Sustainability Report of Mining Industry Sector SOEs in Indonesia: Deficiencies and Recommendations

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Abstract. This research analyzes qualitative comparative case studies from three mining sector SEOs in Indonesia (PT ANTAM Tbk, PT Bukit Asam Tbk, PT Timah Tbk) to explore the development of the 2019-2023 Sustainability Report through environmental costs. The main focus is investigating the relationship between state capital and ESG practices in state-owned enterprises in the context of changing economic policies. This study examines the environmental costs underlying the interaction between sovereign equity and ESG performance and their impact on corporate desirability. This research aims to understand the sustainability practices and reporting challenges of the mining SOE sector. The research results show significant fluctuations in the environmental costs of the three SOEs, which are not in line with environmental problems in Indonesia. These findings provide important insights for policymakers and stakeholders in designing strategies to support the sustainable development of SOEs in Indonesia.

Keywords: Sustainability Report, State-owned enterprises, Environmental cost

1. Introduction

Nowadays, sustainability is a global megatrend that has a significant impact on markets, businesses, governments, and individuals [1]. Regulations like the economic, social, and governance (ESG) guidelines in the United States and the Corporate Sustainability Reporting Directive (CSRD) in Europe reflect the increasing attention that sustainability and social responsibility have received in recent years [2]. Companies are now starting to publish sustainability reports in response to public and stakeholder expectations and to meet legal requirements, demonstrating their commitment to sustainable business practices [3]. With reference to the 17 Sustainable Development Goals (SDGs) established by the United Nations to address pressing issues, the idea of a sustainability report centers on satisfying the needs of stakeholders regarding economic, social, and governance (ESG) issues and emphasizes the influence of sustainability on the business environment [4]. Therefore, many global initiatives have emerged to set goals, frameworks, and standards that support a more comprehensive corporate reporting approach related to the environmental and social impacts of business activities [5].

Along with the progress of society and the economy, so many more shareholders and stakeholders are recognizing the importance of corporate responsibility, thus encouraging companies to disclose their goals and practices related to environmental, social, and governance (ESG) [6]. Rising issues of pollution, lack of resources, and social problems have resulted in a strong global agreement on the importance of sustainable development [7]. Environmental, Social, and Governance (ESG) is a criterion that investors use to evaluate a company's impact

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on society and the environment as well as how it manages itself, covering issues such as sustainability, social responsibility, and good governance [8]. Recent years have seen a rapid evolution of the ESG concept and changes to the global governance structure, which has led to a spike in sustainable green investment [9].

SOEs have recently taken a relevant role in the national economy in achieving the SDGs to provide public services considering the extent of SOEs commitment to the SDGs [10]. SOEs have a role related to social and public values, where they are responsible for providing physical infrastructure that supports industrialization and structural transformation [11]. The uniqueness of the position of SOEs in the national economy is in line with their goals for Economic growth and political accountability that enable state-owned capital to meet its social obligations, preserve the environment, and boost corporate value [12]. SOE reform brings new positive impacts and challenges including a balance between environmental responsibility and economic development, which requires attention to governance and mixed ownership structures to ensure environmentally responsive behavior [13]. SOEs have an advantage in aligning ESG strategies and environmentally friendly innovations with national policy goals, while private companies tend to adopt these innovations for a competitive advantage and meet consumer demand for sustainability [14]. Increasing energy consumption can increase environmental costs and trigger disasters and global warming, so it is important to reduce dependence on non-renewable energy and invest in clean energy sources [15]. Environmental cost is a crucial factor that must be considered by SOEs in carrying out their operations, considering the significant impact of their activities on the environment and the importance of balancing economic goals with nature conservation. SOEs need to integrate environmental cost calculation and management into their business strategies to ensure long-term sustainability, minimize negative impacts on ecosystems, and support the transition to a greener economy in line with national commitments to the SDGs.

Moreover, currently the trend of the global economic recovery is slowing down, and China is experiencing three pressures at the same time: supply shock, demand contraction, and dwindling expectations [9]. As a result, many businesses' performance is frequently negatively impacted, leading to recessions and landslides [9]. This phenomenon is coupled with strong organizational downward pressure that carries risks that should not be disregarded [9]. State-Owned Enterprises in China are an important element in the economy that reflects the relationship between the state and the market where the achievement of sustainable environmental management is carried out through comprehensive policies at various levels, with a focus on carbon emission reduction and green practices, which are recognized globally as important issues that require real action [16]. In the US, the European Union, and other developed countries, governments have created regulations that require registered companies to fulfill environmental and social responsibilities, thereby increasing scrutiny of corporate practices in this regard [9].

Environmental issues have grown in importance over the past few decades and are now among the most pressing global concerns. Environmental issues that are occurring now, such as air pollution, ozone depletion, global warming, climate change, and others, force everyone to pay attention to the issues we are facing. In 2022, 88% of companies have submitted Sustainability *reports* and 80% of companies studied in Indonesia use the GRI Standard for *Sustainability report* which includes ESG reporting and includes climate risk strategies, stakeholder engagement, and increased credibility and transparency according to global standard [17]. Meanwhile, in recent years, a number of State-Owned Enterprises (SOEs) in Indonesia have experienced alarming losses and inefficiencies [18]. This situation not only has an impact on the financial performance of SOEs, but also has serious implications for

sustainability reporting practices, environmental cost management, and overall environmental conditions. Losses and inefficiencies experienced by SOEs can affect the quality and completeness of their sustainability reports. Companies facing financial pressures tend to reduce the focus and resources allocated to non-financial reporting, including environmental and social aspects. As a result, the transparency and accountability of SOEs in the context of sustainability may decrease, which in turn can reduce stakeholder trust.

Furthermore, operational inefficiencies are often correlated with less than optimal environmental cost management. State-owned enterprises struggling with financial problems may consider investing in green technologies or sustainable business practices to be an additional burden that is out of reach. This can lead to underinvestment in efforts to mitigate environmental impacts, which ultimately increases long-term environmental risks and potential *environmental liabilities*. This condition can also have a direct impact on the environment. State-owned enterprises operating in sectors with significant environmental impacts, such as energy, mining, or manufacturing, may be tempted to ignore or postpone environmental protection initiatives in favor of short-term cost savings. As a result, the potential for environmental damage increases, which not only harms the ecosystem but can also result in much greater remediation costs in the future. In addition, the inability of SOEs to effectively manage sustainability aspects can hinder Indonesia's efforts to achieve the Sustainable Development Goals (SDGs). Given the strategic role of SOEs in the national economy, their failure to integrate sustainability principles could slow down the country's transition to a more sustainable green economy.

Companies in the mining industry sector contribute significantly to the country's revenue, but their existence also has the potential to damage the environment. Indonesia, based on the Environmental Performance Index (EPI) ranking, is ranked 133 out of 180 countries in terms of environmental performance. In Indonesia, many cases of environmental pollution occur, where around 70% of environmental damage is caused by mining activities [19]. Therefore, companies need to establish good relationships with the community. This is usually implemented through Corporate Social Responsibility (CSR). To convey these activities, the company realized the importance of compiling a report that includes not only financial information but also social and environmental information, known as a sustainability report. Therefore, efforts to overcome SOEs losses and inefficiencies must be in line with strengthening sustainability reporting practices, better environmental cost management, and a stronger commitment to environmental protection. This requires a holistic approach that focuses not only on improving financial performance, but also on improving environmental and social governance. Thus, SOEs can play a more effective role as agents of sustainable development, aligning economic interests with environmental and social responsibilities.

2. Literature Review

2.1 Sustainability Report

A sustainability report is a form of the company's seriousness in running a business [20]. Sustainability report serves as a communication tool for businesses to manage the economy, society, and environment as well as the effects of their operations on stakeholders [21]. Meeting stakeholder demands is important to the idea of a sustainability report, particularly when it comes to matters of significant economic, social, and governance (ESG) and the ways in which sustainability impacts the business environment [4]. Sustainability reports should be considered as a way to manage the company by involving all related parties in a transparent and balanced manner, as well as paying attention to environmental, social, and economic aspects

[22]. Companies may use Sustainability reports to highlight the positives about their sustainability efforts and hide or downplay the negative aspects [23].

Sustainability reports aim to report information transparently to stakeholders and also serve as an important tool for internal communication within the organization [24]. Sustainability report aims to provide complete information, both financial and non-financial, to stakeholders, by ensuring that all information is in accordance with applicable guidelines and is useful for the decision-making process [25]. Sustainability reports can provide relevant sustainability reports to stakeholders or environmental, social, and governance (ESG) data for evaluating corporate sustainability performance. Businesses can use sustainability reports to incorporate information about sustainability into their reporting cycles [26]. Sustainability reports are essential for organizations to convey their concerns and environmental and social activities to a number of stakeholder groups, in addition to being a legal mandate or a public relations tool. Sustainability reports are an important component of an organization's social responsibility and a crucial determinant of its long-term performance and reputation in the marketplace [27].

2.2 Environmental, Social, and Governance (ESG)

The concept of Environment, Social and Governance has changed the global governance landscape rapidly triggering a wave of sustainable green investment [9]. ESG reporting is a form of a company's commitment to social responsibility, environmental concern, and economic benefits [28]. Companies need to identify the most effective ESG pillars to increase profitability while considering potential *trade-offs* between them, so that they can take a strategic and appropriate investment approach to align ESG efforts with the company's goals [29].

An analysis of ESG disclosure practices is important for assessing the quality of reporting in these sectors and providing an indication of reporting trends that assist stakeholders in making informed decisions [30]. Companies that prioritize ESG initiatives can reduce financial risk, improve reputation, attract investors and strengthen relationships with stakeholders [31]. Good ESG performance can help companies carry out social responsibility by considering the interests of employees, suppliers, customers, creditors, the community, the government, and other stakeholders in corporate strategic planning [9]. By adopting ESG (Environmental, Social, Governance) and CSR (Corporate Social Responsibility) practices, companies can build trust from stakeholders as well as help companies protect themselves from risks during crises and ensure financial stability in the market because responsible actions can improve a company's reputation and resilience [32]

2.3 State-Owned Enterprises

SOEs are state-owned enterprises tasked with playing a social and commercial role in supporting government efforts to stimulate economic development and growth, which are shaped by social, political and economic considerations [11]. State-owned enterprises are established to meet the social needs and goals of the state rather than maximizing profits [33]. SOEs are expected to operate independently by taking responsibility for their profits and losses through reforms that maintain the dominance of public ownership with the aim of finding ways to align SOEs with the principles of market economy [34]. SOE reform brings new vitality but also challenges in balancing environmental and economic responsibility, so it is necessary to pay attention to the impact of mixed ownership structures on corporate governance and environmentally responsive behavior [13]. SOEs financed by the state budget must be closely monitored to ensure that the allocation of public funds is efficient and provides maximum

benefits to the community, so transparency and accountability in evaluating their performance are very important [35].

As in many other countries, SOEs manage strategic sectors that are considered to have a positive impact on national security[36]. SOEs engaged in strategic sectors such as mining, oil, and gas become national giants and significant global players, with large assets and turnover, to strengthen the government's competitive position in domestic and international markets [37]. SOEs act as a single entity responsible for commercial activities in all sectors, but some of them suffer huge losses and rely on income from other SOEs that are more profitable for their business continuit [38]. SOEs operate independently and are responsible for their own profits and losses in the planned commodity economic system, without changing the nature of their ownership that remains owned by all the people [39]

2.4 Environmental Cost

Environmental cost is the expenditure incurred by a compato manage the environmental impact of the production of goods and services which includes expenses related to the management of the environmental impact of production activities, such as waste management, emission reduction, and sustainable use of resources [40]. Environmental cost is the cost that a company incurs to reduce its negative impact on the environment during production and operations [41]. Environmental cost is measured by the total cost of reclamation, waste management, energy efficiency and environmental monitoring [20]. In the education sector, *environmental costs* include expenses related to energy use such as electricity, gas, and fuel, water, paper, and solid waste including general waste and waste paper [42]. Environmental costs are divided into four categories: expenses associated with internal and external failure, prevention, detection, and failure [25]. Reported environmental costs can support internal decision-making to reduce emissions and waste [43]. *Environmental cost information can also* be useful for companies as a source to identify potential cost reductions in output products [44].

3. Methodology

This study uses qualitative method research with a case study approach. This approach allows for an in-depth examination of a single phenomenon or case [45]. This research is based on a qualitative comparative case study of 3 state-owned enterprises indexed on the Indonesia Stock Exchange in the mining sector in Indonesia to explore the development of the Sustainability Report in 2019-2023. Through this approach, this study aims to explore and analyze the development of Sustainability Reports published by SOEs in the mining sector, in order to understand the sustainability practices applied and the challenges faced in the reporting.

This research is expected to include providing a clear understanding of the quality and quantity of the Sustainability Report produced, as well as concrete recommendations for increasing transparency and accountability in the report. In addition, this research is also expected to provide insights for stakeholders, including the government and the community, on how SOEs can better contribute to sustainable development in Indonesia. The final results of this study can be an important reference for public policy and *corporate social responsibility (CSR)* practices in the mining sector.

4. Results

In this study, the researcher explores the relationship between Sustainability Report 3 SOEs going public in the mining sector in Indonesia in 2019-2023 and the environmental cost*s*

related to SOE operations. This research includes an analysis of the content of sustainability reports from several SOEs, using the Global Reporting Initiative (GRI) framework as a reference. Researchers evaluate aspects such as social, environmental, and governance (ESG) disclosures, as well as compare best practices with international standards. Environmental cost includes expenditure on waste management, erosion and sedimentation control, revegetation, research and cooperation, environment monitoring, seawater monitoring, biodiversity monitoring, air quality monitoring, marine rehabilitation, land and sea reclamation, post-mining activities. The researchers found that although the three SOEs reported very limited *environmental cost* details, it made it difficult for stakeholders to understand the company's real commitment to sustainability.

In addition, impact analysis of such expenses is rarely conducted, so companies cannot evaluate the effectiveness of their investments thoroughly. The researchers' findings show that SOEs that invest more in environmental costs tend to show better sustainability performance, but this relationship is not always reflected in their reports.

Table 1. Environmental Costs of Mining Industry SOEs

Year	PT Bukit Asam Tbk	PT Aneka Tambang Tbk	PT Timah Tbk
	(Rp Million)		
2023	253.759	152.115	29.2
2022	173.228	142.926	55.429
2021	124.960	102.080	54.550
2020	109.777	111.154	53.363
2019	97.084	105.920	32.922

Source: Secondary data processed by researchers, 2024

The researcher explored the environmental costs of mining industry SOEs, which based on the sustainability report showed that the three SOEs experienced significant fluctuations. This may be due to strict government regulations that can increase operating costs, forcing companies to invest in cleaner technologies and environmental management systems to meet applicable standards. In addition, fluctuations in commodity prices affect the company's budget where when prices rise, focusing on maximum production can result in neglect of environmental practices, while falling prices often trigger cost cuts including spending on environmental management.

The high and fluctuating environmental costs are not in line with PT Timah Tbk's corruption case, especially related to the management of PT Timah Tbk's Mining Business License (IUP) from 2015 to 2022 in the management of tin mines in Indonesia recently, which revealed a serious impact on the environment and society. During this period, many strategic decisions were taken without considering the resulting ecological impacts, such as the reduction of forest areas and significant pollution. This non-transparent management of IUPs exacerbates the situation, creating injustice for local communities that depend on threatened natural resources. In addition, the act creates a gap in the accountability of companies, which should be responsible for the environmental impact of their operations. In 2024, state losses will reach Rp 271 trillion which not only includes state financial losses, but also the destruction of ecosystems in Bangka Belitung, with analyses showing significant ecological and economic losses. Environmentalists from IPB revealed that losses in forest areas reached Rp 223 trillion which included the loss of vital ecosystem functions.

This was also done by PT Bukit Asam (PTBA), which apparently received sanctions from the Ministry of Environment and Forestry (KLHK) in 2021 for an environmental pollution case. In 2021, mining waste produced by PT Aneka Tambang Tbk in the mangrove area of Tanjung Moronopo, Buli District, East Halmahera, North Maluku, has had a significant impact on the local ecosystem and the lives of fishing communities. This waste, which consists of waste materials and hazardous materials, pollutes the waters around the mine causing changes in water quality and disrupting the balance of the mangrove ecosystem which functions as an important habitat for various species of fish and other marine life.

The presence of the mining industry not only damages the environment, but also affects the lives of local fishermen who depend on marine products for their livelihoods. With the pollution of the waters, fish resources are reduced, resulting in a decrease in catches and in turn having an impact on the income and economy of fishing families. As a result, many fishermen have difficulty meeting their daily needs and conflicts between mining companies and local communities are increasing. Overall, the impact of PT Aneka Tambang Tbk's mining waste in this mangrove area illustrates the importance of responsible environmental management in mining activities, to protect the ecosystem and livelihoods of the affected communities.

5. Discussion

[41] China's regulation of *environmental cost* includes various initiatives and policies aimed at controlling and reducing the environmental impact of industrial activities. China has implemented a series of strict laws and regulations related to environmental protection. This includes laws on pollution control, waste management, and sustainable use of natural resources. The government is focusing on reducing carbon emissions and pollution from the industrial sector, especially from industries that produce hazardous waste such as oil processing. The Chinese government has stepped up scrutiny of companies considered major polluters. This includes monitoring pollutant emissions and imposing sanctions on companies that violate environmental regulations. The regulation also encourages the implementation of the circular economy, where companies are expected to apply the "3R" principles (reuse, recycle, reduce) in corporate operations that aim to extend the life cycle of products and reduce waste, as well as promote the efficient use of resources.

China is encouraging the use of advanced technologies, including artificial intelligence (AI), to improve efficiency in environmental cost management. AI is used to analyze data and predict environmental costs, thus assisting companies in making better decisions related to green practices. The government also provides incentives for companies that invest in green technologies and sustainable business practices. It aims to encourage innovation and collaboration between the public and private sectors in achieving sustainability goals.

Based on research [12] Since 2018 China has been actively encouraging state-owned equity investment into private companies, signalling significant changes in economic policies aimed at strengthening the private sector while also increasing synergies between state and private capital. This step not only aims to improve operational efficiency and innovation in private companies, but also to ensure that sustainable economic growth can be achieved by utilizing the resources and technology owned by SOEs. This policy reflects the government's desire to create a more competitive and responsive ecosystem to global challenges, as well as support the transition to more sustainable green development. By encouraging these investments, China hopes to achieve a better balance between economic growth and social and environmental responsibility. The research is an important comparison to reduce the financial burden of SOEs borne by the state. By gradually transferring ownership from SOEs to non-

governmental entities or individuals, managerial efficiency and resource management can be improved, thereby reducing potential losses caused by poor managerial practices or ineffective management. On the other hand, for companies oriented towards public welfare, maintaining a portion of state shares can ensure that public services are maintained, even though operational management can be handed over to the private sector. However, in this case, it is important to reduce the proportion of state ownership so that there is no waste and losses that SOEs often experience due to inefficiency. By adopting this approach, it is hoped that SOEs can focus more on their social mission without being burdened by inefficient ownership structures, thereby contributing to reducing losses and improving financial sustainability.

6. Conclusions and Recommendations

6.1 Conclusions

The results of the study show that there are significant fluctuations in environmental costs in the three SOEs, which are not in line with environmental problems that are increasingly concerning in Indonesia. The corruption case involving PT Timah Tbk is a concrete example of the serious impact it has had on the environment and society, including the reduction of critical forest areas and increased pollution that threatens the health of the ecosystem. Non-transparent permit management not only creates injustice for local communities, but also ignores corporate accountability for the environmental impacts resulting from their operations. Furthermore, the pollution case involving PT Bukit Asam and PT Aneka Tambang highlights how important responsible environmental management is. Pollution caused by their activities not only damages the ecosystem, but also has a direct impact on the livelihoods of coastal communities that are highly dependent on marine resources. The decline in environmental quality has an impact on fish catches, which in turn affects the income and welfare of fishing families.

Therefore, the need for greater attention to environmental cost management in the mining industry is strongly emphasized. Efforts to improve and enforce stricter and more transparent regulations are urgently needed to ensure that the industry operates by prioritizing environmental sustainability and the well-being of local communities. Without these measures, the risk of environmental damage and social conflict will continue to increase, threatening the future of the ecosystems and communities that depend on them.

6.2 Recommendations for SOEs

To address this issue, researchers suggest increased transparency in environmental cost disclosures, including clearer categories and impact analysis of each investment. In addition, the application of a more systematic methodology to evaluate the impact of environmental expenditures is needed so that SOEs can adjust their strategies effectively. Through training and awareness raising regarding the importance of sustainability, SOEs can build a stronger sustainability culture that will not only improve the company's reputation but also attract greater investment and public support. With these measures, SOEs can further contribute to the long-term sustainability goals in Indonesia. Furthermore, the significance of cooperation among the government, society, and corporate sector is emphasized in order to combat corruption and save the environment. Furthermore, the significance of cooperation among the government, society, and corporate sector is emphasized in order to combat corruption and save the environment.

6.3 Recommendations for the government

The Government of Indonesia can encourage state-owned equity investment in private companies to strengthen the private sector and increase synergies between state and private capital. This policy aims to increase efficiency, innovation, and create a competitive ecosystem, while supporting sustainable economic growth and green development. By gradually transferring ownership of SOEs to non-government entities, it is hoped that managerial efficiency and resource management can be improved, reducing potential losses due to poor management. Investment in new technologies also plays an important role where, although it requires high initial costs, these innovations can reduce long-term costs and environmental impacts. Therefore, companies need to implement adaptive strategies in managing risk and investing in sustainability, as this not only improves their reputation, but also provides financial benefits in the long run. This research confirms that continuous monitoring and adjustment of strategies is essential to achieve a balance between economic benefits and environmental responsibility.

6.4 Recommendations for the community

Public awareness to supervise mining practices and emphasis on transparency in natural resource management are crucial. As such, this issue requires a holistic approach that focuses not only on legal and economic aspects, but also on environmental sustainability.

6.5 Recommendations for further research

Recommendations for further research can include several important aspects, namely it is recommended to conduct an in-depth study on the impact of state-owned equity investment policies on the private sector, especially in improving efficiency and innovation. Further research could examine the need to further examine investments in new technologies to evaluate their impact on long-term cost reductions and environmental impacts, with a focus on success stories and challenges.

In addition, further research can develop adaptive strategies for companies in managing risk and investing in sustainability, as well as analyzing the long-term financial benefits that can be generated. Further research should also highlight the importance of continuous monitoring and adjustment of strategies to achieve a balance between economic benefits and environmental responsibility. In addition, a holistic approach that integrates legal, economic, and environmental sustainability aspects in natural resource management reviewed from environmental costs in other sectors needs to be explored to provide more comprehensive insights for better policy-making in the future.

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