

Environmental disclosure practices in mining sector companies in Indonesia

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Abstract. This study aims to analyze the environmental disclosure practices of mining sector companies in Indonesia. The report also explores the determinants that influence environmental disclosure: profitability, company size, company age, and environmental performance. This research uses a sample of 45 mining sector companies listed on the IDX for 2020-2022. The collected data is analyzed using descriptive statistics and multiple linear regression analysis. The results indicate that environmental disclosure in Indonesia, based on the GRI Standards 2021, remains relatively low. Company size has a positive effect on environmental disclosure, whereas profitability, company age, and environmental performance do not have an impact on environmental disclosure.

1 Introduction

In today's increasingly complex era of globalization, companies are not only focused on generating profits but are also required to maintain environmental sustainability. With growing attention to environmental issues from various stakeholders, such as the public, government, and investors, companies are pressured to be more transparent in managing the environmental impacts caused by their business activities. Environmental disclosure refers to how a company communicates information about the impact and actions taken to ensure environmental sustainability to external parties [1].

The Environmental Performance Index (EPI), a numerical and quantitative method created and jointly published by the Yale Center for Environmental Law and Policy, Yale School of Forestry & Environmental Studies, and the World Economic Forum (WEF), is used to assess a country's environmental performance. This index measures how well countries can protect human health and ecosystems from negative environmental impacts using 32 indicators across 11 categories. According to the 2022 Environmental Performance Index (EPI), Indonesia experienced a significant decline in environmental performance compared to the previous year. In 2020, Indonesia was ranked 10th with a score in the Environmental Performance Index among 25 countries in the Asia-Pacific region but dropped to 22nd place in 2022.

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The Ministry of Environment and Forestry (KLHK) recorded the highest number of industrial sector complaints related to environmental and forestry issues during 2020-2022. Many industries, particularly the mining sector, have caused severe environmental damage. Land clearing for industry often results in forest destruction that disrupts natural habitats, threatens wildlife sustainability, and accelerates climate change. Additionally, industrial waste that is not properly managed contaminates rivers, lakes, and seas, poisoning water used by humans and animals, and damaging freshwater ecosystems. Air pollution from industrial sectors has also polluted the air, causing public health issues and environmental degradation. For example, PT Adaro Energy, a mining company conducting coal exploration through its subsidiary PT Bukit Enim Energi in East Kalimantan, is expanding its coal mining activities despite the global trend towards clean energy. PT Adaro Energy plans to expand its coal mining operations in Central and South Kalimantan, potentially displacing the Dayak Pitap community. The company has also built a coal-fired power plant in North Kalimantan. Although PT Adaro Energy has set a target for achieving net zero emissions by 2060, this commitment is considered misaligned with the climate mitigation scenarios recommended by the International Energy Agency (IEA). The company's plans, which include neither thermal nor metallurgical coal expansion, do not align with the IEA's recommendations, which stress the importance of halting the construction of new coal-fired power plants and limiting coal mining expansion globally since 2023 to curb global temperature rise. A recent study by the Toxic Bond Initiative revealed that PT Adaro Energy Indonesia's operational activities have significant environmental impacts, placing the company on the Dirty 30 list of the world's dirtiest bond issuers [2, 3].

Regulations in Indonesia have established various measures for industries such as the mining sector to impose deterrents. The government has set forth a range of penalties and sanctions, including fines, administrative sanctions, suspension of business licenses, and even criminal penalties for companies that violate the provisions of Law No. 32 of 2009. Ministerial Regulation No. 26 of 2018 governs mineral and coal mining activities in Indonesia, requiring these activities to be conducted in a sustainable and responsible manner, taking into account environmental conservation and community welfare. The government has the authority to impose sanctions or penalties on companies that violate these regulations, including fines or the revocation of business licenses. Law No. 40 of 2007, Articles 66 and 74, and Government Regulation No. 47 of 2012, Article 2, discuss the Social and Environmental Responsibility of Limited Liability Companies. According to Statement of Financial Accounting Standards (PSAK) No. 1 of 2012, companies may present separate reports from their financial statements regarding their social and environmental responsibilities [4].

Many researchers have examined factors that may influence environmental disclosure due to the urgency and importance of environmental issues today [1], [5-15]. This study analyzes reporting in Indonesia related to environmental disclosure, as it is one of the developing countries with significant natural resources and rapid economic growth. Environmental disclosure becomes increasingly important in this context to ensure that economic growth does not come at the expense of environmental conservation and sustainability. This research examines profitability, company size, company age, and environmental performance in relation to environmental disclosure. Given the current phenomenon, these variables remain relevant for testing their impact on environmental disclosure by companies.

Environmental disclosure is an effort made by companies to attract attention and trust from the public and stakeholders, as well as to gain legitimacy for their business activities. According to legitimacy theory, it is stated that every business institution conducting its operations within society operates under an explicit or implicit social contract. Its survival and growth depend on delivering certain socially desired objectives to the general public and

distributing economic, social, or political benefits to various community groups [14]. Organizations will carry out their business activities in line with the values and norms within society to enhance legitimacy and gain public support. Stakeholder theory reveals that stakeholder groups have greater power to influence a company's operations. For a company to survive, stakeholders must support the company, and the company's operations must align with stakeholder demands [7]. Nowadays, more stakeholders are paying attention to the environmental sustainability impacts of a company's operational activities. Stakeholder awareness of environmental sustainability issues encourages companies to engage directly in environmental disclosure to report it [4].

Profitability is a company's ability to generate profits from its business activities by measuring the amount of profit obtained. Legitimacy theory argues that the future of a company depends on whether it provides welfare to society or not. Prior research [1] explain that companies with large profits have the financial resources to engage in environmental initiatives and invest in equipment and systems to collect, measure, and report environmental information. From the perspective of stakeholder theory, profitability is a company resource considered in environmental disclosure efforts. The greater the company's resources, the easier it is for the company to make environmental disclosures [11]. Companies with higher profitability are able to meet stakeholder demands, enhance legitimacy and reputation, and gain access to capital. The research findings [1, 5] provide empirical evidence that profitability positively influences environmental disclosure. The proposed hypothesis is: H1: Profitability positively affects environmental disclosure.

Company size reflects the complexity of its operational activities [5]. The more complex the company's operations, the more incentives it has to disclose broader environmental information. Legitimacy theory views that the larger the company, the more attention it attracts from the public, putting pressure on the company to disclose environmental information about its growing operational activities to avoid potential obstacles⁸. The research findings [1,8,16] provide empirical evidence that company size positively affects environmental disclosure. The proposed hypothesis is: H2: Company size positively affects environmental disclosure.

Company age is considered one of the important attributes, reflecting company stability, experience, financial performance, and reputation, which in turn influences the level of environmental information disclosure [15]. Legitimacy theory assumes that a company's existence depends on public acceptance, as public legitimacy is regarded as an essential resource for determining the company's survival [15]. Older companies are under pressure due to their complex operational activities, which requires them to disclose environmental information to gain public legitimacy [4]. The research findings [4, 9, 16] provide empirical evidence that company age positively and significantly affects environmental disclosure. The proposed hypothesis is: H3: Company age positively affects environmental disclosure. Environmental performance reflects a company's capability in implementing its environmental management system⁵.

Legitimacy theory suggests that the better a company's environmental management performance, the greater its environmental awareness and disclosure. This is done to maintain the trust of the public so that the company's actions continue to be legitimized¹¹. Stakeholder theory explains that good environmental performance encourages companies to disclose more environmental information as a way to enhance their reputation with stakeholders, improve the environment, and strengthen relationships with authorities and the public, showing that the company cares about the environment [1, 8]. The research findings [4, 6, 8, 13] provide empirical evidence that environmental performance positively and significantly affects environmental disclosure. The proposed hypothesis is: H4: Environmental performance affects environmental disclosure.

2 Research Methodology

2.1 Methodology

The population of this study consists of mining sector companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2022. Data were obtained from the companies' annual reports and sustainability reports available on their respective websites. The sample was selected using purposive sampling and outlier data methods, resulting in a total of 104 observations for analysis. The following are the sample selection criteria used in this study.

Table 1. Sample Analysis Criteria of the Study

No	Criteria	IDX
1	Mining industry companies listed on the IDX, KLSE, and SET for the period of 2020-2022.	61
2	Mining industry companies listed on the IDX, KLSE, and SET that did not publish annual reports for the period of 2020-2022.	(11)
Number of Sampled Companies		50
Number of Analysis Units (3 years)		150
Outlier Data		(46)
Number of Analysis Units After Outlier Data		104

The data were processed using IBM SPSS Statistics 26 with multiple linear regression analysis. The multiple linear regression equation used in this study is represented as follows:

$$ED = \beta_0 + \beta_1ROE + \beta_2SIZE + \beta_3AGE + \beta_4KINL + \varepsilon$$

Description:

ED	= Environmental Disclosure
β_0	= Constant
$\beta_1 - \beta_4$	= Regression Coefficients
ROE	= Profitability
SIZE	= Company Size
AGE	= Company Age
KINL	= Environmental Performance
ε	= <i>error</i>

2.2 Variable Measurement

This study presents environmental disclosure as a dependent variable, while profitability, company size, company age and environmental performance as independent variables. Environmental disclosure is measured by content analysis applied to annual reports or desire reports published by mining sector companies that are sampled in the study. The content analysis indicator is guided by previous research by giving a score of 0-5. The assessment score "0" to "5" for each environmental coverage item is based on the Global Reporting Initiative (GRI) Standard 2021 with 36 coverage items. The quantity of disclosure of the analysis unit used is taken from the sentences accumulated in the annual report or company arrival report on each environmental disclosure item. Assessment, one paragraph is determined based on three sentences disclosed or accumulated in the company's report. Half

a page is defined as the number of paragraphs equivalent to half an A4 page. The number of one A4 page using a similar approach is equivalent to the sentences disclosed on one A4 page

$$Environmental\ disclosure = \frac{\Sigma Disclosed\ Item}{180}$$

Table 2. Measurement of Research Variables

No	Variable	Code	Measurement
Dependent Variable			
1	Environmental Disclosure	ED	Content Analysis [7, 15, 16, 20]
Independent Variable			
2	Profitability	ROE	$Return\ On\ Equity = \frac{Net\ Income}{Shareholders'\ Equity}$ [15]
3	Company Size	SIZE	Ln (Total Asset) [1,7,11,15]
4	Company Age	AGE	Ln (ΣMonths Since Company Establishment) [4]
5	Environmental Performance	ISO	ISO 14001, Measured using dummy variables, 1 = Company holds ISO 14001 certification 0 = Company does not have ISO 14001 certification [1, 8]

3 Results and Discussion

3.1 Descriptive Statistical Analysis & Classical Assumption Tests

Factors hypothesized to affect environmental disclosure are represented by descriptive statistical analysis to analyze data distribution, mean, and standard deviation. Based on Table 3, the average environmental disclosure is 0.0968 with a standard deviation of 0.0911. This indicates that the mean value is greater than the standard deviation, suggesting that the environmental disclosure data are well-distributed.

Table 3. Descriptive Statistics Results

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
ED	104	,0000	,3167	,096848	,0911615
ROE	104	-6,1445	8,2709	,030820	1,2032367
SIZE	104	23,8821	33,1140	28,590074	1,8266387
AGE	104	4,2485	6,3750	5,691162	,4399918
KINL	104	0	1	,41	,495
Valid N (listwise)	104				

The classical assumption test was conducted to ensure that this study uses a consistent, unbiased regression equation and estimates the results accurately. The Normality Test using the Kolmogorov-Smirnov Test method shows a significance value of 0.088 or greater than 0.05, which means that the regression equation is normally distributed. The Multicollinearity

Test using the Tolerance and VIF Test methods on the regression equation produces a tolerance value of >0.10 and a VIF value of <10.00 , which means that the regression model is free from multicollinearity symptoms. The Autocorrelation Test using the Runs Test method shows a significance value of 1,000 or greater than 0.05, which means that the regression equation is free from autocorrelation symptoms. The Heteroscedasticity Test using the Glejser test method shows the significance results of all variables greater than 0.05, which means that the regression model is free from heteroscedasticity symptoms.

3.2 Results and Discussion of Inferential Analysis

Table 4 presents the results of the parametric statistical test for independent variables, where this study used hypothesis testing (t-test). Hypothesis 1 (H1) is rejected because profitability was found to have a negative and insignificant effect on environmental disclosure. The significance level of H1 is 0.279 (>0.05) and the t-value is -1.088, indicating that profitability does not impact the environmental disclosure conducted by the company. This result is inconsistent with the theory which posits that higher profits provide companies with greater financial resources to engage in environmental initiatives¹. Conversely, the findings are consistent with prior researchs [8, 17], which explain that companies with higher profitability tend to disclose less environmental information. On the other hand, the company's revenue is prioritized for financing operational activities, leading to fewer financial resources available for social activities.

Table 4. Regression Analysis Results

Model	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-,973	,123		-7,933	,000
ROE	-,005	,005	-,066	-1,088	,279
SIZE	,038	,003	,756	11,336	,000
AGE	-,003	,013	-,016	-,262	,794
KINL	,023	,013	,125	1,778	,079

a. Dependent Variable: ED

Company size shows a significance value of 0.000 (<0.05) and a t-value of 11.336, indicating that company size has a positive and significant effect on environmental disclosure by companies. This result demonstrates that larger companies are more likely to contribute to environmental disclosure. The findings are consistent with prior research [8] which state that larger companies attract more public attention. The public exerts pressure on these companies to disclose environmental information related to their operational activities to avoid potential issues in the future.

The company age in this study shows a significance value of 0.794 (>0.05) and a t-value of -0.262, indicating that company age does not affect environmental disclosure by the company. This result is inconsistent with the theory suggesting that older companies, due to their complex business activities, face public pressure to engage in environmental disclosure. Conversely, the findings align with previous studies [17, 15], which state that the length of time a company has been established does not influence the company's efforts to disclose environmental information. Older companies may be accustomed to fulfilling social and environmental responsibilities without necessarily reporting them in annual reports.

Additionally, younger companies might engage in environmental disclosure to build their reputation with investors.

Environmental performance in the regression analysis shows a significance value of 0.079 (>0.05) and a t-value of 1.778, indicating that environmental performance does not impact the environmental disclosure by the company. This result is inconsistent with the theory that companies with ISO 14001 certification exhibit higher levels of environmental concern and management performance, leading to greater environmental disclosure. Conversely, the findings align with previous study [18], that suggest that environmental performance does not influence environmental disclosure. This may be due to the fact that many of the sample companies do not have ISO 14001 certification. Acquiring ISO 14001 certification involves substantial costs, leading companies to prioritize financial performance over environmental performance.

4 Conclusion

The results of the environmental disclosure study conducted on mining companies listed on the Indonesia Stock Exchange (IDX) during the period 2020-2022 show that the environmental disclosure by these companies remains in the low category. This is likely due to the companies' level of concern and their transition to adhering to the GRI Standards 2021 for environmental disclosure not being optimal. The study suggests that companies should enhance their environmental responsibility disclosures in annual reports and sustainability reports, referring to the new disclosure items in the GRI Standards 2021. They should also include explanatory sentences for the disclosed items to make the information clear and globally acceptable. The regression analysis results indicate that company size significantly affects environmental disclosure. Larger companies tend to contribute more to environmental disclosure as a form of corporate responsibility and to gain public trust due to the environmental impacts of their operational activities. Conversely, profitability, company age, and environmental performance do not significantly affect environmental disclosure. The study has several limitations; variables that did not show an effect on environmental disclosure could be tested again using different proxies. Future research could examine other variables and consider moderating factors to assess the effectiveness of environmental disclosure.

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