms for communities, including number and nature of complaints and actions in the surrounding and uptake of tis	Yes Yes Yes Yes Yes Yes Yes No No	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Planning Emergency Planning, Respi Se Noise Noise Noise Grievance
tas systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health a address these impact a address these impact a address these impacts a address these impacts a address to land by affected communities as systems in place to ensure its operations identify and assess their adverse impacts on land use and access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts ystematically engage with local stakeholders (e.g. local authorities and communities) in the lesign of emergency response plans se plans tegularly assess, against baseline values, the noise and vibration levels generated by their citivities Develop strategies and plans to limit the impacts of noise and vibration generated by their citivities in the surrounding areas systematically engage with affected communities and other stakeholders in the development of hese strategies ricks and discloses data, across successive time periods, on the functioning and uptake of its ricks and scloses rick and actions adverting number and nature of complaints and actions aken in response	Yes Yes Yes Yes Yes Yes Yes No No	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Planning Emergency Planning, Respi Se Noise Noise Noise Grievance
As systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health As systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities as systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts systematically engage with local stakeholders (e.g. local authorities and communities) in the elegin of emergency response plans regularly assess, against baseline values, the noise and vibration levels generated by their ctrivities see plans see plans to limit the impacts of noise and vibration generated by their ctrivities and discloses data, across successive time periods, on the functioning and uptake of its raveance addiscloses data, across successive time periods, on the functioning and uptake of its raveance mechanisms for communities, including number and nature of complaints and actions aken in response utults and/or reviews, based on complaintants' perspective, the effectiveness of its grievance	Yes Yes Yes Yes Yes Yes Yes No No	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Planning Emergency Planning, Respi Se Noise Noise Noise Grievance
As systems in place to ensure its operations conduct and disclose regular assessments of their mpacts on community health As systems in place to ensure its operations identify and assess their adverse impacts on land use as systems in place to ensure its operations identify and assess their adverse impacts on land use ind access to land by affected communities as systems in place to ensure its operations develop strategies and plans to minimise and intigate these adverse impacts systematically engage with local stakeholders (e.g. local authorities and communities) in the elegin of emergency response plans tegularly assess, against baseline values, the noise and vibration levels generated by their ctivities bevelop strategies and plans to limit the impacts of noise and vibration generated by their ctivities prevelop strategies and plans to limit the impacts of noise and vibration generated by their ctivities in the surrounding areas vystematically engage with affected communities and other stakeholders in the development of hese strategies Tracks and discloses data, across successive time periods, on the functioning and uptake of its reviewane mechanisms for communities, including number and nature of complaints and actions aken in response	Yes Yes Yes Yes Yes Yes Yes No No No Yes Yes	children Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Risk Assesmen Gap Analysis Planning Emergency Planning, Respi se Noise Noise Grievance Mechanism

Figure 94: Community Engagement and Wellbeing

Local Employment		
Check List	Y/N	Keywords in the Report
	Y/N	the Report
Does the company publicly disclose the number of its employees hired from local communities	No	Employees,
Does the company publicly disclose the number of its contract workers hired from local communit	No	Employees,
Does the company publicly disclose the number of women workers hired from local communities	No	Employees,
		School,
		Education,
		Academia,
		Student,
Has systems in place to ensure its operations support technical skills development of its local		Technical,
workforces in producing countries	Yes	Vocational
		Manager,
Has systems in place to ensure its operations support managerial skills development of its local		Managerial
workforces in producing countries	Yes	skill
		Socio-
		economic,
		NGO,
		Academia,
		Oppurtuniti
Systematically tracks the implementation of their skills development programmes	Yes	es
		School,
		Education,
Support STEM education among the wider population in collaboration with in-country institutions	No	Academia
		School,
		Education, Academia,
		Academia, Student,
Support technical/vocational skills development among the wider population in collaboration		Technical,
with in-country institutions	Yes	Vocational
	1	Education,
Domonstrate alignment of their skills douglapment offerts with the notional skills douglapment -	Voc	Vocational, National
Demonstrate alignment of their skills development efforts with the national skills development a	res	Employmen
	Yes	, Employmen

Figure 95: Local Employment