



Carbon Emission Disclosure from a Legitimacy Perspective: Financial, Regulatory, and Environmental Dimensions

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Abstract

Research on carbon emission disclosure in Indonesia has predominantly focused on the corporate sector, despite the fact that responsibility for protecting the environment from carbon emissions is shared by all stakeholders. This study aims to examine the factors that influence carbon emission disclosure in local governments. The determinants of carbon emission disclosure consist of local government size, financial solvency, financial slack, local government regulation, environmental costs, and environmental performance. The sample selection method employed Isaac and Michael's Table combined with a disproportionate stratified random sampling technique. The sample criteria included local governments located in regions that had experienced hydrometeorological disasters in 2024. A total of 228 samples were used. Multiple linear regression analysis was used to test the hypotheses. The results showed that local government size and local government regulation had a significant positive effect on carbon emission disclosure. Financial solvency, financial slack, and environmental performance had a significant negative effect on carbon emission disclosure, whereas environmental cost had no effect on carbon emission disclosure.

Keywords: *Carbon Emission Disclosure, Financial Solvency, Financial Slack, Regulation, Environmental Cost, Environmental Performance*

Introduction

Climate change has become one of the key issues receiving major attention at the global level. One of the main factors driving climate change is the increase in global temperature due to greenhouse gas emissions resulting

from carbon emissions generated by various human activities, including fossil fuel combustion, deforestation, and industrial activities (Lestari et al., 2025). The role of carbon emissions as one of the main contributors to climate change has made the



need for emission disclosure a priority in environmental governance. Carbon emission disclosure is an important aspect of corporate sustainability practices, as it reflects a firm's commitment to environmental responsibility and accountability (Yulianti & Waworuntu, 2025). Climate change and sustainability disclosure have been recognized by the global business community as important information for various stakeholders (Hegazy et al., 2023).

Indonesia is one of the countries classified among the world's largest greenhouse gas (GHG) emitters in 2024, along with China, the United States, India, the European Union (EU27), and Russia (Crippa et al., 2025). High emissions can originate from various sectors, such as industry, energy, transportation, as well as land-use change and forestry. On the other hand, according to the World Risk Report (2016), Indonesia is classified as a country with a high level of disaster risk, driven by high exposure and vulnerability to disasters (Rosyida et al., 2025). The number of disaster events has increased each year. The main drivers of this increase are influenced by several natural factors, such as global warming, climate change, weather variability, volcanic activity, and tectonic plate movements, which can trigger various types of disasters. The most dominant disaster events in 2024 were dry and wet hydrometeorological disasters. According to data from the National Disaster Management Agency (BNPB), hydrometeorological disasters have been the most dominant type of disaster in Indonesia each year. This condition indicates a strong linkage between hydrometeorological disaster

events and changes in weather and climate occurring across various regions.

The Government of Indonesia has established Presidential Regulation No. 98 of 2021, which stipulates that efforts to control greenhouse gas (GHG) emissions are integrated into development policies at the national, central, and regional levels and are implemented through the involvement of the central government, local governments, business actors, and the community (Gunawan & Megandari, 2024). Local governments play a strategic role in climate change mitigation and in achieving national greenhouse gas (GHG) emission reduction targets. The strategic role of local governments in supporting the achievement of greenhouse gas (GHG) emission reduction targets requires transparency and accountability in various policies, programs, and development activities oriented toward environmental sustainability (Yustisia et al., 2025). Transparency is realized through the disclosure of information related to carbon emissions and climate change actions in various government planning and reporting documents, such as the Medium-Term Development Plan (RPJMD) and the Annual Government Work Plan (RKPD).

Carbon emission disclosure in local governments is voluntary, even though it is important to ensure the sustainability of local governments. Research on carbon emission disclosure in local governments in Indonesia is still limited, with most studies being concentrated in the corporate sector (Nursulistyo et al., 2023). Previous studies have shown inconsistent findings regarding



the factors influencing carbon emission disclosure. The study finds that firm size, financial slack, and environmental performance have a positive effect on carbon emission disclosure (Abdullah et al., 2020; Alfani & Diyanty, 2020; Harits & Mutasowifin, 2024; Yulianti & Waworuntu, 2025), while other studies find a negative effect or no effect (Jaunanda & Putri, 2025; Mahboub, 2025; Rahmawati et al., 2023; Sasmita et al., 2025). In addition, studies examining carbon emission disclosure in local governments are still limited. This indicates the need for further research on carbon emission disclosure in local governments. Local governments were selected as the research object because they are expected to have substantial responsibility in implementing carbon emission reporting and disclosure. Local governments should serve as an example for companies in managing and disclosing carbon emissions as part of their environmental responsibility efforts.

Based on the urgency, phenomenon, and identified research gap, this study examines the determinants of carbon emission disclosure in local governments in Indonesia. The study focuses on local governments in regions that experienced hydrometeorological disasters in 2024. This selection is based on the relevance of these local governments to the research topic on carbon emission disclosure.

Literature Review and Hypothesis Development

Legitimacy Theory

Legitimacy theory serves as the theoretical foundation of this study, as it emphasizes that an organization's existence and activities are recognized only when they are aligned with societal norms, values, and expectations (Suchman, 1995). Legitimacy in the context of local governments is reflected in public trust in the execution of governmental duties and responsibilities. The greater the public demand for trust, the greater the extent to which local governments perform their duties and responsibilities. Organizational sustainability is influenced by the organization's ability to obtain recognition and trust from society through legitimacy. (Ghozali & Chariri, 2014).

Carbon emission disclosure as part of environmental information represents an organizational effort to demonstrate concern for environmental issues and to obtain legitimacy from stakeholders and society (Wahyuningrum et al., 2023). Carbon emission disclosure (CED) is an important component of organizational responsibility in identifying and reporting the environmental and climate change impacts of its activities, particularly amid increasing concerns over global warming (Khatib & Amosh, 2023). Carbon emissions are classified as a group of greenhouse gases that play a significant role in increasing the Earth's global temperature. As a form of accountability for the environmental impacts generated from its operational activities, the company discloses carbon emissions to its stakeholders (Hidayah et al., 2024).



Local Government Size

Firm size is an indicator used to describe the scale of a company based on all resources it owns and manages (Yulianti & Waworuntu, 2025). This study uses the term “Local Government Size” to align with the public sector context, however, the meaning and underlying construct being measured remain unchanged. Local government size reflects the magnitude of resource capacity owned by local governments in carrying out governmental functions and achieving development objectives. Local government size can enhance the ability to meet its demands through carbon emission disclosure. Based on legitimacy theory, the larger the firm size, the greater the resources and operational activities it possesses, which in turn increases the level of external pressure it faces (Ratmono et al., 2021). Therefore, large firms tend to exhibit a higher level of transparency in carbon emission disclosure (Abdullah et al., 2020; Chariri et al., 2023; Nasih et al., 2019).

H₁: Local government size has a positive effect on carbon emission disclosure.

Financial Solvency

Previous studies state that financial distress can hinder social contact with the community in carrying out social interactions and social contributions within society (Rahmadhani & Indriyani, 2019). The resulting impact is the suboptimal fulfillment of social and environmental responsibilities. This condition may reduce a firm’s legitimacy in the eyes of the public (Gantyowati & Nugraheni, 2014). Financial distress in this study is referred to as financial solvency to align with the local government context. Financial solvency is the

ability of local governments to meet their long-term obligations, including principal and interest payments on debt, as assessed through cash flow conditions, debt structure, revenue capacity, and overall fiscal balance on a sustainable basis (Rossi, 2011).

H₂: Financial solvency has a negative effect on carbon emission disclosure.

Financial Slack

Financial slack refers to a condition in which local governments have financial resources that exceed their core operational needs, enabling them to support other activities. Organizations with greater financial resources are more likely to be driven to enhance transparency in carbon emission disclosure (Aini et al., 2022; Alfani & Diyanty, 2020). Previous studies have found that high financial slack can increase greenhouse gas emission disclosure (Alfani & Diyanty, 2020; Suryani & Wijayati, 2019). Social disclosure and environmental performance aim to strengthen reputation, increase public attention, and maintain legitimacy among stakeholders (Sasmita et al., 2025).

H₃: Financial slack has a positive effect on carbon emission disclosure.

Local Government Regulation

Previous studies state that CSER disclosure provides the public with an opportunity to monitor corporate behavior and its compliance with government regulations and established standards (F. Faisal et al., 2020). Such actions become one of the mechanisms through which firms maintain legitimacy (Xu & Zeng, 2016). The implementation of sustainable development by local governments requires mandatory support



through government regulations and policies. The issuance of regulations by local governments reflects their commitment to supporting environmental management and controlling carbon emissions to achieve sustainable development. The stronger a firm's compliance with the implementation of environmental regulations imposed by the government, the greater the incentive to engage in carbon emission disclosure (Wahyuningsih & Meiranto, 2021).

H4: Local government regulation has a positive effect on carbon emission disclosure.

Environmental Cost

Environmental cost are expenditures incurred to prevent, mitigate, or remediate damage resulting from environmental degradation (Shabbir & Wisdom, 2020). Previous studies indicate that the allocation of environmental costs has a positive impact on the quality of corporate sustainability reporting (Chairina & Tjahjadi, 2023). Environmental costs reflect the commitment of local governments to support environmental protection and conservation efforts through environmental management activities. The allocation of environmental costs can serve as a mechanism for local governments to demonstrate that their activities are conducted in accordance with societal expectations and prevailing community values. Previous studies have stated that environmental costs are expenditures incurred as a consequence of environmental degradation resulting from a company's operational activities (Siagian et al., 2021).

H5: Environmental cost has a positive effect on carbon emission disclosure.

Environmental Performance

Firms that implement effective environmental management tend to exhibit higher levels of carbon emission disclosure (Ika et al., 2022). Environmental performance reflects the extent to which environmental management and protection efforts are implemented. Local governments with strong environmental performance are expected to be more inclined to engage in carbon emission disclosure. Previous studies state that greenhouse gas emissions cannot be separated from legitimacy theory (Ratmono et al., 2021). High-quality carbon emission disclosure is viewed as a corporate strategy to communicate carbon emission information to the public (Harits & Mutasowifin, 2024).

H6: Environmental performance has a positive effect on carbon emission disclosure.

Research methods

This study employs a quantitative approach with a hypothesis testing research design. The type of data used is cross-sectional data. The data were collected for a single period, namely 2024. The population of this study comprises regency and municipal governments in Indonesia whose jurisdictions experienced hydrometeorological disasters in 2024, totaling 448 local governments. The population was selected on the premise that regions affected by hydrometeorological disasters are closely associated with climate change issues and carbon emissions. The sample size in this study was determined based on the sample size determination table developed by Isaac and Michael (1991). The sample was selected based on the study population, which consisted of 448 regency and municipal governments in 2024. A



margin of error of persen was established as the basis for determining the sample size used in this study. The sample size determination in this study was based on the Isaac and Michael table, with a disproportionate stratified random sampling technique applied, using provinces as the basis for stratum formation. Each province was represented by a relatively balanced number of samples, with

approximately six regency or municipal governments selected to serve as representatives. However, the final sample comprised 228 regency and municipal governments in 2024, thereby satisfying the minimum sample size requirement specified in the Isaac and Michael table. Further details regarding the criteria used for sample selection are presented in Table 1.

Table 1. Sample Selection Process

Unit Analysis Selection Process	Total
Regency and Municipal Governments in Indonesia	514
Regency and Municipal Governments in Indonesia Whose Jurisdictions Experienced Hydrometeorological Disasters in 2024, Based on BNPB Data	448
The total of local governments included in the research sample was determined based on Isaac and Michael's Table	198
The total of local governments was randomly selected across provinces, and random sampling was applied for sample selection.	228

Source: table created by the authors

The data sources of this study are secondary data obtained from documents published on the official websites of local governments, the Audit Board of Indonesia (BPK), the Ministry of Environment (KLH), and the Environmental Agency (DLH). These documents include the Greenhouse Gas (GHG) Inventory Report, Regional Action Plan for GHG Emission Reduction (RAD-GRK), Regional Medium-Term Development Plan (RPJMD), Regional Government Work Plan (RKPD), Environmental Agency Work Plan (Renja DLH), Environmental Agency Strategic Plan (Renstra DLH), Regional Environmental Management Performance Information Document (DIKPLHD), Strategic Environmental Assessment (SEA/KLHS), Audit Report (LHP) on Local

Government Financial Statements (LKPD), regulations related to carbon emissions, and the Environmental Quality Index (IKLH) report.

The study employed a documentation technique for data collection. The data were analyzed using descriptive statistical analysis, multiple linear regression analysis, classical assumption tests, variable significance testing (t-test), model significance testing (F-test), coefficient of determination analysis, robustness testing, and sensitivity analysis. Statistical analysis was conducted using StataMP 17 software.



Dependent Variable

The dependent variable used in this study is carbon emission disclosure. Carbon emission disclosure is a form of local government accountability for the environmental impacts arising from the implementation of regional activities and policies. The carbon emission disclosure variable is measured using the Carbon Disclosure Project (CDP) checklist (Choi et al., 2013). The assessment was conducted across five categories: climate change (CC), greenhouse gases (GHG), energy consumption (EC), reduction and cost (RC), and carbon emission and cost accountability (ACC). Each category comprises several items, with a total of 18 items.

Independent Variable

This study uses six independent variables. The first variable is local government size. Local government size is measured using the total assets of local governments. The measurement of local government size refers to previous studies (Yulianti & Waworuntu, 2025). Firm size is measured using the total value of assets owned. The use of total assets serves to represent the capacity of resources possessed.

The second independent variable is financial solvency. Financial solvency is adapted from the financial distress variable used in studies within the corporate context. The financial solvency variable is measured using leverage, namely the ratio of total debt to total assets (Rahmadhani & Indriyani, 2019).

Financial slack is the third independent variable in this study. Financial slack reflects

the availability of resources remaining after primary needs have been fulfilled. This variable is measured by comparing the amount of cash and cash equivalents to the company's current liabilities (Alfani & Diyanty, 2020).

The fourth independent variable is local government regulation. This variable is measured using a dummy variable applied to local governments (Faisal et al., 2020). A value of 1 is assigned when a local government has regulations related to greenhouse gas emissions, whereas a value of 0 is assigned when the local government does not have such regulations.

Environmental cost is the fifth variable in this study. Environmental cost refers to environmental expenditures incurred by a company within one year (Kamila & Wulandari, 2024). The measurement used in this study is environmental cost, which is proxied by the ratio of total expenditure of the Environmental Agency to total local government expenditure (Kamila & Wulandari, 2024).

The final variable in this study is environmental performance. According to ISO 14001, environmental performance refers to the outcomes of an organization's environmental management system and can be measured based on its relationship with environmental aspects, as well as the environmental policies and environmental improvement targets that have been established (Harits & Mutasowifin, 2024). The environmental performance variable is measured using a ratio scale. The variable is



measured using the Environmental Quality Index (IKLH).

Results and Discussion

Table 2 presents a summary of the descriptive analysis results for all research variables. The Carbon Emission Disclosure (CED) variable, as the dependent variable, has a mean value of 0.07 and a standard deviation of 0.07, indicating that the CED data exhibit a relatively high level of variation or that there are considerable differences in values across observations. Indeks pengungkapan karbon terdiri 18 item. A minimum value of 0.00 indicates the absence of disclosure, while a maximum value of 0.44 indicates the disclosure of eight items.

The descriptive analysis results of the independent variables show that the first variable, local government size, has a mean value of 4,787.93 and a standard deviation of 7,018.25, indicating that the local government size data exhibit a relatively high level of dispersion or considerable variation across observations. The minimum value of 800.41 and the maximum value of 64,942.84 indicate that local government size has a relatively wide range, suggesting substantial differences among local governments. The Financial Solvency (FSy) variable has a mean value of 0.03 and a standard deviation of 0.03, indicating that financial solvency has a relatively low average with a relatively high level of variation across observations. The minimum value of 0.00 and the maximum value of 0.20 indicate that there are considerable differences in the level of financial solvency among local governments.

The Financial Slack (FSk) variable has a mean value of 6.00 and a standard deviation of 15.53, indicating that the financial slack data exhibit relatively high dispersion or greater variation across observations. The minimum value of 0.00 and the maximum value of 122.00 indicate substantial differences in the level of financial slack among local governments. The Local Government Regulation (LGR) variable has a mean value of 0.59 and a standard deviation of 0.49, indicating that local government regulation exhibits a relatively low level of variation across observations. The minimum value of 0.00 and the maximum value of 1.00 indicate that this is a dummy variable with only two categories.

The Environmental Cost (EC) variable has a mean value of 0.01 and a standard deviation of 0.01, indicating that environmental cost has a relatively low average with a relatively diverse level of data dispersion across observations. The minimum value of 0.00 and the maximum value of 0.24 indicate that environmental cost values vary considerably, ranging from the lowest to the highest levels across local governments. The Environmental Performance variable has a mean value of 70.00 and a standard deviation of 7.85, indicating that the data are relatively homogeneous and exhibit a relatively low level of variation across observations. The minimum value of 45.77 and the maximum value of 87.04 indicate the presence of variation in environmental performance values, ranging from the lowest to the highest across observations.

Table 2. Descriptive Statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
Carbn Emission Disclosure	0.07	0.07	0.00	0.44
Local Government Size	4,787.93	7,018.25	800.41	64,942.84
Financial Solvency	0.03	0.03	0.00	0.20
Financial Slack	6.00	15.53	0.01	122.00
Local Government Regulation	0.59	0.49	0.00	1.00
Environmental Cost	0.01	0.02	0.00	0.24
Environmental Performance	70.00	7.86	45.77	87.04

Note: Local Government Size is expressed in billions of Indonesian rupiah.

Source: table created by the authors

The classical assumption tests conducted in this study include the normality test, multicollinearity test, and heteroscedasticity test. The research sample consisted of 228 observations, therefore the normality assumption in this study is considered to be satisfied. The results of the multicollinearity test show that the Variance Inflation Factor (VIF) values for all variables are relatively low: local government size (1.10), financial solvency (1.12), financial slack (1.13), local government regulation (1.05), environmental cost (1.03), and environmental performance (1.13). The average VIF value of 1.09 indicates that the level of multicollinearity is very low, as the VIF value is below 10 or even below 5. Therefore, it can be concluded that the study data pass the multicollinearity test. The study indicates the presence of heteroscedasticity, as the Breusch–Pagan/Cook–Weisberg test produces a Chi-

square probability value of 0.0001, which is lower than 0.05. Therefore, the regression analysis is conducted using robust standard errors to ensure that the resulting estimates remain reliable (Dewayanti & Utami, 2021).

The following is the regression equation used in this study.

$$\text{CED} = 0.143 + 0.000\text{LGS} - 0.272\text{FSy} - 0.001\text{FSk} + 0.017\text{LGR} + 0.131\text{EC} - 0.001\text{EP} + \varepsilon$$

Note

- CED : Carbon Emission Disclosure
- LGS : Local Government Size
- FSy : Financial Solvency
- FSk : Financial Slack
- LGR : Local Government Regulation
- EC : Environmental Cost
- EP : Environmental Performance

Table 3. Regression Test Results

Variable	Coefficient	t	Sig.	Description
Local Government Size	0.000	2.260	0.025	H ₁ Accepted
Financial Solvency	-0.272	-2.160	0.032	H ₂ Accepted
Financial Slack	-0.001	-3.530	0.001	H ₃ No Accepted
Local Government Regulation	0.017	1.790	0.075	H ₄ Accepted
Environmental Cost	0.131	0.520	0.605	H ₅ No Accepted
Environmental Performance	-0.001	-2.070	0.040	H ₆ No Accepted
_cons	0.143	3.120	0.002	
Prob>F	0.000			
R Squared	0.099			

Source: StataMP 17 output, processed by the authors

The hypothesis testing aims to examine the effect of local government size, financial solvency, financial slack, local government regulation, environmental cost, and environmental performance as independent variables on carbon emission disclosure as the dependent variable. Based on Table 3, the constant value of 0.143 indicates that when all independent variables namely local government size, financial solvency, financial slack, local government regulation, environmental cost, and environmental performance are equal to zero or constant, carbon emission disclosure (CED) is 0.143. The regression coefficient for local government size is 0.000, with a significance value of $0.025 < 0.05$. This indicates that each one-unit increase in local government size increases CED by 0.000, ceteris paribus, and the effect is statistically significant, therefore H₁ is accepted. Financial solvency shows a coefficient of -0.272 with a significance value of $0.032 < 0.05$, indicating that each increase in financial solvency significantly reduces CED, therefore H₂ is accepted. Financial slack has a coefficient of -0.001 with a significance value of $0.001 <$

0.05, indicating a negative but statistically significant relationship, therefore H₃ is no accepted. Local government regulation shows a positive coefficient of 0.017 with a significance value of $0.075 < 0.10$, indicating that an increase in local government regulation leads to an increase in CED, therefore H₄ is accepted. Environmental cost has a coefficient of 0.131 with a significance value of $0.605 > 0.10$, indicating that each increase in environmental cost leads to an increase in CED, but the effect is not statistically significant, therefore H₅ is no accepted. Environmental performance has a coefficient of -0.001 with a significance value of $0.040 < 0.05$, indicating that each increase in environmental performance significantly reduces CED, therefore H₆ is no accepted.

The model significance test is conducted to assess the effect of independent variables on the dependent variable. The test results presented in Table 3 show that the Prob > F value is 0.00, which is lower than the 0.05 significance level. The results indicate that the regression model is significant, therefore, the independent variables jointly affect



carbon emission disclosure. The test results presented in Table 3 show that the R-square value is 0.09, or 9.99 percent. The value indicates that local government size, financial solvency, financial slack, local government regulation, environmental cost, and

environmental performance jointly explain 9.99 percent of the variation in carbon emission disclosure, while the remaining 90.01 percent is influenced by other factors outside the scope of this research model.

Table 4. Analisis Sensitivitas

CED	Main Model	GLM	GLM Robust
Local Government Size	0.025**	0.032**	0.022**
Financial Solvency	0.032**	0.083*	0.258
Financial Slack	0.001***	0.026**	0.028**
Local Government Regulation	0.075*	0.079*	0.403
Environmental Cost	0.605	0.597	0.462
Environmental Performance	0.040**	0.040**	0.571

****highly significant at the 0.010 level; **significant at the 0.05 level; and *marginally significant at the 0.10 level.*

Source: table created by the authors

The first sensitivity analysis in Table 4 examines the effect of the independent variables on carbon emission disclosure using a Generalized Linear Model (GLM). The regression results show that local government size, financial slack, and environmental performance have a significant effect (< 0.05), financial solvency and local government size have a marginally significant effect (0.10), while environmental cost has no effect on carbon emission disclosure. The second sensitivity analysis examines the effect of the independent variables on carbon emission disclosure using a Generalized Linear Model (GLM) with the inclusion of control variables. The regression results show that local government size and financial slack have a significant effect (< 0.05), while the other variables have no effect on carbon emission disclosure. This indicates that changes in the regression model can alter

the study results, and the only consistently stable variable is local government size.

The Effect of Local Government Size on Carbon Emission Disclosure

The results of this study indicate that the larger the size of a local government, the higher the level of carbon emission disclosure. This study is consistent with previous research that found firm size has a positive effect on carbon emission disclosure (Chariri et al., 2023; Kartikasary et al., 2023; Nasih et al., 2019; Yulianti & Waworuntu, 2025). Local governments with larger sizes tend to have broader resources compared to smaller local governments. Based on legitimacy theory, the larger the size of a local government, the greater its need to maintain legitimacy in the eyes of the public through various actions, such as carbon emission disclosure or sustainability



reporting. Therefore, local governments need to improve the efficiency of resource management and strengthen reporting quality so that carbon emission disclosure can be carried out optimally as an effort to maintain legitimacy in the eyes of the public.

The Effect of Financial Solvency on Carbon Emission Disclosure

The results of this study indicate that the higher the level of financial solvency experienced by local governments, the lower the level of carbon emission disclosure. This study is consistent with previous research on companies which found that financial distress has a negative effect on carbon emission disclosure (Faisal & Pratama, 2024; Rahmadhani & Indriyani, 2019). When local governments face financial pressure, budget priorities are directed toward fulfilling public services and mandatory expenditures. Therefore, governments need to maintain fiscal stability in order to continue paying attention to environmental accountability.

The Effect of Financial Slack on Carbon Emission Disclosure

Local governments with strong or substantial financial resource availability tend to support the implementation of environmental policies and programs. The findings indicate that the higher the level of financial slack owned by local governments, the lower the level of carbon emission disclosure. The results of this study are consistent with previous research, which found that financial slack has a negative effect on carbon emission disclosure (Jaunanda & Putri, 2025). However, this study is contrary to several other studies (Aini et al., 2022; Alfani &

Diyanty, 2020; Chithambo & Tauringana, 2014). The results indicate that local governments with large resources are not always encouraged to increase transparency related to carbon emissions. However, legitimacy theory explains that local governments maintain legitimacy in the eyes of the public by making efforts to disclose carbon emissions. This means that decisions regarding carbon emission disclosure are likely influenced more by other factors.

The Effect of Local Government Regulation on Carbon Emission Disclosure

The results of this study indicate that local governments with local government regulations tend to implement policies and disclosures related to carbon emissions. This study is consistent with previous research, which found that government regulations have a positive and significant effect on environmental accounting information disclosure (Wahyuningsih & Meiranto, 2021). Based on legitimacy theory, local governments that have regulations related to emissions tend to demonstrate their concern for environmental issues and meet public expectations.

The Effect of Environmental Cost on Carbon Emission Disclosure

This study indicates that an increase in environmental costs tends not to be accompanied by carbon emission disclosure. These results indicate that the ratio of environmental agency expenditure to total local government expenditure has not been able to support an increase in carbon emission disclosure. This may occur because local governments place greater emphasis on



implementing environmental programs and activities for public service provision without considering their impact on carbon emission disclosure. The results of this study are consistent with previous research (Budianto et al., 2025), but not consistent with several other studies (Chairina & Tjahjadi, 2023; Diyanti & Sa'diyah, 2024). Local government environmental expenditure allocations are generally used for various environmental management programs, such as waste management, greening initiatives, pollution control, and natural resource conservation. In addition, there are several local governments in which environmental functions are still combined with other affairs, such as housing or land administration.

Based on legitimacy theory, local governments seek public support and trust through the implementation of various environmental programs. However, the efforts undertaken by local governments are not always reflected in carbon emission disclosure, therefore an increase in environmental expenditure does not necessarily lead to an increase in carbon emission disclosure.

The Effect of Environmental Performance on Carbon Emission Disclosure

The results of this study indicate that good environmental performance in local governments is not always accompanied by an increase in carbon emission disclosure. These results indicate that higher index scores related to water quality, air quality, and land cover are associated with a decrease in carbon emission disclosure. Local

governments have achieved relatively good environmental performance to demonstrate legitimacy or reputation to both the central government and the public; therefore, the need to increase carbon emission disclosure among local governments becomes lower. The results of this study are consistent with research indicating that environmental performance has a negative effect on carbon emission disclosure (Abdullah et al., 2020).

However, this study is contrary to several other studies that found a positive effect on carbon emission disclosure (Jaunanda & Putri, 2025; Wahyuningrum et al., 2023; Yauri & Widianingsih, 2023). From the perspective of legitimacy theory, local governments with low environmental performance tend to experience a higher legitimacy gap because their conditions do not fully meet public expectations. This condition encourages local governments to increase environmental information disclosure as a means of obtaining and maintaining public legitimacy.

Conclusion

The results show that local government size and local government regulation have a positive and significant effect on carbon emission disclosure, while financial solvency, financial slack, and environmental performance have a negative and significant effect on carbon emission disclosure. Meanwhile, environmental cost has no significant effect on carbon emission disclosure. The hypothesis testing results conclude that resource capacity, financial conditions, and the existence of regulations in local governments can support an increase in



carbon emission disclosure in local governments. Meanwhile, environmental performance actually reduces the level of disclosure, and environmental costs have not been able to become a factor that significantly influences carbon emission disclosure.

Future research is suggested to expand the sample of local governments by using complete and non-missing report data. The aim is to obtain more accurate research results and reduce bias. Future research may also add more in-depth variables and control variables to improve the accuracy of the regression results.

Reference

- Abdullah, M. W., Musriani, R., Syariati, A., & Hanafie, H. (2020). Carbon emission disclosure in Indonesian firms: the test of media-exposure moderating effects. *International Journal of Energy Economics and Policy*, 10(6), 732–741. <https://doi.org/10.32479/IJEEP.10142>
- Aini, K. N., Murtiningsih, R., Baroroh, N., & Jati, K. W. (2022). The effect of financial slack, institutional ownership, media exposure on carbon emission disclosure with solvability ratio as a moderating variable. *Proceedings of the 2nd International Conference of Strategic Issues on Economics, Business and Education (ICoSIEBE 2021)*, 204(ICoSIEBE 2021), 147–153. <https://doi.org/10.2991/aebmr.k.220104.022>
- Alfani, G. A., & Diyanty, V. (2020). Determinants of carbon emission disclosure. *Journal of Economics, Business, & Accountancy Ventura*, 22(3), 333–346. <https://doi.org/10.14414/jebav.v22i3.120>
- Budianto, Setiawan, D., Widarjo, W., & TArifin, T. (2025). Influence of corporate sustainability committees , environmental performance , and environmental costs on carbon disclosure in energy , mining , and transportation companies in Indonesia. *Journal of Asian Energy Studies*, 9, 91–110. <https://doi.org/10.24112/jaes.090006>
- Chairina, C., & Tjahjadi, B. (2023). Green governance and sustainability report quality: The moderating role of sustainability commitment in asean countries. *Economies*.
- Chariri, A., Januarti, I., & Yuyetta, E. N. A. (2023). Iso certification, firm characteristics and carbon emission disclosure. *IOP Conference Series: Earth and Environmental Science*, 1248(1). <https://doi.org/10.1088/1755-1315/1248/1/012024>
- Chithambo, L., & Tauringana, V. (2014). Company specific determinants of greenhouse gases disclosures. *Journal of Applied Accounting Research*, 15(3), 323–338. <https://doi.org/10.1108/JAAR-11-2013-0087>
- Choi, B. B., Lee, D., & Psaros, J. (2013). An analysis of Australian company carbon emission disclosures. *Pasific Accounting Review*, 25(1), 25. <https://doi.org/10.1108/01140581311318968>
- Crippa, M., Guizzardi, D., Pagani, F., Banja, M., Muntean, M., Schaaf, E., Quadrelli, R., Risquez Martin, A., Taghavi-Moharamli, P., Köykkä, J., Grassi, G., Rossi, S., Melo, J., Oom, D., Branco, A., Suárez-Moreno, M., Sedano, F., San-Miguel, J., Manca, G., ... Pekar, F. (2025). *JRC science for policy report GHG emissions of all world countries*. <https://doi.org/10.2760/5917997>
- Dewayanti, A. A., & Utami, H. (2021).



- Estimasi robust pada model regresi untuk menangani outlier dan heteroskedastisitas (robust estimation in regression model for handling outlier and heteroscedasticity). *Journal Matematika Thales (JMT)*, 03(01), 1–12.
- Diyanti, F., & Sa'diyah, N. (2024). Pengaruh ISO 14001 certification, ukuran perusahaan, dan environmental cost terhadap carbon emission disclosure. *Jurnal Masharif Al-Syariah: Jurnal Ekonomi Dan Perbankan Syariah*, 9(204), 3195–3211.
- Faisal, F., Situmorang, L. S., Achmad, T., & Prastiwi, A. (2020). The role of government regulations in enhancing corporate social responsibility disclosure and firm value. *Journal of Asian Finance*, 7(8), 509–518. <https://doi.org/10.13106/jafeb.2020.vol7.no8.509>
- Faisal, M., & Pratama, F. A. (2024). Financial distress, environmental performance, and carbon emission disclosure. *Jurnal EQUITY*, 27(2), 210–225. <https://doi.org/10.34209/equ.v27i2.8884>
- Gantyowati, E., & Nugraheni, R. L. (2014). The impact of financial distress status and corporate governance structures on the level of voluntary disclosure within annual reports of firms (case study of non-financial firms in Indonesia over the period of 2009-2011). *Journal of Modern Accounting and Auditing*, 10(4), 389–403.
- Ghozali, I., & Chariri, A. (2014). *Teori akuntansi: International Financial Reporting System (IFRS)* (4th ed.). Indonesia: Badan Penerbit Universitas Diponegoro.
- Gunawan, B., & Megandari, M. A. (2024). The influence of the independent board of commissioners, gender diversity, and institutional ownership on carbon emissions disclosure. *SHS Web of Conferences*, 204, 06006. <https://doi.org/10.1051/shsconf/202420406006>
- Harits, M. R., & Mutasowifin, A. (2024). Analysis of the influence of financial, carbon, and environmental performance on carbon emission disclosure. *IOP Conference Series: Earth and Environmental Science*, 1359(1). <https://doi.org/10.1088/1755-1315/1359/1/012095>
- Hegazy, M., El-Deeb, M. S., Hamdy, H. I., & Halim, Y. T. (2023). Effects of organizational climate, role clarity, turnover intention, and workplace burnout on audit quality and performance. *Journal of Accounting and Organizational Change*, 19(5), 765–789. <https://doi.org/10.1108/JAOC-12-2021-0192>
- Hidayah, M. N., Purnomowati, N. H., & Cummings, L. (2024). Board of directors diversity and carbon emissions disclosure. *Jurnal Akuntansi Dan Bisnis*, 24(2), 221. <https://doi.org/10.20961/jab.v24i2.1204>
- Ika, S. R., Yuliani, Okfitasari, A., & Widagdo, A. K. (2022). Factors influencing carbon emissions disclosures in high profile companies: Some Indonesian evidence. *IOP Conference Series: Earth and Environmental Science*, 1016(1). <https://doi.org/10.1088/1755-1315/1016/1/012043>
- Jaunanda, M., & Putri, C. N. (2025). Financial slack and environmental performance on carbon disclosure in Indonesia and Malaysia mining companies. *EKUITAS (Jurnal Ekonomi Dan Keuangan)*, 9(1), 125–138. <https://doi.org/10.24034/j25485024.y2025.v9.i1.6938>
- Kamila, Q. A., & Wulandari, P. P. (2024).



- The influence of environmental cost, environmental performance, and carbon emission disclosure on financial performance. *International Journal of Research on Finance & Business*, 2(1), 165–182.
<https://doi.org/10.70575/ijrfb.v2i1.6>
- Kartikasary, M., Wijanarko, H. M. R., Tihar, A., & Zaldin, A. (2023). The effect of financial distress and firm size on carbon emission disclosure. *E3S Web of Conferences*, 426.
<https://doi.org/10.1051/e3sconf/202342602093>
- Khatib, S. F. A., & Amosh, H. Al. (2023). Corporate governance, management environmental training, and carbon performance: The UK evidence. *Journal of the Knowledge Economy*, 14787–14809. <https://doi.org/10.1007/s13132-023-01650-w>
- Lestari, R., Khofifah, S., & Nur Hadiyati, S. (2025). Analysis determinants of carbon emissions disclosure in the energy sector. *Journal of Accounting and Finance Management*, 6(2), 688–699.
<https://doi.org/10.38035/jafm.v6i2.1929>
- Mahboub, R. M. (2025). Determinants of climate change disclosure in the MENA region: Insights from CDP companies. *Sustainable Futures*, 10(August), 101159.
<https://doi.org/10.1016/j.sftr.2025.101159>
- Nasih, M., Harymawan, I., Paramitasari, Y. I., & Handayani, A. (2019). Carbon emissions, firm size, and corporate governance structure: Evidence from the mining and agricultural industries in Indonesia. *Sustainability (Switzerland)*, 11(9).
<https://doi.org/10.3390/su11092483>
- Nursulistyo, E. D., Aryani, Y. A., & Bandi. (2023). The disclosure of carbon emission in Indonesia: A systematic literature review. *Jurnal Dinamika Akuntansi Dan Bisnis*, 10(1), 1–18.
- Rahmadhani, S., & Indriyani, R. (2019). Impact of emissions intensive industries and financial distress on voluntary carbon emission disclosure. *AKRUAL: Jurnal Akuntansi*, 11(1), 1.
<https://doi.org/10.26740/jaj.v11n1.p1-8>
- Rahmawati, R., Setiawan, D., Aryani, Y. A., & Kiswanto, K. (2023). The effect of carbon emission disclosure and environmental performance on financial performance. *2024 International Conference on Decision Aid Sciences and Applications, DASA 2024*, 14(1), 196–204.
<https://doi.org/10.1109/DASA63652.2024.10836351>
- Ratmono, D., Darsono, D., & Selviana, S. (2021). Effect of carbon performance, company characteristics and environmental performance on carbon emission disclosure: Evidence from Indonesia. *International Journal of Energy Economics and Policy*, 11(1), 101–109.
<https://doi.org/10.32479/ijeeep.10456>
- Rossi, F. M. (2011). *Analysis of solvency in Italian local governments : The impact of Basel II*.
- Rosyida, A., Aziz, M., Firmansyah, Y., Setiawan, T., Pangesti, K. P., & I, F. K. B. A. (2025). *Data Bencana Indonesia 2024*. Pusat Data Informasi dan Komunikasi Kebencanaan Badan Nasional Penanggulangan Bencana.
- Sasmita, D., Hasanudin, A. I., Hanifah, I. A., & Januarsi, Y. (2025). Financial slack, CSR disclosure, and carbon emission disclosure: The moderating role of independent commissioners in Indonesian energy firms. *Environmental Economics*, 16(3), 100–111.
[https://doi.org/10.21511/ee.16\(3\).2025.07](https://doi.org/10.21511/ee.16(3).2025.07)



- Shabbir, M. S., & Wisdom, O. (2020). The relationship between corporate social responsibility , environmental investments and financial performance : evidence from manufacturing companies. *Environmental Science and Pollution Research*, 39946–39957.
- Siagian, A. O., Bina, U., & Informatika, S. (2021). Pengaruh environmental cost terhadap kinerja bisnis dengan kinerja lingkungan sebagai variabel moderasi. *Jurnal Ecodemia: Jurnal Ekonomi, Manajemen, Dan Bisnis*, 5(1), 51–60.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–610.
- Suryani, R., & Wijayati, F. L. (2019). Large determinant of greenhouse gas emissions disclosure in Indonesia. *JURNAL Riset Akuntansi Dan Keuangan Indonesia*, 4(2), 101–117.
- Wahyuningrum, I. F. S., Hidayah, R., Ihlashul'Amal, M., Sriningsih, S., & Setyadharma, A. (2023). The practice of disclosing carbon emissions in developing countries: Evidence from indonesia. *E3S Web of Conferences*, 448. <https://doi.org/10.1051/e3sconf/202344803017>
- Wahyuningsih, I., & Meiranto, W. (2021). Pengungkapan informasi akuntansi lingkungan (studi empiris pada perusahaan manufaktur yang terdaftar di BEI tahun 2016-2019). *Diponegoro Journal of Accounting*, 10(4), 1–12. <https://ejournal3.undip.ac.id/index.php/accounting/article/view/32966>
- Xu, B., & Zeng, T. (2016). Profitability , state ownership , tax reporting and corporate social responsibility : Evidence from Chinese listed firms. *Social Responsibility Journal*, 12(1), 23–31. <https://doi.org/10.1108/SRJ-06-2014-0076>
- Yauri, K., & Widianingsih, L. P. (2023). Carbon emission disclosure: Evidence from manufacturing company. *Indonesian Journal of Sustainability Accounting and Management*, 7(2). <https://doi.org/10.28992/ijssam.v7i2.985>
- Yulianti, E., & Waworuntu, S. R. (2025). The effect of company size, profitability, leverage, media exposure, and liquidity on carbon emissions disclosure. *Annals of Data Science*, 12(4), 1285–1313. <https://doi.org/10.1007/s40745-024-00564-x>
- Yustisia, R., Wibowo, A., Staden, M. Van, & Sari, D. (2025). The role of local governments in supporting the achievement of NDC targets: The Indonesian context. *Local Governments for Sustainability*.