

WASTE AND EFFLUENT DISCLOSURE: CASE STUDY OF HEALTHCARE COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE

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ABSTRACT

This research seeks to determine the level of information disclosure by health companies in Indonesia about their corporate social responsibility (CSR) in terms of their waste and effluent treatment based on the Global Reporting Initiative's G4 (GRI-G4) guidelines were used as the reporting standard. The population in this study comprises healthcare companies listed on the Indonesia Stock Exchange. Samples were taken by using purposive sampling method. Content analysis was performed for the sample companies' annual reports and financial statements for the period 2018–2020. The analysis results indicate that the level of information disclosure by health companies in Indonesia regarding their CSR in terms of their waste and effluent treatment is still low. Most companies disclose a minimal amount of information and do not comply with GRI-G4 standards; only a few companies disclose the required information in accordance with GRI-G4 standards. The results of research provide the valuable knowledge for the healthcare industry about its importance of having a good mitigation or treatment system for the B3 and non-B3 waste. Moreover, the health industry is the biggest contributors of B3 waste in Indonesia.

Keywords: Waste, Effluent, Disclosure, GRI-G4, Health Industry

INTRODUCTION

Waste water that has been produced by several types of household activities is known as domestic waste water (Ministry of Environment and Forestry, 2016). Fecal sludge is formed when waste undergoes microbial degradation, which occurs after a certain period of time. The need for processing waste that contains pollutants which have the potential to harm the environment (Ginting, 2007). Waste is not only from household activities but also from industrial activities has become a major development that can improve the standard of living of Indonesian people. These activities have several positive impacts such as creating jobs and producing goods and services that improve the quality of life and the economy. However, these activities also cause negative impacts that threaten environmental balance, such as environmental pollution that occurs due to industrial waste which causes damage to natural resources and reduces the life quality of peoples.

Based on the discussion above, especially on topic of environmental pollution, the United Nations was ever asked to hold a conference in Sweden in 1972 to discuss environmental issues. Subsequently, this conference became a guide for many countries to encourage their existing industries to commit to environmental conservation with a good waste management. The concern for environmental sustainability encourages awareness to understand the importance of corporate social responsibility [CSR]. All companies especially these companies in their operational have waste and effluent should have a moral obligation to be honest, have integrity, obey the law, and not be corrupt (Harmoni and Andriyani, 2008). The company is also continuously asked to be responsible not only to its creditors and investors but also to environmental

and social issues (Reverte, 2009). Wahana Lingkungan Indonesia (WALHI) conducted a survey on Indonesia's environmental status in 2014 and revealed that the public assesses the condition of the water, rivers, and air in Indonesia as alarming, while the management and enforcement of laws for environmental damage contributors by the government and officials is viewed as minimal. Moreover, environmental issues cannot be separated from the lack of disclosure about social and environmental responsibility by various industries.

Based on data released by the Ministry of Environment and Forestry (LHK) that amount to 59% of the rivers in Indonesia are severely polluted by waste. The main sources of this waste are industries, households, and farms. According to data collected by the Ministry of Environment and Forestry for the period 2015–2020, there were indications of an increase in the cases of land areas contaminated by B3 waste. B3 waste refers to hazardous and toxic waste that must undergo a series of processes, such as storage, collection, transportation, utilization, processing, and hoarding. The mismanagement of B3 waste affects the health of life creature and causes environmental damage (Arka, 2022). The current research seeks to examine the level of disclosure about waste and effluent treatment in the annual reports of companies in the health industry, especially those listed on the Indonesia Stock Exchange (IDX). This study is important because every company must be responsible for the waste that they produce from their business activities and must contribute to increase the awareness and applications of CSR in their business activities. This research contributes to disclosure and reporting about water and effluent in health companies listed on the Indonesian Stock Exchange.

Stakeholder Theory

According to stakeholder theory, the sustainability of a company is inseparable from the role of its stakeholders, both internal and external, even though they have different interests. One way in which a company meets the interests of its stakeholders with publishing annual reports that disclose the company's financial and non-financial information, e.g., the impact of its social and environmental activities. Moreover, stakeholder theory states that a company's establishment is aimed at performing operational activities that not only generate profits, but also provide benefits to its stakeholders (Harahap, 2011). Therefore, companies need contribute environmentally and socially to their surrounding environment. Stakeholder theory is an ethical philosophy of business and organizational management that takes into consideration the various groups that are affected by businesses, including creditors, employees, suppliers, and local communities. According to Gilbert and Rasche (2008), stakeholder theory explains how companies really consider stakeholder interests. This theory explains the people who are impacted by an organization's operations and how they affect the goals that the firm run its business. Many academic fields have a lengthy history with the stakeholder idea. Stakeholders were divided into three categories by Fassin (2009): true stakeholders, stakewatchers, and stakekeepers. The company owes a duty and moral commitment to its true stakeholders, who have a valuable investment in it and legitimate claims to power and influence.

Legitimacy Theory

Legitimacy theory describes all efforts are undertaken by companies to conduct operational activities in accordance with many boundaries and norms of society. This theory has been widely used by researchers to conduct research on CSR reporting practices, and no wonder if this theory becomes the most widely used theory in the field of CSR (Vourvachis and Woodward, 2015). This theory also provides a deep explanation about disclosure of social and environmental responsibility (CSR) that is carried out by companies, because it explicitly recognizes that the business is carried out under the bound of a social contract where the company carries out activities expected by the social community. The disclosure of social and environmental responsibility is one way to legitimize corporate sustainability for society. Legitimacy theory explains that companies disclose information as a means to respond and participate in public policy

processes (Patten, 2002). A useful technique for controlling stakeholders' views of the requirements for achieving organizational legitimacy is legitimacy theory. Therefore, legitimacy gives a company the ability to carry out its operations in accordance with the interests of its stakeholders (Suchman 1995). The function of legitimacy theory is to provide an explanation for how organizations respond when they implement and develop voluntary social and environmental disclosure of information in order to uphold their social contract, which permits them to recognize their goals and survive in an unstable and chaotic environment.

Signaling Theory

The theory of information describes the asymmetry of information between owner of information and user of information, in this case the company as the owner of the information and the stakeholder as the user of the information. The company will try to provide good signals or information about the quality of the company to show its advantages to be compared to other companies (Connelly et al. 2011). This theory describes the company's efforts in conveying company activities and policies to stakeholders who can provide added value for the company, the company will strive to communicate positive information to improve the company's image. Disclosure of CSR information in the annual report is one of the efforts to reflect the quality of the company that is expected to provide added value for the company and also reduce information asymmetry. A characteristic of individuals or organizations that have access to different information that can be explained by signaling theory. Information distributed with signals usually requires two explanations, namely for the sender of the information, the recipient of the information, and how to interpret it because it is conveyed by a signal. That is in various management literatures, such as entrepreneurship, strategic management, and human resource management, emphasize the importance of signal theory.

Global Reporting Initiative (GRI) G4 – Sustainability Reporting Guidelines

CSR is a work mechanism that companies must carry out voluntarily by integrating environmental and social concerns into their operational activities and a platform for interacting with stakeholders, which exceeds legal and organizational responsibilities (Darwin, 2004). CSR functions to strengthen the company's sustainability, and also as a forum to convince stakeholders by carrying out development programs in the community. Then, CSR is a company's commitment to improve the welfare of the community through good business practices and also based on contributions made by the company through its resources. GRI G4 is a sustainability reporting guideline that was created to ensure that sustainability reports contain crucial information regarding the most critical sustainability issues as well as to make sustainability reporting a standard practice. The GRI-G4's guidelines comprise three categories, namely economic, environmental, and social guidelines. The economic sustainability category includes indicators related to the impact of organizations on the economic conditions for stakeholders as well as economic systems at the local, national, and global levels. This environmental sustainability category is related to the impact of organizations on living and non-living natural systems. This category includes input-related impacts (e.g., energy and water), output-related impacts (e.g., emissions, waste, and effluents), environmental aspects (e.g., biodiversity and transportation), and impacts related to products and services as well as environmental compliance and related costs. The social sustainability category comprises 48 indicators that deal with the impact of organizations on the social system in which it operates.

The guidelines related to waste and effluents are listed below:

1. G4-EN22: Total water discharged based on quality and purpose
2. G4-EN23: Total weight of waste by type and method of disposal
3. G4-EN24: Total number and volume of significant spills
4. G4-EN25: The weight of waste, deemed hazardous under the provisions of the Basel2 Convention Annexes I, II, III, and VIII, that is transported, imported, exported, or treated, and the percentage of waste transported by international shipping
5. G4-EN26: Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by waste and runoff from organizations

METHODS

In this study, the sample population comprises health sector companies listed on the IDX. In this study, the research sample was obtained using a purposive sampling method to identify suitable health sector companies listed on the IDX. According to Arikunto (2010:183), purposive sampling involves selecting a sample by choosing a subject that is not based on a level or region, but rather, is taken based on a specific purpose. This sampling method requires the researcher to decide the criteria and purpose of the study so that a sample can be selected based on those criteria.

The criteria used in this study are as follows:

Table 1. Steps of Sample Selection

Description	Sum
Population: Health sector companies listed on the Indonesia Stock Exchange	23
Health sector companies not listed on the Indonesia Stock Exchange in the 2018–2020 period	-9
Healthcare sector companies that did not publish annual reports during the period 2018–2020	-2
Research period	3
Total Sample (12 x 3 years)	36

Source: Authors

Based on these criteria, the final sample included the 12 companies listed below:

Table 2. Names of Sample Company

Company Code	Name	Record Date
DVLA	Darya-Varia Laboratoria Tbk.	11-Nov-94
INAF	Indofarma Tbk.	17-Apr-01
KAEF	Kimia Farma Tbk.	04-Jul-01
KLBF	Kalbe Farma Tbk.	30-Jul-91
MERK	Merck Tbk.	23-Jul-81
MIKA	Mitra Keluarga Karyasehat Tbk.	24-Mar-15
PRDA	Prodia Widyahusada Tbk.	07-Dec-16
PYFA	Pyridam Farma Tbk	16-Oct-01
SIDO	Industri Jamu dan Farmasi Sido	18-Dec-13
SILO	Siloam International Hospitals	12-Sep-13
SRAJ	Sejahteraraya Anugrahjaya Tbk.	11-Apr-11
TSPC	Tempo Scan Pacific Tbk.	17-Jun-94

Source: www.idx.co.id

Data Collection and Analysis

The data is used in this research comprise the sample companies' annual reports, which include the CSR reports and financial statements of companies listed on the IDX during the period 2018–2020. Disclosure data was obtained from company reports are collected and analyzed using a type of textual analysis known as content analysis, which helps to determine the adequacy and quality of data. Content analysis can be defined as a research technique that facilitates the formation of valid conclusions that can be replicated from data to context (Krippendorff, 1980). In this research, the data to be compared and analyzed is the year-to-year levels of waste management and effluents of health sector companies for the period 2018–2020. The researchers use the “o” code if the required information is obtained from the company and the code “x” if the required information is not available. The analysis is conducted based on five aspects of waste and effluent disclosure, listed below:

1. Total water disposed based on quality and purpose
2. Total weight of waste based on type and method of disposal
3. Total number and volume of significant spills
4. The weight of waste, deemed hazardous under the provisions of the Basel2 Convention Annexes I, II, III, and VIII, that has been transported, imported, exported, or treated, and the percentage of waste transported by international shipping
5. The identity, size, protected status, and biodiversity value of water bodies and related habitats that are significantly affected by the waste water and runoff of organizations.

ANALYSIS

Waste and effluent disclosure 2018 can be seen in table 1 and Waste and Effluent Disclosure with GRI Standards 2018 can be seen in table 2. The results of the analysis of 12 health sector companies listed on the IDX for the period 2018–2020 are as follows:

Table 3. Waste and Effluent Disclosure 2018

Company Code	Listing	Current Year Profit	Growth (Sales)	Waste Management System	Talk About Waste
DVLA	11/11/1994	200.651.968.000	7,87%	x	o
INAF	17/04/2001	- 32.736.000.000	-2,35%	o	o
KAEF	04/07/2001	401.792.808.948	22,08%	o	o
KLBF	30/07/1991	2.497.261.964.757	4,42%	o	o
MERK	23/07/1981	1.168.442.960.000	5,15%	o	o
MICA	24/03/2015	658.737.307.293	8,71%	o	o
PRDA	07/12/2016	175.450.000.000	9,12%	o	o
PYFA	16/10/2001	8.447.447.988	12,31%	x	o
SIDO	18/12/2013	663.849.000.000	7,36%	o	o
SILO	12/09/2013	26.393.000.000	12,41%	o	o
SRAJ	11/04/2011	- 95.600.579.196	27,60%	x	x
TSPC	17/06/1994	540.378.145.887	5,46%	x	x

Source: Authors

Table 4. Waste and Effluent Disclosure with GRI Standards 2018

Company Code	G4-EN22	G4-EN23	G4-EN24	G4-EN25	G4-EN26	Total Disclosure of GRI-G4 Indicators
DVLA	x	x	x	x	x	0
INAF	x	x	x	x	x	0
KAEF	x	x	x	x	x	0
KLBF	x	x	x	x	x	0
MERK	o	o	x	o	x	3
MICA	x	x	x	x	x	0
PRDA	x	x	x	x	x	0
PYFA	x	x	x	x	x	0
SIDO	x	x	x	x	x	0
SILO	x	x	x	x	x	0
SRAJ	x	x	x	x	x	0
TSPC	x	x	x	x	x	0

Source: Authors

Based on the data, in 2018, 83.3% of health sector companies discussed waste in the CSR programs they conducted, with 66.7% of companies providing explanations about their waste treatment systems. This shows that the sample companies are aware of the waste is generated from their operational activities and undertake efforts to treat this waste. However, if processing and disclosure of information about waste is measured using the GRI-G4 guidelines, then there is only 1 company that performs information disclosure that complies with GRI standards.

According to these results, a company's growth rate does not affect its rate of disclosure about waste and effluents. In this study, the companies' sales growth rate from the preceding year was utilized. This is because the company focuses on operational activities to improve financial performance, thereby reducing non-operational activities such as CSR activities. The company's focus is on improving financial performance to meet the interests of key stakeholders, namely investors. This is in line with research conducted by Widiastuti, H. et al. (2018) which states that companies that experience with high growth (with sales indicators) are actually less in carrying out CSR activities, which leads to low levels of disclosure.

Many companies provide disclosure of information about the use of licensed third-party vendors to treat B3 waste. As done by Indofarma Tbk., Mitra Keluarga Karyasehat Tbk., and Pyridam Farma Tbk, the company carries out this waste management through external parties who already have the necessary documents in accordance with the provisions of the legislation. The resulting B3 solid waste will be accommodated... submit to a licensed third party" (Annual report Indofarma, 2018). Solid waste treatment is carried out by a qualified third-party partner and has complied with kars regulatory requirements." (Annual report Mitra Keluarga Karyasehat, 2018). Working closely with the local Environment Agency and hazardous and toxic waste management companies (B3) that have permits to deal with industrial waste." (Annual report) Pyridam Farma Tbk. 2020).

Some companies disclose information about their installations for waste treatment undertaken in the current year. For example, Kalbe Farma disclosed its "Inverter installation for blower pumps of wastewater treatment units at Kalbe Morinaga Plant Indonesia (Cikampek)," while Kimia Farma disclosed information about its waste processing machine installation "Waste installation for operational support of Rp 150,000,000 in 2018." Prodia Widyahusada also demonstrated its commitment to processing waste by

managing non-B3 liquid waste independently. Waste and Effluent Disclosure 2019 can be seen in table 3 and Disclosure of Waste and Effluent with GRI Standards 2019 can be seen in table 4. The Company already has a Liquid Waste Treatment Plant (IPAL) or Sewage Treatment Plant (STP) so that it can conduct sought-after waste management independently.” (Annual report Prodia Widyahusada, 2020).

Table 5. Waste and Effluent Disclosure 2019

Company Code	Listing	Current Year Profit	Growth (Sales)	Waste Management System	Talk About Waste
DVLA	11/11/1994	221.783.249.000	6,67%	x	o
INAF	17/04/2001	7.961.966.026	-14,68%	o	o
KAEF	04/07/2001	15.890.439.000	11,13%	o	o
KLBF	30/07/1991	2.537.601.823.645	7,40%	o	o
MERK	23/07/1981	75.731.257.000	21,68%	o	o
MICA	24/03/2015	791.419.176.854	18,13%	o	o
PRDA	07/12/2016	210.261.000.000	9,03%	o	o
PYFA	16/10/2001	9.342.718.039	-1,33%	x	o
SIDO	18/12/2013	807.689.000.000	11,01%	o	o
SILO	12/09/2013	- 332.998.000.000	17,66%	o	o
SRAJ	11/04/2011	-75.774.124.275	24,31%	x	x
TSPC	17/06/1994	595.154.912.874	8,98%	x	x

Source: Authors

Table 6. Disclosure of Waste and Effluent with GRI Standards 2019

Company Code	G4-EN22	G4-EN23	G4-EN24	G4-EN25	G4-EN26	Total Disclosure of GRI-G4 Indicators
DVLA	x	x	x	x	x	0
INAF	x	x	x	x	x	0
KAEF	x	x	x	x	x	0
KLBF	x	x	x	x	x	0
MERK	o	o	x	o	x	3
MICA	x	x	x	x	x	0
PRDA	x	x	x	x	x	0
PYFA	x	x	x	x	x	0
SIDO	x	x	x	x	x	0
SILO	x	x	x	x	x	0
SRAJ	x	x	x	x	x	0
TSPC	x	x	x	x	x	0

Source: Authors

In 2019, there was no increase in the level of disclosure about CSR activities in the form of waste and effluent treatment. Many companies only provided a repetition of information about CSR actions toward waste and effluent treatment based on the preceding year’s annual report without including any additional

details or supporting information. Only a few companies provided an overview of the steps and missions that will be performed in the following years reduce waste.

Mitra Keluarga Karyasehat Tbk. provides an information overview of the company's next steps to reduce the amount of plastic waste as follows:

Since 2018, hospitals have also implemented new policies to reduce the amount of plastic waste. Reduce the use of plastic straws and replace mineral water in glasses with glass cups that can be reused for office operational needs. A new policy will be put in place in 2020 to use eco-friendly plastic bags in pharmacies." (Annual report Mitra Keluarga Karyasehat, 2019).

Moreover, Kalbe Farma re-installed their machinery to treat liquid waste, i.e., "Installation of micro-hydro electricity generators at water sewage treatment facilities in Cikampek." This indicates Kalbe Farma's commitment to processing the waste generated from its production activities. Waste and Effluent Disclosure in 2020 can be seen in table 5 and Disclosure of Waste and Effluents using GRI Standards in 2020 can be seen in table 6.

Table 7: Waste and Effluent Disclosure in 2020

Company Code	Listing	Current Year Profit	Growth (Sales)	Waste Management System	Talk About Waste
DVLA	11/11/1994	162.072.984.000	0,92%	x	o
INAF	17/04/2001	30.000.000	26,22%	o	o
KAEF	04/07/2001	20.425.756.000	6,44%	o	o
KLBF	30/07/1991	2.799.622.515.814	2,12%	o	o
MERK	23/07/1981	76.911.367.000	-9,00%	o	o
MICA	24/03/2015	923.472.717.339	6,69%	o	o
PRDA	07/12/2016	268.747.000.000	7,40%	o	o
PYFA	16/10/2001	22.104.364.267	12,25%	x	o
SIDO	18/12/2013	934.016.000.000	8,74%	o	o
SILO	12/09/2013	125.250.000.000	1,31%	o	o
SRAJ	11/04/2011	-14.498.057.988	28,12%	x	x
TSPC	17/06/1994	834.369.751.682	-0,23%	o	o

Source: Authors

Table 8. Disclosure of Waste and Effluents using GRI Standards in 2020

Company Code	G4-EN22	G4-EN23	G4-EN24	G4-EN25	G4-EN26	Total Disclosure of GRI-G4 Indicators
DVLA	x	x	x	x	x	0
INAF	x	x	x	x	x	0
KAEF	o	o	x	o	x	3
KLBF	x	x	x	x	x	0
MERK	o	o	x	o	x	3
MICA	o	x	x	o	x	2
PRDA	x	x	x	x	x	0
PYFA	x	x	x	x	x	0
SIDO	x	x	x	x	x	0

SILO	x	x	x	x	x	0
SRAJ	x	x	x	x	x	0
TSPC	x	x	x	x	x	0

Source: Authors

In 2020, there was an increase in the level of disclosure about waste and effluent treatment by the sample companies. Tempo Scan Pacific Tbk., which did not disclose any information about waste and effluent treatment in the preceding two years, made a detailed disclosure of information in 2020, although this disclosure was still not in accordance with GRI-G4 standards. In its 2020 annual report, the company provided an explanation about its waste management system.

Waste Management waste from operational activities is categorized into two categories, namely non-hazardous waste and hazardous waste. For non-hazardous waste is classified into reusable waste and non-reusable waste, which for reusable ones is carefully selected and collected by vendors that are certified and reused for other economic activities. And for those that cannot be used then collected by such certified vendors for further processing. While for hazardous waste or B3 waste was collected and will go through a series of treatments by certified vendors.” (Annual report TSPC, 2020).

Mitra Keluarga Karyasehat Tbk. (MIKA) also increased its disclosure about its waste and effluent treatment in the company’s 2020 annual report. For this year, MIKA met two out of the five indicators specified in the GRI-G4 guidelines about waste and effluents, namely G4-EN22: Total water disposed by quality and purpose, and G4-EN25: Weight of waste, deemed hazardous, that is transported, imported, exported, or treated, and the percentage of waste transported by international shipping.

Karyasehat Family Partner Company has also taken action to reduce its plastic waste since 2018, and issued a new policy to support its mission of no longer using plastic bags in pharmacies. By 2020, another policy has been put in place to eliminate the use of plastic bags in pharmacies with bags of recyclable paper.” (Annual report Mitra Keluarga Karyasehat, 2020). Most companies disclose information about non-B3 liquid waste treatment for reuse for plant watering and toilet cleaning as well as flow back to the environment. Processed liquid waste is reused for plant watering or toilet cleaning, both to protect the environment and lower operational costs.” (Annual report Mitra Keluarga Karyasehat Tbk., 2020). Waste water management is modern technology that ensures that the water flowing back to the environment is safe. The fish that live and are fertile in wastewater reservoirs are clear evidence of water management” (Annual report Pyridam Farma Tbk, 2020).

CONCLUSION

The study explains how GRI guidelines serve as the foundation for firm CSR disclosures on waste and wastewater (also known as effluent). Guidelines for establishing waste and wastewater management practices within a corporation can be found in GRI standards. The main conclusion of this study is that health companies in Indonesia still provide minimal disclosure of information about the waste and effluent produced as well as actions taken by companies to treat this waste. The total volume of waste water released was not stated by any corporation when releasing the waste water section. This indicates a partial compliance with GRI 306 about waste water (effluent) and waste in relation to the disclosure of the form of responsibility for waste water that is carried out. In their annual reports, several corporations do not reveal where or to what end their waste water is disposed. Very few companies have adopted the GRI-G4 guidelines as a CSR reporting standard regarding the waste and effluent aspects of the company. Most companies use third-party vendors of licensed waste managers to manage their B3 waste. In non-B3 waste treatment, some companies already have good systems and cooperate with various external parties to treat the waste. There are companies that are committed and have undertaken serious action in reducing plastic waste through various company policies. This study has useful implications for companies in terms of facilitating more detailed disclosure of information about waste and effluents, such as total water used, total

generated B2 and non-B3 waste, along with the company's impact and actions about waste treatment and the resultant effluents. Certain companies disclose just that they have managed their waste water, without providing details on the actions. Other businesses disclose their efforts, for example, by developing regulations, utilizing technology, revealing goals to be met in the waste water management domain, or forming partnerships.

Additionally, companies must adopt the relevant reporting standards in their preparation of corporate CSR reports so that they have a reference when make disclosures about their waste and effluent treatment. Only disclosing that they have managed waste water, some businesses fail to provide details about their actions.

The text provides an overview of the initiatives that have been done, including those related to technology, policy, sharing targets for waste management, and forming partnerships. Not all hazardous waste disclosures, however, include hazardous waste management. About trash and waste water (effluent), not all of the disclosures was made by each company comply with GRI 306. Furthermore, this research has implications for decision makers, such as governments, in terms of issuing strict policies about corporate reporting of waste and effluent treatment and requiring that companies utilize a standard in their CSR reporting. This study has limitations in that data for certain issuers was unavailable. In future studies, researchers should extend the study period so that more sample firms can be examined, thereby increasing the objectivity of the research results. Additionally, researchers can examine corporate governance, profitability, company size, and company value in relation to the level of disclosure regarding companies' waste and effluent treatment, corporate CSR information available on social media, electronic/print media, and company websites, as well as the factors that cause companies to not disclose sufficient information about their actions related to waste and effluents.

REFERENCES

- Arena, C., Liang, R., & Vourvachis, P. (2018). Carrot or Stick: CSR disclosures by Southeast Asian companies. *Sustainability Accounting, Management and Policy Journal*. Vol. 9 No. 4, pp. 422-454. <https://doi.org/10.1108/SAMPJ-06-2016-0037>.
- Arikunto, S. (2010). *Research Procedures A Practical Approach*. Jakarta: Rineka Cipta.
- Arka, Y. A. (2022). *Beware of Hazardous Waste from Industry, Integrated Management System Becomes a Solution*. Jakarta, DKI Jakarta, Indonesia.
- Berger, I.E., Cunningham, P.H. and Drumwright, M.E. (2007), "Mainstreaming corporate social responsibility: developing markets of virtue", *California Management Review*, Vol. 49 No. 4, pp. 132-57.
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management*, 37(1), 39-67.
- Darwin, R. (2004). Effects of greenhouse gas emissions on world agriculture, food consumption, and economic welfare. *Climatic Change*, 66(1/2), 191-238.
- Fassin, Yves. 2009. "The Stakeholder Model Refined". *Journal of Business Ethics*, D/7012/13.
- Ginting, (2007), *Sistem Produksi*, Yogyakarta, Graha Ilmu.
- Harahap, S. S. (2011). *Critical Analysis of the Company's Financial Statements*. Jakarta: Raja Grafindo Persada.
- Harmoni, A., & Andriyani, A. (2008). Disclosure of Corporate Social Responsibility (CSR) on the Official Website of the Study Company at PT. UNILEVER INDONESIA Tbk. In Proceeding, *National Scientific Seminar on Computers and Intelligence Systems (KOMMIT 2008)* Auditorium Gunadarma University, Depok, 20-21 August 2008.
- Humphreys, M, and Brown, A. D. 2008), "An Analysis of Corporate Social Responsibility at Credit Line: A Narrative Approach", *Journal of Business Ethics*, 80, pp 403-418.

- Kamaliah, K. (2020). Disclosure of corporate social responsibility (CSR) and its implications on company value as a result of the impact of corporate governance and profitability. *International Journal of Law and Management*, 62(4), 339-354.
- Krippendorff, K. (1980). *Content analysis: An Introduction to its Methodology*. Sage Publications Inc., Newbury Park, CA.
- Ministry of Environment and Forestry, 2016, *Regulation No.68/ 2016*
- Patten, D. M. (2002). The relation between environmental performance and environmental disclosure: A research note. *Accounting, Organizations and Society*, Vol. 27, No. 8, pp. 763–773.
- Raimi, L., Adelopo, A. O., & Yusuf, H. (2019). Corporate social responsibility and sustainable management of solid wastes and effluents in Lagos megacity Nigeria. *Social Responsibility Journal*.
- Raimi, L., Adelopo, A.O. and Yusuf, H. (2019), "Corporate social responsibility and sustainable management of solid wastes and effluents in Lagos megacity Nigeria", *Social Responsibility Journal*, Vol. 15 No. 6, pp. 742-761. <https://doi.org/10.1108/SRJ-09-2018-0239>.
- Reverte, C. 2009. Determinants of Corporate Social Responsibility Disclosure Ratings by Spanish Listed Firms. *Journal of Business Ethics*, 88, pp: 351-366
- Suchman, Mark C. 1995. Managing Legitimacy: Strategic and Institutional Approaches. *The Academy of Management Review* Vol. 20 No. 3. pp. 571-610. <http://www.jstor.org/stable/258788>.
- Vaaland, T.I., Heide, M. and Grønhaug, K. (2008), "Corporate social responsibility: investigating theory and research in the marketing context", *European Journal of Marketing*, Vol. 42 No. 9/10, pp. 927-953. <https://doi.org/10.1108/03090560810891082>.
- Vourvachis, P. and Woodward, T. (2015). Content analysis in social and environmental reporting research: trends and challenges. *Journal of Applied Accounting Research*, 16 (2), 166-195.
- Widiastuti, H., Utami, E. R., & Handoko, R. (2018). The effect of company size, industry type, growth, and media exposure on the disclosure of corporate social responsibility (empirical study on companies listed on the Indonesian stock exchange in 2014-2015). *Indonesian Accounting and Finance Research*, 3(2), 107-117.