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The Influence of Sustainability Awareness, Corporate Environmental Commitment, Regulatory Pressure, and Perceived Environmental Responsibility on Industrial Environmental Compliance in Jabodetabek

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Abstract: Indonesia faces significant challenges in environmental management, marked by severe air pollution and the low compliance of industries with environmental regulations. The government has established a legal framework through Law No. 32 of 2009 and Government Regulation No. 22 of 2021, which introduced two key instruments: the Environmental Impact Assessment (AMDAL) and the Corporate Performance Rating Program in Environmental Management (PROPER). However, compliance remains low, with thousands of companies in the red category, even though the number of PROPER participants increased from 4,520 companies in 2023–2024 to a target of 5,476 companies in 2025. This study aims to analyze the role of environmental laboratories in supporting regulatory compliance by examining the effects of sustainability awareness, corporate environmental commitment, regulatory pressure, and perceived environmental responsibility on corporate compliance. A quantitative approach was applied using 210 respondents, analyzed through descriptive statistics and SEM-PLS. The results reveal that sustainability awareness, corporate environmental commitment, and regulatory pressure significantly influence compliance, while perceived environmental responsibility acts as a mediating variable. These findings highlight the strategic role of environmental laboratories in providing scientific data for AMDAL and PROPER assessments, strengthening regulatory integration, and encouraging industries to adopt laboratories as strategic partners to improve compliance and promote sustainability.

Keyword: Sustainability Awareness, Corporate Environmental Commitment, Regulatory.

INTRODUCTION

Indonesia faces serious challenges in maintaining environmental sustainability amidst rapid economic growth and industrialization. High levels of air pollution, water contamination, and ecosystem degradation indicate the declining quality of the environment. The World Air Quality Report (IQAir, 2023) ranked Indonesia as the country with the worst air quality in

Southeast Asia. This situation is exacerbated by the low level of corporate compliance with environmental regulations, creating health, social, and economic risks for society. A sustainable environment is one having clean atmosphere, abundant natural resources, and natural resources with good quality, healthy living natural resources, all those living in air, under the water surface, and on land (Ramli, Y., et al., 2025).

The Indonesian government has established a regulatory framework through Law No. 32 of 2009 on Environmental Protection and Management and Government Regulation No. 22 of 2021, which emphasizes the obligation for environmental monitoring and management. Two key instruments in implementing these regulations are the Environmental Impact Assessment (AMDAL) as a technical instrument and the Corporate Performance Rating Program in Environmental Management (PROPER) as an evaluation instrument. AMDAL requires companies to prepare Environmental Management and Monitoring Plans (RKL-RPL), while PROPER evaluates corporate compliance using a performance rating system ranging from Gold to Black. However, compliance remains low. In 2022, only 51 companies received a gold rating, while 887 were rated red (Rion, 2022). In 2023, out of 3,694 PROPER participants, 1,077 companies still received a red rating (Nunu Anugrah, 2023). Although the number of participants increased from 4,520 companies in 2023–2024 to a target of 5,476 in 2025 (KLHK, 2024), this reflects persistent challenges in achieving environmental compliance.

In this context, environmental laboratories play a strategic role as providers of scientific data on air, water, soil, and waste quality. These data are essential for AMDAL implementation and serve as the basis for PROPER assessments. As of July 2024, there were 216 registered environmental laboratories in Indonesia, with 42 located in the Jabodetabek area, a region with dense industrial activities (KLHK, 2024). The presence of these laboratories should enhance transparency, accountability, and environmental management performance. However, in practice, the utilization of laboratories by companies remains suboptimal, limiting their contribution to regulatory compliance.

Previous studies have emphasized the importance of sustainability awareness, corporate environmental commitment, regulatory pressure, and perceived environmental responsibility as key factors influencing corporate compliance (Rumkel et al., 2020; Noviriani et al., 2023; Purwati et al., 2021). Nevertheless, research that specifically links these factors with the utilization of environmental laboratories in the context of AMDAL and PROPER, particularly in metropolitan regions such as Jabodetabek, remains limited.

Based on this gap, the present study aims to analyze the effects of sustainability awareness, corporate environmental commitment, regulatory pressure, and perceived environmental responsibility on industrial compliance through the utilization of environmental laboratories in Jabodetabek. This study is expected to contribute to the academic literature on corporate environmental compliance and provide practical implications for government, industries, and environmental laboratories in promoting sustainability.

METHOD

Design of Research

To run the study and address the research objectives, the research design serves as a framework. This work investigates the causal relationships between independent and dependent variables using a quantitative research method (Sugiyono, 2019), through the use of an environmental laboratory. Companies or institutions that have conducted environmental testing and analysis are given a questionnaire as part of the survey approach used to obtain quantitative data. This causal analysis aims to provide a comprehensive understanding of the relationships between the factors being studied.

Independent Variables: Sustainability Awareness is defined as the views and level of social and environmental sustainability of a community, as well as their belief that development

needs to take environmental considerations into account in order to achieve economic, environmental, and social unity (Shang et al., 2024). Corporate Environmental Commitment is defined as the extent to which a company integrates ecological issues into its business strategy to reduce the harmful impact of its business activities on the natural environment (Hirunyawipada & Xiong, 2018).

Regulatory pressure refers to the influence exerted by governmental and non-governmental organizations through laws, regulations, and policies that compel companies to adopt certain practices, particularly those related to environmental sustainability. (Rehman et al., 2023).

Purchasing as a dependent variable, namely consumer behavior regarding how individuals, groups, and organizations choose, purchase, and use goods, services, ideas, or experiences to fulfill their needs and desires (Kotler & Amstrong, 2016).

Mediating variable is Perceived Environmental Responsibility (Z) serves as an important antecedent for environmentally friendly attitudes and behaviors, underscoring the idea that addressing environmental issues and conserving resources is a shared responsibility (Wang et al., 2019).

Tools for Gathering Data

Primary data was obtained through an online survey administered using Google Forms, with questionnaires compiled based on indicators for each research variable. The research instrument used a 1–5 Likert scale to measure respondents' level of agreement with the statements presented.

In addition, this study also used secondary data in the form of reports from the Ministry of Environment and Forestry (KLHK), PROPER data, and relevant environmental laboratory databases.

The Size Of The Sample

Hair et al., (2019) recommend a minimum number of samples of 100 participants. Conversely, another rule stipulates that the sample size should be five to ten times greater than the number of indicators being assessed. A minimum sample size of $\eta \geq 7 \times 30$, or 210 samples, is required for this investigation, which uses 30 indicators. In order to account for unusable data and guarantee adherence to estimation guidelines, which suggest a range of 100–210 respondents, the researcher decided to gather more than 210 samples (Hair et al., 2019).

Analysis of Data

With an emphasis on quantifiable facts and data, a quantitative approach was adopted. Features like type of company, frequency of service usage, main purpose of service usage, company scale, company age and company domicile are all included in respondent characteristics. Data obtained from the questionnaires were analyzed by calculating frequencies and percentages. To examine the relationships among variables, the research employed Structural Equation Modeling–Partial Least Squares (SEM-PLS), as this technique is well-suited for testing complex models involving numerous constructs and indicator variables.

RESULTS AND DISCUSSION

This study describes the profile of respondents from the consumer survey concerning companies and institutions that make use of environmental laboratory testing services in the Greater Jakarta area (Jabodetabek)

Table 1. Respondents Characteristic

Respondent characteristic	Frequency	Percent

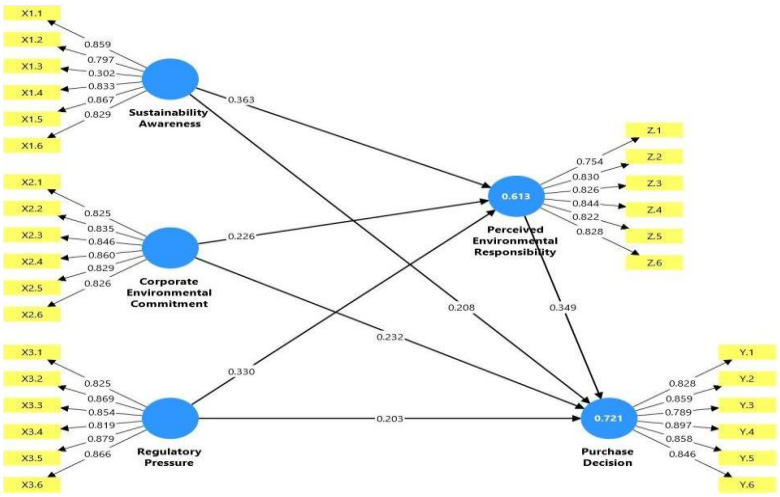
Type of Company		
Individuals	28	13,3
Educational institutions	8	3,8
Government agencies	29	13,8
Private companies	145	69,0
Frequency of Service Usage		
Every Month	85	40,5
Every Quarter	17	8,1
Every Semester	52	24,8
Every Year	19	9,0
Irregular	37	17,6
Main Purpose of Service Usage		
Regulatory compliance	138	65,7
Internal and external audits	21	10,0
Environmental risk management	30	14,3
Product development	18	8,6
Complaint handling	3	1,4
Company Scale		
Small	44	21,0
Micro	19	9,1
Medium	84	40,0
Large	63	30,0
Company Age		
Less than 1 year	5	2,4
1–5 years	37	17,6
6–10 years	34	16,2
11–20 years	57	27,1
More than 20 years	77	36,7
Company Domicile		
Jakarta	74	35,2
Bogor	15	7,1
Depok	8	3,8
Tangerang	101	48,1
Bekasi	12	5,7

Source: Researcher data processing 2025

Measurement Model Test (Outer Model)

Convergent Validity

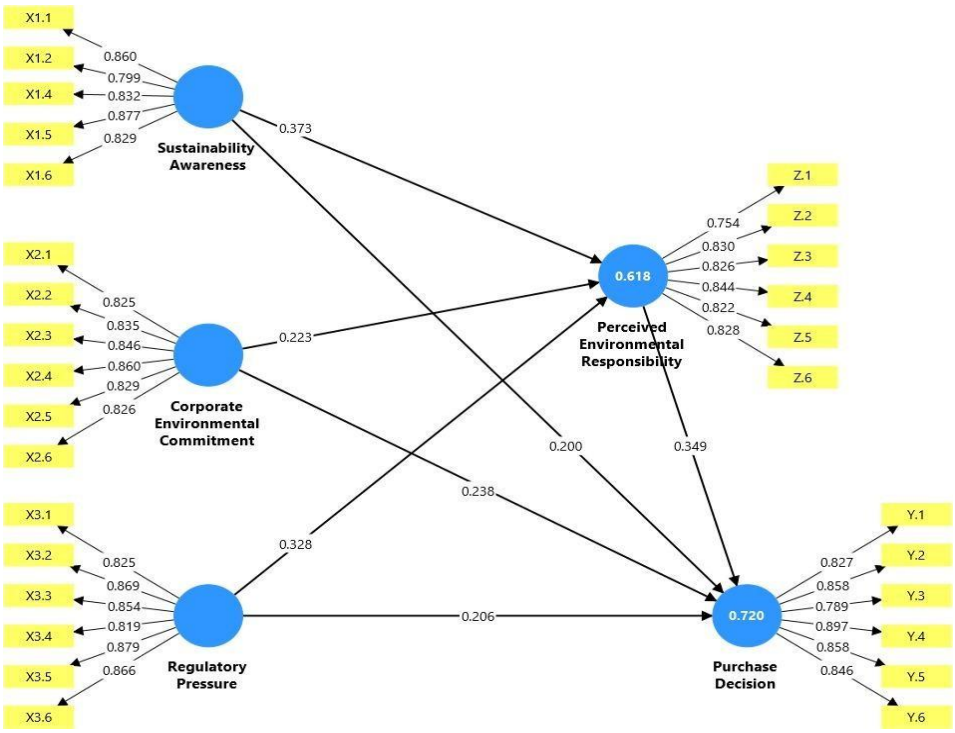
Reflective variables are assessed through the Convergent Validity test in PLS is looking at the loading factor, which proves the statistical relationship between item/component scores and construct scores. Chin (Alfa et al., 2017) asserts that an indication is considered legitimate if its loading factor is more than 0.5.



Source: Output Smart PLS, 2025

Figure 1. Results of the Convergent Validity Evaluation Using the Loading Factor

Referring to the test results in Figure 1, there is still one indicator with a loading factor below 0.5, namely indicator X1.3. Therefore, this indicator was eliminated, and the researcher conducted another test, which produced the following results.



Source: Output Smart PLS, 2025

Figure 2. Results of the Loading Factor-Based Second Convergent Validity Assessment

As illustrated in Figure 2, the test results reveal that all indicators possess outer loading values above 0.5, thereby confirming their validity. The conclusion is corroborated by the Construct Reliability and Validity assessment, with supporting AVE values provided in Table 3.

Table 2. Construct reliability and validity

	Average Variance Extracted (AVE)
Sustainability Awareness	0.705

Corporate Environment Commitment	0.701
Regulatory Pressure	0.726
Perceived Environment Responsibility	0.669
Purchase Decision	0.717

Source: Output Smart PLS, 2025

Discriminant Validity

Discriminant validity is evaluated by examining the cross-loading values between the indicators and their respective constructs, as outlined below.

Tabel 3. Discriminant validity – Fornell – Larcker Criterion

	Corporate Environment Commitment	Perceived Environment Responsibility	Purchase Decision	Regulatory Pressure	Sustainability Awareness
Corporate Environment Commitment	0.837				
Perceived Environment Responsibility	0.648	0.818			
Purchase Decision	0.708	0.777	0.847		
Regulatory Pressure	0.548	0.651	0.671	0.852	
Sustainability Awareness	0.658	0.696	0.711	0.539	0.840

Source: Output Smart PLS, 2025

The Fornell-Larcker test results in Table 3 indicate that the square root of the average variance extracted (√AVE) for each construct is greater than its correlation with other constructs in the model. These AVE values confirm that the constructs in the proposed model satisfy the requirements for discriminant validity.

Reliabilities Model Test

a) Composite Reliability

Tabel 4. Composite Realibility

	Composite Reliability rho_A	Composite Reliability rho_C
Sustainability Awareness	0.896	0.923
Corporate Environment Commitment	0.915	0.934
Regulatory Pressure	0.931	0.941
Perceived Environment Responsibility	0.902	0.924
Purchase Decision	0.921	0.938

Source: Output Smart PLS, 2025

As presented in Table 4, the composite reliability values are greater than 0.7, thereby demonstrating the consistency and credibility of all constructs

b) Cronbach's Alpha

Tabel 5. Construct reliability and validity

	Cronbach's Alpha
Sustainability Awareness	0.895
Corporate Environment Commitment	0.915
Regulatory Pressure	0.925
Perceived Environment Responsibility	0.901
Purchase Decision	0.921

Source: Output Smart PLS, 2025

As shown in Table 5, the Cronbach's alpha coefficients are greater than 0.7, thereby supporting the internal consistency of all constructs.

	R-Square	R-Square Adjusted
Sustainability Awareness		0.895
Corporate Environment Commitment		0.915

Source: Output Smart PLS, 2025

Table 6 reports R-square values of 0.618 and 0.720, indicating that the independent variables have substantial predictive power for the dependent variables, thereby strengthening the model's robustness.

Goodness of fit Model

In this study, the predictive relevance was assessed by applying the following formula, which incorporates the R-square values of all endogenous variables:

$Q2 = 1 - (1 - R1)\ (1 - Rp)$
$Q2 = 1 - (1- 0.720)\ (1 - 0.618)$
$Q2 = 1 - (0.280\times 0.382)$
$Q2 = 1 - 0.1070$
$Q2 = 0.893$

The calculation indicates a predictive relevance value of 0.893, exceeding 0. This signifies that 89.3% of the Perceived Environment Responsibility and Purchase Decision (dependent variables) are accounted for by the independent variables, making the model suitable with significant predictive value.

Hypothesis Test

The hypothesis testing results for each path coefficient are provided as follows:

Tabel 7. Path Coeffisients

	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Remarks
Sustainability Awareness -> Perceived Environmental Responsibility	0.373	0.072	5.182	0.000	Positive – Significant

Corporate Environmental Commitment -> Perceived Environmental Responsibility	0.223	0.054	4.127	0.000	Positive – Significant
Regulatory Pressure -> Perceived Environmental Responsibility	0.328	0.053	6.199	0.000	Positive – Significant
Perceived Environmental Responsibility -> Purchase Decision	0.349	0.066	5.262	0.000	Positive – Significant
Sustainability Awareness -> Purchase Decision	0.200	0.054	3.694	0.000	Positive – Significant
Corporate Environmental Commitment -> Purchase Decision	0.238	0.055	4.323	0.000	Positive – Significant
Regulatory Pressure -> Purchase Decision	0.206	0.057	3.619	0.000	Positive – Significant
Mediation					
Sustainability Awareness -> Perceived Environmental Responsibility -> Purchase Decision	0.130	0.039	3.306	0.001	Parsifal Mediation
Corporate Environmental Commitment -> Perceived Environmental Responsibility -> Purchase Decision	0.078	0.023	3.348	0.001	Parsifal Mediation
Regulatory Pressure -> Perceived Environmental Responsibility -> Purchase Decision	0.115	0.026	4.470	0.001	Parsifal Mediation

Source: Output Smart PLS, 2025

The study, "The Role of Sustainability Awareness, Corporate Environmental Commitment, and Regulatory Pressure on Purchase Decisions Mediated by Perceived Environmental Responsibility in Environmental Laboratory Services", finds that Sustainability Awareness (SA) has a positive and significant effect on Perceived Environmental Responsibility (PER), suggesting that individuals with higher sustainability awareness tend to feel a stronger sense of responsibility for environmental protection. Corporate Environmental Commitment (CEC) also has a beneficial and significant effect on PER, indicating that organizational dedication to environmental goals encourages greater responsibility among stakeholders. Similarly, Regulatory Pressure (RP) significantly enhances PER, reinforcing the importance of external enforcement in shaping environmentally responsible behavior.

The results further demonstrate that PER directly and positively influences Purchase Decision (PD), showing that consumers with a heightened sense of responsibility are more inclined to choose environmentally compliant laboratory services. Additionally, SA, CEC, and RP each have direct positive effects on PD. Mediation testing reveals that PER partially mediates the relationships between SA, CEC, RP, and PD. This highlights PER as a crucial mechanism that bridges awareness, organizational commitment, and regulatory enforcement with consumer decision-making.

CONCLUSION

The study, "The Role of Sustainability Awareness, Corporate Environmental Commitment, and Regulatory Pressure on Purchase Decisions Mediated by Perceived Environmental Responsibility in Environmental Laboratory Services", finds that Sustainability Awareness (SA) significantly enhances Perceived Environmental Responsibility (PER), which is in line with the findings of (Griffin et al., 2022; Ridwan et al., (2021); and Zulkarnaen et al., (2023) who emphasized that higher sustainability awareness fosters individual responsibility toward the environment.

Similarly, Corporate Environmental Commitment (CEC) has a positive and significant effect on PER, consistent with Ruepert et al., (2017) and (Afshar Jahanshahi & Brem, 2018), who demonstrated that organizational commitment to sustainability strengthens both employee and consumer responsibility. Regulatory Pressure (RP) also positively influences PER, a result supported by Ullah et al., (2024) and Khanna & Speir, (2013), who noted that external regulations act as a critical driver for the adoption of environmental practices.

The findings also confirm that PER directly impacts Purchase Decision (PD), echoing the conclusions of Channa et al., (2022) and Minbashrazgah et al., (2017), which showed that consumers with stronger responsibility perceptions are more inclined to make sustainable choices. Furthermore, SA, CEC, and RP each exhibit positive direct effects on PD. This supports the research of Wijaya & Paramita, (2021) and Sun et al., (2022), which found that sustainability awareness and environmental commitment are key determinants of eco-friendly consumer decisions.

Mediation analysis reveals that PER partially mediates the relationships between SA, CEC, RP, and PD, similar to the work of Zhuang et al., (2021) and Hojnik et al., (2020), which highlighted the mediating role of environmental responsibility in shaping sustainable behavior. Suggestions for future researchers include revisiting the variables, indicators, and instruments used in this study due to its limitations, and broadening the scope by exploring other regions, larger samples, or different industry contexts. Incorporating additional variables may also yield a more comprehensive understanding of sustainable decision-making, contributing to stronger theoretical and practical insights in environmental management.

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