

THE ANALYSIS OF IMPLEMENTING ENVIRONMENTAL ACCOUNTING ON WASTE MANAGEMENT (PG DJATIROTO)

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Article History

Received: 05-06-2022

Revision: 27-07-2022

Accepted: 12-09-2022

Published: 28-09-2022

Abstract. *The implementing environmental accounting on waste management at PG Djatiroto aims to analyze components of environmental costs (on waste management) and to analyze an accounting treatment of the environmental costs on waste management. The data analysis method used in this study is a comparative descriptive analysis method. The data in this study was obtained through interviews and documentation related research issues. Analysis done by comparing the results of interviews and document analysis by Hansen and Mowen theory for the environmental costs of components and SFAS 11 paragraph 1, SFAS 14, and SFAS No. 1 revision 2009 for the treatment accounting of environmental cost. Based on the results of this research is that the company has made the classification of environmental costs (in terms of waste management) and has conducted environmental cost accounting treatment stages. However, based on the analysis has been done, there are a few suggestions to be considered for the PG Djatiroto in term implementing environmental accounting for the future.*

Keywords: *Environmental Accounting, Environmental Cost, Waste Management*

Abstrak. Penerapan akuntansi lingkungan terhadap pengelolaan limbah yang dilakukan pada PG Djatiroto bertujuan untuk menganalisis komponen biaya lingkungan terkait pengelolaan limbah serta untuk menganalisis perlakuan akuntansi biaya lingkungan terhadap pengelolaan limbah. Metode analisis data yang digunakan dalam penelitian ini adalah metode analisis deskriptif komparatif. Data dalam penelitian ini diperoleh melalui wawancara dan dokumentasi terkait masalah penelitian. Teknik analisis yang dilakukan dengan membandingkan hasil analisis wawancara dan dokumentasi dengan teori Hansen dan Mowen untuk komponen biaya lingkungan dan PSAK No.1 paragraf 11, PSAK No.14, dan PSAK No. 1 revisi 2009 untuk perlakuan akuntansi biaya lingkungan. Berdasarkan hasil penelitian dapat diketahui bahwa perusahaan telah melakukan pengklasifikasian biaya lingkungan (dalam hal pengelolaan limbah) dan telah melakukan tahapan perlakuan akuntansi biaya lingkungan. Akan tetapi, berdasarkan analisis yang telah dilakukan ada beberapa saran untuk dijadikan pertimbangan bagi PG Djatiroto dalam hal penerapan akuntansi lingkungan untuk masa akan datang.

Kata Kunci: Akuntansi Lingkungan, Biaya Lingkungan, Pengelolaan Limbah

How to Cite: Aditya, R. (2022). The Analysis of Implementing Environmental Accounting on Waste Management (PG Djatiroto). *Indo-Fintech Intellectuals: Journal of Economics and Business*, 2 (2), 58-67. <http://doi.org/10.54373/ifijeb.v2i2.66>

INTRODUCTION

The current development of companies in Indonesia growing rapidly, in line with the more the many needs of the community itself (Fana et al., 2020). Company is an organization that carries out activities business by using resources in the form of materials raw materials and

labor to produce goods or services that will be used by the community (Anam & Ramlah, 2020). Company founded with a view to achieving certain goals, will but most companies have a goal that is the same as maximizing profit. In general, Companies are divided into three types, including: manufacturing, trading and service companies. So far, the existence of the company is considered provide many benefits for the surrounding community and society in general. Apart from being able to fulfill necessities of life, the company also functions as a means of providing employment opportunities for those who need (Wulandari et al., 2019). The company also has an impact on environment in the form of air pollution, noise pollution, waste production. Production waste is often experienced by manufacturing company. Manufacturing companies are companies that process raw materials into goods semi-finished and finished goods. Manufacturing company not only produce goods, but also perform marketing activities such as those carried out by trading Company (Nurhidayat et al., 2020).

In the management of production waste, the company need to apply environmental accounting to support operational activities, especially in waste management production (Hirdariani, Atma et al., 2022). Environmental accounting is a field of science accounting function and identify, measuring, assessing, and reporting environmental accounting. In this case, pollution and production waste is one example of the negative impact of company operations that require an accounting system environment as control of responsibility company. Waste management carried out by the company requires measurement, appraisal, disclosure and reporting of waste management costs from the results of the company's operational activities (Sukirman & Suciati, 2019). Accounting application environment also aims to find out how much environmental costs incurred in managing waste by using an accounting system so that can minimize the costs incurred, can control the company's responsibility in maintaining environment around the company, and can make reports environmental costs to be used as a management guide in decision making (Nasution & Amalia Agustin, 2020). By applying environmental accounting, companies can also control production waste that is issued so that the waste does not pollute the environment around the company (Dahlia et al., 2021)

PG Djatiroto is one of the sugar factories owned by PTPN XI. The sugar factory is located in the village of Kaliboto, Jatiroto, Lumajang Regency. PG Djatiroto was founded in the early 1910s which is engaged in sugar cane milling. Every few years the milling capacity is continuously increased. Next every year process/factory equipment innovations are always held to increase milling capacity and company efficiency. So that in 1996 the milling capacity was consolidated to 7,000 TTH. and until 2012 PG Djatiroto continued to improve itself. In addition, PG Djatiroto was once called the largest PG in Indonesia. The greater the amount of

sugar produced, the company will definitely incur waste management costs as an effort to reduce waste that can pollute the environment around the company. Therefore, it is necessary to analyze the application of environmental accounting in the company's waste management in order to control the company's responsibility in managing production waste.

METHOD

The type of research used is qualitative research. While the data analysis method used is a comparative descriptive method. In this case the researchers took data from the Waste Management Unit and the Accounting Unit. In this study, the object of research is the Waste Management Unit and Accounting Unit at PG Djatiroto which is located in a factory engaged in sugar cane milling. The types of data used in this study are primary data and secondary data. Primary data were taken by interviewing the waste management unit and the accounting unit related to environmental cost components and environmental cost accounting treatment. The stages of data analysis that will be carried out include collecting data in the company, analyzing each environmental cost recorded by PG Djatiroto, grouping each item of environmental costs recorded by PG Djatiroto in waste management according to Hansen's theory and Mowen related to the classification of environmental costs, analyzing the recognition, measurement and recording, presentation and disclosure of environmental costs related to waste management in the company and then compared them with Statement of Financial Accounting Standards (PSAK) No.1 paragraph 11, PSAK No.14, and PSAK No.1 revision 2009 related to accounting treatment, and draw conclusions.

RESULTS

Descriptive Statistics

The Djatiroto Sugar Factory in waste management has referred to the AMDAL and is under the supervision of the Ministry of Environment. Every sugarcane milling season, the liquid waste produced will be analyzed at the Laboratory of the Center for Environmental Health Engineering and Disease Control (BBTKLPP) Surabaya every month. Wastewater sampling was carried out by the Lumajang Regency Environmental Service.

Table 1. Environmental Cost Component

No.	Environmental Cost Type	Related components
1	Liquid Waste Installation	UPLC (Liquid Waste Treatment Unit) maintenance costs: <ol style="list-style-type: none"> a. Sludge Drain Fee b. Facility costs (eg pump) c. Lighting fee d. Cost of purchasing inola bacteria e. Cost of purchasing TSP and Urea f. Waste analysis fee
2	Solid Waste Installation	<ol style="list-style-type: none"> a. Solid waste collection fee b. Transport fee c. Maintenance costs (Sedimentation Tank)
3	Waste Air Installation	<ol style="list-style-type: none"> a. Cost of purchasing tools b. Pump fee c. Electricity cost d. Analysis fee

Recognition relates to the problem of a transaction that will be recorded or not in the recording system so that it will affect the company's financial statements. The Djatiroto Sugar Factory recognizes the transaction as an expense if it has been used in the company's operational activities. Factory waste management costs are included in the company's operational costs. The factory has also established a separate account for waste management costs. In recognizing costs associated with waste management, any costs incurred will be included in the waste installation account according to the type of waste. The company uses the accrual basis method in recognizing waste management costs. Expenses are recognized when an activity or transaction occurs in the company's operational activities regardless of cash received or cash issued.

Based on the results of the search that has been carried out, the waste management costs incurred by the factory are charged to the factory estimate for the air waste sub installation, liquid waste installation, solid waste installation using the accrual basis method and will appear in the Profit (Loss) Report on the cost of goods sold in the sub-installation. factory with estimated number 514 which is presented in Appendix 5 along with other similar costs in the Income Statement. Djatiroto Sugar Factory, Lumajang in measuring the cost of waste management using monetary units based on the costs incurred and taken from the realization of the cost plan of the previous three years or often referred to as the historical cost method. The Djatiroto Sugar Factory also has a building for waste management which is presented as a

company asset. The building has a useful life of 20 years which is calculated using the straight-line method. The Djatiroto Sugar Factory records waste management costs directly into the waste installation estimate including air waste installations, liquid waste installations, solid waste installations if these costs have been used for factory operational activities (Ala & Manafe, 2021). The purchase of materials related to waste management must go through the procurement department and will be stored in the warehouse section which is recognized as inventory. If the waste management department requires these materials, it will be recorded as a waste installation cost and will reduce inventory. The cost of waste installation is a component of the cost of goods sold (Purnamawati, 2018).

Presentation relates to how a financial information will be presented in the financial statements. Costs arising from waste management are presented together with salary costs, levy fees for water, fuel, machine maintenance and installation, and other similar costs into the subsections of liquid waste installations, solid waste installations, and air waste installations which are included in factory costs (Sofia et al., 2022). Disclosure relates to whether a financial information or accounting policy is disclosed or not. Based on the results of interviews that have been conducted and documents obtained, the factory has disclosed information regarding waste management in the Notes to Financial Statements. One of the information disclosed related to waste management is PROPER. So far, the cost of waste management is treated as a waste installation cost which is included in the factory cost category and is a component of the composition of the cost of goods sold in the Factory Profit and Loss Report. Waste management costs can also be classified as direct costs because they are incurred directly related to operational activities or production processes (Rimbano, 2019).

The Djatiroto Sugar Factory classifies environmental costs based on the type of waste, including liquid waste installations, solid waste installations, and air waste installations. Environmental costs arise due to waste management activities. Waste management is an activity that has an important role in the survival of the company. In waste management activities, the factory is under the supervision of the Lumajang City Environmental Service and the analysis is carried out at the Surabaya Center for Environmental Health and Disease Control Engineering (BBTKLPP). With the classification of environmental costs, factories can easily find out problems that arise and control the allocation of costs that are set

DISCUSSION

At the beginning of each period, each unit receives a predetermined cost plan for a period of one year based on the average cost realization for the previous three periods. The factory

divides four units to process the cost plan including the AKU (Administration, Finance, and General) unit, installation, plant, and processing (Kurniawan & Mustofa, 2022). For the waste management section, it is the Installation unit that processes the predetermined fees. The allocation of costs is divided into three, namely solid waste installations, liquid waste installations, and air waste installations (Rimbano, 2019). However, the allocation of these costs still cannot be said to be costs. The allocation of these costs can be said to be costs if there have been activities carried out in waste management. Some are still in stock, such as chemicals needed to manage solid, liquid, and air waste. The inventory is recognized as an expense, if the installation unit uses the inventory for activities installation or the existence of a flow of benefits within the company. The recognition method used by the factory is accrual basis where costs are recognized if an activity or transaction occurs in the company's operational activities regardless of cash received or cash issued. In PSAK there is no regulation that stipulates recognition related to environmental costs, but companies can determine it in accordance with PSAK No.1 paragraph 11. Djatiroto Sugar Factory has established a policy regarding the recognition of waste management costs in accordance with company policies so that the factory can provide relevant, reliable, comparable, and understandable information to users of financial statements (Purnamawati, 2018; Sari et al., 2020).

Djatiroto Sugar Factory in measuring the cost of waste management issued by the company uses a monetary unit of the cost incurred. These costs are taken from the average cost realization for the previous three periods or often referred to as the historical cost method. The average realization of these costs will be added by 10%. Measurement of waste management costs is carried out by determining the amount of rupiah that will be attached or allocated to a post related to each type of waste being managed so that it can be seen how much amount will be deducted from the planned cost at the beginning of each period (Malia, 2020). Although there are no regulations governing the measurement of environmental costs related to waste management, companies can use established company policies (Rimbano, 2019). This is in line with the definition expressed by Suwardjono that measurement is the determination of the size of the measuring unit (amount of rupiah) involved in a transaction to represent what is happening in the object.

The Djatiroto Sugar Factory keeps records in terms of waste management by entering the costs incurred for these activities into the estimation of air waste installations, liquid waste installations, solid waste installations. This estimate is included in the factory estimate which is part of the cost of producing sugar and molasses as well as the components that make up the cost of goods sold. However, such materials used as components of waste management will be

recorded as inventory on the debit side and accounts payable on the credit side by the warehouse department and will be recorded by the accounting department as expenses on the debit side and inventory on the credit side if the user has requested materials. The warehouse receipt uses the "warehouse receipt" as contained in Appendix 6. The warehouse receipt is used in the company's operational activities as proof of the transaction. In addition, based on the results of interviews and collection of related documents both in recognition and recording, the factory uses the accrual basis method where costs and inventories are recorded when an activity or transaction occurs. In the company's operational activities regardless of cash received or cash issued. Inventories according to PSAK No. 14 paragraph 03 are assets available for sale in the normal course of business; in the process of production and or in transit; or in the form of materials or supplies for use in the production process or in providing services. When compared with the recording policy carried out by the company, supporting materials such as urea fertilizer in waste management activities are recorded as inventory which is an asset used in the waste management process (Purnamawati, 2018). Therefore, it can be said that the company is right to use the inventory account in recording related waste management activities (Dahlia et al., 2021).

Djatiroto Sugar Factory is a company engaged in agribusiness which in the production process produces various types of waste, including solid, liquid, and air waste. In terms of waste management, the factory has presented and disclosed information related to waste management carried out in its operational activities. The factory prepares financial reports in accordance with financial accounting standards in general. Statement of Financial Accounting Standards No.1 revision 2009 regarding the presentation of financial statements disclosed that: "Entities can also present, apart from financial reports, reports on the environment and value added statements, especially for industries where environmental factors play an important role and for industries that consider employees as a group of report users who play an important role. These additional reports are outside the scope of Financial Accounting Standards".

Based on the explanation according to PSAK No. 1 revision 2009, it can be said that companies engaged in industry that have the potential to produce production waste that can pollute the environment must disclose activities related to waste management which play an important role in the survival of the company as an additional report for complete the company's main financial statements. The report can be used by report users in making decisions and is faster to find out problems that arise during a certain period (Suningsih et al., 2021). So far, the Djatiroto sugar factory has presented costs related to waste management in the sub-sections of liquid waste installations, solid waste installations, and air waste

installations. These costs are presented together with the cost of salaries, water levies, fuel, machine maintenance and installation, and other similar costs into the factory estimate with estimate number 514 as in Appendix 4. The factory estimate will be presented in the income statement as in Appendix 5 which is a component of the cost of goods sold.

The factory has disclosed accounting policies related to waste management costs in the records on the financial report, because it has been presented in the factory profit and loss report as a component of the cost of goods sold (Josiah, 2021). Based on the results of interviews and documents collected, one of the contents of the Notes to the Financial Statements is about PROPER. PROPER (Company Performance Rating Program) which is one of the Ministry of Environment's efforts to encourage company compliance in environmental management through information instruments. The PROPER can be used to obtain Food Security Credit which is an activity that can maintain the continuity of the factory's business. With the presentation and disclosure, it can be said that waste management has an important role for the company, both for the survival of the company and for users of financial statements in making decisions. The factory has also shown as a company that has a role in protecting the environment and as an environmentally friendly company because every year the factory conducts research conducted by the Environmental Agency in assessing the management of the production waste produced (Sari et al., 2020).

CONCLUSION

Based on the discussion that has been described, it can be concluded as follows: According to the company, environmental costs (in terms of waste management) are costs incurred due to activities or activities related to the management of production waste in order to pollute the environment. Waste management is an activity that has an important role in the company's operational activities. Djatiroto Sugar Factory has carried out the stages of accounting treatment for waste management costs. This is based on the classification of waste management costs which can be said that the factory has incurred environmental costs (in terms of waste management) as the responsibility of the factory in protecting the environment. The Djatiroto Sugar Factory has recognized the cost of waste management according to the type of waste as the cost of liquid waste installation, solid waste installation, and air waste installation. These costs are recognized in the factory estimate which is a component of the cost of goods sold. The factory uses the accrual basis method in the recognition process. The measurement of environmental costs (in terms of waste management) carried out by the Djatiroto Sugar Factory uses the amount of rupiah issued by the factory based on the average realization of costs for

three years or often called historical cost. The average will be attached to each estimated environmental cost related to waste management according to the type of waste. This is in accordance with the definition expressed by Suwardjono regarding measurement. Recording carried out by the Djatiroto Sugar Factory for waste management costs by entering the costs incurred for these activities into the waste installation estimate air, liquid waste installations, solid waste installations using the accrual basis method such as recognition. Materials used in waste management will be recorded by the warehouse as inventory, and will be recorded as costs by the accounting department if there are operational activities. In the event that the recording of waste management materials is correct in accordance with the definition of inventory according to PSAK No. 14. Djatiroto Sugar Factory has presented information on waste management costs in the Profit and Loss Report in the Factory estimate. These costs are a component of the cost of goods sold. The factory does not make a special report on environmental costs such as PSAK No.1 paragraph 09, but the factory has presented it in the company's financial statements. The factory has also disclosed environmental cost accounting policies in the Notes to Financial Statements

RECOMMENDATIONS

This study only focuses on financial accounting in terms of the accounting treatment of waste management costs and the researcher also does not discuss the management and environmental accounting aspects as a whole. Measurement of environmental costs (in terms of waste management) there are still no specific standards for measurement and recording so that they cannot be compared according to the research objectives

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