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The Effect of Green Accounting Implementation, Material Flow Cost Accounting, Enviromental Perfomance, and Enviromental Disclosure on Sustainable Development Goals (SDGs)

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Abstract

The rapid development of the industrial world has led to competition between companies to achieve their goals. The environment around the company also has an impact as a result of this competition. The purpose of this study was to examine the effect of Green Accounting, Material Flow Cost Accounting (MFCA), Enviromental Performance, and Enviromental Disclosure on Sustainable Development Goals (SDGs). The population used is oil and gas sector companies listed on the Indonesia Stock Exchange (IDX) in 2018 - 2022. The sample technique used Purposive Sampling, so that the sample amounted to 40 (8 companies for 5 years). The results showed that Green Accounting and Environmental Performance were able to improve SDGs, while Material Flow Cost Accounting (MFCA) and Environmental Disclosure had no influence on SDGs. This study provides implications for oil and gas sector companies that implement Green Accounting and disclose Enviromental Performance by incurring environmental costs will help improve the achievement of SDGs.

Keywords

Green Accounting, Material Flow Cost Accounting (MFCA), Enviromental Performance, Enviromental Disclosure, Sustainable Development Goals (SDGs).

INTRODUCTION

As time goes by and the demands of stakeholders, business activities that are built with an economic / single P-based concept are also required to play an active role in sustainable development. The single P concept is profit or profit, that the company aims to create profit (Aulia & Syam, 2013). The view of this began to shift and change when issues related to environmental damage caused by companies in carrying out their activities. Environmental accounting works by measuring the cost of financial, social, and environmental issues related to pollution to make the environment healthy, eco-friendly, and sustainable (Mondal, Akter, & Polas, 2023). As an alternative, Sustainable Development Goals (SDGs) are considered capable of overcoming the impacts caused as a result of company activities.

SDGs as a program at the global level to optimize the capabilities, potential, and resources available in a country (Irhamsyah, 2019). The goal of the SDGs is to improve the quality of life in all aspects of life from today to the future, without having to exploit natural resources excessively. Indonesia since 2015 has begun to adopt the SDGs agenda related to social, economic, and environment. The following are Indonesia's achievements in implementing the SDGs each year, based on the Sustainable Development Report.

Table 1. SDGs Implementation Index in Indonesia 2016-2022
Source: https://www.sdgindex.org

Table 1 shows that Indonesia has increased every year, except in 2018 when it decreased but not significantly, because the decrease was only 0.1%. Indonesia is ranked

82 with a percentage value of 69.16% of the SDGs. Compared to previous years, this achievement has increased. However, in 2022 Indonesia received a red mark, which means that it has the task of solving problems in the fields of health, hunger, preservation of natural ecosystems, urban sustainability, justice, peace, and institutions, as well as partnerships at the global level. To overcome this, the government is committed through government regulation (Perpres) SDGs Number 59 of 2017 concerning the implementation of achieving sustainable development goals signed by the president (Ahdiat, 2022).

Economic activities, especially companies engaged in oil and gas, are of greater concern in achieving the SDGs. Oil and gas companies cause noises caused by production machinery that can disturb the surrounding environment, air pollution caused by transportation equipment used, excessive use of water and land for company production activities, there is no appropriate quality standard in terms of waste disposal, oil, oil leaks, and fuel that can cause environmental pollution. Because companies engaged in the mining sector have a higher role in environmental responsibility because they are in direct contact and use natural resources in their operational activities (Marietza & Alfredo, 2017). The Ministry of Environment and Forestry (KLHK) in 2017-2018 reported that there were dozens of oil and gas companies that polluted the environment, so these companies had to get sanctions (www.katadata.co.id). One of the oil and gas companies that have damaged the environment is PT Pertamina Gas Negara Tbk (PGAS) in the ONWJ oil and gas block of Pertamina Upstream Energy, Wahyu Perdana as WALHI's National Executive Water & Essential Ecosystems Campaign Manager, said that Pertamina must be responsible for tackling oil spills, rehabilitating the environment, and compensating the community in accordance with applicable laws and regulations. The Ministry of Environment and Forestry (KLHK) has also sued Pertamina and several parties related to the pollution case. On the basis of this case, it indicates that the company may unintentionally or intentionally damage the environment, which will have a major impact on the surrounding area (Wijaya, 2019). This indicates that oil and gas companies have a huge impact and influence on the environment because their operational activities are in direct contact with natural resources that are related to the survival of humans and others. Therefore, it is very necessary to pay attention to how these companies can be socially responsible to the environment and interested parties, in addition to seeking profit they must also pay attention to the resulting environmental impact so that it is necessary to apply the principles and agenda of the SDGs for the sustainability of the company.

Factors that influence SDGs include Green Accounting, Material Flow Cost Accounting (MFCA), Enviromental Performance, and Enviroemntal Disclosure. Green Accounting is an important factor to increase the company's economic value by paying attention to the company's environment (Nabila & Arinta, 2021). According to research Loen (2018); Selpiyanti and Fakhroni (2020), and Dura and Suharsono (2022) say that green accounting has a positive effect on Sustainable Development Goals (SDGs). So that the greater the company applies green accounting such as costs allocated for environmental preservation, the company can increase Sustainable Development Goals (SDGs) which can then be disclosed in its annual report. Meanwhile, according to research Rosaline and Wuryani (2020) and research Rachmawati and Karim (2021) green accounting has a negative effect, meaning that it has no effect on the implementation of SDGs. The company thinks that the environmental costs incurred will reduce capital so that it will have an impact on the level of profit generated. This means that the company has not fully complied with the standards and regulations that have been set in the implementation of green accounting.

Material Flow Cost Accounting (MFCA) is the integration of a company's operational and financial information in an accounting system. This consists of material costs (the real quantity of production process materials according to the purchase price); system costs (related to the company's operational costs, including depreciation, transportation services, and maintenance), and waste costs (costs that arise as a result of company activities, especially waste) (Loen, 2018). According to Loen's research (2018) and Fakhroni's research (2020), MFCA has a positive effect on SDGs. Companies that incur production costs have goals, namely to make a profit, streamline costs and optimize Sustainable Development. Meanwhile, according to Rachmawati and Karim (2021),

Material Flow Cost Accounting (MFCA) has a negative effect on SDGs.

Environmental performance is the company's performance in creating a good environment (green) (Fitranita & Wijayanti, 2020). Enviromental Performance focuses on the amount of impact and damage due to company activities in running a business. Research Arieftiara and Venusita (2017), Rosaline and Wuryani (2020) and Chairanee, Lindrianasari, Sudrajat, and Kusumawardani (2022) prove that Enviromental Performance is able to improve sustainability. In contrast to research Sutadipraja and Setiadi (2022) states that Enviromental Performance has no impact on SDGs.

Environmental disclosure is information about the management and environmental performance of the company, which will have an impact on the financial results of the company's environmental management decisions (Berthelot, Cormier, & Magnan, 2003). The existence of environmental disclosure shows the company's concern and responsibility for society and the environment. Environmental disclosure is presented in financial accounting standards, namely Statement of Financial Accounting Standards (PSAK) no. 1 (revised 2009) paragraph twelve. And limited liability company law No. 40 of 2007 article 66 paragraph (2) part c which contains the company's obligation to present a report on the implementation of social and environmental responsibility. Research Sutadipraja and Setiadi (2022) stated that the higher the Enviromental Disclosure, the higher the achievement of SDGs.

The theory related to this research (Dowling & Pfeffer, 1975) put forward Legitimacy Theory starting with the concept of organizational legitimacy, which states that legitimacy is a condition or status that exists when the model or form of value in a congruent entity follows the broader value form of the surrounding community where the company is located. This legitimacy will shift in line with changes in the environment and society where the company is located (McGuirk, Bulkeley, & Dowling, 2014) in Makhfudloh, Herawati, and Wulandari (2018). In addition, this research has a relationship with stakeholder theory Mandaika and Salim (2015) say that "stakeholder theory is not only focused on benefits, but stakeholder theory is a theory centered on the welfare of company stakeholders.

This research refers to Nabila and Arinta (2021) The difference with previous research is that first, adding the Material Flow Cost Accounting (MFCA) variable, this variable is taken from research (Loen, 2018) which is likely to improve SDGs. The addition of this variable aims to review whether MFCA can optimally improve SDGs. The difference in research results Loen (2018) which resulted in MFCA improving SDGs and Rachmawati and Karim (2021) suggests that MFCA reduces the implementation of SDGs. Material Flow Cost Accounting is an important part used by companies to optimize the use of materials in order to reduce waste emissions (Selpiyanti & Fakhroni, 2020). Second, in this study the intervening variable was changed, namely Enviromental Disclosure from previous research to become an independent variable, because in the results of previous studies Enviromental Disclosure did not mediate between independent variables. The use of environmental disclosure as an independent variable is taken from the research of Sutadipraja and Setiadi (2022). Third, this study involves companies engaged in the oil and gas sector listed on the Indonesia Stock Exchange (IDX) and the company performance rating assessment program (PROPER) from the Ministry of Environment and Forestry in 2018-2022, because the activities and activities of these companies are prone to environmental damage which can hinder the Sustainable Development Goals (SDGs).

Stakeholder Theory

Mandaika and Salim (2015) say that "stakeholder theory is not only focused on benefits, but stakeholder theory is a theory centered on the welfare of company stakeholders. This theory developed from the work of the Stanford Research Institute in 1963, then by R.E Freeman introduced to the public in 1984." By Selpiyanti and Fakhroni (2020) it is defined that "a stakeholder is a person or group of people who have a relationship that can influence or vice versa in a company." According to Purnasiwi and Sudarno (2011) the theory of stakeholders or company stakeholders confirms that a company is not an organization that only works for personal gain, but must also provide benefits to stakeholders. With this, the company will have a big impact if it works together with stakeholders.

Legitimacy Theory

Dowling and Pfeffer (1975) proposed Legitimacy Theory starting with the concept of organizational legitimacy, which states that legitimacy is a condition or status that exists when the model or form of value in an entity is congruent with the broader value form of the surrounding community where the company is located. This legitimacy will shift in line with changes in the environment and society where the company is located (McGuirk et al., 2014) in Makhfudloh et al. (2018).

Lindawati and Puspita (2015) said "legitimacy from stakeholders plays a very important role for a company because with a legitimacy gap there is a high potential for protests from stakeholders against an organization that can affect the existence of the organization and interfere with business health and profit. Mousa and Hassan (2015) in Makhfudloh et al. (2018) he said that legitimacy theory is the basis for providing environmental information to investors and other stakeholders. (Mousa & Hassan, 2015) in Makhfudloh et al. (2018) in his study of legitimacy in Australian companies in 1970, when the level of awareness of the environment increased significantly due to the many oil and gas mining industries in the country. The results of his research found that legitimacy theory is the basis of environmental disclosure.

Hyphothesis Development

The Effect of Green Accounting Implementation on Sustainable Development Goals (SDGs)

The implementation of Green Accounting will pay attention and focus on the contribution of society and the environment, the impacts that will be caused by the company, as well as the company's contribution to ecological problems that will have an impact on the sustainability of the company itself. According to Loen (2018) that the application or implementation of green accounnting provides information on the extent to which the company can play a positive or negative role in the quality of the environment and human life. In addition, green accounting is useful in helping companies achieve their goals, especially those that are responsible to stakeholders (Dri, Wijayanti, & Sari, 2021). The better the company discloses green accounting, the better the Sustainable Development Goals or the sustainability of the company.

Based on stakeholder theory, disclosure of green accounting will show that there is a good and positive sustainability for the company itself and will increase the trust of stakeholders to continue working with the company. Similar to legitimacy theory, which is important for an organization because it includes norms, constraints, and responses to these constraints. This also facilitates the importance of analyzing organizational behavior through environmental concerns.

Research conducted by Abdullah and Amiruddin (2020), Selpiyanti and Fakhroni (2020), Loen (2018) and Marota (2017) shows that green accounting has a positive and significant effect on Sustainable Development Goals (SDGs). Based on the theoretical explanation and previous research, the researchers proposed the following hypothesis:

H$_1$: Green Accounting has a positive and significant effect on Sustainable Development Goals (SDGs).

The Effect of Material Flow Cost Accounting on Sustainable Development Goals (SDGs)

Material Flow Cost Accounting or often referred to as a management tool, which plays an important role in the sustainability of the company to develop an environmentally friendly business, with this MFCA the company can understand its environmental and financial consequences by looking at production costs, the area that becomes drilling land, and the company's production results (Rachmawati & Karim, 2021). By looking at these three sectors, it can find out how productive the company is in developing its business based on the main concept of MFCA in its inputs such as energy materials, water, and other inputs, as well as outputs such as main products or by-products, waste, emissions determined by quantity with material costs incurred for products and material losses.

In accordance with stakeholder theory, it is not only the welfare of the owner that must be considered by the company, but also the welfare of the government, private sector, society, and all elements that contribute indirectly, but have an influence on the sustainability of the company. In addition, legitimacy theory is also closely related to MFCA. This is because the activities of a company must comply with the norms and restrictions in society. The implementation of

Material Flow Cost Accounting (MFCA) is crucial for companies, especially in the small and medium-sized enterprise (UMKM) industry, as it makes the production process more transparent through the material flow scheme (Pranata & Adhariani, 2023). So the stakeholders must also be considered by the company in accordance with their expectations to always pay attention to the community in the midst of the company's ongoing activities.

According to research conducted by Abdullah and Amiruddin (2020); Marota (2017); Selpiyanti and Fakhroni (2020) provides results that "material flow cost accounting has a positive and significant effect on Sustainable Development Goals (SDGs)". Based on the theoretical explanation and previous research, the researcher proposes the following hypothesis:

H_2 : material flow cost accounting has a positive and significant effect on Sustainable Development Goals (SDGs)

Effect of Enviromental Performance on Sustainable Development Goals (SDGs)

With the existence of Enviromental Performance, it can help companies to pay more attention to the surrounding environment and social responsibility around the company's operating location and assisted by a program from the government in this case a rating based on PROPER from KLHK, so that companies must care more about the environment and its surroundings. This supports stakeholder theory where employees are one of the parties who have an interest in the company in increasing profits which results in the company achieving sustainability (Marietza & Alfredo, 2017). Through this, stakeholders and society can feel the benefits, both direct and indirect benefits. Companies with high PROPER ratings can add a positive image for stakeholders and society. The empirical results confirm the positive effect of ESG disclosure permanency on firm value, while profitability has a negative moderating effect on Tobin's Q. Therefore, this study makes the following policy suggestions for managers and shareholders (Yeye & Egbunike, 2023).The implementation of Enviromental Performance disclosure will make a good contribution to the Sustainable Development Goals (SDGs).

According to legitimacy theory, in order for a company or organization to continue to develop in the future, and be accepted by the enviroment around the location where the company operates, it must and needs legitimacy for companies that still care about the surrounding environment (Agustina, Jati, & Suryandari, 2020). Similar to stakeholder theory which explains that companies must pay attention to the welfare of their stakeholders or stakeholders so that they can continue to build a sense of trust with the company so that they continue to support the sustainability of the company's business in the future.

Based on previous research that has been conducted by Sihwahjoeni and Tyasasih (2016) and Tusiyati (2019), it shows that Enviromental Performance has an effect on Sustainable Development Goals (SDGs). So the researcher proposes the following hypothesis;

H_3 : Enviromental Performance affects the improvement of Sustainable Development Goals (SDGs).

The Effect of Enviromental Disclosure on Sustainable Development Goals (SDGs)

Enviromental Disclosure is an explanation of information in the environmental field presented in the company's annual report (Suratno, Fitriawati, & Djadang, 2017). The Financial Services Authority (OJK) issued regulation No.29/POJK.04/2016 Article 4 states that the company's annual report must include social and environmental disclosures that are useful for stakeholders. Environmental accounting disclosure practices are regulated by mandatory or voluntary regulatory frameworks,which areabsent in our study (Mondal, Akter, Moni, & Polas, 2023).

According to Qiu, Shaukat, and Tharyan (2016); Romli and Zaputra (2021) marota Enviromental Disclosure in legitimacy theory, Enviromental Disclosure is carried out based on demands from the community which aims to obtain recognition from the social environment, so that the company's operational activities are able to create a positive impact on the surrounding environment. If the social legitimacy is not obtained by the company, it will reduce the positive image of the community towards the company, so that it can lead to consumer distrust in the products produced. Companies that disclose corporate social responsibility in detail and extensively will make the company well known to investors so that investors are interested in investing in the company (Marietza, Julianti, Aprila, Hatta, & Baihaqi, 2021). By doing Enviromental Disclosure in

the environmental field, it is hoped that companies will be able to improve SDGs. This finding suggests that energy firms' liquidity position may not be a significant determinant of their environmental disclosure practices.However, this does not negate the importance of liquidity in supporting sustainable practices and investments for environmental protection (Orajekwe & Ogbodo, 2023).

Research conducted by Sutadipraja and Setiadi (2022) Enviromental Disclosure has a positive effect on the achievement of SDGs. So that the more companies implement Enviromental Disclosure, the more it will help in realizing the Sustainable Development Goals (SDGs). So the researcher proposes the following hypothesis:

H_4 : Enviromental Disclosure has a positive effect on Sustainable Development Goals (SDGs).

METHODS
This research is a study that uses quantitative data. The data is obtained from the annual reports of companies engaged in oil and gas listed on the Indonesia Stock Exchange (IDX) and the company's website. The period studied was 5 years from 2018-2022. The technique used to determine the sample is purposive sampling, with the following criteria: companies listed on the PROPER ranking in the observation year. There are 8 companies that meet the criteria and there are 40 samples to be tested. The tool used to test the hypothesis is SPSS 26.

The data analysis technique uses classical assumptions, namely normality test, multicolonierity test, heteroscedicity test and autocorrelation test. The normality test uses the Kolmogorov-Smirnov test whose function is to determine whether the data is normal or not. Multicolonierity is done with the VIF (Variance Inflation Factor) test, and the Spearman's rho test to test heteroscedasticity. Then to test autocorrelation using Durbin-Watson. Multiple linear regression analysis is used to analyze the effect of Green Accounting, Material Flow Cost Accounting (MFCA), Enviromental Performance, and Enviroemntal Disclosure as independent variables on Sustainable Development Goals (SDGs) as the dependent variable.

Green Accounting
According to Loen (2018) is a company concept in the production process to increase efficiency and effectiveness in the use of resources in a sustainable manner, so that there is a balance between the company and the environment and benefits society. In measuring green accounting using content analysis: oil and gas companies do not disclose green accounting indicators = 0. Oil and gas companies disclose green accounting indicators in the form of narratives = 1. Oil and gas companies disclose green accounting with pictures, narratives in the annual report = 2. Oil and gas companies that disclose green accounting indicators with pictures, narratives and the amount of funds in the annual report = 3. (Selpiyanti & Fakhroni, 2020).

Material Flow Cost Accounting (MFCA)
Material Flow Cost Accounting (MFCA) is the management of environmental accounting by increasing the transparency of the use of real or physical raw materials in monetary units (Rachmawati & Karim, 2021). MFCA is measured by means of total output produced / total costs. The resulting output is the cost of using materials (raw materials) + system costs (labor expenses, depreciation expenses, transportation and transport expenses and maintenance expenses) + energy costs (utility expenses). Meanwhile, the total cost is the total overall cost (selling expenses, general and administrative expenses, distribution expenses) (Santi, Andi, Lindrianasari, & Oktavia, 2022).

Enviromental Performance
Damanik and Yadnyana (2017) said that, enviromental performance is the company's relationship with the natural environment regarding environmental impacts due to economic activities, on products and services, and compliance with work environment regulations. The measurement uses the Company Performance Rating Assessment Program (PROPER) from the Ministry of Environment and Forestry (KLHK), namely: gold (very good) = 1, green (good) = 2, blue (good enough) = 3, red (bad) = 2, black (very bad) = 1 (Setyaningsih & Asyik, 2016).

Enviromental Disclosure
This concept is about the disclosure of information in the environmental field in the company (Suratno et al., 2017). Its measurement uses environmental disclosure = Number of indicators disclosed / 157 GRI 2018 indicators (Ulupui et al., 2020).

Sustainable Development Goals (SDGs)

Sustainable Development Goals (SDGs) is a global world program in a long period of time to optimize all the potential and resources of each country (Irhamsyah, 2019). Measurement by summing = economy + social + environment + technology (Marota, 2017)
Description:
Economy = net profit + investment + sales
Social = CSR + Employee Salary + severance costs
Environment = utility cost + OHS cost
Technology = development and research costs
The measurement uses the natural logarithm (ln) of the total Sustainable Development Goals (SDGs).

RESULTS AND DISCUSSION

Descriptive Statistics

The results of the descriptive statistical analysis test are as follows:

Table 2. Descriptive Statistical Test
Source: Processed data by SPSS (2023)

Classical Assumption Testing Results

Normality

The normality test uses the Kolmogorov-Smirnov statistical test. Data is said to be normal if the significance value> 0.05.

Table 3. Kolmogrov-Smirnov Test Results
Source: Processed data by SPSS (2023)

Based on the results of the normality test in the table above, it shows the Asymp. Sig. (2-tailed) 0.999> 0.05, meaning that the data presented is normal so it is suitable for use in research.

Multicollinearity

Based on the results of the multicollinearity test, it can be seen based on the tolerance and variance inflation factor (VIF) values, if the VIF value < 10 or the tolerance value> 0.10, there is no multicollinearity, but if the VIF value> 10 or the tolerance value < 0.10, then multicollinearity occurs. The results of the multicollinearity test in the table show that the green accounting (GA), material flow cost accounting (MFCA), enviromental performance (EP) and enviromental disclosure (ED) variables do not produce a tolerance value> 0.10 and VIF < 10, meaning that in this regression model there is no multicollinearity.

Table 4. Multicollinearity test results
Source: Processed data by SPSS (2023)

Heteroscedasticity

This heteroscedasticity test is used to test the Spearman's rho test, which is to see sig. (2-tailed) on the unstandardized residual if it is more than 0.05 then there is no heteroscedasticity, but if it is less than 0.05 then heteroscedasticity occurs, the test results show that there is no relationship between the independent variables seen in the table sig value (2-tailed) >0.05.

Table 5. Heteroscedasticity test results
Source: Processed data by SPSS (2023)

Autocorrelation Test

The autocorrelation test aims to test the linear regression model there is a correlation between errors in period t and the previous period (t-1) (Ghozali, 2018). This test uses Durbin Watson.

Table 6. Autocorrelation test results
Source: Processed data by SPSS (2023)

Obtained the results of the autocorrelation test using Durbin Watson analysis, the DW value of the test is 1.344, the Durbin Watson table value using the 5% significance value criteria, the number of samples 40 (n) and the number of independent variables 4 (k = 4), the Durbin Watson table is as follows:

Table 7. Durbin Watson Test Bond Table
Source: Processed data by SPSS (2023)

The durbin values belong to the du < dw < 4-du criteria, namely 1.7209 < 1.344 < 2.27 so it can be concluded that there is no positive and negative autocorrelation.

Multiple linear regression test results

Table 8. Multiple linear regression test results
Source: Processed data by SPSS (2023)

The regression equation obtained from the regression coefficient results is :
SDGS = 21.927 + 0.110GA - 0.138MFCA + 1.533EP + 1.291ED + e

Coefficient of Determination

The results of the coefficient of determination, has an Adjusted R Square value of 0.703 which indicates that green accounting, material flow cost accounning, enviromental

performance, and enviromental disclosure in explaining changes in SDGS are 70.3%, the remaining 29.7% is explained by other variables outside this research model.

Table 9. Coefficient of determination
Source: Processed data by SPSS (2023)

F test

Table 10.
Source: Processed data by SPSS (2023)
X1, X2, X3, X4 to Y

The sig value <0.05, the value of F count> F table, based on the table above, it can be seen that the significance value for green accounting (X1), material flow cost accounting (X2), enviromental performance (X3), and enviromental disclosure (X4) on sustainable develpoment goals (Y) is 0.000 <0.05 and the value of f count 24.078> 2.64 f table value. This proves that the regression model is feasible to use in research.

T test

Table 11.
Source: Processed data by SPSS (2023)

T table = t (a/2 : n-k-1)
        = t (0,05/2 : 40-4-1)
        = 0,025 : 35
        = 2,03011

Discussion

Based on the results of the t test (partial), it shows that the significance value of the effect of green accounting (X1) on sustainable development goals (Y) is a sig value of 0.004 <0.05, and the calculated t value is 3.111> 2.030 t then Ho1 is not accepted and Ha1 is accepted. This means that there is a significant effect of green accounting on sustainable development goals. This can be interpreted, that the greater the application of green accounting, the higher the level of Sustainable Development Goals (SDGs). And vice versa, the less the application of green accounting, the lower the level of SDGs. Selpiyanti and Fakhroni (2020) says that the allocation of environmental costs incurred by the company and disclosed in the annual report can increase sustainable development. Companies that incur environmental costs, waste management and others will have an impact on SDGs, which have 17 points, one of which is related to the environment. The

function of these costs is allocated for long-term investment in environmental management and society in general through various activities such as waste management, emission control, effluent control, and reforestation.

In accordance with legitimacy theory, that when more and more companies implement green accounting, the company is recognized by the community because the activities carried out are in accordance with the norms prevailing in society. As a form of responsibility from the company not only to stakeholders but also to the community environment, one of which is by disclosing green accounting, this green accounting concept also shows the company's commitment to implementing the planetary concept, namely the company has carried out its role in protecting the natural environment in supporting SDGs. This research is consistent with research Loen (2018); Dura and Suharsono (2022), and Selpiyanti and Fakhroni (2020) which state that green accounting improves SDGs. In contrast to the results of research by Rosaline and Wuryani (2020), Rachmawati and Karim (2021) which state that green accounting has a negative effect and has no influence on SDGs.

Based on the results of the t test (partial) shows that the significance value of the effect of MFCA (X2) on sustainable development goals (Y) is a sig value of 0.000 <0.05, and the value of t count -4.137> 2.030 t table then H02 is accepted and Ha2 is not accepted. This means that there is no significant effect of MFCA on sustainable development goals. It can be explained that companies that implement MFCA in high or low categories do not affect SDGs. This is due to the inefficient use of materials and energy used in production activities, waste management and costs incurred by companies that are not efficient and effective (Rachmawati & Karim, 2021). Increased energy demand in industry results in reduced energy resources and material assets, which will increase environmental pollution (Santi et al., 2022). So reducing the use of materials in the production process will have an impact on product costs, so that it cannot optimize revenue and does not achieve the SDGs. Therefore, MFCA has no effect on SDGs.

This study cannot affirm legitimacy theory, because the application of MFCA to the company will have an impact on the company's activities to be effective and efficient, because the MFCA will reduce

exploitation and waste committed by the company. However, the application of MFCA will not always have an influence on SDGs, because the cost flows disclosed by the company are not appropriate. Many cost flows are allocated to the company's operational activities that are able to support financial performance quickly, so that the fulfillment of the interests of stakeholders is prioritized who are directly involved in profits such as investors, employees, suppliers and others. This research is consistent with Rachmawati & Karim's (2021) research that MFCA has no influence on SDGs. In contrast to research by Loen (2018) and Selpiyanti and Fakhroni (2020) which states that the application of MFCA can increase SDGs.

Based on the results of the t test (partial) shows that the significance value of the effect of enviromental perfomance (X3) on sustainable development goals (Y) is a sig value of 0.000 <0.05, and the value of t count 6.931> 2.030 t then H03 is not accepted and Ha3 is accepted. This means that there is a significant effect of enviromental performance on sustainable development goals. This means that the environmental performance assessment by the Ministry of Environment and Forestry affects SDGs, because one of the points in SDGs is related to the environment in addition to economic and social. Companies with good environmental performance can improve SDGs.

The research is in line with legitimacy theory, as businesses must consider recognition and conform to the norms of society regarding enviromental performance. PROPER shows that most organizations can strengthen their business practices in saving the climate, so that all stakeholders are well met, especially the environment. In addition, corporate environmental performance is close to the goals of the environmental development pillar of the SDGs (Rosaline & Wuryani, 2020).

The research results are consistent with Arieftiara and Venusita (2017), Rosaline and Wuryani (2020), and Chairanee et al. (2022) that Enviromental Performance affects SDGs. In contrast to research Sutadipraja and Setiadi (2022) that enviromental performance does not affect SDGs.

Based on the results of the t test (partial) shows that the significance value of the effect of enviromental disclosure (X4) on sustainable development goals (Y) is a sig value of 0.792> 0.05, and the value of t count 0.266 < 2.030 t table then H04 is accepted and Ha4 is not accepted. This means that there is no

significant effect of enviromental disclosure on sustainable development goals. This shows that complete or incomplete enviromental disclosure will not affect SDGs (Santi et al., 2022). Santi et al. (2022) states that the company releases positive information for its benefit, and will also disclose the environment when its environmental performance is good too. So that the enviromental disclosure submitted by the company does not reflect the actual state of the company. Furthermore, the SDGs contain economic, social, and environmental aspects, while environmental disclosure only contains environmental aspects so that it does not cover the concept of the SDGs as a whole. This is what causes the absence of influence on the SDGs.

This study cannot confirm legitimacy theory, because the company's environmental disclosure is a way to hold accountable for the consequences of the company's operational activities. All of the company's environmental activity programs are included in the disclosure of environmental information. However, the disclosure submitted by the company is only to improve the company's positive image. So that the company's environmental disclosure has not been able to achieve the SDGs. Consistent with Nabila and Arinta (2021)'s research, namely enviromental disclosure has no effect on SDGs. In contrast to Sutadipraja and Setiadi (2022) which states that enviromental disclosure increases SDGs.

CONCLUSION

The research conclusion shows that Green Accounting is able to improve SDGs. In its application, it is realized that the environmental costs incurred by the company have an impact on improving SDGs. A healthy environment is formed through the allocation of these costs. In addition, the costs incurred to reduce waste, so that companies that implement green accounting contribute to the achievement of SDGs. The Enviromental Performance variable also has a positive and significant effect on the achievement of SDGs, this is because the disclosure of environmental performance has an influence on improving company sustainability. While the other two variables, namely, Material Flow Cost Accounting (MFCA) and Enviromental Disclosure have no effect on SDGs.

Limitation/s and study forward

The limitations of this study are that there are still several oil and gas sector companies under study that have not disclosed the

implementation of green accounting to the fullest, and in 2018-2022 there were 18 companies listed on the Indonesia Stock Exchange, but there were only 8 companies that met the sample criteria, namely participating in the PROPER program.

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REFERENCES

Abdullah, M. W., & Amiruddin, H. (2020). Efek green accounting terhadap material flow cost accounting dalam meningkatkan keberlangsungan perusahaan. *EKUITAS (Jurnal Ekonomi Dan Keuangan), 4*(2), 166-186.

Agustina, L., Jati, K. W., & Suryandari, D. (2020). *The effect of sustainability report disclosure on financial performance.* Paper presented at the In Proceedings of the 1st Unimed International Conference on Economics Education and Social Science.

Ahdiat, A. (2022). Pencapaian SDGs Indonesia Masih Kalah dari Malaysia pada 2022. from https://databoks.katadata.co.id/datapublish/2022/10/25/pencapaian-sdgs-indonesia-masih-kalah-dari-malaysia-pada-2022

Arieftiara, D., & Venusita, L. (2017). *Pengaruh Kinerja Lingkungan dan Intensitas Persaingan terhadap Nilai Perusahaan dalam rangka Mendukung Sustainability Development Goals.* Paper presented at the Conference Paper Universitas Negeri Surabaya.

Aulia, A. S., & Syam, D. (2013). *Pengaruh Karakteristik Perusahaan terhadap Praktek Pengungkapan Sustainability Reporting Dalam Laporan Tahunan Perusahaan Publik di Indonesia*.

Berthelot, S., Cormier, D., & Magnan, M. (2003). Environmental, disclosure researchi: feview and synthesis. *Journal of accounting literature, 22*(1), 1-44.

Chairanee, A. C., Lindrianasari, L., Sudrajat, S., & Kusumawardani, N. (2022). Pengaruh Environmental Performance Terhadap Respon Investor Dengan Sustainability Report Disclosure Sebagai Variabel Intervening. *Jurnal Sosial dan Teknologi, 2*(7), 581-890.

Damanik, I., & Yadnyana, I. K. (2017). Pengaruh kinerja lingkungan pada kinerja keuangan dengan pengungkapan corporate social responsibility sebagai variabel intervening. *E-Jurnal Manajemen Unud, 21*, 730-759.

Doku, R., & Rawat, D. B. (2020). *Iflbc: On the edge intelligence using federated learning blockchain network.* Paper presented at the 2020 IEEE 6th Intl Conference on Big Data Security on Cloud (BigDataSecurity), IEEE Intl Conference on High Performance and Smart Computing,(HPSC) and IEEE Intl Conference on Intelligent Data and Security (IDS).

Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific sociological review, 18*(1), 122-136.

Dri, S., Wijayanti, I., & Sari, N. (2021). *Green Accounting Based with Analysis University-Based Social Responsibility At Small City.* Paper presented at the Proceedings of the 3rd Beehive International Social Innovation Conference, BISIC 2020, 3-4 October 2020, Bengkulu, Indonesia.

Dura, J., & Suharsono, R. (2022). Application Green Accounting To Sustainable Development Improve Financial Performance Study In Green Industry. *Jurnal Akuntansi, 26*(2), 192-212.

Fitranita, V., & Wijayanti, I. O. (2020). Profitabilitas, Ukuran Perusahaan, Kinerja Lingkungan, Pertumbuhan Penjualan Dan Leverage PadaPengungkapan Islamic Corporate Social Reporting. *JAF (Journal of Accounting and Finance), 4*(1), 29-45.

Irhamsyah, F. (2019). Sustainable development goals (SDGS) dan dampaknya bagi ketahanan nasional. *Jurnal Lemhannas RI, 7*(2), 45-54.

Lindawati, A. S. L., & Puspita, M. E. (2015). Corporate Social Responsibilty: Implikasi Stakeholder dan Legitimacy Gap dalam Peningkatan Kinerja Perusahaan. *Jurnal Akuntansi Multiparadigma, 6*(1), 157-174.

Loen, M. (2018). Penerapan green accounting dan material flow cost accounting (MFCA) terhadap sustainable development. *Jurnal Akuntansi Dan Bisnis Krisnadwipayana, 5*(1).

Makhfudloh, F., Herawati, N., & Wulandari, A. (2018). Pengaruh corporate social responsibility terhadap perencanaan agresivitas pajak. *Jurnal Akuntansi Dan Bisnis, 18*(1), 48.

Mandaika, Y., & Salim, H. (2015). Pengaruh ukuran perusahaan, kinerja keuangan, tipe

industri, dan financial leverage terhadap pengungkapan corporate social responsibility: studi empiris pada perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia tahun 2011-2013. *Jurnal Akuntansi, 8*(2), 181-201.

Marietza, F., & Alfredo, D. Y. (2017). Pengaruh Pengungkapan Corporate Social Responsibility Terhadap Kepemilikan Institusional. *Jurnal Akuntansi, 7*(2), 71-86.

Marietza, F., Julianti, I., Aprila, N., Hatta, M., & Baihaqi, B. (2021). *Corporate Social Responsibilities and Cost of Capital.* Paper presented at the Proceedings of the 3rd Beehive International Social Innovation Conference, BISIC 2020, 3-4 October 2020, Bengkulu, Indonesia.

Marota, R. (2017). Green concepts and material flow cost accounting application for company sustainability. *Indonesian Journal of Business and Entrepreneurship (IJBE), 3*(1), 43-43.

McGuirk, P., Bulkeley, H., & Dowling, R. (2014). Practices, programs and projects of urban carbon governance: Perspectives from the Australian city. *Geoforum, 52*, 137-147.

Mondal, M. S. A., Akter, N., Moni, S. J., & Polas, M. R. H. (2023). Financial and non-financial disclosures on sustainable development: The mediating role of environmental accounting disclosure practices. *International Journal of Financial, Accounting, and Management, 5*(3), 387-406.

Mondal, M. S. A., Akter, N., & Polas, M. R. H. (2023). Factors influencing the environmental accounting disclosure practices for sustainable development: A systematic literature review. *International Journal of Financial, Accounting, and Management, 5*(2), 195-213.

Mousa, G., & Hassan, N. T. (2015). Legitimacy theory and environmental practices: Short notes. *International Journal of Business and Statistical Analysis, 2*(01).

Nabila, R., & Arinta, Y. N. (2021). Green Accounting For Sustainable Development: Case Study Of Indonesia'S Manufacturing SECTOR. *Akuntansi Dewantara, 5*(1), 1-10.

Orajekwe, J. C., & Ogbodo, O. C. (2023). Firm-specific characteristics and environmental disclosure of energy firms in Sub-Saharan Africa. *International Journal of Financial, Accounting, and Management, 5*(2), 251-264.

Pranata, M. W., & Adhariani, D. (2023). Analysis of the potential implementation of Material Flow Cost Accounting (MFCA) in muslim fashion SMEs Y. *International Journal of Financial, Accounting, and Management, 5*(1), 97-111.

Purnasiwi, J., & Sudarno, S. (2011). *Analisis pengaruh Size, Profitabilitas dan Leverage terhadap pengungkapan CSR pada perusahaan yang terdaftar di Bursa Efek Indonesia.* Universitas Diponegoro.

Qiu, Y., Shaukat, A., & Tharyan, R. (2016). Environmental and social disclosures: Link with corporate financial performance. *The British Accounting Review, 48*(1), 102-116.

Rachmawati, W., & Karim, A. (2021). Pengaruh Green Accounting Terhadap Mfca Dalam Meningkatkan Keberlangsungan Usaha Serta Resource Efficiency Sebagai Variabel Moderating (Studi Kasus Pada Perusahaan Peraih Penghargaan Industri Hijau). *Tirtayasa Ekonomika, 16*(1), 59-82.

Romli, R., & Zaputra, A. R. R. (2021). Pengaruh Implementasi Green Banking, Corporate Social Responsibility terhadap Nilai Perusahaan pada Perusahaan Perbankan yang terdaftar di BEI. *Portofolio: Jurnal Ekonomi, Bisnis, Manajemen, dan Akuntansi, 18*(2), 137-160.

Rosaline, V. D., & Wuryani, E. (2020). Pengaruh Penerapan Green Accounting dan Environmental Performance Terhadap Economic Performance. *Jurnal Riset Akuntansi Dan Keuangan, 8*(3), 569-578.

Santi, A. R., Andi, K., Lindrianasari, L., & Oktavia, R. (2022). Pengaruh penerapan material flow cost accounting terhadap green accounting dan financial performance. *Fair Value: Jurnal Ilmiah Akuntansi dan Keuangan 5*(2).

Selpiyanti, S., & Fakhroni, Z. (2020). Pengaruh Implementasi Green Accounting dan Material Flow Cost Accounting Terhadap Sustainable Development. *Jurnal ASET (Akuntansi Riset), 12*(1), 109-116.

Setyaningsih, R. D., & Asyik, N. F. (2016). Pengaruh kinerja lingkungan terhadap kinerja keuangan dengan corporate social responsibility sebagai pemoderasi. *Jurnal Ilmu Dan Riset Akuntansi (JIRA), 5*(4).

Sihwahjoeni, S., & Tyasasih, R. (2016). Accounting environment to improve environmental performance in sustainable development at manufacturing companies in East Java–Indonesia.

Suratno, S., Fitriawati, R., & Djadang, S. (2017). Determinants Analysis of Turnaround: Empirical Study on Manufacturing Company Registered in Indonesia Stock Exchange. *None, 16*(1), 103-114.

Sutadipraja, M. W., & Setiadi, I. (2022). *PENGUNGKAPAN LINGKUNGAN, KINERJA LINGKUNGAN, BIAYA LINGKUNGAN DAN SUSTAINABLE DEVELOPMENT GOALS (SDGS) DI INDONESIA.* Paper presented at the Proceeding of LP3I National Conference of Vocational Business and Technology (LICOVBITECH).

Tusiyati, T. (2019). Analisis Pengaruh Kinerja Lingkungan Dan Kinerja Keuangan Terhadap Pengungkapan Laporan Keberlanjutan Pada Perusahaan Nonkeuangan Yang Terdaftar Di Bursa Efek Indonesia. *Jurnal Bina Akuntansi, 6*(2), 66-85.

Ulupui, I., Murdayanti, Y., Marini, A., Purwohedi, U., Mardia, M., & Yanto, H. (2020). Green accounting, material flow cost accounting and environmental performance. *Accounting, 6*(5), 743-752.

Wijaya, C. (2019). Tumpahan minyak dan gas proyek Pertamina di Laut Jawa: Ribuan karung limbah dan sebabkan warga yang perlu biaya hidup 'nganggur'. from https://www.bbc.com/indonesia/indonesia-49123606

Yeye, O., & Egbunike, C. F. (2023). Environmental, Social and Governance (ESG) disclosure and firm value of manufacturing firms: The moderating role of profitability. *International Journal of Financial, Accounting, and Management, 5*(3), 311–322.

List of Tables

Table 1. SDGs Implementation Index in Indonesia 2016-2022

No.	Year	Rating	Value (%)
1	2016	98	54,38
2	2017	100	62,9
3	2018	99	62,8
4	2019	102	64,2
5	2020	97	66,3
6	2021	97	66,3
7	2022	82	69,16

Table 2. Descriptive Statistical Test

Predictor	N	Minimun	Maximum	Mean	Std. Deviation
Green Accounting	40	2.00	3.00	2.7000	.46410
MFCA	40	1.41	38.34	8.5626	8.22022
EP	40	1.00	5.00	3.3750	1.14774
ED	40	.71	.92	.8333	.05325
SDGs	40	22.99	31.33	27.2918	2.69108
Valid N	40				

Table 3. Kolmogrov-Smirnov Test Results

		Unstandardized Residual
N		40
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	1.38933000
Most ExtremeDifferences	Absolute	.059
	Positive	.051
	Negative	-.059
Kolmogorov-Smirnov Z		.376
Asymp. Sig. (2-tailed)		.999

Table 4. Multicollinearity test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF

Model		B	Std. Error	Beta	t	Sig.		
1	(Constant)	21.927	3.951		5.549	.000		
	Green Acc	.110	.658	.019	.168	.868	.591	1.693
	MFCA	-.138	.030	-.422	-4.648	.000	.924	1.083
	Enviromental Performance	1.533	.269	.654	5.691	.000	.577	1.734
	Enviromental Disclosure	1.291	4.660	.026	.277	.783	.896	1.116

Table 5. Heteroscedasticity test results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.523	2.253		-.232	.818
	Green Acc	.765	.375	.421	2.037	.249
	MFCA	.002	.017	.024	.145	.885
	Enviromental Performance	-.151	.154	-.206	-.985	.331
	Enviromental Disclosure	.046	2.657	.003	.017	.986

Table 6. Autocorrelation test results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.856a	.733	.703	1.46657	1.344

Table 7. Durbin Watson Test Bond Table

b	4-dU	dU	dL
40	2,27	1,7209	1,284

Table 8. Multiple linear regression test results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.927	3.951		5.549	.000
	Green Accounting	.110	.658	.019	.168	.868
	MFCA	-.138	.030	-.422	-4.648	.000
	Enviromental Performance	1.533	.269	.654	5.691	.000
	Enviromental Disclosure	1.291	4.660	.026	.277	.783

Table 9. Coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856a	.733	.703	1.46657

Table 10. F Test

F table	F count	Sig
2,64	24,078	0,000b

Table 11. T Test

Variables	T count	T table	Sig	Description
Green Accounting	3,111	2,030	0,004	H1 accepted
MFCA	-4,137	2,030	0,000	H2 not accepted
Enviromental Performance	6,931	2,030	0,000	H3 accepted
Enviromental Disclosure	0,266	2,030	0,792	H4 not accepted