Environmental Disclosures of Selected Publicly Listed Companies in the Philippines

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ABSTRACT

As an initiative by the Philippine Securities and Exchange Commission (SEC) in promoting sustainability, it released a memorandum requiring Publicly Listed Companies (PLCs) to submit their sustainability reports starting 2019. This study analyzed the environmental information disclosed in the annual/sustainability report of PLCs for a 5-year period from 2016 to 2020 (Covered Period). Descriptive statistics, test of difference, and two-way ANOVA were used as statistical measures to answer the research problems of the study. Findings revealed that before the release of the SEC memo in 2019, an average of 21.72% (2016 - 2018) of the 155 Subject Companies, have sustainability/relevant reports, and this percentage increased to 91.61% in 2019, and 96.13% in 2020. The top 10 Subject Companies that reported increased environmental information are all categorized as environmentally sensitive which are monopolized by two families. Energy and emission related information are the most disclosed topic while supplier environmental assessment is the least disclosed. The study contributes to the currently sparse literature on the analysis of environmental disclosure in the Philippines, even spreading awareness beyond it. Foreign companies and their stakeholders, government agencies located overseas, and international regulatory bodies could get information on the involvement of the PLCs in building a sustainable environment through initiatives and efforts disclosed in their annual reports or sustainability reports.

Keywords**:** Sustainability Reporting; Publicly Listed Companies; Environmental Disclosure.

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1. INTRODUCTION

Sustainability is becoming one of the major considerations of stakeholders in making investment decisions. The idea of Triple Bottom-Line (or Profit, People, and Planet) was developed (Brundtland, 1987), which was to expand the traditional accounting framework of focusing on earning profit (Profit), to a more sustainable framework by including social (People) and environmental (Planet) performance of the organization. Therefore, instead of focusing solely on earning a profit, companies now include social and environmental factors in their strategies and business considerations (Badoc-Gonzales et al. 2020). However, this is not in consonance with the standard theory of the firm which starts with the declaration that firms maximize profits (Mandigma and Badoc-Gonzales, 2022).

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It is critical for companies to disclose their sustainability efforts through publicly available documents, such as annual reports, sustainability reports, and company websites, for easier access by potential investors and other stakeholders. Sustainability reporting includes disclosures on the impact and initiatives of the company concerning economic, environmental, and social issues. It plays an important role to ensure transparency and accountability on the impact of business operations of organizations to the environment.

Studies show that sustainability or the Triple Bottom-Line has a positive impact on the organization (Alhaddi, 2014; Glavas & Mish, 2015). Furthermore, sustainability reporting, which includes environmental disclosures, increases investors' attractiveness (CFA Institute, 2018; SEC 2019a), strengthens company reputation and brand value, and improves the financial performance of the company, among others (Hardiningsih et al., 2020). This claim is supported by the result of a survey which shows that 73% of the portfolio managers and research analysts comprising the population sample, consider issues of environmental, social, and governance nature when deciding and analyzing investments (CFA Institute, 2018). Further, the Global Sustainable Investment Alliance estimated that the value of sustainable investments has reached $30.7 trillion at the start of 2018 in five major regions, comprising of Europe, US, Japan, Canada, Australia/New Zealand (GSIA, 2018).

In a study conducted by KPMG (2020) on Corporate Responsibility Reporting, the following sustainability reporting compliance were recorded: 96% of the 250 largest firms in the world according to revenue in 2019, and about 80 top companies in 52 countries. Meanwhile, in a study released by the National University of Singapore Business School on Sustainability Reporting in ASEAN Countries (Sustainability Reports, 2018), the overall sustainability disclosure rate for the following ASEAN countries, namely, Thailand, Singapore, Philippines, Malaysia, and Indonesia in the year 2017 was only 59%, which means that a little more than half of the sample size discloses their sustainability performance in line with globally accepted standards. This shows that sustainability reporting is still a growing practice in Asia (Hardiningsih et al., 2020).

However, there seems to be limitations on how sustainability is understood (Badoc-Gonzales et al., 2021). As an initiative by the Philippine SEC in promoting sustainability, it released a memorandum requiring the submission of sustainability reports by PLCs starting 2019. This recent development on sustainability reporting in the Philippines, as well as the sparse literature on the assessment of environmental disclosures in the Philippine arena, influenced the researchers to analyze the reported environmental data in the annual/sustainability reports of PLCs for a 5-year period from 2016 to 2020 (Covered Period). Environmental disclosures serve as a means of communicating to stakeholders the impact of the company on the environment (Chaklader & Gulati, 2015). According to Haninun et al. (2018), the financial performance of the company is positively influenced by its environmental disclosures. It is hoped that this study could spread awareness on the benefits of environmental disclosure, thus foreign companies and their stakeholders, government agencies located overseas, and international regulatory bodies could get information on the involvement of the PLCs in building a sustainable environment through initiatives and efforts disclosed in their annual reports or sustainability reports.

Specifically, the following research problems are answered in this article:

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- What is the percentage of companies that release sustainability reports/relevant reports (either in a separate sustainability report or included in their annual report) from 2016 to 2020?
- Who are the top 10 Subject Companies that disclose more environmental information from 2016 to 2020?
- Is there a significant difference in the level of disclosed environmental data when companies are grouped by Industry Type?
- What are the most and least disclosed financial and non-financial environmental information by the subject companies on areas under the GRI Sustainability Reporting Standards?

2. REVIEW OF RELATED LITERATURE

2.1 *Environmental information disclosure*

Suratno et al. (2006), as cited in Verawaty et al., (2018) defined environmental disclosure as a means of disclosing environmental information in a company's annual reports. Mohamed (2015) defined corporate environmental disclosure as part of social reporting that is mainly not financial in nature. Meanwhile, Chaklader and Gulati (2015) defined environmental reporting and disclosure as a means of communicating the environmental activities of an organization to its stakeholders.

Environmental information is usually disclosed in the annual reports, company websites, and sustainability reports, among others (Vogt et al., 2017). Through disclosures of environmental information in publicly available documents, the public and stakeholders can be notified of the environmental initiatives taken by the company (Verawaty et al., 2018). Several authors claim that the most used and superior worldwide reporting standard for sustainability is the Global Reporting Initiative (GRI) (Verawaty et al., 2018; Burhan & Rahmanti, 2012, as cited in Hardiningsih et al., 2020; KPMG, 2020).

2.2. Environmental reporting in the Philippines

In 2019, the Philippine SEC released the Sustainability Reporting Guidelines for PLCs, intended to raise further awareness on sustainability reporting among them. The objectives of the reporting guidelines are – (i) to enhance the PLCs' value-added through sustainability reporting, (ii) to assist in the identification and management of risks and opportunities of PLCs on their economic, environmental, and social factors, (iii) to help companies determine their long-term viability and competitiveness through optimization of their business operation, (iv) to provide a means of communication to PLC's stakeholders, including existing and potential investors, and (v) to help companies assess and monitor their contributions toward achieving universal sustainability targets (SEC, 2019b). PLCs are required to release sustainability reports starting only in 2019, which must be included in their 2019 Annual Reports.

As defined by SEC (2019a), sustainability reporting is a reporting practice, in conformity with standards that are accepted globally, some significant information which are environmental, economic, and social in nature. Sustainability reporting, is one of the eight core areas identified by the Chartered Institute of Management Accountants (CIMA) where management accountants can add the most value (Mandigma et al. 2016). The guidelines are mirrored on the GRI's Sustainability Reporting Standards (SEC, 2019a), and are aligned with the Code of Corporate Governance for Philippine PLCs (specifically Principle

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10) which ensures reporting of the significant and declarable environmental, economic, and social performance of the organization which maybe non-financial and sustainable in nature (SEC, 2019b). The SEC Guidelines capture how the natural resources of the company are managed, including the initiatives of the company in minimizing its negative impacts on the environment (SEC, 2019b). Further, to assess if companies are successful in achieving sustainability, we need to look into accountability through sustainability accounting (Mandigma, 2017).

3. THEORETICAL FRAMEWORK

To explain the rationale behind the motive of companies in disclosing environmental information, both the Legitimacy Theory and the Stakeholder Theory are used in this study.

3.1 Legitimacy Theory

The Legitimacy Theory argues that the community expects something from companies (Lu & Abeysekera, 2014). According to Wibowo & Faradiza (2014), as cited in Verawaty et al., (2018), the Legitimacy Theory urges companies to ensure that their business activities are supported and are acceptable according to the standards of the society. The disclosure of social responsibility by companies poses a good image to prove their sense of accountability to stakeholders (Gavancha & Paiva, 2020). According to Vogt et al. (2017), the Legitimacy Theory serves as a lens that interprets various studies on disclosing environmental information. This theory supports the logic that the more companies disclose information about their environmental efforts, the more they create the impression of being environmentally responsible and accountable, which leads to public approval (Verawaty et al., 2018).

Multiple authors have used the Legitimacy Theory to support their study in explaining the motives of business organizations in disclosing environmental information (Kouloukoui et al., 2018; Verawaty et al., 2018; Vogt et al., 2017; and Mohamed, 2015). Due to the increasing regulatory and public pressure to take part in addressing environmental issues, companies disclose information of their efforts to the environment (Kouloukoui et al., 2019). In addition, Mandigma (2022) claimed that government policies must pursue the protection of the environment while protecting the society's interests. Thus, disclosing information improves company image and increases good reputation, which in turn gains recognition and approval from the community (Fajarini & Triasih, 2020; Kouloukoui et al., 2019; Vogt et al., 2017).

3.2 Stakeholder Theory

The Stakeholder Theory argues that the activities of the company should benefit all those members (i.e., stakeholders) involved or affected by its business operations (Freeman, 1984; Freeman, 2010). It states that the success of the company depends not only on the interest of the company itself but its ability to cater to the interest of its stakeholders (Fajarini & Triasih, 2020). Stakeholders, as defined in the study of Verawaty et al. (2018), are any parties that have an interest or relationship in the company. This includes employees, customers, suppliers, regulators, government agencies, creditors, and shareholders, among others. The Stakeholder Theory states that for companies to survive and to continue existing, they need support from the stakeholders (Verawaty et al., 2018). Hence, they will thrive to provide all information necessary, which includes disclosures of their social and environmental responsibilities, to seek support from these parties (Ardian

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& Rahardja, 2013). Fajarini and Triasih (2020), Hardiningsih et al. (2020), Kalash (2020), Verawaty et al. (2018), and Ardian & Rahardja (2013) used the Stakeholder Theory to support their studies and to show the motives of companies in disclosing environmental information.

3.3 Synthesis of theories applied in the study

Figure 1 shows that disclosing environmental information is motivated by the Stakeholder and Legitimacy Theories. The figure shows that companies act in accordance with what is acceptable by society (Legitimacy Theory), as well as to meet the demands and expectations of their stakeholders (Stakeholder Theory). To communicate their environmental efforts, companies report their performance through environmental disclosures. Environmental disclosures not only ensure transparency but also hold companies accountable for their performance in achieving long-term environmental sustainability (Verawaty et al., 2018). Consequently, companies earn support and approval from society and their interested stakeholders which further leads to their growth and success (Verawaty et al, 2018).

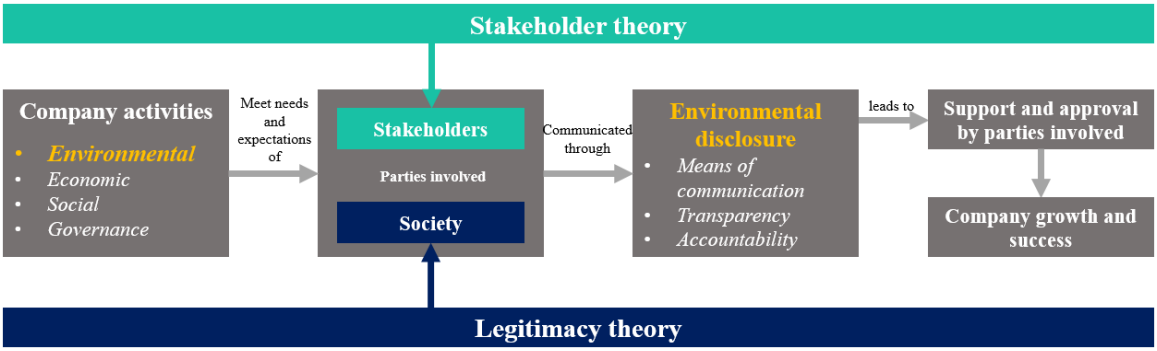

Figure 1 Synthesis of theories

4. CONCEPTUAL FRAMEWORK AND HYPOTHESES OF THE STUDY

The conceptual model in Figure 1 presents the visual representation of the hypotheses of the study. Ho1 hypothesized the lack of significant difference in the level of disclosed environmental data for the Covered Period when companies are grouped by industry type. While Ho2 hypothesized that there is no significant difference in the amount of disclosure across the Covered Period for all areas under the GRI Sustainability Reporting Standards.

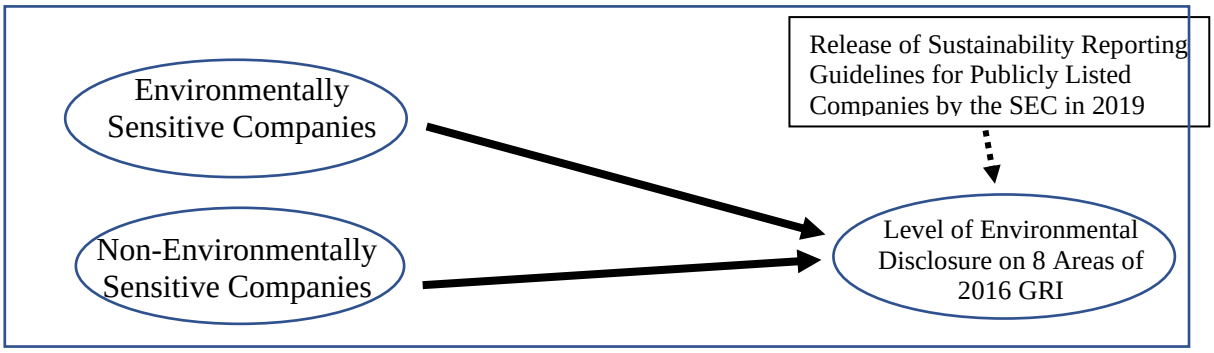

Figure 2 Conceptual Framework

5. RESEARCH METHODS

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A descriptive-correlational research design is used in this study. The descriptive research design is deemed appropriate for this study since it seeks to measure and describe the current level of environmental information disclosed by publicly listed companies in their annual reports or sustainability reports using quantitative methods. Additionally, the design is correlational since it intends to determine if industry type influence the environmental disclosure of publicly listed companies.

As of 27 August 2021, there are 273 publicly-listed companies in the Philippines (PSE edge, n.d.), classified into 24 subsectors that are grouped into 9 major sectors. Step 1. Excluding (1) Other services, (2) SME or Small, Medium & Emerging Board, and (3) ETF – Equity industries due to (a) difficulty in identifying the environmental sensitivity of the aforementioned industries and/ or (b) immateriality in its count, the final population size became 257 publicly-listed companies. The Raosoft sample size calculator was used to determine the sample size of the study with an error margin of 5%, level of confidence of 95%, suggested response distribution of 50%, and 257 population size. The resulting recommended sample size was 155 companies or an equivalent of approximately 60% of the population size. Sixty percent was then used to get the equivalent sample size per industry classification, hence the use of stratified sampling technique. Random sampling was applied in determining what companies were used in the study (Appendix A). To ensure that the chosen companies are a general representation of the population size, the companies included in the Philippine Stock Exchange Composite Index (PSEi) were made sure to be included. For ethical reasons, the names of the companies were not disclosed in the Results and Discussions section of this paper but represented by the letters A to Z, followed by the letters and numbers A_1 to Z_1, A_2 to Z_2, A_3 to Z_3, A_4 to Z_4, and A_5 to Y_5. According to Hirsch 1998, as cited by Meals, et al. (2011), five (5) years are the minimum period for monotonic trend analysis, while at least two (2) years of data are required for step trend analysis, before and after a management change. Since the SEC memorandum on sustainability reporting was released in 2019, reports for 2016 to 2018 are voluntarily released by the companies, while 2019-2020 reports are already mandated. Hence, an analysis of the trend on environmental disclosures before and after the release of the SEC memo can be derived from a Covered period of 2016 to 2020.

Content analysis was used in this research to measure environmental disclosures in accordance with previous studies (Fajarini & Triasih, 2020; Chandok & Singh, 2017; Welbeck et al., 2017; Bhattacharyya, 2014; Farooque et al., 2014; Sulaiman et al., 2014). As cited in Tubay & Leon (2020), content analysis can be done automatically or manually thus, the manual mode was chosen. Data on environment disclosure were collected based on the 2016 GRI Standards (which only took effect in 2018). All information used in the study is secondary data and is publicly available.

Several descriptive statistical measures like frequencies, percentages, mean, standard deviation, line graph, and ranking were utilized in order to summarize and present the data gathered. Subsequently, Pearson correlation coefficient and step-wise regression analyses were employed to statistically investigate the causal relationships between variables. Further, the hypotheses were tested using two-way ANOVA, Levene's test, and t-test for equality of means.

6. RESULTS AND DISCUSSIONS

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Research Problem 1: Percentage of PLCs that release sustainability/relevant Reports from 2016 to 2020

A total of 155 PLCs (recommended sample size of the study) were checked to determine if they have submitted sustainability reports or Relevant Reports from 2016 to 2020. Results show that not all firms have consistently submitted reports for the Covered Period. Figure 3 graphically presents the trend in terms of the percentage of companies that have submitted sustainability reports or Relevant Reports from years 2016 to 2020.

An upward trend in the submission of reports is depicted in Figure 4. Out of 155 firms, the percentage of PLCs which submitted sustainability reports or Relevant Reports were 18.06%, 21.29%, 25.81% for years 2016, 2017, and 2018, respectively. Meanwhile, a remarkable increase is observed in 2019, when 91.61% of the 155 PLCs submitted their reports. The trend continued to rise in 2020, with a total of 96.13% submissions. The significant increase in trend in 2019 and 2020 was primarily due to the release of the SEC memo on the Sustainability Reporting Guidelines which requires PLCs to submit their sustainability reports starting 2019 as an attachment to their 2019 annual reports for submission in 2020. The trend also shows that of the 155 PLCs, 21.72% or an average of less than a quarter has voluntarily released sustainability reports or Relevant Reports from years 2016 to 2018. However, since SEC has adopted for the ensuing 3 years, the comply/explain method, PLCs are given the chance to explain the disclosure items that they do not have available data. Therefore, the submission of
the sustainability reports or Relevant Reports of PLCs for 2019 and 2020 does not automatically mean the existence of material discussions on their sustainability initiatives, specifically on environmental disclosures.

Figure 3 Trend in the existence of sustainability reports or Relevant Reports of PLCs (2016 – 2020)

The result of this research problem shows that only a few PLCs voluntarily submit sustainability reports or Relevant Reports prior to the mandate from the SEC on sustainability reporting in 2019. This implies that the sustainability reporting practices of most PLCs are driven by having a regulatory requirement or mandate in place. This finding suggests that aside from company initiatives, government agencies and regulatory bodies play a crucial role in promoting and tracking sustainability practices of companies.

Research Problem 2: Companies with higher percentage of disclosed information
Table 1 presents the list of the Top 10 companies with the most environmental disclosures from 2016 to 2020. As per recommendation of an Ethics Review Board in the Philippines,

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company codes are used to denote each of the subject companies in the table. S and T companies topped the list with an average level of 63.42%. Company T, however, was more consistent as indicated by the standard deviation of 2.35%. J2, L3, and K2 companies occupy the 3rd, 4th, and 5th place, with an average level of 57.11%, 56.84%, and 50.79%. Among these 3, Company L3 was more consistent as indicated by the standard deviation of 3.00%. Completing the list are W3, B1, G4, E, and N4 companies, with average levels of 48.42%, 44.74%, 41.58%, 41.32%, and 39.21%, respectively. Among these 5, Company N4 and Company B1 were more consistent as indicated by standard deviations of 2.85%

Table 1 Top 10 Subject Companies with the most disclosed environmental information from 2016 – 2020 and 3.00%, respectively.

Companies	Level of Disclosure per Year %					Mean	SD	Rank
	2016	2017	2018	2019	2020			
S	63.16	69.74	65.79	57.89	60.53	63.42	4.60	1.5
T	63.16	61.84	60.53	65.79	65.79	63.42	2.35	1.5
J2	59.21	52.63	65.79	42.11	65.79	57.11	10.00	3
L3	60.53	57.89	55.26	52.63	57.89	56.84	3.00	4
K2	34.21	44.74	68.42	53.95	52.63	50.79	12.61	5
W3	40.79	47.37	39.47	59.21	55.26	48.42	8.70	6
B1	50.00	43.42	44.74	42.11	43.42	44.74	3.09	7
G4	47.37	36.84	39.47	40.79	43.42	41.58	4.01	8
E	39.47	38.16	39.47	44.74	44.74	41.32	3.17	9
N4	39.47	43.42	35.53	38.16	39.47	39.21	2.85	10

**Ranks are based on the mean disclosure level*

Taking off from the results and ranking presented in Table 1, Table 2 further provides an analysis on the Top 10 Subject Companies with the most disclosed environmental information. Just like in Table 1, company codes were also used to represent the subject companies. As seen in Table 2 and supplemented by Table 3, the industries of the Subject Companies in the Top 10 ranking are all categorized as environmentally sensitive industries. It is also worth noting that all four (4) Subject Companies under the electricity, energy, power, and water industry, as well as the two (2) of the three (3) Subject Companies under the mining industry are included in the Top 10, as summarized in Table 3.

Table 2 Industry and parent company classification of the Top 10 Subject Companies

Companies	**Industry classification**	**Parent Company***
S	Holding firms	S
T	Property	S
J2	Electricity, Energy, Power & Water	K2
L3	Electricity, Energy, Power & Water	S
K2 **	Electricity, Energy, Power & Water	K2
W3	Mining	
B1	Property	S
G4	Mining	
E	Holding firms	E
N4	Electricity, Energy, Power & Water	

** Symbol of parent (or holding) company included in Top 10*

***K2 is the parent company of J2, but it is tagged under the Electricity, Energy, Power & Water industry in PSE website*

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Both industries (i.e., electricity, energy, power, and water industry, and mining industry) have a grave and serious environmental impact (Chiu, et al., 2020; Tubay & Leon, 2020; and Farooque et al., 2014), resulting in companies having a bad reputation. This result is in line with legitimacy theory, and with both industries having a grave impact in the environment, they are required to comply with pertinent and applicable environmental laws (e.g., DOE Regulations, Philippine Mining Industry Regulations, International Maritime Organization Regulations, etc.) imposed by various local and international agencies. According to Wibowo & Faradiza (2014), as cited in Verawaty et al., (2018), the Legitimacy Theory urges companies to ensure that their business activities are supported and are acceptable according to the standards of the society, hence companies that are environmentally sensitive, tend to disclose more information to improve company image and increases good reputation, which in turn gain recognition and approval from the community (Vogt et al., 2017; Kouloukoui et al., 2019; Fajarini & Triasih, 2020).

Furthermore, Table 2 shows that 4 of the 10 companies included in the ranking are owned by the Ayala's Company S and its subsidiaries (i.e., T, L3, B1). Meanwhile, 2 of the 10 companies included in the ranking are owned by the Lopez's (i.e., J2 and K2). Note that Company K2 is the parent or holding company of Company J2, but it is tagged under the Electricity, Energy, Power & Water industry on the PSE website, hence the classification. This finding is supported by the Stakeholder theory which states that the activities of the company should benefit all those members (i.e., stakeholders) involved or affected by its business operations (Freeman, 1984; Freeman, 2010). The Ayala's and Lopez's owned companies, being conglomerates, affect more stakeholders. The Stakeholder Theory states that for companies to survive and to continue existing, they need support from their stakeholders (Verawaty et al., 2018).

Table 3 Summary of the industry type of the Subject Companies and Top 10 companies

Industry classification	Sample Companies	In Top 10	Industry type*
Holding firms	25	2	1
Electricity, Energy, Power & Water	8	4	1
Banks	10	0	0
Property	24	2	1
Mining	12	2	1
Food, Beverage & Tobacco	16	0	1
Telecommunications	2	0	0
Other Financial Institutions	8	0	0
Media	4	0	0
Electrical Components & Equipment	4	0	0
Transportation Services	7	0	0
Construction, Infrastructure & Allied Services	7	0	0
Information Technology	6	0	0
Casinos and Gaming	5	0	0
Retail	4	0	0
Chemicals	4	0	0
Hotel and Leisure	3	0	0
Oil	2	0	0
Education	2	0	0
Other Industrials	2	0	0
TOTAL COUNT	155	10	

* *Industry type: 1 – Environmentally sensitive; 0 – non-environmentally sensitive*

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One of the main results of this research problem, as shown in Table 3, conveys that the top companies that are environmentally sensitive, tend to report greater data about the environment. It implies that these companies have more applicable environmental disclosure items relative to GRI standards compared to non-environmentally sensitive companies. Therefore, as previously mentioned, for a more relevant and comparable sustainability reporting practice of companies, government agencies and local or international regulatory bodies should work on aligning sustainability reporting standards on a per-industry basis rather than using a single template or standard across all industries.

Research Problem 3: Difference in environmental disclosure when firms are grouped based on industry type

To determine if the mean levels of environmental disclosures by environmentally sensitive PLCs are significantly different from that of the non-environmentally sensitive PLCs, an independent samples test for equality of means was done. Results are presented in Table 4.

Table 4 Descriptive summary - disclosure level per industry and results of independent samples t-test

Industry	N	Mean	SD	Equality of Means (t-test)				
				t (df)	Sig. (2-tailed)	Mean Difference	95% CI of difference	
							Lower	Upper
Environmentally sensitive	90	.4007	.1616	6.67 (117)	.000	.1524	.1071	.1976
Not environmentally sensitive	40	.2484	.0964					

Note: Levene's test for Equality of Variances: F = 10.039, p = .002 (Equal variances not assumed)

It was considered fit to use the parametric independent samples t-test since the results of the one-sample KS test indicated that the data come from a normally distributed population. Additionally, the Levene's test equality of variances resulted to F=10.039, p=0.002. Thus, equal variances cannot be assumed since the F value is associated with a significance value less than 0.05.

Table 4 indicated that the mean level of disclosure of environmentally sensitive PCLs is 40.07% with a standard deviation of 16.16%. On the other hand, the mean level of disclosure of not environmentally sensitive PCLs is 24.84% with a standard deviation of 9.64%. Results of the t-test for equality of means (independent samples) indicate the rejection of the null hypothesis of no difference between the means t (117) = 6.67, p=0.000. It can be concluded that the mean level of disclosure of environmentally sensitive PCLs is significantly higher with a mean difference of 15.24% with a 95% CI for difference between 10.71% and 19.76%. Therefore, the null hypothesis 1 (Ho1) of this paper which states that "there is no significant difference in the level of disclosed environmental data for the Covered Period when companies are grouped by industry type" is not supported.

To support one of the findings of research problem two (2), the result of research problem three (3) shows that the environmentally sensitive PLCs' mean level of disclosure is significantly bigger than those of non-environmentally sensitive PLCs. This finding suggests that companies categorized under the industries which are environmentally

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sensitive report greater environmental data than those under the industries which are non-environmentally sensitive. This is aligned with the study of Fajarini & Triasih (2020), Welbeck et al. (2017), Ohidoa & Omokhudu (2016), and Omnamasivaya & Prasad (2016). Furthermore, to supplement this finding, the Stakeholder Theory states that for companies to survive and to continue existing, they need support from various stakeholders (Verawaty et al., 2018), and environmentally sensitive companies tend to have a bad reputation because of their negative impacts in the environment. Hence, these companies thrive to provide all necessary information needed by their stakeholders, which includes disclosures of their social and environmental responsibilities, to seek support from these parties (Ardian & Rahardja, 2013). This finding implies that with more attention, potential public scrutiny, and required disclosures imposed by their stakeholders, environmentally sensitive companies are compelled to disclose more environmental information. Since these companies pose more environmental impact and threat, multiple pertinent and applicable environmental laws (e.g., DOE Regulations, Philippine Mining Industry Regulations, International Maritime Organization Regulations, etc.) are imposed and should be imposed by various local and international agencies. Meanwhile, studies of Kalash (2020), Hidayah et al. (2019), Kouloukoui et al. (2019), and Amico et al. (2014), state that industry type has no significant relationship with environmental disclosures.

Problem 4: To identify the most and least disclosed financial and non-financial environmental information by the subject companies on areas under the GRI Sustainability Reporting Standards.

The descriptive summaries in Table 5 provide information regarding the different areas (8 major categories) of the GRI environmental disclosure, particularly in terms of the percentage of disclosed information in these areas. It can be noted from table 5 that Energy-related information ranks 1st in terms of percentage of disclosures, with an average of 48.46%. Ranking 2nd and 3rd are Emissions-related information (Mean = 42.55%) and Water-related information (Mean = 41.83%). This supports the study of Fajarini & Triasih (2020) which states that energy-related information has the highest level of environmental disclosure, followed by emissions-related information. Furthermore, among these 8 areas, at the bottom of the list are environmental compliance (Mean = 24.62%), Materials-related information, (Mean = 17.21%), and supplier environmental assessment (Mean = 10.51%). Supplier environmental assessment being the least disclosed topic is supported by the study of Welbeck et al. (2017). It also is reasonable because even the reporting template prepared by the SEC does not include disclosures on supplier environmental assessment.

Table 5 Descriptive summaries of the percentage of disclosed information in the different areas

Areas	Min, %	Max, %	Mean, %	SD, %	Rank*
Energy	43.91	50.00	48.46	2.57	1
Emissions	37.26	48.32	42.55	4.34	2
Water	37.02	44.71	41.83	3.06	3
Biodiversity	33.08	42.31	36.92	3.72	4
Effluents and Waste	29.81	38.78	35.32	3.69	5
Environmental Compliance	22.12	26.92	24.62	1.75	6
Materials	11.54	21.15	17.21	4.58	7
Supplier Environmental Assessment	5.77	14.10	10.51	3.09	8

**Ranks are based on the mean disclosure level*

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To provide an in-depth statistical analysis of the data presented in Table 5, Pearson correlation coefficient and stepwise regression analyses were employed. Results are summarized in Table 6 and Tables 7a, 7b, and 7c.

Table 6 Pearson Correlation Coefficients among the areas of GRI

Areas	Materials	Energy	Water	Biodiversity	Emissions	Eff_Waste	Envi_ Compliance	Envi_ Assessment
Materials	1	.659	.813	.844	.829	.937*	.789	.600
Energy	.659	1	.829	.542	.632	.831	.110	.889*
Water	.813	.829	1	.857	.936*	.784	.432	.806
Biodiversity	.844	.542	.857	1	.979**	.694	.584	.702
Emissions	.829	.632	.936*	.979**	1	.702	.534	.740
Eff_Waste	.937*	.831	.784	.694	.702	1	.590	.709
Envi_Compli	.789	.110	.432	.584	.534	.590	1	-.006
Envi_Assessment	.600	.889*	.806	.702	.740	.709	-.006	1

** Correlation is significant at the 0.05 level (2-tailed).*
*** Correlation is significant at the 0.01 level (2-tailed).*

The intention of a correlation test is to see the behavior of one variable on the basis of the behavior of the other variable/variables (Vibora and Mandigma, 2022). Table 6 shows that materials and effluent waste, energy and environmental investment, water and emissions, biodiversity and emissions are significantly correlated with each other. These variables are highly correlated since the computed values of Pearson correlation lies above +.889. The correlation between biodiversity and emissions, with a 2-tailed p-value of <0.01, has the highest statistical significance. Further research is necessary to examine the findings of no significant relationship among the other variables in this study (Mandigma, 2014). After the correlation test, stepwise regression analysis, which allows for a better understanding of the structure of the correlation, was performed to identify which among the areas have causal relationships. Results indicated that only biodiversity significantly influence emissions.

Table 7a. Model Summary of the predictors of the area Emissions

R	R^2	Adjusted R^2	Std. Error of the Estimate
.979[a]	.959	.946	.01011

Predictors: (Constant), Biodiversity

As presented in Table 7a, the computation reveals that biodiversity affects emissions when compared to other areas of GRI. The computed R Square of biodiversity was 95.9% in relation to emissions. Hence, biodiversity is regarded as a significant predictor of emissions.

Table 7b Analysis of Variance of the predictors of the area Emissions

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.007	1	.007	70.729	.004[b]
Residual	.000	3	.000		
Total	.008	4			

Dependent Variable: Emissions
Predictors: (Constant), Biodiversity

According to the results of the ANOVA calculation, it is determined that a regression model is a significant tool for evaluating if the dependent variable is influenced by the independent variable. The ANOVA (Table 7b) determined that the influence of

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biodiversity on emissions was positively significant. The ANOVA results have a substantial impact on the regression model.

Table 7c Stepwise Regression Analysis of the Predictors of the area Emissions

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.004	.050		.071	.948
Biodiversity	1.143	.136	.979	8.410	.004

Dependent Variable: Emissions

As indicated in Table 7c, the model for emissions is as follows: Emissions = 1.143 biodiversity. According to this model, an increase of 1 unit in the level of biodiversity would result in an increase of 1.143 unit in the level of emissions. According to the United Nations 2022, 1), "The Earth's land and the ocean serve as natural carbon sinks, absorbing large amounts of greenhouse gas emissions. Conserving and restoring natural spaces, and the biodiversity they contain, is essential for limiting emissions and adapting to climate impacts." Thus, the aforementioned model for emissions could be referring to biodiversity loss.

To supplement the findings in the preceding tables, two-way ANOVA was used to examine if the amount of disclosure across the Covered Period for all areas under the GRI Sustainability Reporting Standards are not significantly different. Results are shown in Table 8.

Table 8 Results of Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5121.949[a]	39	131.332	23.969	0.000	0.552
Intercept	15408.901	1	15408.901	2812.282	0.000	0.787
Year	423.680	4	105.920	19.331	0.000	0.092
Areas	4513.669	7	644.810	117.684	0.000	0.520
Year * Areas	184.600	28	6.593	1.203	0.217	0.042
Error	4164.150	760	5.479			
Total	24695.000	800				
Corrected Total	9286.099	799				

R Squared = .552 (Adjusted R Squared = .529)
Dependent Variable:Disclosure

From Table 8, it can be seen that the number of disclosures in the 8 areas are different from each other which is evidenced by the p-value of 0.000. However, when these 8 areas were examined across years 2016-2020, we can see that they are not significantly different (p-value = 0.217). Ho2 states that "there is no significant difference in the amount of disclosure across the Covered Period for all areas under the GRI Sustainability Reporting Standards". Thus, this null hypothesis is supported.

Result of this research problem shows that there has been an uneven disclosure practice of PLCs per area or major category. Based on the observation by the researcher, there has been an inconsistency in the reporting practice of PLCs that adopts GRI standards in their sustainability reporting, in terms of how they interpret GRI disclosure items. This finding

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suggests that an understanding and familiarity with the GRI standard is important in preparing sustainability reports.

7. CONCLUSIONS AND RECOMMENDATIONS

The study analyzes the environmental disclosures of PLCs in the Philippines for a 5-year period from 2016 to 2020. Results of the study reveal that only a few PLCs (an average of 21.72% from 2016 to 2018) voluntarily submit sustainability reports or Relevant Reports before the mandate from the SEC on sustainability reporting in 2019. This implies that the sustainability reporting practices of most PLCs are driven by having a regulatory requirement or mandate in place. This finding suggests that aside from company initiatives, government agencies and regulatory bodies play a crucial role in promoting and tracking sustainability practices of companies. Therefore, companies are motivated to report on sustainability/ disclose environmental information either as a form of company initiative or because it is mandated by a third party, such as but not limited to government agencies or regulatory bodies. This finding on the motive of companies in releasing sustainability reports is aligned to the theories used in this study – Legitimacy Theory and Stakeholder Theory. Companies act in accordance with what is acceptable by society (Legitimacy Theory), in this case by complying with the regulatory requirement by the SEC; as well as to meet the demands and expectations of their stakeholders (Stakeholder Theory); hence, the initiatives of those companies in having sustainability report even before the mandate.

The release of the SEC memo resulted to a drastic increase in the sustainability reporting of PLCs, as well as an augmented level of reported environmental data by the Subject Companies. Moreover, the top 10 Subject Companies that showed increased information about Mother Nature are all from the industries which are environmentally sensitive and are monopolized by two families, namely Ayala's Company S and its subsidiaries (i.e., Company T, Company L3, and Company B1) and Lopez's (i.e., Company J2 and Company K2). Energy and emission related information are the most disclosed area while supplier environmental assessment is the least disclosed. Also, the amount of disclosure across the Covered Period were significantly the same for all areas. However, taking the 8 areas irrespective of the year when the disclosures were taken, showed significant differences among them. One of the reasons observed by the researcher that affect the mean environmental disclosure level of PLCs is the fact that some items enumerated in the 2016 GRI Standards, the instrument used in the study, is not applicable to all Subject Companies from different industries (e.g., disclosure on significant spills is not applicable for the banking industry). One implication this finding suggests is that government agencies and local/international regulatory bodies should work on aligning sustainability reporting standards on a per-industry basis for a more relevant, appropriate, and comparable sustainability reporting practice. An industry-specific sustainability reporting standard captures a more relevant picture of the sustainability practice of a company.

Other recommendations are assumed from the study findings. On an external level, after establishing the effectiveness of the recently released memorandum by the SEC, i.e., Sustainability Reporting Guidelines for PLCs in promoting sustainability, the next step for SEC or other relevant regulatory bodies should be to work on the (1) enforcement of the current mandate and (2) improvement on sustainability reporting practice in the Philippines. One way to improve the sustainability reporting practice of PLCs is to have it audited by an external party that is an expert in the field of sustainability reporting. This will ensure readers and interested parties that the disclosed information is accurate and

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reliable. Another way to improve the sustainability reporting practice of PLCs is by having industry-specific standards. Furthermore, stringent, and stronger policies on emission and waste reductions, energy and water conservations, and the likes, should be implemented to encourage companies in complying. In the context that stakeholders significantly aid in enhancing company performance regarding their sustainability practices, it follows that investors, lenders, other financial institutions, and relevant regulatory bodies should strengthen their initiatives in promoting green financing or integrating environmental sustainability into their financing or investing decisions.

The researchers intend to spread awareness beyond the Philippines. Thus, from a journal where this study is published, foreign companies and their stakeholders, government agencies located overseas, and international regulatory bodies could get information about the involvement of the publicly-listed companies in building a sustainable environment through initiatives and efforts disclosed in their annual reports or sustainability reports.

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REFERENCES

[1] Alhaddi, H. (2014). "The influence of triple bottom line on strategic positioning: An exploratory case study on differentiation through image." *Journal of Management and Strategy, 5(1),* doi:10.5430/jms.v5n1p55

[2] Amico, E., Coluccia, D., Fontana, S., & Solimene, S. (2014). "Factors Influencing Corporate Environmental Disclosure." *Business Strategy and the Environment, 25(3),* 178–192. doi:10.1002/bse.1865

[3] Ardian, H. & Rahardja, S. (2013). "Factors affecting social and environmental responsibility disclosure policies (Empirical study of all manufacturing companies listed on the Indonesia stock exchange in 2010)." *Diponegoro Journal of Accounting, 2(2),* 1-13.

[4] Badoc-Gonzales, B., Tan, J., Mandigma, M. B. (2021) "Institutional Change of Disaster Risk Reduction Management Offices in Selected Areas of Post-Haiyan Philippines", in Faghih, N. and Samadi, A. H. (eds.), *Legal-Economic Institutions, Entrepreneurship, and Management, Contributions to Management Science*. Switzerland AG. Springer Nature, pp. 249-280. https://doi.org/10.1007/978-3-030-60978-8

[5] Badoc-Gonzales, B., Mandigma, M. B., Tan, J. (2020) "Merging Sustainable Pillars into the Tourism Plan Format for Micro, Small, and Medium Enterprises in Post-Typhoon Haiyan Areas in the Philippines." *The International Journal of Interdisciplinary Environmental Studies* 14 (2) pp: 1–31. https://doi.org/10.18848/2329-1621/CGP/v14i02/1-31.

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

[6] Bhattacharyya, A. (2014). "Factors associated with the social and environmental reporting of Australian companies." *Australasian Accounting, Business and Finance Journal, 8,* 25-50, doi:10.14453/aabfj.v8i1.3
[7] Brundtland, G. (1987). Report of the world commission on environment and development: Our common future. Retrieved from https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf
[8] CFA Institute. (2018). *Environmental, social and governance (ESG) survey.* Retrieved from https://www.cfainstitute.org/-/media/documents/survey/esg-survey-report-2017.ashx
[9] Chaklader, B., & Gulati, P. A. (2015). "A study of corporate environmental disclosure practices of companies doing business in India." *Global Business Review, 16(2),* 321–335. doi:10.1177/0972150914564430
[10] Chandok, R. I. S., & Singh, S. (2017). "Empirical study on determinants of environmental disclosure." *Managerial Auditing Journal, 32(4/5),* 332–355. doi:10.1108/maj-03-2016-1344
[11] Chiu, C. L., Zhang, J., Li, M., Wei, S., Xu, S., & Chai, X. (2020). "A study of environmental disclosures practices in Chinese energy industry." *Asian Journal of Sustainability and Social Responsibility*, 5(1). doi:10.1186/s41180-020-00036-1
[12] Fajarini S.W., I., & Triasih, A. (2020). "Determinants of the quantity of environmental disclosure in Australian companies." *KnE Social Sciences, 4(6),* 1327–1342. https://doi.org/10.18502/kss.v4i6.6684
[13] Farooque, O., Ahulu, H., & Kotey, B. (2014). "Exploring environmental disclosure in selected Australian multinationals under the GRI guidelines." *Issues in Social and Environmental Accounting, 8,* 137-156. doi: 10.22164/isea.v8i3.90.
[14] Freeman, R. E. (1984). Strategic management: A stakeholder approach (Book). Massachusetts: Pitman.
[15] Freeman, R. E. (2010). Strategic management: A stakeholder approach (Book). Cambridge: Cambridge University Press.
[16] Gavancha, I.F., & Paiva, I.S. (2020). "Corporate social responsibility and financial information: Theoretical approaches and recent developments." *IGI Publisher.* 1-19. doi: 10.4018/978-1-7998-2128-1.ch001
[17] Glavas, A., & Mish, J. (2015). "Resources and capabilities of triple bottom line firms: Going over old or breaking new ground?" *Journal of Business Ethics*, 127(3), 623-642. Retrieved from http://www.jstor.org/stable/24702842
[18] Global Reporting Initiative (GRI website). (n.d). *GRI Standards.* Retrieved 16 May 2021 from https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/
[19] Global Sustainable Investment Alliance (GSIA). (2018). *2018 Global sustainable investment review.* Retrieved from http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf
[20] Haninun, N. A., Lindrianasari, N. A., & Denziana, A. (2018). "The effect of environmental performance and disclosure on financial performance." *International Journal of Trade and Global Markets, 11(1/2),* 138. doi:10.1504/ijtgm.2018.092471
[21] Hardiningsih, P., Januarti, I., Yuyetta, E. N. A., Srimindarti, C., & Udin, U. (2020). "The effect of sustainability information disclosure on financial and market performance: Empirical evidence from Indonesia and Malaysia." *International Journal of Energy Economics and Policy, 10(2),* 18–25. doi:10.32479/ijeep.8520

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

[22] Hidayah, N., Badawi,A., & Nugroho, L. (2019). "Factors affecting the disclosure of sustainability reporting." *International journal of commerce and finance*, 5(2), 219-229. Retrieved from https://www.researchgate.net/publication/336230226_Factors_Affecting_the_Disclosure_of_Sustainability_Reporting

[23] Kalash, I. (2020). "Environmental disclosure: Determinants and effects on financial performance? An empirical evidence from turkey." *Sosyoekonomi*. 95-115. doi: 10.17233/sosyoekonomi.2020.04.05.

[24] Kouloukoui, D., Sant'Anna, Â. M. O., da Silva Gomes, S. M., de Oliveira Marinho, M. M., de Jong, P., Kiperstok, A., & Torres, E. A. (2019). "Factors influencing the level of environmental disclosures in sustainability reports: Case of climate risk disclosure by Brazilian companies." *Corporate Social Responsibility and Environmental Management, 26(4),* 791-804. https://doi.org/10.1002/csr.1721

[25] Kouloukoui, D., Gomes, S. M. da S., Marinho, M. M. de O., Torres, E. A., Kiperstok, A., & de Jong, P. (2018). "Disclosure of climate risk information by the world's largest companies." *Mitigation and Adaptation Strategies for Global Change, 23(1),* doi:10.1007/s11027-018-9783-2

[26] KPMG. (2020). *The KPMG survey of sustainability reporting 2020.* Retrieved from https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/11/the-time-has-come.pdf

[27] Lu, Y., & Abeysekera, I. (2014). "Stakeholders' power, corporate characteristics, social and environmental disclosure: Evidence from China." *Journal of Cleaner Production, 64(1),* 426–436. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2387985

[28] Mandigma, M. B. and Badoc-Gonzales, Blesilda (2022) "Tax Exemptions of Cooperatives in the Philippines and in Other Countries: A Comparative Study." *Review of Integrative Business and Economics Research*, 11(2) pp. 144-163. http://buscompress.com/uploads/3/4/9/8/34980536/riber_11-s2_03_k22-033_144-163.pdf

[29] Mandigma, Ma. Belinda (2022) "Drafting a Plan of Sustainable Urban Vertical Garden to Augment Household Food Security and Livelihood in a Philippine Urban Community." *Review of Integrative Business and Economics Research*, 11(3) pp. 107-124. http://buscompress.com/uploads/3/4/9/8/34980536/riber_11-s3_02_k22-034_107-124.pdf.

[30] Mandigma, Ma. Belinda (2017) "A Model Social Profit and Loss Account as a Measurement Tool for Social Sustainability of Community Development Programs." *International Journal of Interdisciplinary Social and Community Studies* 12 (3): 27–39.

[31] Mandigma, Ma. Belinda, Franz Cortez, Corazon Regacho, and Jomar de Guzman (2016) Economy of giving in Simbahayan Community Development Program." International Journal of Sustainability in Economic, Social and Cultural Context 13 (1): 21–42.

[32] Mandigma, M. B. (2014) "Retirement plans preferences in the Philippines." *International Proceedings of Economics Development,* 71, pp. 64. DOI: 10.7763/IPEDR. 2014. V71. 12

[33] Meals, D.W., Spooner, J., Dressing, S.A., and Harcum, J.B. (2011). "Statistical analysis for monotonic trends." *Tech Notes 6*, Developed for U.S. Environmental Protection Agency by Tetra Tech, Inc., Fairfax, VA, 23 p. Available online at https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-monitoringtechnical-notes. Retrieved from

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

https://www.epa.gov/sites/default/files/2016-05/documents/tech_notes_6_dec2013_trend.pdf

[34] Mohamed, I.J.A. (2015). "Determinants of environmental disclosure in annual reports of Sri Lankan listed manufacturing companies." *Journal of Management, 12*, 99. doi: 10.4038/jm.v12i1.7591

[35] Ohidoa, T., Omokhudu, O., & Oserogho, I. (2016). "Determinants of environmental disclosure." *International Journal of Advanced Academic Research, 2(8),* 49-58. Retrieved from https://www.ijaar.org/articles/Volume2-Number8/Social-Management-Sciences/ijaar-sms-v2n8-aug16-p1.pdf

[36] Omnamasivaya, B., & Prasad, M. S. V. (2016). "Factors influencing environmental accounting and disclosure practices in India: Empirical evidence from NIFTY companies." *IUP Journal of Accounting Research & Audit Practices, 15(1),* 21-34. Retrieved from http://0-search.ebscohost.com.ustlib.ust.edu.ph/login.aspx?direct=true&db=bsu&AN=113440707&site=eds-live

[37] PSE Edge. (n.d.). *Company list.* Retrieved 8 April 2021 from https://edge.pse.com.ph/companyDirectory/form.do

[38] SEC. (2019a). *MC No. 04 s.2019 – Sustainability reporting guidelines for publicly-listed companies.* Retrieved from https://www.sec.gov.ph/mc-2019/mc-no-04-s-2019-sustainability-reporting-guidelines-for-publicly-listed-companies/

[39] SEC. (2019b). *SEC launches sustainability reporting guidelines for publicly listed companies.* Retrieved from https://www.sec.gov.ph/pr-2019/sec-launches-sustainability-reporting-guidelines-for-publicly-listed-companies/

[40] Sulaiman, M., Abdullah, N., & Fatima, A. (2014). "Determinants of environmental reporting quality in Malaysia." *International Journal of Economics, Management and Accounting, 22(1).* Retrieved from https://journals.iium.edu.my/enmjournal/index.php/enmj/article/view/253

[41] Sustainability Reports. (2018). *Global reporting initiative: Switch from GRI G4 to Standards due.* Retrieved from https://www.sustainability-reports.com/global-reporting-initiative-switch-from-gri-g4-to-standards-due/

[42] Tubay, J. B., & Leon, M. V. D. (2020). "Website sustainability disclosure analysis: A case of publicly-listed mining companies in the Philippines." *International Journal of Energy Economics and Policy, 10(1),* 23–30. doi:10.32479/ijeep.8347

[43] United Nations (2022) "Biodiversity - our strongest natural defense against climate change." Retrieved from https://www.un.org/en/climatechange/science/climate-issues/biodiversity

[44] Verawaty, Merina, C., Jaya, A.K., & Widianingsih, Y. (2018). "Determinants of environmental disclosure in Indonesia." *Advances in Economics, Business and Management Research, 117,* 220-226. Retrieved from https://www.atlantis-press.com/proceedings/gcbme-18/125933702

[45] Vibora, E. and Mandigma, MBS. (2022). "Implementation of the Online Tax Payment Facility in a Philippine Local Government Unit." *The International Journal of Interdisciplinary Organizational Studies* 17 (2): 43-65. doi:10.18848/2324-7649/CGP/v17i02/43-65.

[46] Vogt, M., Hein, N., & Rosa, F., & Degenhart, L. (2017). "Relationship between determinant factors of disclosure of information on environmental impacts of Brazilian companies." *Estudios Gerenciales. 33.* doi: 10.1016/j.estger.2016.10.007.

[47] Welbeck, E. E., Owusu, G. M. Y., Bekoe, R. A., & Kusi, J. A. (2017). "Determinants of environmental disclosures of listed firms in Ghana."

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

International Journal of Corporate Social Responsibility, *2(1).* doi:10.1186/s40991-017-0023-y

[48] Wibowo, I & Faradiza, S.A. (2014). "The impact of sustainability report disclosures on financial performance and corporate market performance". *XVII Accounting National Symposium Mataram, Lombok.*

Appendix A

List of PLC included in Recommended Sample Size - Available from the authors on request.

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