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Analysis Of LST Performance (ESG Performance) In Four Mineral And Coal Mining Companies

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Abstract

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. This study aims to analyse the performance of lst implementation (esg performance) in four mineral and coal mining companies. This study uses a qualitative approach to analyse the role of ESG implementation in mining and mineral companies as well as the issues and strategies applied. The subjects of this research are PT Antam Tbk, PT Vale Indonesia Tbk, PT Bukit Asam Tbk, PT Adaro Energy Tbk. Survey respondents were directors, senior managers, managers, officers/executives of PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. This research was analysed using content analysis. Primary data was obtained from interviews and questionnaires distributed to directors, senior managers, managers, officers/executives who responded. Based on the analysis of the implementation of ICMM at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk there are still many that are not optimal overall there are several important points that are carried out but there are several principles that are still less than optimal in the implementation of ICMM.The implementation of ICMM supported by the transparency of mineral and coal companies and visibility is able to provide an overview to shareholders of mineral and coal companies regarding the potential benefits of implementing ICMM in terms of mineral and coal company performance. High awareness of mineral and coal companies towards governance also has a positive impact on the progress of mineral and coal companies, where many parties are interested in assisting mineral and coal companies

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in developing new innovations for the sustainability of mineral and coal companies.The research only discusses all subjects in mineral and coal companies about ESG performance in a sustainable manner in mineral and coal companies PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. and the extent of ICMM implementation that has been carried out by the management of mineral and coal companies for sustainable economic growth (SDGs). And to what extent the Application of ICMM has been carried out by the management of mineral and coal companies for sustainable economic growth (SDGs).

Keywords: ESG Performance, ICMM Implementation, Challenges, Strategies, 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. 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 many small pockets of coal reserves on the islands of Sumatra, Java, Kalimantan, Sulawesi and Papua, but these are the three regions with the largest coal reserves in Indonesia. Indonesia's coal industry is fragmented with only a few large producers and many small- scale players that own coal mines and coal mining concessions (mainly in Sumatra and Kalimantan).

Since the early 1990s, when the coal mining sector was reopened to foreign investment, Indonesia has experienced an increase in production, exports and domestic sales of coal. However, domestic sales were rather insignificant as domestic coal consumption is relatively small in Indonesia. However, in recent years there has been a rapid increase in domestic coal sales as the Indonesian government is committed to its ambitious energy programme (implying the construction of various power plants, most of which use coal as an energy source as Indonesia has ample coal reserves). In addition, several large Indonesian mining companies (e.g. coal miner Adaro Energy) have expanded

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into the energy sector as low commodity prices make it unattractive to remain focused on coal exports, thus becoming integrated energy companies that consume their own coal.

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, so coal continues to be a vital energy source. However, clean coal technologies in coal mining will be indispensable in the future (partly due to commercial factors) and Indonesia is expected to be actively involved in the process as one of the main players in the coal mining sector. These clean coal technologies are focussed on reducing emissions from coal-fired power plants but are not yet well developed. Upstream activities related to coal mining, such as the development of coalbed methane (CBM) reservoirs, of which Indonesia has much potential, have started to receive attention recently. As the social responsibility of mineral and coal companies in Indonesia today.

Discussions about companies that focus on corporate social responsibility (CSR) practices are always interesting. The preparation of sustainable reports is also currently the focus of world trends in recent years (Fuente et al., 2022; Juniarti, 2021; Wang et al., 2018; Yoon et al., 2018; Yu & Zheng, 2020). The reason is the awareness of business people who consider other aspects apart from corporate profits alone, namely social, environmental, and good corporate governance.

This is also driven by the adoption of the Sustainable Development Goals (SDGs) in 2015 which encourages companies to implement the importance of business that heeds aspects of sustainability. In particular, goal number 6 of the SDGs (which states "ensure sustainable consumption and production patterns) encourages companies to implement sustainability practices including communicating sustainability information to interested parties (FIHRRST, 2019). However, in contrast to developed countries where CSR practices are mandatory, companies in Indonesia implement corporate CSR practices due to appeals from the government.

Along the way, CSR practices have moved to become more comprehensive and meaningful. In recent years, reports on CSR practices have become holistic. As stated by Hahn & Kühnen (2013), CSR reports focus more on social and environmental (either or both), while sustainability reports are much more comprehensive by also involving economic elements in it.

CSR practices then developed into practices that consider the Environment, Social, and Corporate Governance (ESG) aspects, which are packaged in sustainability reports. In 2017, the Financial Services Authority (OJK) issued rules for the implementation of sustainable finance as contained in OJK Regulation Number 51/POJK.03/2017. 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 changes from voluntary to mandatory.

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A summary of empirical studies found shows mixed results, such as the results of research by Rafianto (2015) on mining industry companies which simultaneously show that there is an influence between environmental performance and corporate social responsibility disclosure on financial performance. The results of research from both Rafianto (2015) and Angela (2015), Meiyana and Aisyah (2019) partially show that environmental performance is not significant to financial performance, but research from Camilia (2016) shows that environmental performance has an influence on financial performance.

Studies from developed countries in the financial industry found that banks that consider environmental factors in making lending decisions will be able to select borrowers who are lower risk and more innovative (Gangi et al. 2019). Green building certification is another option for environmental banks, as it allows them to capitalise on public demand for corporate environmental sensitivity (Chang and Dine, 2019). corporate environment (Chang and Devine, 2019). The relationship between the quality of business environmental management and financial financial performance appears to be beneficial (Albertini 2013; Dixon-Fowler et al. 2013).

Based on data from the Ministry of Energy and Mineral Resources' Minerba One Data Indonesia (MODI) quoted by CNBC Indonesia, Friday (02/07/2021), total coal production until June 2021 was 287.84 million tonnes or 46.05% of this year's target of 625 million tonnes. In detail, coal production in January was 47.81 million tonnes, then fell in February to 45.91 million tonnes and rose again in March to 49.77 million tonnes. Production did not increase in April compared to the previous month at 49.77 million tonnes, then fell slightly in May to 48.52 million tonnes, and fell again in June to 46.06 million tonnes. The following is the production data of mining and mineral goods from 2019 to 2021.

Production of Mineral Goods			
Mineral Mine Goods	2019	2020	2021
Coal	616154054	565640928	614058577
Bauxite	16592187	25859895	25781187
Nickel	0	0	0
Gold	108977	65890	78996
Silver	0	0	0
Granite	0	0	0
Iron Sand	2507786	0	0
Tin Concentrate	86947	65127	52467

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Copper Concentrate	1697725	2273456	3377023
Nickel Ore	60948143	48040003	65509854

Source: Non-Oil and Gas Mining Statistics Publication
2021 is a provisional figure
Coal, Bauxite, Nickel, Granite and Iron Sand in Tonnes
Gold and Silver in Kg
Tin Concentrate and Copper Concentrate in Tonmetric Terms

According to Sujatmiko, Director of Coal Business Development at the Ministry of Energy and Mineral Resources, this achievement is equivalent to 23 per cent of the production target set for this year. "The realisation of coal production in the first quarter of 2021 was 144 million tonnes or 23 percent of the production target of 625 million tonnes," said Sujatmiko. For information, coal production was originally targeted at 550 million tonnes. However, the government through Ministerial Decree Number 66.K/HK.02/MEM.B/2021 on Amendments to the Decree of the Minister of Energy and Mineral Resources Number 255.K/30/MEM/2020 on Fulfilling Domestic Coal Needs in 2021 increased the quota by 75 million tonnes.

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 participants to make decisions and assess the condition or financial performance of a company.

Investment is a term with several meanings related to finance and economics. It relates to the accumulation of some form of assets in the hope of making a profit in the future. Sometimes, investment is also referred to as capital investment. One industry sector that attracts investors is the mining sector. As we know, in recent years the mining industry in the country has experienced rapid growth. The existence of production restrictions, especially in regional Mining Business Licences (IUP) so that there is no over supply and the growing consumption needs in Asia that encourage this sector is still very attractive to investors.

In the midst of increasingly competitive competition, this encourages companies to create continuous innovation and develop new concepts or methods in the company 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 of a company's direction funds. By conducting an analysis we will be able to find out or get an overview of the company's position.

"The performance of a company will be measured more based on ratios during a certain period" (Munawir, 2000). One of the ratios to assess company performance is the profitability ratio that

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connects two financial data with one another. The profitability ratio is a ratio that provides clues regarding the level of reward or gain (profit) compared to sales or assets. "This profitability ratio will provide answers to the effectiveness of company management and the effectiveness of the company's financial management (Yanti & Oktari, 2018).

So that from this background it is interesting to examine the Performance of the Application of Lst (ESG PERFORMANCE). Which is entitled "Analysis of the Performance of the Application of Lst (Esg Performance) in Four Mineral Mining and Coal Mining Companies"

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 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:

Environmental, Social, and Corporate Governance (ESCG)
Responsible Business Conduct (RBC)
Co-Shared Value (CSV), and
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:

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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.

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.

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.

ESG-based Sustainable Investment Strategy

Basically, ESG implementation is a type of investment approach that can be adopted across different types of activities and entities. Not only limited to investors, stakeholders, community activists, and policy makers can use Environmental, Social and Governance criteria as their management model.

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ESG investing can be made easier by eliminating companies with negative sentiments and favouring those with positive environmental and social values.

The concept of green and sustainable investment by applying ESG is not only to pursue profits, but also to pay attention to the company's benefits for the environment, society and government, which in fact can make the company's value increase significantly in the long run. Of course, in investing funds into ESG-based companies, it is also necessary to implement a strategy so that the investment can run as desired.

RESEARCH METHODS

This research uses a qualitative approach to analyse the role of ESG implementation in mining and mineral companies as well as the issues and strategies applied. The subjects of this research are PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. Survey respondents were directors, senior managers, managers, officers/executives of PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. This research was analysed using content analysis. Primary data was obtained from interviews and questionnaires distributed to directors, senior managers, managers, officers/executives who responded.

RESULTS AND DISCUSSION

Environmental, Social and Governance (ESG) performance implementation activities at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

Based on the research findings, the application of Environmental, Social and Governance (ESG) performance in the mining and minerals industry is becoming increasingly important as awareness of the social and environmental impacts of natural resource extraction activities increases. Mining and mineral companies have a responsibility to not only achieve good economic results but also ensure ecological sustainability and the well-being of surrounding communities. (Quayson et al, 2023; Litvinenko et al, 2022).

Implementing environmental performance in mining and minerals companies involves a range of practices aimed at managing the ecological impacts generated by extraction activities. This includes monitoring and mitigation of soil degradation, water pollution, and greenhouse gas emissions. Companies typically adopt environmentally friendly practices such as mine re- engineering, land rehabilitation and green technologies to reduce ecological impacts (Petavratzi et al, 2022).

The social aspect of implementing ESG performance emphasises the importance of interacting positively with local communities. This involves active participation in local development, creating employment opportunities for local people, and ensuring that the economic benefits generated

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from mining activities are equitably enjoyed by the entire community. In addition, companies must also understand and respect human rights and local cultures (Karen, 2023).

Governance aspects refer to transparent, ethical and sustainable company management and governance practices. Mining and mineral companies need to implement robust governance policies, including clear reporting systems on their ESG performance. The implementation of good governance practices also includes engagement with stakeholders, including governments, communities and non-governmental organisations (Jiang et al, 2023).

By implementing ESG performance, mining and minerals companies can achieve long- term sustainability, mitigate legal and reputational risks, and build positive relationships with local communities and other interested parties. This is an important step in ensuring that mining activities not only provide economic benefits, but also maintain environmental and social balance for future generations.

Challenges in implementing Environmental, Social and Governance (ESG) performance in PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

The challenges of implementing Environmental, Social and Governance (ESG) performance in mining and mineral companies are critical aspects that need to be understood and addressed in order to maintain the sustainability of this industry. ESG implementation encompasses companies' efforts to minimise environmental impacts, address social concerns, and manage corporate governance in a transparent and ethical manner (de Silva Lokuwaduge & de Silva, 2020). Here are some of the challenges often faced in this context:

Environmental Impact:

Mining and mineral processing often generate waste that can pollute water, air and soil, and damage natural ecosystems. Energy used in mining and mineral processing operations, especially if derived from fossil sources, can contribute to climate change.

Social Impact:

Mining sites are often located in areas inhabited by local communities. Mining activities can affect the livelihoods, food security and lifestyles of local communities. Mine workers and neighbouring communities are often exposed to health and safety risks from accidents or exposure to hazardous materials.

Corporate Governance:

Some companies may face difficulties in providing sufficiently transparent information about their business practices, ESG policies, and impacts on the environment and society. Ensuring that

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company operations comply with applicable ESG regulations and standards can be challenging, especially in complex legal environments.

Technology and Innovation:

Adopting environmentally friendly technologies in mining and mineral processing requires substantial investment in research and development.

Risk and Reputation Management:

Unexpected events such as accidents or environmental disasters can damage a company's reputation. Effective risk management is required to mitigate potential negative impacts.

Stakeholder Participation:

Ensure active community participation in decision-making processes and contribute to the company's sustainability plan.

Addressing these challenges requires strong commitment from companies, implementation of best practices, full engagement with stakeholders, and continuous innovation in order to achieve sustainability goals (Sternberg & Ahearn, 2023). Successful ESG implementation is not only important for fulfilling corporate social responsibility, but also for maintaining the long-term sustainability of the mining and minerals industry.

Strategies in facing the challenges of implementing Environmental, Social and Governance (ESG) performance in PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

The implementation of Environmental, Social and Governance (ESG) performance in the mining and minerals industry is an important aspect of maintaining the sustainability of company operations while minimising their negative impacts on the environment, society and corporate governance. A well-thought-out strategy in facing the challenges of ESG implementation is crucial for companies in this sector to ensure the sustainability of their business while fulfilling social and environmental responsibilities (Rajesh, 2020).

One of the key strategies is to integrate ESG principles into the company's entire value chain. This involves identifying and assessing potential impacts on the environment and communities at every stage of mining and mineral processing activities. By doing so, companies can design effective mitigation measures and implement environmentally friendly technologies to reduce negative impacts (Maybee, Lilford & Hitch, 2023).

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Increased transparency and communication with various stakeholders, such as local communities, governments and non-governmental organisations, are also integral to ESG strategies. By involving relevant parties in decision-making and providing information openly, companies can build trust and support sustainable relationships with neighbouring communities (Dmuchowski et al, 2023).

Proactive risk management is another important strategy. Mining and minerals companies should identify potential ESG-related risks, both in terms of operational sustainability and reputation. The implementation of an effective risk management system will help companies to anticipate, manage and mitigate the impacts of these risks (Perazzoli et al, 2022).

In addition, technological innovation and operational practices are key in meeting ESG challenges. Companies can seek sustainable solutions, such as the use of renewable energy, more efficient waste treatment and the application of advanced technologies to minimise environmental impacts (Miralles-Quirós et al, 2018).

The importance of local community engagement should also not be overlooked. Strategies that include the active participation of local communities in decision-making, as well as local capacity building, can help create long-term positive impacts and support the sustainability of mining and minerals projects.

Overall, the strategy of implementing successful Environmental, Social, and Governance performance requires a holistic approach, including the integration of sustainable values into corporate culture, collaboration with relevant parties, effective risk management, technological innovation, and active involvement of local communities. By implementing these strategies, companies can achieve a good balance between economic growth, social responsibility, and environmental protection.

Implementation of Environmental, Social and Governance (ESG) performance to support the SDGs programme in mining and mineral companies

The implementation of Environmental, Social and Governance (ESG) performance is a fundamental approach for mining and minerals companies to support and contribute to the achievement of Sustainable Development Goals (SDGs). The SDGs are a set of sustainable development goals set by the United Nations (UN) to address a range of global challenges, including environmental, social and governance issues faced by the world community.

The importance of implementing ESG performance in the mining and minerals industry involves not only environmental aspects, but also social impacts and responsible governance. Effective implementation of ESG performance can be key to companies building sustainable relationships with local communities, governments and other stakeholders.

In the context of mining and mineral companies, environmental aspects involve efforts to reduce ecological impacts resulting from mining and mineral processing activities. This includes waste

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management, protection of water and soil resources, and efforts to reduce greenhouse gas emissions. Companies may also prioritise environmentally friendly and sustainable mining practices.

The social aspect of ESG performance includes responsibility towards local communities and their empowerment. Companies should seek to understand and meet the needs of local communities, including through sustainable development programmes, education and training. Ensuring the rights of indigenous peoples is also an important aspect of this social aspect.

Meanwhile, good governance involves transparent, ethical and accountable business practices. Companies must ensure that their policies and practices comply with good governance standards, including compliance with applicable laws and regulations.

Through the implementation of ESG performance, mining and mineral companies can effectively support the SDGs, such as reducing poverty, improving community welfare and protecting the environment. Collaboration between the private sector, government and civil society is key in achieving sustainable development goals holistically. Thus, companies can be agents of positive change in achieving the SDGs while maintaining the sustainability of their businesses.

With the challenges and strategies, it is hoped that PT Antam Tbk, PT Vale Indonesia Tbk, PT Bukit Asam Tbk, PT Adaro Energy Tbk can carry out sustainable economic development (SDGs) as follows:

SDGs No 7. Clean and Affordable Energy

The implementation of Environmental, Social and Governance (ESG) performance in the context of mining and mineral companies plays an important role in supporting the achievement of Sustainable Development Goals (SDGs) 7, namely Clean and Affordable Energy. SDG 7 aims to ensure universal access to affordable, reliable, sustainable and modern energy. In the context of mining and mineral companies, ESG aspects become the foundation to ensure that company operations do not only focus on profitability, but also take into account their impact on the environment, surrounding communities and overall corporate governance.

The implementation of Environmental performance in mining and minerals companies involves efforts to reduce the ecological impact of mining activities. This can include environmentally-friendly practices such as efficient waste management, post-mining land rehabilitation and implementation of green technologies to reduce carbon footprint. By doing so, companies can play an active role in supporting SDG target number 7 related to the use of clean and sustainable energy.

Social aspects are also key in the implementation of ESG in mining and mineral companies. Companies need to ensure that the sustainability of their operations is not detrimental to local communities. This involves community engagement and welfare, stakeholder relationship management, and local empowerment through education and training programmes.

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Good governance is also integral to supporting SDGs programme number 7. Companies need to implement governance practices that are transparent, accountable and have integrity. This includes regulatory compliance, good risk management, and clear reporting on the environmental and social impacts of company activities.

By integrating ESG performance measures, mining and minerals companies can actively contribute to the achievement of SDG target number 7. Through such measures, companies not only focus on the sustainability of their own operations, but also play an important role in creating a positive impact on a global level related to the use of clean and affordable energy.

SDGs No 8. Decent Work and Economic Growth

The implementation of Environmental, Social and Governance (ESG) performance in the mining and minerals industry plays a crucial role in supporting the achievement of the Sustainable Development Goals (SDGs), particularly SDG Number 8 which emphasises Decent Work and Economic Growth. In this context, mining and mineral companies are expected to not only run their operations efficiently but also consider their impacts on the environment, communities and corporate governance.

The importance of Decent Work and Economic Growth is in line with efforts to create decent, productive and fair employment opportunities for all levels of society. Within this framework, mining and mineral companies can take various strategic steps, such as improving occupational safety and health standards, empowering local communities, and providing training and skills development for employees and neighbouring communities.

Meanwhile, the Environment aspect is also a key focus, given that the mining and minerals industry often has a major impact on local ecosystems. The implementation of environmentally friendly practices, such as post-mining land restoration, sustainable waste management and reduction of greenhouse gas emissions, are important measures to support SDGs Number 8 while minimising negative impacts on the environment.

The Social Aspect of ESG implementation includes actively engaging with local communities, listening to their needs, and building mutually beneficial partnerships. In this way, companies can contribute to local economic development, create business opportunities, and improve the welfare of neighbouring communities.

Good governance is also key in supporting SDGs Number 8, by applying the principles of transparency, accountability and corporate social responsibility. Good governance mechanisms ensure that companies manage their operations ethically and efficiently, thereby positively impacting economic growth and providing decent work.

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By integrating ESG principles into their operational policies and practices, mining and minerals companies can be agents of positive change in achieving SDG Number 8. This not only contributes to inclusive economic development but also conserves the environment and strengthens positive relationships with communities.

SDGs No 10. Industry, Innovation and Infrastructure

The implementation of Environmental, Social and Governance (ESG) performance in the mining and minerals industry plays a crucial role in supporting the achievement of Sustainable Development Goal (SDG) No. 10, "Industry, Innovation and Infrastructure." SDG No 10 emphasises the importance of reducing disparities between countries, increasing inclusiveness and ensuring that infrastructure development supports sustainable economic growth. In this context, the mining and minerals industry can contribute positively through the implementation of responsible ESG practices.

The implementation of sustainable environmental practices in mining and minerals companies helps to reduce negative impacts on ecosystems. This involves practices such as land rehabilitation, wise water management and the use of environmentally friendly technologies. Environmental impact assessments can help companies identify and mitigate environmental risks, and ensure the sustainability of natural resources.

The focus on social aspects includes the sustainability of local communities, including community empowerment, education, and local job creation. Engagement with stakeholders such as local communities, local government, and NGOs can strengthen the positive relationship between the company and the neighbourhood.

Good governance principles help ensure that mining and minerals companies are managed ethically and transparently. This includes strong corporate governance practices, regulatory compliance and clear reporting. Involving the board, management and stakeholders in decision- making can ensure that decisions are in line with sustainable development goals.

By consistently implementing ESG practices, mining and mineral companies can become agents of positive change in achieving SDG No 10. This will not only improve their business performance, but will also make a real contribution to sustainable and inclusive development on a global scale.

SDGs No 12. Responsible consumption and production

The implementation of Environmental, Social and Governance (ESG) performance in the context of the Sustainable Development Goals (SDGs) Number 12 programme, Responsible Consumption and Production, has a crucial role to play in enhancing the positive impact of mining and minerals companies on the environment, society and sustainable governance. SDG 12 aims to ensure

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sustainable consumption and production patterns, and this is where mining and minerals companies can play a significant role.

The importance of implementing ESG performance in mining and mineral companies lies in its ability to streamline company operations with sustainability principles. One important aspect is environmental management, which includes efforts to reduce negative impacts on local ecosystems, conserve natural resources and minimise carbon footprints. Companies can also play an active role in biodiversity conservation and the use of renewable energy to support SDGs target number 12.

In addition, the social aspect of ESG performance emphasises the importance of positive company interactions with local communities. This involves understanding and responding to community needs, ensuring community involvement in decision-making processes, and improving the social and economic well-being around mine sites. Corporate social responsibility (CSR) programmes can be an effective means to achieve these goals.

Good governance is also an important focus in support of SDG Number 12. Strong governance principles involve transparency, accountability and participation of all stakeholders. Companies need to conduct their operations with consideration of their impacts on society and the environment, and ethical governance practices.

By applying ESG performance holistically, mining and minerals companies can be pioneers in driving change towards more sustainable consumption and production. This not only fulfils regulatory requirements and ethical norms, but also creates long-term value for the company, strengthens its reputation and supports the overall achievement of SDG targets.

SDGs No 13. Addressing climate change

The implementation of Environmental, Social and Governance (ESG) performance plays a critical role in supporting the achievement of Sustainable Development Goal (SDG) 13, which is addressing climate change. Particularly in mining and mineral companies, measures taken in this regard can have significant impacts on the environment, neighbouring communities and overall corporate governance.

In the context of SDGs programme 13, mining and mineral companies have a responsibility to manage the environmental impacts generated by their natural resource extraction activities. Climate change is one of the main challenges that need to be addressed, and the implementation of ESG performance is key to ensuring that the company's activities are in line with the principles of sustainable development.

Implementation of environmentally friendly practices in mineral extraction activities, such as the use of cleaner technologies, land restoration, and efficient waste management. Building good relationships with local communities and ensuring their participation in decision-making regarding

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company activities. This may include community empowerment, education, and increased involvement in environmental activities.

Implement good governance practices, including transparency, accountability and integrity in every aspect of the company's operations. This may involve applying high standards of business ethics and transparent reporting. Encourage innovation in technology and working methods to reduce carbon footprint and other environmental impacts. Research and development can help create more sustainable solutions.

By implementing these practices, mining and mineral companies can significantly contribute to the achievement of SDG No 13. Addressing climate change is not only a sustainability goal, but also an integral part of corporate social and environmental responsibility to realise holistic sustainable development.

SDGs No 15. Terrestrial Ecosystems

The implementation of Environmental, Social and Governance (ESG) performance in the context of the mining and minerals industry plays a crucial role in supporting the achievement of Sustainable Development Goal (SDG) 15, which focuses on terrestrial ecosystems. SDGs No 15 emphasises the need to maintain, manage and restore terrestrial ecosystems, forests and biodiversity for sustainable development.

The mining and minerals industry often has significant environmental and social impacts. Therefore, implementing ESG performance is important to minimise negative impacts and create positive impacts on the environment, society and corporate governance.

Mining and mineral companies must adopt environmentally friendly practices to manage their impacts on terrestrial ecosystems. This involves applying advanced technologies to reduce water and air pollution, efficient waste management, and soil and forest conservation.

The implementation of Social (S) performance requires companies to actively engage with local communities. Corporate social responsibility (CSR) programmes may include local economic empowerment, education, health, and community empowerment to support well-being and sustainable development.

Governance (T) aspects are particularly relevant in the context of running mining and mineral operations in an ethical and transparent manner. This includes good corporate governance, anti-corruption practices, and compliance with international regulations and standards.

SDG No 15 highlights the importance of biodiversity conservation in terrestrial ecosystems. Mining and mineral companies must implement specific strategies to protect local flora and fauna, and maintain the balance of existing ecosystems.

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Implementing ESG performance includes not only operational practices, but also reporting and transparency. Companies must regularly report on their environmental and social impacts, and provide information on the improvement efforts and innovations that have been implemented.

Through the implementation of Environmental, Social and Governance performance, mining and mineral companies can become sustainable partners and contribute positively to the achievement of SDG No 15 and the overall sustainable development goals.

CONCLUSION

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

1. Based on the analysis of the implementation of ICMM at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk there are still many that are not optimal overall there are several important points that are carried out but there are several principles that are still not optimal in the implementation of ICMM.
2. Based on descriptive analysis of the challenges faced in implementing ICMM at PT Antam Tbk, PT Vale Indonesia Tbk, PT Bukit Asam Tbk, PT Adaro Energy Tbk as follows:
   a. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk Not yet optimal Establish accountability for sustainability performance at the Board or Executive Committee level.
   b. PT Antam Tbk, PT Vale Indonesia Tbk have not yet integrated the principles of sustainable development into the company's strategy.
   c. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk Has Not Implemented a risk-based human rights and security approach consistent with the Voluntary Principles on Security and Human Rights.
   d. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk Have not conducted risk-based due diligence on conflict and human rights in line with the OECD Due Diligence Guidance.
   e. PT Antam, Tbk has not yet implemented practices aimed at continuously improving health and safety in the workplace.
   f. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk Have not designed, constructed, operated, monitored and closed the tailings disposal/storage facility.
   g. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk Have not avoided exploration and development of new mines in World Heritage sites.

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h. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk have not yet assessed the hazards of mining products according to the UN Globally Harmonised Hazard Classification and Labelling System.
i. PT Bukit Asam, Tbk, PT Adaro Energy, Tbk Not yet collaborating with the government.
j. PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk has not yet supported the implementation of the Extractive Industry Transparency Initiative (EITI) openly.

3. Based on the results of descriptive analysis research, the researchers used the strategies implemented in the implementation of ICMM at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk on the basis of relevant previous research as follows:
   a The strategy to face the challenges of implementing less than optimal accountability for sustainability performance at the Board or Executive Committee level is to implement governance in accordance with ISO 26000 at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the theory of governance management strategy is very appropriate with the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.
   b the strategy to face the challenges of implementation has not yet integrated the principles of sustainable development into the company's strategy, namely implementing the value of sustainibilty at PT Antam, Tbk, PT Vale Indonesia, Tbk. In this case, the theory of sustainability value strategy is very appropriate with the problems faced by PT Antam Tbk, PT Vale Indonesia Tbk.
   c Strategy to face the challenges of implementation Not yet Implementing a risk-based human rights and security approach consistent with the Voluntary Principles on Security and Human Rights, namely implementing the core subjects of ISO 26000 on human rights at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the theory of this subject strategy ISO 26000 on Human Rights is very appropriate with the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.
   d Strategy to face the challenges of implementation Not yet Conducting risk-based due diligence on conflict and human rights in line with the OECD Due Diligence Guidelines, namely applying the core subjects of ISO 26000 on human rights at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the theory of this subject strategy ISO 26000 about human rights is very appropriate with the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

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e The strategy to face the challenges of implementation has not yet implemented practices that aim to continuously improve health and safety in the workplace, namely implementing the core subjects of ISO 26000 on Labour Practices at PT Antam, Tbk. In this case, the theory of this subject strategy ISO 26000 on Labour Practices is very appropriate to the problems faced by PT Antam, Tbk.

f The strategy to face the challenges of implementation has not yet designed, built, operated, monitored and closed the tailings disposal / storage facility, namely applying the core subjects of ISO 26000 on Governance at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the theory of governance management strategy is very appropriate to the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk

g The strategy to face the challenges of implementing Avoiding exploration and development of new mines in World Heritage sites is to apply the core subjects of ISO 26000 on the Environment at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the theory of the ISO 26000 core subject strategy on the environment is very appropriate to the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

h The strategy to face the challenges of implementing not yet assessing the hazards of mining products according to the UN Globally Harmonised Hazard Classification and Labelling System is to implement global management governance at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the strategy theory of implementing global governance and adjustments is very appropriate to the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

I The strategy to face the challenges of implementation has not collaborated with the government, namely applying the core subjects of ISO 26000 on community involvement and development at PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the strategy theory of applying the core subjects of ISO 26000 on Community involvement and development is very appropriate to the problems faced by PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

j The strategy to face the challenges of implementation has not yet supported the implementation of the Extractive Industry Transparency Initiative (EITI) openly, namely implementing governance in accordance with ISO 26000 at PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk. In this case, the theory of

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governance management strategy is very appropriate with the problems faced by PT Antam, Tbk, PT Vale Indonesia, Tbk, PT Bukit Asam, Tbk, PT Adaro Energy, Tbk.

4. With the challenges and strategies, it is hoped that PT Antam Tbk, PT Vale Indonesia Tbk, PT Bukit Asam Tbk, PT Adaro Energy Tbk can carry out sustainable economic development (SDGs) as follows:
   a Clean and Affordable Energy
   b Decent work and economic growth
   c Industry, Innovation and Infrastructure
   d Responsible consumption and production
   e Addressing climate change
   f Terrestrial Ecosystems.

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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