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Analysis Of Environmental, Social, And Governance Performance In Mineral And Coal Mining Companies

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Abstract

This research aims to analyse Environmental, Social and Governance (ESG) performance, which includes: 1) analysing the performance of ESG implementation through disclosures in sustainability reports, 2) analysing challenges in implementing ESG, and 3) analysing strategies in facing challenges in implementing ESG. This research uses qualitative methods in analysing ESG performance through disclosure based on the International Council on Mining & Metal (ICMM) Principles framework, challenges faced in implementing and improving ESG performance, as well as strategies implemented to improve ESG performance. The subjects of this research are coal mining companies (PT A and PT B) and mineral mining companies (PT C and PT D), which were selected using purposive sampling, considering the largest capitalisation in the mineral mining and coal mining sub-sector companies, which are listed on the Indonesia Stock Exchange (BEI), and represent mineral and coal mining companies, both private and state-owned. The research results show that in disclosing the performance of ICMM principles in the sustainability report from 2018 to 2022, it is known that the highest disclosure is the performance indicator on Principle 5 - Occupational Health and Safety (75%) and the lowest is the performance indicator on Principle 3 - Human Rights (30%). The challenge in implementing ESG is that several international standards and guidelines for corporate social management have not been adopted. This research also found that the existence of top management support, the existence of clear policies and roadmaps

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for implementing ESG, a clear organizational structure, and the preparation of competent human resources are strategies for improving ESG performance.

Keywords: International Council on Mining & Metals (ICMM), Environmental, Social & Governance (ESG), Challenges, Strategies, Sustainable Development Goals (SDGs).

INTRODUCTION

Indonesia is one of the world's largest coal producers and exporters. Since 2005, when it surpassed Australia's production, Indonesia has been the leading exporter of thermal coal (Saunders, 2020). A significant portion of the exported thermal coal consists of medium quality types (between 5100 and 6100 cal/gram) and low quality types (below 5100 cal/gram), most of which are demanded from China and India. Based on information provided by Indonesia's Ministry of Energy and Mineral Resources, Indonesia's coal reserves are expected to be depleted in approximately 83 years if current production levels continue.

In terms of global coal reserves, Indonesia currently ranks 9th with approximately 2.2 per cent of total proven global coal reserves according to the BP Statistical Review of World Energy. About 60 per cent of Indonesia's total coal reserves consist of cheaper, low-grade coal *(sub- bituminous)* that contains less than 6100 cal/gram. There are numerous pockets of coal reserves spread across the islands of Sumatra, Java, Kalimantan, Sulawesi and Papua (Cornot-Gandolphe, 2019).

Based on data from the Ministry of Energy and Mineral Resources' Minerba One Data Indonesia (MODI) quoted by CNBC Indonesia (02/07/2021), the total coal production until June 2021 was 287.84 million tonnes or 46.05% of the 2021 target of 625 million tonnes. Meanwhile, the production of mineral mining goods such as bauxite increased from 16.59 million tonnes in 2019 to 25.78 million tonnes in 2021. Similarly, copper concentrate production also increased from
1.69 million metric tonnes in 2019 to 3.37 million metric tonnes in 2021. Including nickel ore production also experienced an increase in production, from 60.94 million tonnes in 2019 to 65.51 million tonnes in 2021, although it fell in 2020 at 48.04 million tonnes. Details of the production levels of mineral and coal mining goods in the 2019-2021 period are shown in Table 1.

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Table 1. Production Rate of Mineral and Coal Mining Goods 2019-2021

Mine Goods	Year		
	2019	2020	2021
Coal	616.154.054	565.640.928	614.058.577
Bauxite	16.592.187	25.859.895	25.781.187
Nickel	0	0	0
Gold	108.977	65.890	78.996
Silver	0	0	0
Granite	0	0	0
Iron Sand	2.507.786	0	0
Tin Concentrate	86.947	65.127	52.467
Copper Concentrate	1.697.725	2.273.456	3.377.023
Nickel Ore	60.948.143	48.040.003	65.509.854

- *Source: Non-Oil and Gas Mining Statistics Publication (2021)*

Since the early 1990s, when the coal mining sector was reopened to foreign investment, Indonesia has experienced increased production, exports and domestic sales of coal. However, domestic sales were not significant as domestic coal consumption was relatively small (Kurniawan et al, 2020). However, in recent years there has been a rapid increase in domestic coal sales as the Indonesian government is working hard to increase the availability and ensure equitable distribution of electricity throughout Indonesia.

In Indonesia, most of the power plants built in the last 20 years are coal-fired. In addition, several large coal mining companies in Indonesia, such as PT Adaro Energy Tbk, have transformed into integrated energy companies that consume their own coal as a source of energy for their power plants.

While global awareness has been built to reduce dependence on fossil fuels, the development of renewable energy sources shows no indication that dependence on fossil fuels (especially coal) will decrease significantly in the near future. The role and contribution of coal as an energy source remains vital. However, clean coal technology in coal mining will be indispensable in the future (Garnaut, 2020). Indonesia is expected to be actively involved in the process as one of the main actors in the coal mining sector. Clean coal technology is aimed at reducing emissions produced by coal-

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fired power plants. However, this technology is not yet well developed, especially in Indonesia (Gunawan, Thamrin & Uksan, 2022).

The topic of companies that focus on corporate social responsibility *(CSR)* practices is always interesting to discuss. The preparation of *sustainability reports* as a form of corporate accountability and transparency to its stakeholders is currently a progressive trend (Fuente et al., 2022; Juniarti, 2021; Wang et al., 2019; Yoon et al., 2019; Yu & Zheng, 2020). This trend is partly motivated by the increasing awareness of business actors who consider other aspects beyond corporate profits alone, namely the importance of managing social, environmental and corporate governance aspects, to ensure the sustainability and growth of the company in the long term.

On the other hand, this growing awareness is also driven by the Sustainable Development Goals (SDGs) issued by the United Nations (UN) in 2020, as a joint platform for all countries in the world related to sustainable development priorities described in 17 goals, 169 targets and 230 indicators. The SDGs platform encourages all sectors (public sector, private sector and third sector) to participate in achieving sustainable development goals. In relation to companies, the SDGs have encouraged companies to implement sustainability practices, including communicating sustainability performance information to their stakeholders (FIHRRST, 2019).

In its development, CSR practices have evolved towards strategic CSR practices, both in concept and implementation. In recent years, CSR reports have transformed into sustainability reports. As stated by Hahn & Kühnen (2023), CSR reports focus more on reporting on social and environmental aspects, either one or both, while sustainability reports are much more comprehensive by also including economic aspects in the report, thus covering economic, social and environmental aspects.

As for sustainability practices, then not only consider what impact the company has on its stakeholders, but also consider what the financial impact is for the company if it implements sustainability practices. This has led to the development of the Environmental, Social, and *Governance* (ESG) concept.

ESG is a performance measure of operations and investments, and their exposure to environmental, social and corporate governance risks. These include physical risks from climate change, reputational risks from inaction, and regulatory risks from government policies. Alignment with ESG principles means companies understand, and can optimise, their risk profile (Owen, 2021).

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In the extractive industries, expectations of corporate behaviour are changing progressively (Dutu, 2020). More and more investment is being shifted to more socially and environmentally responsible companies. Globally the value of sustainable investment is AUS$35 trillion, with an average growth of 25% over a two-year period in the Australasian region.

Furthermore, according to Owen (2021), formal adoption and integration of ESG standards in the mining sector is generally inversely proportional to size. Large companies typically already integrate and operate within a strong ESG framework. However, smaller companies, many of which are still focussed on achieving company growth, are far behind larger companies in establishing ESG-based risk management.

In the Indonesian context, the government has affirmed its commitment to continue structural policy reforms by focusing on ESG-based economic development. In addition, the government continues to encourage technological transformation and digitalisation in an effort to achieve sustainable economic growth (www.presidenri.go.id, 2022).

In 2021, the Financial Services Authority (OJK) issued rules for the implementation of sustainable finance as stipulated in OJK Regulation (POJK) Number 51/POJK.03/2021. The regulation emphasises that financial services institutions, issuers and public companies are required to prepare a sustainability report and submit the report to OJK. Therefore, the nature of the preparation of sustainability reports for all public companies is an obligation.

The rapid development of the mining sector that has occurred in Indonesia in recent years has attracted investors to invest in this sector. Financial reports that describe the financial condition of a company are information that can be used to help investors and other capital market players to make decisions and assess the financial condition or performance of a company (Wehnert et al, 2019).

In the midst of increasingly competitive competition, this encourages companies to create continuous innovation and develop new concepts or methods so that the company still has added value in the eyes of its investors. From the company's performance report, investors can find out, estimate the state or position and direction of a company. By doing the analysis we will know or get an overview of the company's position.

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Few of the previous studies combine social, environmental and governance measurements, so more comprehensive research is needed that combines all three aspects of ESG at once, especially in mining companies. In accordance with research conducted by Durlista and Wahyudi (2023), the results of the study revealed that there is a significant impact between ESG disclosure on company performance and therefore companies need to increase awareness of the importance of implementing ESG aspects in their operational activities and reporting. This can increase investor confidence and a positive image of the company (Hoang, 2023).

Previous research by Hoang (2023) measured ESG performance using the Global Reporting Initiative (GRI). GRI is used by many companies and is less specific in describing the performance of mining companies. Another study conducted by Gunawan, Thamrin, & Uksan (2022) used SASB to measure the disclosure performance of mining companies. By specifically using SASB for mining companies, ESG performance will be evaluated more relevantly. However, the use of specific references is still very limited.

The large number of measures with different references leads to low comparability, but shows the diversity of relevance of reference sources. According to Jasch (2020), references that use specific references to certain sectors will produce more precise analyses and illustrate the suitability of performance more relevantly. Thus, this study measures ESG performance through disclosures in sustainability reports based on the International Council on Mining and Metals (ICMM). ICMM was chosen based on a number of important reasons, such as: a) ICMM is a global organisation that works to improve environmental, social and governance performance in the mining and metals industry; and b) ICMM is widely used, specifically by mining and metals companies as a reference to improve corporate transparency regarding social, environmental and corporate governance impacts. Thus, ICMM is a suitable measurement tool to measure ESG performance through disclosure in sustainability reports (Ivic, Saviolidis & Johannsdottir, 2021)."

LITERATURE REVIEW

Definition of ESG (*Environment, Social and Governance*)

Environmental *Social Governance* (ESG) is a corporate standard in its investment practices that consists of three concepts or criteria, namely *Environmental*, Social

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and *Governance*. A company that applies ESG principles in its business and investment practices means that it will also integrate and implement corporate policies, so that they are in line with the sustainability of these three concepts. ESG is an initiative originating from the private sector that responds to the pressure to create sustainable economic development.

ESG concepts, standards and criteria are increasingly being used by investors at the regional to global level, as well as at the national level with the introduction of *Sustainable Finance* for the banking industry. Companies that implement ESG concepts and criteria have become a basic consideration for investors in making decisions on whether or not to invest in a business or company.

The use of the concept of *Environmental Social Governance* (ESG) is sometimes conveyed in other terms that have the same meaning including:

1. *Environmental, Social, and Corporate Governance* (ESCG)
2. *Responsible Business Conduct* (RBC)
3. *Co-Shared Value* (CSV), and 4.
4. *Impact Investing*.

ESG CRITERIA

ESG refers to three criteria that are closely related to corporate sustainability. These three criteria are central to measuring sustainability and ethical impacts in decision-making when investing in certain businesses and companies. The three main factors in the implementation of Environmental Social Governance are:

1. Environment Criteria

Environment in ESG is a criterion that also discusses investor considerations of company performance in an environmentally friendly manner. Examples of the implications of Environment criteria include energy use in a company, waste handling, pollution, conservation of natural resources, and behaviour towards flora and fauna. Placement of Environment criteria in corporate risk management, of course, will also minimise the risks potentially present from these environmental criteria. Environment criteria can also be used to evaluate an operating company of a corporate entity. Of course, the company's commitment to fulfilling these criteria will have a positive impact on the company itself and on the environment. The company will get sustainability in its business operations if the environmental conditions are good and supportive.

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2. Social Criteria

Social aspects in ESG are criteria that discuss a company's relationship with external parties. The community, society, suppliers, buyers, media, and other entities with which the company has a relationship, directly or indirectly, are factors that need to be considered through the Social criteria in ESG. Factors from the Social criteria can have an impact on the financial performance of a company. A company's image is affected by whether or not it is ready to adapt its position on social issues. For example, a company should be actively engaged in exploring the issues, rights and constraints experienced by its employees and labourers.

3. Corporate Governance Criteria

Unlike the Environment and Social criteria, which address the company's relationship with external parties, the Governance criteria in ESG focuses more on how a company has a good and sustainable management process internally. Governance criteria address the activities of the company, depending on the activities of the management and owners of the company. Aspects that need to be considered in this criterion include corporate policies, corporate standards, culture, disclosure, information, audit processes and compliance. These factors can be a plus point for a company that can give potential investors the confidence to invest in the company, for example, transparent, legal and ethical corporate governance is certainly something that is always taken into account by investors.

RESEARCH METHODS

This study uses a qualitative method to analyse the disclosure of ESG implementation in mineral mining and coal mining companies based on the ICMM framework, the challenges faced in implementing ESG and the strategies implemented for implementing and improving ESG performance. The subjects of this study are coal mining companies (PT A and PT B) and mineral mining companies (PT C and PT D), which were selected by *purposive sampling*, considering the following criteria:

These are companies listed on the Indonesia Stock Exchange (IDX) with the largest capitalisation in each industrial sub-sector, namely the mineral mining sub-sector and the coal mining sub-sector. Companies with the largest capitalisation were chosen, because large companies are expected to have a better commitment to sustainability

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aspects, so that the performance of ESG implementation and disclosure should also be better than that of smaller companies (Rahmawati, 2021).

Representation of private companies (2 companies) and state-owned companies (2 companies), each representing the mineral mining and coal mining sub-sectors. The informants for the in-depth interviews were representatives of each company that has responsibility for ESG implementation with positions at the level of Senior Vice President, Vice President, Division Head, or Senior Manager so that the information obtained can reflect ESG policies and implementation in the company more accurately and comprehensively. This research uses the *content* analysis method to analyse the data presented in the sustainability report. To confirm and deepen the results of the content analysis, in-depth interviews were conducted with representatives from each company, specifically those responsible for ESG implementation.

RESULTS AND DISCUSSION

Findings of Disclosure of Performance Indicators of ICMM Principles in Sustainability Reports

Below is a presentation of the findings from the content analysis results for the disclosure of the 10 (ten) International Council on Mining and Metals (ICMM) Principles in the four mineral and coal mining companies.

Indicator Findings Principle 1. Ethical Business

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
1.1. Establish systems to maintain compliance with applicable laws.	0,33	0,33	0,33	0,33	**0,33**
1.2. Implement policies and practices to prevent bribery, corruption, and to publicly disclose *facilitation payments*.	0,47	1,00	0,33	1,00	**0,70**
1.3. Implement policies and standards consistent with the ICMM policy framework.	N/A	N/A	N/A	N/A	**0,00**

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1.4. Establish accountability for sustainability performance at Board and/or Executive Committee level.	0,33	0,67	0,07	0,00	**0,27**
1.5. Disclose the value and beneficiaries of monetary and in-kind political contributions, either directly or through intermediaries.	0,27	0,27	0,07	0,07	**0,17**
Total Average Principle Score 1.	**0,35**	**0,57**	**0,20**	**0,35**	**0,37**

Source: Research Results, Data Processed (2024)

The disclosure of Principle 1 made by PT B with an average value of 0.57 (high category) is the best disclosure compared to other companies, while PT C has very low disclosure (0.20).

The best disclosure of performance indicators is Indicator 1.2 Implement policies and practices to prevent bribery, corruption and *facilitation payments* publicly, which is 0.70 (Good), especially by PT B and PT D (BUMN coal and mineral mining companies). Public disclosure in the sustainability reports of these two companies is part of the implementation of *Good Corporate Governance* (CGC) which continues to be encouraged by the Ministry of SOEs to prevent the company from corrupt practices and is also a key performance indicator for the Board of Directors and Board of Commissioners.

The average disclosure score for Principle 1 is still Low (0.37), mainly due to the low disclosure of indicator 1.5 and indicator 1.4, respectively Very Low (0.17) and Low (0.27). The low disclosure of indicator 1.5 is due to the fact that the Company does not want to openly convey to the public the political contributions that have been made, to avoid lowering the Company's reputation in the eyes of its stakeholders. The low disclosure of indicator 1.4 is because some companies have not disclosed or disclosed very limited disclosure regarding the accountability of the Board and/or Executive Committee for the Company's sustainability performance. While there is one principle that is not relevant to mineral and coal mining companies in Indonesia, namely indicator 1.3 Apply policies and standards in accordance with the ICMM framework, because none of the Indonesian companies are already members of ICMM.

Ethical principles in mining and mineral companies are closely related to stakeholder theory. Companies are expected to consider not only the interests of

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shareholders, but also all parties involved or affected by their activities, such as employees, local communities and the environment. This principle emphasises the importance of transparency, accountability and sustainability in every decision and action of the company. By prioritising the interests of all parties involved, companies can create broader long-term positive impacts, build strong relationships with local communities, and ensure responsible and sustainable resource management (Rodrigues, et,al., 2022).

Principle 2 Indicator Findings. Decision Making

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
2.1. Integrate sustainable development principles into the company's strategy and decision-making processes relating to investments as well as in the design, operation and closure of mining facilities.	0,53	0,60	0,73	0,33	**0,55**
2.2. Support the implementation of responsible physical and mental health and safety, environmental, human rights and labour policies and practices by joint venture partners, suppliers and contractors, as appropriate to the risks involved.	0,80	0,93	0,00	0,33	**0,52**
Total Average Principle Score 2.	**0,67**	**0,77**	**0,37**	**0,33**	**0,53**

Source: Research Results, Data Processed (2024)

The disclosure of performance indicators in Principle 2 by PT B is categorised as Very High (0.77) which is the highest disclosure score compared to other companies, while PT D has a disclosure performance in the Low category (0.33). According to the findings above, state-owned mineral and coal companies are still better at disclosing ICMM Principle 2 than private mineral and coal companies.

In Principle 2, the best disclosure of performance indicators is indicator 2.1 Integrate sustainable development principles into strategies and decision-making processes, at 0.55 (High), especially those carried out by PT B and PT C. Both show a

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good commitment to making sustainable development principles a consideration in investment decisions and mining operational decisions.

The average disclosure score for Principle 2 is already categorised as High (0.53). The relatively low average disclosure score is mainly due to the absence of information on the implementation of OHS, environment, human rights and labour policies by the company's business partners (contractors, suppliers and business partners) submitted in the 2018 to 2022 sustainability report. The low disclosure of indicator 2.2 is mainly because the company has not fully consolidated and shared information on policies and performance on OHS, environment, human rights and labour.

Decision-making in mining and mineral companies associated with stakeholder theory emphasises the importance of considering the interests of the various parties involved, including employees, surrounding communities, government, shareholders and the environment. In this context, companies must balance financial gain with social and environmental responsibility, ensuring that their operations are not only profitable for shareholders but also provide benefits to society and minimise negative impacts on the environment. Strategic decisions such as mine expansion, waste management, and relationships with local communities should be made with an eye on long-term impacts and sustainability, in accordance with the principles of ethics and transparency (Amoah & Eweje, 2020).

Principle 3 Indicator Findings. Human Rights

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
3.1. Support the *UN Guiding Principles on Business and Human Rights* by developing policy commitments to respect human rights, conducting human rights due diligence, and providing for, or cooperating in processes to support remediation of adverse human rights impacts that the company has caused or contributed to.	0,00	0,07	0,20	0,07	**0,08**

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3.2. Avoid involuntary displacement of families and communities. If it is impossible to avoid, then displacement should be done by applying the mitigation hierarchy, and implementing measures or solutions that address residual adverse impacts to restore or even improve the livelihoods and living standards of the displaced communities.	0,13	0,33	0,00	0,33	**0,20**
3.3. Implement a risk-based security and human rights approach consistent with the *Voluntary Principles on Security and Human Rights*.	0,27	0,33	0,00	0,00	**0,15**
3.4. Respect workers' rights by: - Not employing children or performing forced labour; - Avoiding human trafficking; - Not providing hazardous work to those under 18 years of age; - Eliminating all forms of harassment and discrimination; - Respecting freedom of association and collective bargaining; and - Providing mechanisms to resolve workers' grievances.	0,07	0,33	0,33	0,20	**0,23**
3.5. Pay workers remuneration at wages equal to or exceeding those stipulated in the regulation (UMR), or that reflect competitive wages in the labour market (whichever is higher), and set regular and overtime working hours within the limits set by the regulation.	0,60	0,67	1,00	0,27	**0,63**
3.6. Respect Indigenous Peoples' rights, interests, aspirations, culture and natural resource-based livelihoods, and apply them	0,00	0,20	1,00	1,00	**0,55**

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in project design, development, and operation; apply the mitigation hierarchy to address negative impacts, and; provide sustainable benefits to Indigenous Peoples.					
3.7. Seek to obtain the *free*, *prior* and *informed consent* of Indigenous Peoples where significant adverse impacts are likely to occur, as a result of relocation, disturbance of lands and territories or significant cultural heritage, and ensure the inclusion of the outcomes of such engagement and consent processes in the agreement.	0,13	0,33	0,00	0,00	**0,12**
3.8. Implement policies and practices to respect women's rights and interests that reflect a gender-sensitive approach in work practices and job design, and that protect against all forms of discrimination and harassment, as well as behaviours that negatively impact women's successful participation in the workplace.	0,40	0,40	0,33	0,33	**0,37**
3.9. Implement policies and practices to respect the rights and interests of all workers and increase labour representation in the company so that it becomes more inclusive.	0,33	0,33	0,33	0,33	**0,33**
Total Value of Principle 3.	**0,21**	**0,33**	**0,36**	**0,28**	**0,30**

Source: Research Results, Data Processed (2024)

PT C's disclosure of ICMM Principle 3 is categorised as Low (0.36) although when compared to other companies it is still the highest disclosure score where PT A (Very Low, 0.21), PT B (Low, 0.33) and PT C (Low, 0.28). PT C's relatively better average

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disclosure score is expected because PT C is part of a mineral mining company with a global reputation, and has implemented a mitigation hierarchy to ensure no human rights violations occur.

The disclosure of Principle 3 performance indicators is the disclosure with the lowest average score compared to the performance indicators of other ICMM Principles, which is 0.30 (Low). The lowest is the disclosure of indicator 3.1, Supporting the UN Guiding Principles on Business and Human Rights, with a score of 0.08 (Very Low), and the highest is the disclosure of indicator 3.5 Paying workers remuneration at wages equal to or better than applicable regulations, at 0.63 (High). However, almost all companies except PT B, have disclosure performance indicators that are not submitted to the sustainability report as part of the assessment process.

It is important to integrate human rights in mining and mineral companies with stakeholder theory, which emphasises the importance of taking into account the interests of all stakeholders. Mining companies must ensure that their operations do not harm local communities, employees and the environment. They need to implement responsible and transparent business practices, involve communities in decision-making processes, and ensure that basic rights such as health, safety and a clean environment are respected. By doing so, companies not only fulfil their legal obligations but also strengthen stakeholder relationships and enhance the long-term sustainability of their operations (Domínguez-Gómez & González-Gómez, 2021).

Risk Management

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
4.1. Assess the environmental and social risks and opportunities of new projects and significant changes to ongoing operations in consultation with interested and affected stakeholders, and publicly disclose the results of such assessments.	0,33	0,33	1,00	0,33	**0,50**

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4.2. Conduct conflict and human rights risk-based *due diligence* in line with the OECD *Due Diligence Guidance on Conflict-Affected and High-Risk Areas*, when operating in, or sourcing from, conflict-affected or high-risk areas.	0,00	0,07	0,00	0,00	**0,02**
4.3. Implement risk-based controls to avoid/prevent, minimise, mitigate and/or remedy health, safety and environmental impacts on workers, local communities, cultural heritage and the natural environment, based on internationally recognised standards or management systems.	0,33	0,33	0,93	0,33	**0,48**
4.4. Develop, maintain, and test emergency response plans. Where there is a significant risk to external stakeholders, companies should liaise with potentially affected stakeholders and be implemented in a manner consistent with good industry practice.	0,33	0,33	0,00	0,27	**0,23**
Total Principle Score 4.	**0,25**	**0,27**	**0,48**	**0,23**	**0,31**

Source: Research Results, Data Processed (2024)

Almost all mining companies that are the subject of this study have not made disclosures related to the implementation of *risk-based due diligence* on conflict and human rights in their operations. Only PT B has made disclosures in the Company's sustainability report. Therefore, the disclosure score for indicator 4.2 is categorised as Very Low (0.02), being the lowest average disclosure score for performance indicators in Principle 4.

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In general, PT C's average disclosure score on Principle 4 indicators is the highest compared to other companies in the Low disclosure category (0.48), mainly because it always assesses the environmental and social risks and opportunities of new projects and significant changes to its operating processes, and implements risk-based controls to avoid/prevent, minimise, mitigate and/or improve health, safety and environmental impacts on workers, local communities, cultural heritage, and the natural environment.

PT D has the lowest level of disclosure, categorised as Very Low (0.23) compared to the other companies, mainly due to its lack of optimisation in conducting risk-based due diligence on conflict and human rights.

According to the findings above, private mineral and coal companies are still better at disclosing ICMM Principle 4 than state-owned mineral and coal companies. And the average score of the level of disclosure for the whole Principle 4 is categorised as Low (0.31) or the second lowest of all disclosure scores of ICMM principles.

Risk management in mining and mineral companies is critical to ensure operational sustainability and company reputation, particularly in relation to Social License to Operate (SLO) theory. SLO refers to the level of social acceptance and approval of a company's activities by neighbouring communities and stakeholders. To obtain and maintain an SLO, mining companies must proactively identify and manage risks that could affect the environment, community health and local economies. This involves transparency, community engagement and strong social responsibility, as well as the implementation of sustainable practices that minimise negative impacts and maximise benefits to surrounding communities. As such, effective risk management not only protects companies from potential financial and legal losses, but also builds trust and support from communities and stakeholders (Kamenopoulos & Agioutantis, 2021).

Health and Safety Indicator Findings

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
5.1. Implement practices aimed at continuously improving physical and mental health and safety in the workplace, and	0,60	1,00	1,00	0,33	**0,73**

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monitor performance related to the elimination of workplace fatalities, serious injuries, psychosocial hazards and prevention of occupational diseases, based on internationally recognised standards or management systems.					
5.2. Provide physical and mental health and safety training appropriate to workers' responsibilities, and implement health surveillance and risk-based monitoring programmes related to *occupational exp*osures.	0,80	0,93	1,00	0,33	**0,77**
Total Principle Score 5.	**0,70**	**0,97**	**1,00**	**0,33**	**0,75**

Source: Research Results, Data Processed (2024)

PT C's disclosure practice of ICMM Principle 5 is categorised as Very High (1.00) compared to other companies, as it discloses detailed data related to efforts made to improve OHS performance, as well as reports on the progress of physical and mental health and safety training in line with workers' responsibilities, in its sustainability report on a regular basis.

PT D has the lowest disclosure performance compared to other companies, which is 0.33 (Low), because it has not disclosed what practices are carried out to continuously improve physical and mental health and safety in the workplace, including not disclosing training data regarding OHS that its employees / workers have participated in.

According to the findings, private mineral and coal companies have more appropriate ICMM Principle 5 disclosure performance than state-owned mineral and coal companies.

The disclosure of Principle 5 has the best average score of disclosure of performance indicators, which is 0.75 (High), compared to the disclosure of indicators of other ICMM principles. Both performance indicators in Principle 5 have relatively balanced disclosure performance.

The application of the Social License to Operate (SLO) theory emphasises the importance of gaining social license from surrounding communities and other

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stakeholders, which can be achieved through a commitment to safe and environmentally friendly work practices. By prioritising workers' health and safety, companies not only comply with government regulations, but also build trust and good relationships with local communities. This can reduce conflict, enhance the company's reputation, and ensure smooth long-term operations (Verrier et al, 2022).

Environmental Performance Principle 6 Indicator Findings

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
6.1. Plan and design mine closure in consultation with relevant authorities and stakeholders, implement measures to address environmental and social aspects associated with mine closure, and ensure financial resources are available to realise agreed closure and post-mining commitments.	0,27	0,13	1,00	0,33	**0,43**
6.2. Implement water management practices that meet the objectives of robust and transparent water governance, effective and efficient water management, and collaboration with stakeholders at the *catchment area* level to achieve responsible and sustainable water use.	0,80	0,87	0,33	0,47	**0,62**
6.3. Design, construct, operate, monitor and close tailings disposal/storage facilities using comprehensive risk-based management and governance practices, in line with internationally recognised good practice, to minimise the risk of catastrophic failure.	N/A	N/A	N/A	0,00	**0,00**
6.4. Apply the mitigation hierarchy to prevent	0,33	0,93	1,00	0,33	**0,65**

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pollution, manage *releases* and waste, and address potential impacts on human health and the environment.					
6.5. Implement measures to improve energy efficiency and contribute to a low- carbon future, and report the results of measuring carbon dioxide equivalent greenhouse gas emissions using internationally recognised protocols.	0,40	0,80	1,00	1,00	**0,80**
Total Principle Score 6.	**0,45**	**0,68**	**0,83**	**0,43**	**0,63**

Source: Research Results, Data Processed (2024)

Most companies do not disclose indicators related to the design, construction, operation, monitoring and closure of *tailings* disposal/storage facilities, as some companies consider these indicators irrelevant to their operations. Only PT D generates *tailings* in the course of its operations, but does not disclose data on *tailings* management in its sustainability report.

PT C's ICMM Principle 6 disclosure performance is the highest compared to the other companies, at 0.83 (Very High), because PT C plans and designs mine closure through a stakeholder consultation process, implements a mitigation hierarchy for pollution and waste prevention, and implements measures for energy efficiency and contributes to a low-carbon future, and reports the results of measuring greenhouse gas emissions using internationally recognised protocols. Meanwhile, PT D has a disclosure performance of Principle 6 that is categorised as Low (0.43), as it has not properly disclosed how it designs, constructs, operates and monitors *tailings* disposal/storage facilities using comprehensive risk-based management and governance practices, in line with internationally recognised best practices.

According to the findings above, private mineral and coal companies are still better at implementing ICMM Principle 6 Environmental Performance than state-owned mineral and coal companies.

Overall, the disclosure score of Principle 6 performance indicators is categorised as High (0.60), where the performance indicator showing the best disclosure is indicator 6.5, implementing measures for energy efficiency and contributing to a low carbon future, at 0.80 (Very High), and the performance indicator showing Very Low disclosure (0.00)

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is indicator 6.3, designing, constructing, operating, monitoring and closing *tailings* disposal/storage facilities.

The environmental performance of mining and mineral companies is critical to obtaining and maintaining a Social License to Operate (SLO). SLO is a concept that describes the level of community acceptance of a company's operations in their area. Companies that are committed to environmentally friendly mining practices, such as good waste management, rehabilitation of ex- mining lands, and reduction of pollutant emissions, tend to gain support from local communities. The implementation of these sustainability principles not only minimises negative impacts on the environment, but also increases trust and good relations with local communities, which ultimately supports the sustainability of company operations (Komnitsas, 2020).

Biodiversity Conservation Principle 7 Indicator Findings

Principle 7. Biodiversity Conservation

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
7.1. Avoid new mining exploration and development in World Heritage sites, respect legally designated protected areas, and design and operate any new operations, or changes to existing operations, to be compatible with the land use values assigned to the area.	0,27	0,33	0,00	0,00	**0,15**
7.2. Assess and address risks and impacts to biodiversity and ecosystem services by applying the mitigation hierarchy, aiming for *no net-loss* in biodiversity.	0,87	0,73	0,67	0,67	**0,73**
Total Principle Value 7.	**0,57**	**0,53**	**0,33**	**0,33**	**0,44**

Source: Research Results, Data Processed (2024)

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The disclosure performance with ICMM Principle 7 by PT A is the best compared to other companies, which is 0.57 (High), because the Company discloses well how to manage risks and impacts of operations on biodiversity and ecosystem services by applying the mitigation hierarchy, with the aim that there is no loss of biodiversity.

PT C and PT D's disclosure performance is categorised as Low (0.33), specifically for not submitting disclosures regarding the Company's commitment to avoid exploration and development of new mines in World Heritage sites and respect legally designated protected areas. According to the research findings, the disclosure performance of private mineral and coal companies is relatively balanced in ICMM Principle 7 disclosure practices compared to state-owned mineral and coal companies.

The overall mean disclosure score for Principle 6 performance indicators is Low (0.44), with the best disclosed performance indicator being indicator 7.2, which assesses and addresses the company's risks and impacts on biodiversity and ecosystem services and conducts a mitigation hierarchy, at 0.73 (High), while indicator 7.1 on avoiding exploration and development of new mines on World Heritage sites shows Very Low disclosure (0.15).

Biodiversity in the context of mining and minerals companies plays an important role in environmental sustainability and the well-being of local communities, which is closely related to the theory of Community Development. Mining companies that adopt a Community development approach are committed to minimising negative environmental impacts by protecting and restoring biodiversity around their mine sites. Through active engagement with local communities, companies can develop conservation programmes based on traditional knowledge and practices, and raise awareness of the importance of environmental conservation. This approach not only supports ecosystem sustainability, but also strengthens the company's relationship with the community, creating long-term benefits for both parties (Thompson, 2022).

Indicator Findings Principle 8. Responsible Production

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	

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8.1. Implement *cost-effective* measures for recovery, reuse, and recycling of energy, natural resources, and materials in project design, operation, and closure.	0,80	1,00	0,93	0,33	**0,77**
8.2. Assess the hazards of mining products according to the *UN Globally Harmonised System of Hazard Classification and Labelling*, or equivalent relevant regulatory system, and communicate this through appropriate safety data sheets and labelling.	0,20	0,33	0,00	0,00	**0,13**
Total Average Principle Score 8.	**0,50**	**0,67**	**0,47**	**0,17**	**0,45**

Source: Research Results, Data Processed (2024)

PT B's disclosure of ICMM Principle 8 is the best compared to the other companies at 0.67 (High), as PT B has adequately disclosed *cost-effective* measures for the recovery, reuse and recycling of energy, natural resources and materials in project design, operation and closure. PT D has a very low disclosure performance (0.17), mainly because it has not disclosed the hazard assessment of mining products according to the *UN Globally Harmonised System of Hazard Classification* and *Labelling*.

Based on the research results, the disclosure performance of private mineral and coal companies (PT A and PT C) is relatively better in disclosing ICMM Principle 7 performance indicators compared to state-owned mineral and coal companies (PT B and PT D).

The overall mean disclosure score of Principle 8 performance indicators is categorised as Low (0.45), where the performance indicator that shows the best disclosure is indicator 8.1, implementing cost-effective measures in energy management, at 0.77 (Very High), while indicator
8.2 related to hazard assessment of mining products according to the Globally Harmonised Hazard Classification and Labelling System, shows disclosure classified as Very Low (0.13).

Responsible production in mining and mineral companies refers to operational practices that not only comply with environmental regulations and standards, but also take into account the interests of neighbouring communities and maintain good relations

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with them. This is in line with the Social License to Operate (SLO) theory, which emphasises that social support and consent from local communities is key to the sustainability of a company's operations. By adopting an approach that is transparent, inclusive and responsive to community needs and concerns, companies can gain social trust and legitimacy, which in turn supports long-term business viability and positive contributions to socio-economic development (Fraser, 2021).

Findings of principle indicator 9. Social performance

Performance Indicators	Results of Content Analysis of Sustainability Report Year 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
9.1. Apply an inclusive approach with local communities in identifying their development priorities and supporting activities that contribute to lasting improvements in social and economic well-being, in partnership with government, civil society and other development agencies, as appropriate.	0,27	0,53	1,00	1,00	**0,70**
9.2. Open access for local companies to procurement and contracting opportunities throughout the project cycle, both directly and by encouraging greater involvement of contractors and suppliers, and also by supporting initiatives to increase diverse economic opportunities for local communities.	0,33	0,80	1,00	1,00	**0,78**
9.3. Foster relationships with stakeholders based on analyses of the local context, and provide local stakeholders with access to effective mechanisms for resolving grievances related to the company and its	0,33	0,33	1,00	1,00	**0,67**

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activities.					
9.4. Collaborate with government, where appropriate, to support improvements in the environmental and social management practices of local *artisanal and small-scale mining*.	0,00	0,00	0,00	1,00	**0,25**
Total Average Principle Score 9.	**0,23**	**0,42**	**0,75**	**1,00**	**0,60**

Source: Research Results, Data Processed (2024)

PT D's disclosure of ICMM Principle 9 is categorised as Very High (1.00), making it the best compared to other companies. PT A's disclosure performance is categorised as Very Low (0.23), because it has not made adequate disclosures, especially related to information and developments on whether it collaborates with the government to support environmental and social management practices for local miners, as well as disclosure of whether it has implemented an inclusive approach with local communities in identifying development priorities and supporting activities to improve the social and economic welfare of the community.

According to the findings above, SOE mineral and coal companies have better disclosure performance in disclosing ICMM Principle 2 indicators than private mineral and coal companies. The Ministry of SOEs issued SOE Ministerial Regulation No 1 of 2023 on Special Assignments and Social and Environmental Responsibility (CSR) of SOEs, which requires SOEs to carry out CSR programmes including the preparation of annual reports to the Ministry of SOEs.

In Principle 2, the best disclosure of performance indicators is indicator 9.2 Open access for local companies in procurement and contracting opportunities and increase economic opportunities for local communities, which is 0.78 (Very High), especially done by PT C and PT
D. While the lowest is the disclosure of indicator 9.4, which is collaborating with the government to support the improvement of environmental and social management practices of small-scale mining, which is 0.25 (Very Low).

The average disclosure score for Principle 2 is in the High category (0.60). The relatively low average disclosure score is mainly due to the limited number of companies that disclose collaboration with the government to support the improvement of environmental and social management practices of small-scale mining. Social

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performance in mining and mineral companies is strongly influenced by stakeholder theory, which emphasises the importance of considering the interests of all parties involved, including local communities, governments, employees and shareholders. Mining and mineral companies need to carry out socially responsible business practices, such as making positive contributions to surrounding communities through infrastructure development, health and education programmes. By doing so, companies can build good relationships with stakeholders and improve their reputation and business sustainability (Rodrigues, Alves, Silva & Oliveira, 2022).

Principle 10 indicator findings. Relationship building with stakeholders

Performance Indicators	Content Analysis Result of Sustainability Report 2019-2022				Average Score
	PT A	PT B	PT C	PT D	
10.1. Identify and build relationships with key external stakeholders at the company level on sustainable development issues in an open and transparent manner.	1,00	1,00	1,00	1,00	**1,00**
10.2. Support open implementation of the *Extractive Industry Trans*parency *Initiative (EITI)*, and collect information on all material payments, at the appropriate level of government, by country of operation and by project location.	0,00	0,00	0,07	0,07	**0,03**
10.3. Report on company-level economic, social and environmental performance using the GRI *Sustainability Reporting Standards* annually.	1,00	1,00	1,00	1,00	**1,00**
10.4. Request an independent third party to annually assess its sustainability performance following ICMM guidelines to ensure and verify fulfilment of its membership requirements.	N/A	N/A	N/A	N/A	**0,00**

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Total Average Principle Score 10.	**0,67**	**0,67**	**0,69**	**0,69**	**0,68**

Source: Research Results, Data Processed (2024)

The disclosure of ICMM Principle 10 by all companies has a relatively balanced disclosure performance with the High category, where each score is PT A (0.67), PT B (0.67), PT C (0.69) and PT D (0.69).

Based on the research results, the disclosure performance of private mineral and coal companies (PT A and PT C) is equally good in disclosing the ICMM Principle 7 performance indicators compared to state-owned mineral and coal companies (PT B and PT D).

The overall mean disclosure score of Principle 10 performance indicators is categorised as High (0.68), with the performance indicators showing the best disclosure being indicator 10.1, identifying and building relationships with key external stakeholders, at 1.00 (Very High) and indicator 10.3, reporting economic, social and environmental performance using the GRI Sustainability Reporting Standards, at 1.00 (Very High).

While indicator 10.2 regarding support for the implementation of EITI openly, is an indicator with disclosure performance categorised as Very Low (0.03). And indicator 10.4, namely asking an independent third party to conduct a sustainability performance assessment with ICMM guidelines, is an indicator that is not relevant to the context of mineral and coal mining companies in Indonesia, because there are no mineral and coal mining companies that have become members of ICMM.

In the context of stakeholder theory, building relationships with stakeholders in mining and mineral companies is crucial. Companies must identify and understand the needs and expectations of various stakeholders such as local communities, local governments, environmental activists and investors. By establishing transparent and ongoing communication, companies can create an enabling environment for mutually beneficial collaboration. This not only strengthens the sustainability of company operations, but also enhances reputation and supports long-term growth
amid the complex dynamics of the mining and minerals industry (Muruviwa, Akpan & Nekhwevha, 2020).

Overall, it can be concluded that based on the research results, the average score of ESG performance disclosure based on the ICMM Principles framework shows that the level of performance is still relatively Low (0.5). And among the 10 ICMM Principles, the

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disclosure of performance indicators in Principle 5 (Occupational Health and Safety) is the principle with a disclosure level classified as Very High (0.75), while Principle 3 (Human Rights) is the principle with a disclosure level categorised as Low (0.30).

Challenges To Improving Esg Disclosure And Implementation Performance

Based on the description above, there are at least several things that are significant enough to be a challenge in the application of ESG for mineral and coal mining companies, namely as follows:

a. A set of shared targets for gradual corporate achievement of various *milestones* in ESG implementation is required, especially given the Company's varied product/commodity lines.
b. There is a need for an organisation within the Company from *top management* to *middle management* that specifically manages, monitors and evaluates the achievement of the targets in the ESG *roadmap.*
c. Adequate work plans and budgets are required towards the achievement of targets
d. A direct monitoring and supervision system from *top management is* required
e. It is necessary to collectively build a *common understanding of* the importance of ESG for all elements of the Company for the continuity and sustainability of operations which certainly has a direct impact on all employees.

Strategies To Overcome Challenges In Improving Esg Disclosure And Implementation Performance

Based on the results of descriptive analysis research, the researchers used the strategies implemented in the implementation of ICMM in the four mineral and coal mining companies.

a. Improving the Governance aspect by establishing an organisational structure that has the main tasks and functions of coordinating, synchronising, promoting and managing the achievement of ESG performance, formulating roadmaps and corporate targets for ESG achievement, internalising to all units within the company, preparing adequate work plans and budgets for ESG performance achievement, and preparing and managing monitoring and supervision systems from *top management;*
b. Open opportunities for all employees to get adequate *learning sessions* on ESG

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issues, create *knowledge management* initiatives and publications on achievements obtained both as *success stories* and *lessons learnt* from the implementation of ESG, involve experts to provide assistance to improve ESG performance, and form an ad-hoc team that works together with accompanying consultants to ensure planning formulations such as ESG *roadmaps* are in line with MIND ID's policies and *roadmaps* as a holding company.

c. At the business unit level, *technical assistance* is provided from competent experts in order to accelerate the achievement of ESG targets. The company through its business units/designated representatives actively participates in various award events that can encourage the improvement of ESG performance such as PROPER KLHK, Subroto Award and Tamasya Award (Mining benefits the Community) Ministry of Energy and Mineral Resources, BCOMSS Award KBUMN and ESG Award Business Update.

d. Improve *public disclosure of* ESG performance achievements in the company's Sustainability Report, by improving the reliability of data *stewardship* over time, adopting the ICMM principles as a guide in reporting the company's sustainability performance, in addition to other standards used so far, given its high relevance to the company's core business in mining, and ensuring that the Sustainability Report drafting team is well versed in the material aspects that must be conveyed in the report, including ESG performance indicators relevant to the company.

CONCLUSION

Based on the results of the research conducted, the following conclusions can be drawn:

1. Based on analysis of ESG disclosure performance based on ICMM principles, it can be concluded that the average ESG performance disclosure score has a performance level classified as Low (0.5). And among the 10 ICMM Principles, the disclosure of performance indicators in Principle 5 (Occupational Health and Safety) is the principle with a disclosure level classified as Very High (0.75), while Principle 3 (Human Rights) is the principle with a disclosure level categorised as Low (0.30).
2. The research concludes that the biggest challenge faced by mineral and coal mining companies in implementing ESG using the ICMM Principles as a framework is the lack of adoption of international standards, guidelines and guidelines as well as the

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adoption of ESG best practices into policies, strategies and roadmaps for ESG implementation, due to limited understanding from management.

3. The study also found that the presence of top management support, a clear policy and roadmap for ESG implementation, a clear organisational structure, and the preparation of competent human resources are strategies to improve ESG performance.

MANAGERIAL IMPLICATIONS

To improve innovation performance, mineral and coal companies must be more proactive in responding to various issues related to changes in the environment of mineral and coal companies both internally and externally. These changes must be responded wisely through research and development activities in order to maintain its existence in the future. One of the things that needs to be considered is related to governance in the implementation of ICMM. To carry out the responsibilities of mineral and coal companies in terms of governance, mineral and coal companies must become more innovative both in product development, more effective and efficient work procedures, controlled resource utilisation, and the use of appropriate technology. With a high concern for governance, mineral and coal companies indirectly take the initiative to make changes through innovation activities.

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