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THE ROLE OF ENVIRONMENTAL DISCLOSURE IN LIMITING THE EFFECTS OF GLOBAL WARMING: AN ACCOUNTING PERSPECTIVE

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ABSTRACT

This study examines whether environmental disclosure, viewed from an accounting perspective, is associated with limiting the effects of global warming. The paper positions environmental disclosure as a reporting and accountability mechanism through which environmental impacts, risks, and responses become more visible, measurable, and decision useful. The study adopts a quantitative, explanatory, and cross-sectional design. Data were collected through a structured questionnaire, and 327 valid responses were analyzed using IBM SPSS Statistics version 29 and Smart PLS 4. The empirical analysis includes reliability and validity testing, Pearson correlation, regression analysis, structural modelling, and group-difference tests. The results indicate a strong positive relationship between environmental disclosure and limiting the effects of global warming ($r = 0.809$, $p < 0.01$). Regression analysis shows that environmental disclosure has a positive and statistically significant effect on the dependent variable ($B = 0.350$, $t = 6.264$, $p < 0.01$). The structural model further supports the proposed relationship ($\beta = 0.749$; $R^2 = 0.561$). Educational qualification and years of experience are associated with significant group differences, whereas job type is not. The study is limited by its cross-sectional design, reliance on self-reported questionnaire data, and the absence of direct emissions-based measures. Future research should test the model in specific industries and institutional settings and should employ longitudinal, archival, or mixed-method designs. The findings suggest that environmental disclosure can function as an accounting-based mechanism that strengthens transparency, accountability, and climate-oriented decision-making within organizations. The study extends the accounting literature by linking environmental disclosure to a climate-mitigation-related outcome rather than focusing only on disclosure quality, reporting compliance, or capital-market consequences.

KEYWORDS: Environmental Disclosure; Global Warming; Climate-Related Accounting; Stakeholder Theory; Sustainability Reporting; PLS-SEM.

INTRODUCTION

Global warming is no longer a distant environmental concern. It has become a material economic and organizational challenge that is reshaping stakeholder expectations about corporate transparency, accountability, and long-term value creation. Recent review evidence shows that sustainability reporting has moved from a relatively narrow focus on environmental disclosure toward broader ESG and climate-related reporting. At the same time, the literature continues to highlight persistent problems of standardization, comparability, and measurement quality, all of which reduce the usefulness of disclosed information for decision-makers and weaken its practical effect on corporate behavior (Du Toit, 2024; Leicht & Leicht, 2022).

Within accounting research, this shift has generated growing interest in climate change accounting, carbon accounting, and climate-related disclosure. Agustini and Arifa (2024) show that the accounting literature on climate change disclosure has expanded considerably, but remains heavily concentrated on carbon-emission reduction, while financial impacts aligned with IFRS-oriented reporting are still less frequently disclosed and disclosure practices remain insufficiently standardized. Likewise, Kasperzak et al. (2023) note that climate-related reporting has become an integral part of firms' disclosure practices and that greenhouse gas emissions are now material to both stakeholders and management. However, they also show that different accounting choices under the GHG Protocol can reduce comparability across firms. This means that environmental disclosure is not only a transparency issue, but also an accounting issue of measurement, recognition, consistency, and reporting quality (Agustini & Arifa, 2024; Kasperzak et al., 2023).

Environmental disclosure becomes even more significant when viewed through the lens of environmental accounting. Rather than functioning merely as symbolic communication, environmental accounting converts environmental impacts into measurable physical and monetary information that can be used for internal control and external reporting. Burritt and Christ (2016) argue that environmental accounting can improve decision-making by combining physical and monetary data in more timely and higher-quality reporting systems. More recently, Nyakuwanika and Panicker (2025) conclude that rigorous environmental accounting helps firms internalize environmental costs, quantify

carbon footprints, set more precise emission-reduction targets, and justify mitigation investments through cost-benefit reasoning. From this perspective, environmental disclosure is part of the accounting information system through which organizations plan, monitor, and evaluate climate-related actions and responsibilities (Burritt & Christ, 2016; Nyakuwanika & Panicker, 2025).

The accounting relevance of environmental disclosure is reinforced by its financial and informational consequences. Megeid (2024) reports a significant positive association between climate risk disclosure and financial performance, financial reporting, and risk management, while also showing that financial markets demand precise and comprehensive climate information. In a different context, Acheampong and Elshandidy (2025) find that sustainability disclosures in the narrative sections of annual reports improve analysts' forecast accuracy, suggesting that non-financial disclosure can reduce information frictions in capital markets. Garzón-Jiménez and Zorio-Grima (2021) further show that stronger environmental disclosure and external assurance are associated with a lower cost of equity, and Liu et al. (2025) provide evidence that carbon information disclosure can generate a positive and growing effect on firm value. Taken together, these studies place environmental disclosure within core accounting debates about information asymmetry, valuation, assurance, and decision usefulness (Megeid, 2024; Acheampong & Elshandidy, 2025; Garzón-Jiménez & Zorio-Grima, 2021; Liu et al., 2025).

Yet the existence of reporting and market benefits does not by itself establish that disclosure contributes to limiting the effects of global warming. The more demanding question is whether disclosure changes behavior in ways that reduce emissions or improve environmental performance. On this point, recent studies are increasingly informative. Li et al. (2021) find that environmental information disclosure significantly contributes to reductions in regional carbon dioxide emissions by reducing coal consumption and improving coal-use efficiency. Wu et al. (2025) likewise report that high-quality ESG information disclosure significantly enhances corporate environmental performance, mainly through green innovation, media attention, and executive compensation incentives. These findings suggest that disclosure may extend beyond reputation management to shaping operational choices, governance mechanisms, and investment priorities that matter for climate mitigation (Li et al., 2021; Wu et al., 2025).

Even so, recent reviews still indicate unresolved problems regarding standardization, comparability, and the integration of climate effects into financial and sustainability reporting. Du Toit (2024) identifies continuing gaps in standardized frameworks, data comparability, and the long-term understanding of how reporting affects corporate behavior and performance. Leicht and Leicht (2022) similarly argue that further development is needed in measurable climate-related variables and in reporting the relationship between climate impacts and financial indicators. Agustini and Arifa (2024) also note that climate-related accounting disclosure remains uneven and insufficiently standardized. Taken together, this literature suggests that the climate-mitigation consequences of environmental disclosure still require more direct examination, especially from an accounting perspective that emphasizes accountability, measurement quality, and decision relevance (Du Toit, 2024; Leicht & Leicht, 2022; Agustini & Arifa, 2024).

Accordingly, this study examines the role of environmental disclosure in limiting the effects of global warming from an accounting perspective. It treats environmental disclosure as an accounting-based mechanism through which environmental costs, emissions, and climate-related activities become visible, comparable, and actionable for managers and stakeholders. In particular, the study seeks to explain whether better environmental disclosure can contribute to limiting the effects of global warming directly. By linking disclosure to climate mitigation through the logic of accounting transparency, measurement, and accountability, the study aims to extend the literature beyond disclosure quality and market effects toward the broader question of how environmental reporting can support practical responses to global warming (Nyakuwanika & Panicker, 2025; Kasperzak et al., 2023).

THEORETICAL AND CONCEPTUAL FRAMEWORKS

2.1. Theoretical Framework

This study is grounded primarily in stakeholder theory. Stakeholder theory argues that the firm is accountable not only to shareholders, but also to a wider group of stakeholders whose interests are affected by corporate activities, including investors, regulators, creditors, employees, customers, local communities, and society at large (Freeman, 1984; Donaldson & Preston, 1995). In the context of environmental reporting, this perspective suggests that organizations disclose environmental

information because stakeholders increasingly demand transparency about environmental impacts, climate-related risks, and the actions taken to address them. Environmental disclosure therefore serves as a mechanism through which the organization responds to stakeholder expectations and demonstrates accountability for its environmental conduct.

The relevance of stakeholder theory to the present study becomes stronger when viewed from an accounting perspective. In accounting, disclosure is valued because it provides information that helps users assess organizational performance, evaluate management conduct, and make informed decisions. The Conceptual Framework for Financial Reporting emphasizes decision-usefulness and stewardship as central purposes of reporting (Framework, 2018). When applied to environmental matters, this means that disclosure is more than a public communication exercise. It is part of the broader reporting system through which environmental impacts, risks, obligations, and responses become visible, measurable, and open to assessment. In this sense, ED can be understood as an accounting information mechanism that strengthens transparency and extends accountability beyond pure financial outcomes.

Environmental accounting literature supports this view by treating social and environmental disclosure as part of a broader system of corporate accountability (Gray et al., 1995). Likewise, prior research has shown that environmental disclosure can convey substantive information about environmental commitment and performance rather than functioning only as symbolic communication (Clarkson et al., 2008). For the present study, this is important because the argument is not simply that organizations disclose environmental matters to appear responsible. Rather, the argument is that stronger disclosure can create real pressure for environmentally responsible behavior by exposing the organization to stakeholder scrutiny and by making climate-related issues part of formal organizational reporting.

Within this theoretical logic, ED is expected to be positively associated with limiting the effects of global warming. The reason is straightforward. When organizations disclose environmental policies, emissions-related issues, resource use, environmental risks, and sustainability practices more fully, they reduce information asymmetry between themselves and their stakeholders. This increased transparency allows stakeholders to monitor corporate behavior more effectively, evaluate whether environmental commitments are

credible, and place pressure on organizations to align their actions with climate mitigation goals. As a result, firms that disclose environmental information more extensively are expected to show stronger environmental responsibility and greater commitment to practices that contribute to limiting the effects of global warming.

The present study therefore positions stakeholder theory as the principal theoretical lens because it explains why organizations disclose environmental information and why such disclosure matters. At the same time, the accounting concepts of decision-usefulness and stewardship strengthen the explanatory power of the framework by showing how ED functions within corporate reporting. Taken together, these perspectives support the argument that ED is not only a reporting outcome, but also a mechanism through which accountability, transparency, and environmental responsibility can influence organizational contributions to climate mitigation.

2.2. Conceptual Framework

Based on the foregoing theoretical arguments, this study adopts a simple direct-effect conceptual framework in which environmental disclosure is the independent variable and limiting the effects of global warming is the dependent variable. The framework assumes that higher levels of ED are associated with stronger organizational efforts and outcomes aimed at climate mitigation.

Environmental disclosure refers to the extent to which an organization provides relevant, credible, and decision-useful information concerning its environmental impacts, environmental policies, environmental risks, emissions-related matters, resource consumption, and environmental

performance. From an accounting perspective, ED reflects the quality and breadth of reporting that brings environmental matters into the formal domain of measurement, disclosure, monitoring, and evaluation. It is therefore treated in this study as a reporting and accountability mechanism.

Limiting the effects of global warming refers to the extent to which the organization supports and undertakes actions that contribute to climate mitigation. At the organizational level, this includes efforts such as reducing environmental harm, improving resource efficiency, strengthening environmentally responsible practices, and supporting policies or initiatives that reduce the organization's contribution to climate-related problems. Although global warming is a broad global phenomenon, organizations remain important units of analysis because their reporting practices, environmental decisions, and operational conduct can either aggravate or help mitigate climate-related harm.

The conceptual relationship proposed in this study is based on three linked assumptions. First, ED improves transparency by making environmental consequences and responsibilities more visible. Second, ED enhances accountability by allowing stakeholders to scrutinize management's environmental conduct. Third, ED increases the decision-usefulness of environmental information, which can encourage better organizational responses to climate-related issues. When these three conditions are present, organizations are more likely to demonstrate conduct that supports limiting the effects of global warming. The expected direction of the relationship is therefore positive. Accordingly, the conceptual model of the study is expressed as follows:

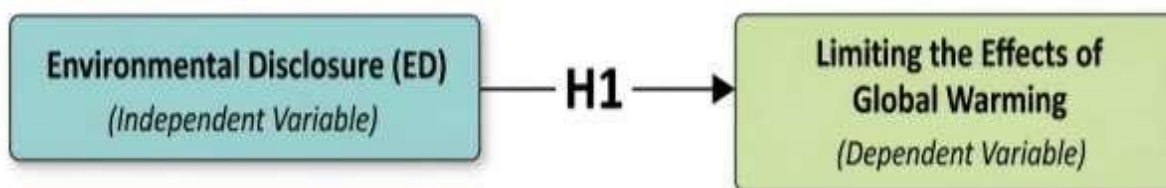


Figure 2.1: Conceptual framework of the relationship between environmental disclosure and limiting the effects of global warming.

Based on this framework, the study proposes the following hypothesis:

H1: Environmental disclosure has a positive and significant effect on limiting the effects of global warming.

RESEARCH METHODOLOGY

3.1. Research Design

This study adopted a quantitative, explanatory,

and cross-sectional research design. This design was appropriate because the study sought to measure clearly specified constructs and test the hypothesized relationship between them using standardized survey data. Primary data were collected through a structured questionnaire developed in line with the conceptual framework of the study. The questionnaire was subjected to pre-administration review and post-administration statistical testing to

ensure that the collected data was suitable for subsequent empirical analysis. In methodological terms, the study combined measurement assessment with explanatory analysis, thereby allowing both the quality of the instrument and the relationships among the study variables to be examined systematically.

3.2. Sampling Strategy

The study relied on a questionnaire-based survey approach to obtain data from participants relevant to the research context. The emphasis of the sampling procedure was on securing usable responses from participants capable of providing informed assessments of the study constructs. After the questionnaires had been returned, the responses were screened for completeness, internal consistency, and suitability for statistical analysis. Only valid questionnaires were retained in the final analytical dataset. Based on the statistical tables reported for the instrument-testing phase, the study worked with 327 valid responses, a size that is adequate for the correlation, regression, and factorability procedures employed in the analysis. This sampling outcome provided a sufficient empirical basis for examining the study hypotheses and evaluating the psychometric quality of the instrument.

3.3. Study Variables

The study included two principal variables. The independent variable was environmental disclosure, which was operationalized through 15 questionnaire items coded X1 to X15. These indicators represented the observed measures used to capture the extent of

environmental disclosure within the framework of the study. The dependent variable was the mitigation of global warming, which was operationalized through 15 questionnaire items coded Y1 to Y15. These items represented the observed measures used to capture actions, orientations, or outcomes associated with limiting the effects of global warming in the study setting. The coding system was adopted to facilitate data entry, item-level diagnostics, and model estimation in IBM SPSS Statistics version 29 and Smart PLS 4. This operational structure also enabled the researcher to examine each construct at the item level and at the aggregate scale level.

3.4. Reliability and Validity

The reliability and validity of the questionnaire were established through several complementary procedures. First, face validity was assessed through expert review. The preliminary version of the instrument was presented to a panel of specialized reviewers in the field of accounting to evaluate the relevance, clarity, and appropriateness of the items in relation to the study objectives and hypotheses. Their comments were used to revise wording, improve clarity, and strengthen the alignment between the questionnaire items and the intended constructs.

Second, internal consistency validity was examined using Pearson item-total correlation coefficients. All items measuring environmental disclosure showed positive and statistically significant correlations at the 0.01 level, with coefficients ranging from 0.679 to 0.784 as listed in table 3.1.

Table 3.1: Internal consistency of environmental disclosure variable

Variable Code	Pearson Correlation coefficient	P-Value
X1	**0.6.0	0.000
X2	**0.679	0.000
X3	**0.690	0.000
X4	**0.700	0.000
X5	**0.700	0.000
X6	**0.740	0.000
X7	**0.7.4	0.000
X8	**0.70.	0.000
X9	**0.7.4	0.000
X10	**0.740	0.000
X11	**0.740	0.000
X12	**0.740	0.000
X13	**0.767	0.000
X14	**0.7.4	0.000
X15	**0.700	0.000

Likewise, all items measuring the mitigation of global warming displayed positive and statistically significant correlations at the 0.01 level, with coefficients ranging from 0.577 to 0.772. These results

indicate satisfactory homogeneity among the items within each construct and support the internal consistency of the measurement scales.

Table 3.2: Internal consistency for limiting the effects of global warming variable

Variable Code	Pearson Correlation coefficient	P-Value
Y1	**0.077	0.000
Y2	**0.699	0.000
Y3	**0.709	0.000
Y4	**0.704	0.000
Y5	**0.747	0.000
Y6	**0.769	0.000
Y7	**0.740	0.000
Y8	**0.7.0	0.000
Y9	**0.77.	0.000
Y10	**0.766	0.000
Y11	**0.740	0.000
Y12	**0.7.0	0.000
Y13	**0.70.	0.000
Y14	**0.700	0.000
Y15	**0.6..	0.000

Third, the reliability of the instrument was tested using Cronbach's alpha as presented in Table 3.3. The environmental disclosure scale recorded an alpha coefficient of 0.963, whereas the mitigation of global warming scale recorded 0.929. The overall

questionnaire achieved an alpha coefficient of 0.973. Since all coefficients substantially exceed the commonly accepted threshold of 0.70, the instrument demonstrates excellent internal consistency and can be regarded as highly reliable for empirical testing.

Table 3.3: Reliability measurement using Cronbach's alpha

Variable	Number of Items	Correlation Coefficient Value	Strength of Correlation
Environmental Disclosure	15	0.963	Excellent
Limiting the Phenomenon of Global Warming	15	0.929	Excellent
All Questionnaire Items	30	0.973	Excellent

Fourth, construct validity was assessed through factorability diagnostics using the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity shown in Table 3.4. The environmental disclosure scale achieved a KMO value of 0.934, while the mitigation of global warming scale achieved a KMO value of 0.949. Both

values fall within the excellent range and indicate that the data were suitable for factor analysis. In addition, Bartlett's test was statistically significant for both constructs ($p < 0.001$), confirming the presence of sufficient inter-item correlations to justify construct-level validation.

Table 3.4: KMO Test for sampling adequacy of the main variable items

Variable	Indicator Type		Value	Criterion	Interpretation
Environmental Disclosure	KMO Measure of Sampling Adequacy		0.934	> 0.5	Very Good
	Bartlett's Test	Chi-Square	3023.492		
		Sig.	0.000**	< 0.05	Significant
Limiting the Effects of Global Warming	KMO Measure of Sampling Adequacy		0.949	> 0.5	Very Good
	Bartlett's Test	Chi-Square	3452.44		
		Sig.	0.000**	< 0.05	Significant

Fifth, the normality of the data distribution was examined using the Kolmogorov-Smirnov test shown in Table 3.5. The environmental disclosure variable produced a test statistic of 0.096 with a probability value of 0.200, while the mitigation of global

warming variable produced a test statistic of 0.083 with a probability value of 0.062. Because both probability values exceeded the 0.05 level, the data was considered approximately normally distributed.

Table 3.5: Results of the Normality Test for the Main Variables

Main Variables	Kolmogorov-Smirnov Test Value	p-value	Result
Environmental Disclosure	0.096	0.200	Normally Distributed
Limiting the Effects of Global Warming	0.083	0.062	Normally Distributed

As an additional index of measurement adequacy, the square root of the overall reliability coefficient

was calculated, yielding a self-validity value of 0.986. This high value provides further evidence that the

questionnaire possessed strong measurement consistency and was suitable for hypothesis testing.

3.5. Analysis Tools

The collected data were coded and analyzed using IBM SPSS Statistics version 29 and Smart PLS 4. SPSS was used to generate descriptive statistics, including frequencies, percentages, means, standard deviations, and agreement rates, in order to describe the characteristics of the variables and the responses of the study sample. The software was also used to conduct diagnostic and inferential analyses, including Pearson correlation coefficients to assess the strength and direction of the relationship between the variables, and simple linear regression to test the effect of the independent variable on the dependent variable.

The significance of the regression coefficients was examined using the t-test, whereas the overall significance of the estimated regression model was evaluated using the F-test. In addition, independent-samples t-tests and one-way analysis of variance were employed, where appropriate, to test differences between respondent groups. Smart PLS 4 was used to estimate structural models and examine direct and indirect effects in cases where the conceptual model included mediating relationships. Together, these analytical tools provided an integrated framework for evaluating measurement quality, testing the study hypotheses, and

interpreting the structural relationships among the variables.

4. RESULTS

4.1. Descriptive Statistics

4.1.1. Characteristics of the study participants

The characteristics of the study participants are presented in Table 4.1. The sample consists of 327 participants with diverse professional and academic backgrounds. In terms of job type, the majority of participants were professionals, accounting for 65.4% of the sample, while academics represented 34.6%. Regarding educational qualifications, most participants held a bachelor's degree (58.1%), followed by master's degree holders (20.8%) and doctorate holders (11.0%). A smaller proportion held higher diplomas (7.0%) or other qualifications (3.1%). With respect to specialization, participants came from a range of disciplinary backgrounds. Accounting specialists constituted 35.8% of the sample, while 15.0% were from economics. Nearly half of the participants (49.2%) were from other fields. In terms of professional experience, the largest group of participants had between 15 and 20 years of experience (39.8%), followed by those with 10 to 15 years (33.9%). Participants with more than 20 years of experience represented 14.1%, while those with 5 to 10 years accounted for 12.2%.

Table 0.1: Demographic characteristics of the study participants

Demographic Variable	Category	Frequency	Percentage
Job Type	Academic	113	34.6%
	Professional	214	65.4%
Educational Qualification	Bachelor's Degree	190	58.1%
	Higher Diploma	23	7.0%
	Master's Degree	68	20.8%
	Doctorate	36	11.0%
	Other	10	3.1%
Field of Specialization	Accounting	117	35.8%
	Economics	49	15.0%
	Other	161	49.2%
Years of Experience	5–10 years	40	12.2%
	10–15 years	111	33.9%
	15–20 years	130	39.8%
	More than 20 years	46	14.1%

4.1.2. Participation in Specialized Training Courses

The results presented in Table 4.2 show that participation in specialized training courses related to environmental disclosure and global warming was generally low among the participants. With respect to environmental disclosure, only 20.2% of the participants, representing 66 individuals, reported that they had participated in a training course in this

field. In contrast, 79.8%, or 261 participants, indicated that they had not participated in such training. This finding suggests that only a limited proportion of the sample had received formal exposure to environmental disclosure and developed knowledge or skills in this area. The low participation rate may reflect the limited attention given to environmental disclosure in the community, as well as insufficient awareness of the importance of environmental protection.

A similar pattern was observed for training related to global warming. The results indicate that only 13.8% of the participants, equivalent to 45 individuals, had participated in a training course on global warming, whereas 86.2%, representing 282 participants, had not. This indicates that training opportunities in this area were even less common than those related to environmental disclosure. Despite the growing significance of global warming

as a major contemporary issue affecting human life and other living organisms, the findings suggest that awareness-building and specialized training in this field remain limited. This points to the need for greater educational and professional efforts to improve public understanding of global warming and to support actions aimed at reducing its effects and limiting its consequences.

Table 0.2: Participation in specialized training courses

Training course	Participation	Frequency	Percentage
Environmental disclosure training course	Yes	66	20.2%
	No	261	79.8%
Global warming training course	Yes	45	13.8%
	No	282	86.2%

4.2. Correlation Analysis

Table 4.3 presents the Pearson correlation results for the relationship between environmental disclosure and limiting the effects of global warming. The findings reveal a strong positive and statistically significant relationship between the two variables. The correlation coefficient reached 0.809, with a probability value of $p = 0.000$, which is lower than the adopted significance level of $\alpha = 0.00$. This result confirms that the relationship is statistically significant and not due to random variation.

The positive direction of the coefficient indicates that higher levels of environmental disclosure are associated with greater efforts to limit the effects of global warming. In substantive terms, this finding suggests that when organizations provide broader and more transparent disclosure of their environmental impacts, commitments, and practices, they are more likely to contribute to environmental

protection and to actions aimed at mitigating climate-related harm. The magnitude of the coefficient also indicates that the association is strong, highlighting environmental disclosure as an important explanatory factor in efforts to limit the effects of global warming.

This result underscores the practical importance of environmental disclosure in supporting environmental sustainability. It suggests that disclosure is not merely an informational or reporting exercise, but rather a meaningful mechanism through which organizations can strengthen environmental accountability, improve stakeholder awareness, and encourage actions that reduce the harmful consequences of global warming. Accordingly, the main-hypothesis stating that there is a statistically significant relationship between environmental disclosure and limiting the effects of global warming is accepted.

Table 0.3: Pearson correlation between environmental disclosure and limiting the effects of global warming

Independent variable	Dependent variable	Pearson correlation (r)	p-value
Environmental disclosure	Limiting the effects of global warming	0.809**	0.000

** Significant at $p < 0.01$, $n = 327$

4.3. Regression Analysis

The regression results indicate that environmental disclosure has a positive and statistically significant effect on limiting the effects of global warming. In the reported model in Table 4.4, environmental disclosure emerged as a meaningful predictor of the dependent variable, with a slope coefficient of $B1 = 0.350$, a t-value of 6.264, and a reported probability value of $p = 0.000$, which indicates significance at the 1% level. This finding shows that higher levels of environmental disclosure are associated with stronger efforts to limit the effects of global warming. In substantive terms, the result suggests that when organizations disclose their environmental impacts, commitments, and practices more clearly and consistently, they contribute more effectively to

environmental protection and climate-related mitigation efforts.

The reported regression model also demonstrates strong explanatory power. The adjusted coefficient of determination reached 65.2%, indicating that the predictors included in the original model explained a substantial proportion of the variation in limiting the effects of global warming. In addition, the overall model was statistically significant, with an F-test value of 306.560 and $p = 0.000$, confirming the robustness of the regression equation in explaining the dependent variable. The constant term was reported as $B0 = 0.564$, with $t = 3.971$ and $p = 0.000$, indicating that the dependent variable retains a baseline level even when the explanatory variables are held at zero.

The findings provide empirical support for the proposition that environmental disclosure plays a significant role in limiting the effects of global warming. The positive sign of the coefficient confirms that the relationship operates in the expected direction, while the significance level indicates that

the effect is statistically reliable rather than random. Therefore, the main-hypothesis stating that environmental disclosure has a statistically significant effect on limiting the effects of global warming is accepted.

Table 0.4: Effect of environmental disclosure on limiting the effects of global warming

Predictor	Dependent variable	Constant (B0)	Slope coefficient (B1)	t-value	p-value	F-test	Adjusted R ²	N
Environmental disclosure	Limiting the effects of global warming	0.564	0.350	6.264	0.000**	306.560	65.2%	327

4.4. Differences in Participants' Answers According to Demographic Characteristics

To examine whether respondents' evaluations of environmental disclosure and limiting the effects of global warming differed across demographic groups, independent-samples t-tests and one-way analysis of variance were conducted. The analysis considered job type, educational qualifications, years of experience, and field of specialization. Because the present study is restricted to two focal variables, only the results for environmental disclosure and limiting the effects of global warming are reported in this section.

4.4.1. Job Type

The comparison by job type showed no statistically significant differences between academic and professional respondents in their evaluations of either environmental disclosure or limiting the effects of global warming. This result suggests that perceptions of the two study variables were broadly similar across the two occupational groups. Accordingly, job type does not appear to be a differentiating factor in respondents' views regarding environmental disclosure or efforts to limit the effects of global warming.

4.4.2. Educational qualification

The analysis by educational qualification revealed statistically significant differences in respondents' evaluations of both environmental disclosure and limiting the effects of global warming. For environmental disclosure, the ANOVA results were significant at $F = 5.597$, $p < 0.001$. Similarly, for limiting the effects of global warming, the results were also significant at $F = 3.595$, $p < 0.001$. These findings indicate that respondents' perceptions of both variables vary meaningfully across qualification groups, suggesting that educational background is associated with differences in awareness and

evaluation of environmental disclosure and climate-related mitigation efforts.

4.4.3. Years of experience

The results further showed statistically significant differences according to years of experience. For environmental disclosure, the ANOVA result was $F = 3.177$, $p = 0.024$, while for limiting the effects of global warming, the result was $F = 2.709$, $p = 0.045$. This indicates that respondents' assessments of both variables differ across experience categories. The finding suggests that professional experience may shape respondents' understanding of environmental disclosure practices and their views on actions aimed at limiting the effects of global warming.

4.4.4. Field of Specialization

With respect to specialization, the results indicated a statistically significant difference for environmental disclosure, with $F = 4.202$, $p = 0.016$. By contrast, no statistically significant difference was found for limiting the effects of global warming, where $F = 2.723$, $p = 0.067$. These results imply that academic or professional specialization is associated with differences in views on environmental disclosure, but not with differences in perceptions of efforts to limit the effects of global warming.

Overall, the demographic analysis suggests that educational qualification and years of experience are associated with significant differences in respondents' evaluations of both environmental disclosure and limiting the effects of global warming. In contrast, job type does not appear to produce meaningful variation in either variable, while specialization is relevant only to environmental disclosure. These findings enrich the interpretation of the main results by showing that respondent characteristics can shape how the two focal variables are perceived across the sample.

Table 0.5: Summary of differences in participants' answers according to demographic characteristics

Demographic characteristic	Environmental disclosure	Limiting the effects of global warming	Interpretation
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Job type	Not significant	Not significant	Responses were similar across occupational groups
Educational qualification	Significant (F = 5.597, p < 0.001)	Significant (F = 3.595, p < 0.001)	Responses varied across qualification groups
Years of experience	Significant (F = 3.177, p = 0.024)	Significant (F = 2.709, p = 0.045)	Responses varied across experience levels
Specialization	Significant (F = 4.202, p = 0.016)	Not significant (F = 2.723, p = 0.067)	Specialization mattered for ED only

4.5. Structural Modelling

The analysis using the structural model in Table 4.5 showed that there was a high positive relationship between the environmental disclosure and the mitigation of global warming ($\beta = 0.749$). It means that the increased environmental disclosure is closely linked to better results connected to the minimization of the effect of global warming.

The extent of the path coefficient ($\beta > 0.70$) indicates a large effect size, which implies that the issue of environmental disclosure has a significant impact on the determinants of environmentally responsible practices in organizations. This observation proves the theoretical premise that environmental reporting disclosure improves accountability and influences firms to implement sustainable policies.

Table 0.6: Path Coefficient Results

Hypothesis	Path	B (Path Coefficient)	Result
H ₁	Environmental Disclosure → Global Warming	0.749	Supported

4.5.1. Coefficient of Determination (R²)

Table 4.6 showed the R² of Global Warming is 0.561 with an adjusted R² of 0.560, which implies that the environmental disclosure accounts to about 56.1 percent of the variance in the outcomes of global warming. This degree of explanation is regarded as moderate to high in social science and sustainability studies indicating that the model is highly predictive. This low value of the differing R² and adjusted R²

(0.001) indicates the stability of the model, as well as that there is no overfitting, which proves that the predictor (environmental disclosure) is included in the model and is a reliable indicator to explain the changes in global warming. On the whole, these findings indicate that environmental disclosure is an important predictor of mitigating the effects of global warming and the model offers a powerful and reliable explanation of the dependent variable.

Table 0.7: Coefficient of Determination (R²)

Variable	R-square	R-square adjusted
Global Warming	0.561	0.560

4.5.2. Outer Loadings for Environmental Disclosure Construct

The results of the measurement and structural model indicate that all measures used in assessing the constructs are exhibiting acceptable to high reliability with outer loading of the Environmental Disclosure (X01-X15) ranging between 0.674 and 0.788 and Global Warming (Y01-Y15) ranging between 0.535 and 0.781, therefore, indicating that most of the measures are sufficiently capturing their respective latent variables, with only some low values still

considered acceptable in the context of application research. According to structural model, there is a close positive correlation between global warming mitigation and environmental disclosure ($\beta=0.749$), which demonstrates that high transparency and disclosure of environmental practices play a significant role in mitigating the effects of global warming. Besides, the model describes a significant share of variance in the dependent variable, and the R² = 0.561, i.e., 56.1% of the change in the results of global warming can be explained by environmental disclosure.

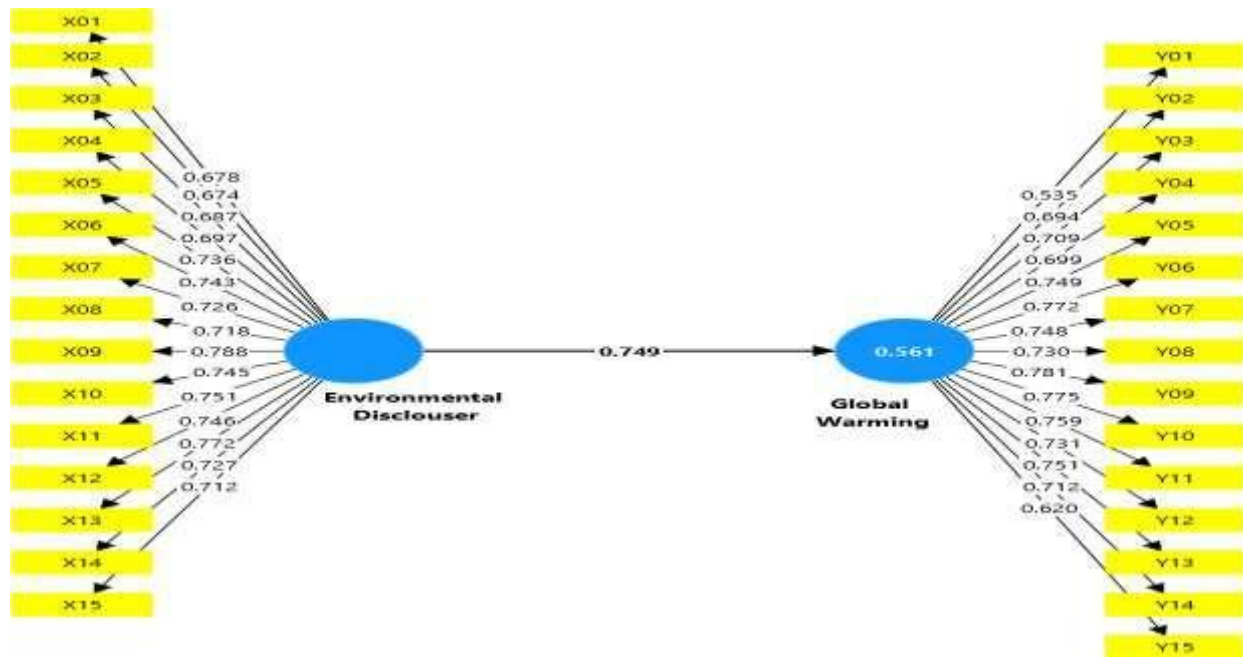


Figure 0.1: Structural Equation Model (PLS-SEM) of Environmental Disclosure and Its Impact on Global Warming

Overall, the figure visually supports the strength of the measurement model (high loading of indicators) as well as the effectiveness of structural

model, where environmental disclosure is an important variable in the global warming mitigation process.

Table 0.8: Outer Loadings for Environmental Disclosure Construct

Variables	Environmental Disclosure	Global Warming
X01	0.678	
X02	0.674	
X03	0.687	
X04	0.697	
X05	0.736	
X06	0.743	
X07	0.726	
X08	0.718	
X09	0.788	
X10	0.745	
X11	0.751	
X12	0.746	
X13	0.772	
X14	0.727	
X15	0.712	
Y01		0.535
Y02		0.694
Y03		0.709
Y04		0.699
Y05		0.749
Y06		0.772
Y07		0.748
Y08		0.73
Y09		0.781
Y10		0.775
Y11		0.759
Y12		0.731
Y13		0.751
Y14		0.712
Y15		0.62

4.5.3. Model Fit Evaluation

The model fit statistics shown in Table 4.8 that the developed structural model is acceptable in terms of its goodness-of-fit. Standardized root mean square residual (SRMR = 0.062) value is lower than the suggested value (0.08), which makes sure that there is a good fit between the observed and the predicted correlations. The difference between the two values is d_{ULS} (1.811) and d_G (0.861), which lie within the realms of acceptable difference, implying that the model is suitable in replicating the empirical

data. Though the Chi-square value (1504.046) is large, that is typical of PLS-SEM, and that value is very dependent on the sample size and is not a major aspect of model analysis. Normed Fit Index (NFI = 0.773) suggests that the model has a moderate but satisfactory fit because a value more than 0.70 is regarded as satisfactory when it comes to exploration research. All in all, the fact that the saturated and estimated models are similar in all indices further attests to the strength and stability of the model in that it is a true reflection of the relationships behind it.

Table 0.9: Model Fit Evaluation

Test	Saturated model	Estimated model
SRMR	0.062	0.062
d_{ULS}	1.811	1.811
d_G	0.861	0.861
Chi-square	1504.046	1504.046
NFI	0.773	0.773

5. DISCUSSION

The results of this study provide consistent evidence that environmental disclosure (ED) is positively associated with limiting the effects of global warming. The relationship is strong at the bivariate level, where the correlation between ED and limiting the effects of global warming reached $r = 0.809$. It remained statistically significant in the regression model, where ED showed a positive coefficient ($B = 0.350$, $t = 6.264$, $p < 0.001$) and the model explained a substantial proportion of variance in the dependent variable. The structural model further reinforced this pattern, reporting a direct path coefficient of $\beta = 0.749$ with $R^2 = 0.561$. Taken together, these findings suggest that, in the context of the present study, ED is not a peripheral reporting practice, but a meaningful accounting mechanism associated with climate-mitigation-oriented outcomes. The demographic results also add interpretive depth: educational qualification and years of experience significantly shaped responses to both focal variables, specialization mattered for ED only, and job type did not produce significant differences. At the same time, the relatively low rate of formal training in environmental disclosure and global warming indicates that this strong relationship emerged in a setting where formal capacity-building remains limited.

These findings are broadly consistent with a growing body of research showing that environmental information disclosure can be associated with better carbon and environmental outcomes. Li et al. (2021) found that environmental information disclosure significantly reduced regional

carbon emissions, largely by accelerating coal withdrawal and improving the conditions for lower-carbon energy use. Peng et al. (2023) similarly reported that stronger government environmental information disclosure improved firms' carbon performance and did so partly through green innovation. More recently, Wu et al. (2025) showed that high-quality ESG information disclosure significantly enhances corporate environmental performance, while Xie, Qin and Li (2024) found that stronger ESG performance is linked to lower corporate carbon emission intensity. Across these studies, the common mechanism is that disclosure matters when it changes organizational incentives, innovation behavior, and external scrutiny. That same logic fits the present article well: the strong coefficients observed here imply that ED is linked to climate mitigation not merely through communication, but through the wider governance and accountability processes that disclosure activates.

From an accounting perspective, this interpretation is theoretically coherent. Nyakuwanika and Panicker (2025) argue that environmental accounting and ESG disclosures contribute to climate change mitigation when they enhance transparency, accountability, and the integration of environmental metrics into organizational decision-making. This is especially relevant to the present study because the dependent variable is not a financial-market outcome or a narrow reporting-quality score, but a climate-related outcome centered on limiting the effects of global warming. In that sense, the present findings strengthen the argument that ED can function as a

decision-useful accounting instrument rather than a purely symbolic reporting exercise.

At the same time, the present results are more optimistic than several influential studies in the wider disclosure literature, and this difference deserves careful attention. Doan and Sassen's (2020) meta-analysis concluded that environmental disclosure is not, in general, a reliable overall indicator of environmental performance and emphasized substantial heterogeneity across measures, samples, and contexts. Luo and Tang (2023) reached a similarly nuanced conclusion when they found that generic ESG reporting, by itself, was not associated with carbon mitigation, whereas ESG reports prepared using GRI standards were associated with stronger carbon mitigation outcomes. Lan et al. (2025) added a further complication by reporting an inverted U-shaped relationship between environmental information disclosure and carbon emission efficiency, implying that disclosure may initially improve carbon efficiency but may later produce diminishing or even adverse marginal effects if it expands without corresponding operational change. In parallel, Agustini and Arifa (2024) show that climate-related accounting disclosures remain insufficiently standardized, while Matuszak, Różańska and Szczepankiewicz (.0.0) demonstrate that even firms using GRI-based environmental reporting still face substantial gaps when assessed against ESRS requirements. These studies do not contradict the present article. Rather, they suggest that the article captures a specific and meaningful dimension of the disclosure-mitigation relationship: a respondent-level, accounting-oriented perception of substantive disclosure, not merely the presence of a sustainability report or the quantity of narrative disclosure.

This methodological distinction also helps explain why the coefficients reported in the present article are stronger than those often found in archival disclosure-performance research. Archival studies typically examine actual emissions, carbon efficiency, or externally rated environmental performance, all of which are affected by regulation, industry structure, technology, firm size, and inconsistencies in reporting frameworks. By contrast, survey-based latent constructs can capture shared managerial and professional orientations toward accountability, transparency, and mitigation-oriented organizational behavior. For this reason, the strong path coefficient reported here is best interpreted as evidence of a robust organizational and perceptual linkage between ED and limiting the effects of global warming, rather than as proof that disclosure alone

mechanically reduces real-world warming. A stronger causal claim would require longitudinal or quasi-experimental evidence using direct emissions-based outcomes.

The demographic and training-related results also deserve closer discussion. The article shows that participation in specialized training was low for both environmental disclosure and global warming, yet the ED-climate relationship remained strong. One interpretation is that disclosure norms and climate-responsibility expectations are already diffusing through professional practice, institutional pressure, or broader stakeholder discourse, even where formal training remains limited. A second interpretation is more practical: the strong relationship observed under low training exposure suggests that targeted capacity-building could strengthen implementation even further. This reading is supported by accessible research on environmental education and training. Van de Wetering et al. (2022) found that environmental education significantly improves environmental knowledge, attitudes, intentions, and behavior. Aeschbach et al. (2025) similarly concluded that climate change education is effective in improving climate literacy. Aldawsari et al. (2025) reported a very strong association between environmental education awareness and environmental responsibility, while Wang et al. (2022) showed that higher environmental awareness is associated with stronger environmental information disclosure. At the organizational level, Barakat et al. (2023) found that green training improves sustainable business advantage and strengthens environmentally relevant operational practices. Against this background, it is entirely plausible that respondents with stronger educational preparation and greater professional experience were better able to appreciate both the technical logic of ED and its relevance for climate mitigation.

By contrast, the absence of significant differences by job type and the limited role of specialization in the global-warming variable are also interpretable in a theoretically meaningful way. The lack of job-type differences suggests that climate concerns and expectations of environmental responsibility may now be sufficiently mainstream across academic and professional groups that occupational category alone no longer drives major variation. The fact that specialization mattered for ED but not for limiting the effects of global warming is also understandable. ED is a more technical accounting construct that depends on familiarity with measurement, disclosure conventions, and reporting frameworks, whereas support for limiting global warming is broader and

less profession specific. This pattern is consistent with the wider literature showing that disciplinary competence matters more when disclosure practices remain technically complex and not fully standardized.

Overall, the study makes a useful contribution to the accounting literature on climate change. Much prior work has concentrated either on the determinants of disclosure or on its financial-market consequences. The present study extends that conversation toward the practical climate significance of disclosure by showing a strong direct association between ED and limiting the effects of global warming. The comparative evidence suggests a balanced conclusion. On one side, the study aligns with research showing that disclosure can improve environmental performance, carbon performance, and mitigation-related behavior. On the other side, it sits within a literature that repeatedly warns against assuming that all disclosure is equally substantive, standardized, or effective. The strongest interpretation of the present findings, therefore, is that ED matters most when it is credible, technically grounded, decision-useful, and embedded in organizational processes that support innovation, accountability, and environmental action.

6. CONCLUSION

This study examined whether environmental disclosure, viewed from an accounting perspective, is associated with limiting the effects of global warming. Across the correlation, regression, and

structural-model analyses, the results consistently showed a positive and statistically significant relationship between the two variables. Environmental disclosure was strongly correlated with limiting the effects of global warming and remained significant in the predictive models, suggesting that more transparent disclosure of environmental impacts, policies, and practices is associated with stronger climate-mitigation-oriented behavior. The demographic analysis further showed that educational qualification and years of experience shape respondents' evaluations, whereas job type does not and specialization matters only for environmental disclosure.

These findings support the argument that environmental disclosure can serve not only as a reporting obligation, but also as a mechanism of accountability, transparency, and stakeholder pressure that encourages environmentally responsible action. However, the study is limited by its cross-sectional design, reliance on self-reported questionnaire data, and lack of direct emissions-based measures. Future research should test the model in specific sectors and countries, use longitudinal or archival designs, and distinguish more clearly between perceived mitigation efforts and actual environmental performance. Overall, the study suggests that credible environmental disclosure can be an important component of organizational responses to climate-related challenges.

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