

Analysis of Environmental Management Accounting Implementation in RSUD Dr. Saiful Anwar Malang

Izdiharningrum Ghina Sary¹, Helianti Utami², Endang Sri Andayani³

State University Of Malang^{1,2,3}

Jalan Semarang No. 5, 65145, Malang, Indonesia

Correspondence email: izdiharningrumgs@gmail.com

ORCID ID: 0000-0001-6274-4855

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ABSTRACT

This review plans to examine the application of environmental management accounting (EMA) in RSUD Dr. Saiful Anwar Malang. It includes an analysis of the performance of RSUD Dr. Saiful Anwar Malang in terms of the environment, monetary information, and physical information of the application of EMA in hospitals. The examination method was descriptive qualitative. Information assortment procedures are perception, interviews, and documented information. The findings indicate that the hospital has implemented EMA based on the EMA framework) and environmental cost classification. In addition, the hospital has carried out waste management so well that there were no external costs. For the application of environmental accounting, the hospital has included environmental costs and general accounting theories and principles.

Keywords: Environmental Cost, Environmental Management Accounting (EMA), RSUD Dr. Saiful Anwar Malang, Monetary Environmental Management Accounting (MEMA), Physical Environmental Management Accounting (PEMA)

INTRODUCTION

Environmental issues are the center of attention in this world. With issues identified with environmental change and the green upset, there is tension on an industry or association to decrease its adverse consequence on the climate. According to Zailani, Jeyaraman, Vengadasan, and Premkumar (2012), in the course of recent years, the developing populace and expanding modern improvement have prompted ecological debasement, including corrosive downpour, an unnatural weather change, and consumption of the ozone layer, becoming probably the best danger to the society around the world. Organizations should participate in maintainability by considering the requests and interests of different partners in the organization's current circumstance (Bansal & DesJardin, 2014). Most organizations have natural relief measures set up without a framework to represent the physical and money-related expenses and advantages (Cortese, Irvine, & Kaidonis, 2009). From that point, bookkeeping has been coordinated into natural issues.

Environmental Management Accounting (EMA) is an idea that has created numerous areas in all nations since its presentation around the 1990s. EMA emerges because of the absence of ordinary administration bookkeeping and monetary bookkeeping to resolve natural issues independently in organizations or associations with high ecological effects (Jamil, Mohammed, & Muhamad, 2015). Ecological administration bookkeeping has explicitly been acquainted with assistance organizations that oversee regular assets, energy, and contamination. It combines ecological worries with the executive director by giving physical and financial data about the association's natural effects. To keep up with manageable worldwide monetary development, each association is needed to be effectively associated with natural exercises, for example, decreasing energy and asset costs, expanding creation productivity, and lessening consistence costs (Zhang, 2014).

On this basis, RSUD Dr. Saiful Anwar Malang (RSSA Malang), a regional general hospital, was chosen to be the object of this study. In its service process, RSSA Malang can create squander. The waste it generates is solid and liquid medical waste. In its waste management, it has an Incinerator used for burning waste. As for the liquid waste management, the hospital has an IPLC (Liquid Waste Management Installation). The waste generated should be overseen appropriately not to harm patients, visitors, employees, and the surrounding community.

In its operational activities, hospitals produce various kinds of waste, including solid, liquid, paste (gel), or gas containing infectious pathogenic microorganisms, toxic and radioactive chemicals (Ghasemi et al., 2018). As a form of hospital responsibility, they conduct a systematic way through a process that requires special costs by allocating the value of these costs in financial records. The process of measuring, assessing, disclosing, and presenting information on the calculation of waste management is an interesting accounting problem for research as it has not been formulated with certainty how the method of measuring, assessing, disclosing, and presenting environmental accounting in a hospital.

Research on EMA has been carried out by several researchers worldwide. Bayu (2017) used EMA as a management tool in environmental control (eco-control) in the hotel business. The analysis in this study is related to the allocation of costs to control the environment in achieving environmental performance. In addition, Fuzi, Habidin, Janudin, and Ong (2019), analyzing the determinants of the success of EMA rehearses

in the Malaysian assembling industry, showed that the two basic achievement variables of ecological administration bookkeeping are natural guidelines and environmental expenses.

Christensen and Himme (2016) studied step-by-step instructions to utilize insights to decide on energy utilization in environmental management accounting. Environmental performance is one of the dimensions of sustainability, including energy management and control. As a result, the executive bookkeeping needs to foster the energy of the board frameworks that control utilization.

The theory that supports the submission of social and environmental responsibility reports is legitimacy theory. Within the community, social values always develop over time. Companies are expected to constantly adapt its values to the values of the community environment to avoid the legitimacy gap. We used legitimacy theory because hospitals continuously operate in accordance with the boundaries and values accepted by the surrounding community to gain legitimacy of the social contract between the hospital and various parties in the community.

Discussion about environmental management accounting (EMA) and its part in joining natural contemplations and data into business dynamic exercises and cycles have expanded fundamentally recently (Christ & Burritt, 2013). EMA has a developing significance in numerous European and Asian nations, like Japan, the Philippines, and China (Qian, Burrit, & Chen, 2015). Obvious advantages include working on the organization's environmental management presentation, cost reserve funds, further developing valuing choices and item blend, supporting waste decrease, expanding productivity, expanding income and openness to new business sectors, and further developing capital venture choices (Henri & Journeault, 2010).

LITERATURE REVIEW

Legitimacy Theory

This theory states that organizations are part of society, and they must pay attention to social norms to make them more legitimate (Runtunuwu & Tussabaha, 2020). Most associations use the authenticity hypothesis to break down natural exposure from a standing danger point of view (Alewine, 2010). The authenticity hypothesis accepts a connection between an association and the general public wherein it works. According to Fernando & Lawrence (2014), organizations are not isolated units but exist with the community because organizations use the community's resources and give their items and administrations to the local area. Hassan and Moussa (2015) disclosed that associations accomplish conduct guidelines in friendly frameworks. The association will have a standard agreement or working permit to satisfy social assumptions along these lines.

Haack (2012) indicated that people, in general, can see changes in the association's natural execution. Associations' explanations behind joining ecological worries into their bookkeeping practices might incorporate authenticity factors. At the end of the day, the obligation of unveiling ecological data to general society can be significant for changing the bookkeeping framework. Frank (2013) explored why associations decide to take on a natural administration framework. They tracked down a positive connection among's natural and local areas. Delmas and Toffel (2007) concurred that choosing to pick ecological administration activities is impacted by improving or keeping up with associations with the local area. Natural systems can be acknowledged by an

association with an end goal to measure up to the assumptions of society. When the local area anticipates that the organization should make a move on natural obligation, the association will satisfy its assumptions and foster its interior activities legitimately. The utilization of the EMA will likewise be refreshed because it assumes a significant part in giving clarifications and acquiring authenticity (Chang, 2007). Hence, the authenticity hypothesis can impact EMA practice.

Environmental Management Accounting

According to Burritt and Saka (2006), EMA is another natural administration device initially intended to follow and dissect ecological expenses and actual natural streams. To completely comprehend the idea, it is vital to characterize it first and comprehend the verifiable foundation or set that rejuvenated the EMA, its essential idea, and how it is applied in creating and creating nations. EMA has turned into a significant piece of ecological bookkeeping (Jamil et al., 2015). This is becoming increasingly more significant because of natural administration choices, however for a wide range of executive exercises, the impacts of choices on ecological issues are expanding (International Federation of Accountants, 2005).

Burrit and Christ (2013) recommended that EMA gives a commonsense reaction to the analysis that regular administration bookkeeping has fizzled in its capacity to give express thought to ecological issues. Natural expenses frequently are concealed overall overhead records, and their potential advantages are regularly misjudged or disregarded. By giving information on the physical and monetary components of ecological execution, it has been recommended that the EMA will give data that chiefs can involve to evaluate openings for financial and natural improvement. Decision-makers in the company can use the information and data obtained from the EMA for better decisions, taking physical calculations (of materials and energy) and financial performance into account. If the company seeks to minimize costs while improving environmental performance (e.g., reducing waste), the EMA can provide important information in both respects.

The benefits of implementing EMA in an industry are significant. EMA gives not only important expense information for evaluating the effect of the board's financial activities but also physical information flows that characterize environmental impacts (Schaltegger & Burrit, 2010). The potential benefits of implementing EMA include cost reduction, increased item valuing, the attractiveness of human resources, and high reputation (Christensen & Himme, 2016).

In line with Christ & Burrit (2010), EMA consists of two main areas: Monetary Environmental Management Accounting (MEMA) and Physical Environmental Management Accounting (PEMA). Corresponding to the environmental accounting, there is a major consensus, namely the environmental impact on company finances in the form of monetary, environmental information (MEMA) of past, present, and future impacts of the flow of money, and environmental impacts on environmental frameworks in actual ecological data. PEMA includes all materials and energy expended in the past, present, and future that affect the ecological system.

Environmental Cost

The impact of environmental pollution will lead to losses that the community must bear. These losses can be in the form of costs incurred to prevent and overcome the pollution. Environmental costs are related to production costs, processes, and facilities for making a management decision.

Jasch (2006) stated that environmental costs include preventing, maintaining, planning, and controlling environmental activities that may arise in organizations, governments, and communities. Environmental expenses incorporate interior and outer expenses related to all costs caused by environmental harm and environmental protection.

Environmental expenses can be perceived as expenses related to natural harm and the natural assurance of the business. This incorporates the expenses of forestalling, annihilating, arranging, controlling, further developing tasks, keeping up with, managing harm that might emerge from business, and influencing government and society (UNSD, 2001).

Several studies (e.g., Keiko, Watanabe, & Gianezeni, 2014; Pagalung, 2016; Tsui, 2014) explained that some companies had not implemented EMA due to no clearer information about the EMA concept and the lack of cooperation between the accounting department and environmental management. In addition, several studies on the application of EMA in hospitals in Indonesia are still rare. According to Sakdiyah (2017), the application of EMA in hospitals has been clearly implemented. However, it needs to be studied more deeply regarding the identification of other activities related to EMA practices and needs to be explained in detail regarding environmental costs in hospitals

RESEARCH METHOD

This study used a qualitative method approach to investigate the extent to which environmental management accounting is applied. It is descriptive qualitative with a case study of RSUD Dr. Saiful Anwar Malang. Our data collection techniques comprised interviews, observation, and documentation. The primary data sources were obtained through interviews with the head of the accounting and budget division and the head of the IPAL section of RSUD Dr. Saiful Anwar Malang. Our secondary data were obtained from previous research journals, the hospital's 2018-2019 financial reports, and other documentation.

RESULTS

Environmental Management Accounting

In general, Health Ministerial Regulation No. 7 of 2019 is the main guideline in environmental management at RSSA Malang. The hospital conducted the environmental management activities by several separate units: spatial planning of buildings and courtyards, insect control, linen washing facilities, clean water sanitation, and waste management activities, carried out by the Environmental Sanitation Unit and Maintenance Facilities Unit.

The hospital applied two frameworks developed by Burrit (2005) to implement EMA: physical information and monetary information. RSSA Malang's EMA aimed to resource efficiency and environmental responsibility for hospital operations.

RSUD Dr. Saiful Anwar Malang applied waste management activities based on the form and nature of the waste. Solid medical waste management is carried out by thermal treatment. Currently, the hospital has two incinerator units with 400 kg and 250 kg capacities. Both have processing permits from the Ministry of Environment of the Republic of Indonesia. Corresponding to non-medical solid waste management, RSSA Malang has collaborated with the Department of Hygiene and Landscaping of Malang City, which daily collects its waste and transports it to TPA Supit Urang. As for liquid

waste management, all liquid wastewater, including feces originating from hospital activities, is processed in a wastewater treatment plant. The hospital wastewater treatment plant is based on a permit from the Malang City Environment Agency with a capacity of 450 m³ per day. To protect the environment from hospital activities, the hospital periodically checks wastewater quality standards at accredited laboratories once a month and reports the results to the government every three months, along with reporting on hazardous and toxic waste.

Environmental Cost

Environmental management accounting as a method for disclosing and presenting the treatment of costs related to environmental management requires sequential and detailed stages while referring to accounting standards and generally accepted accounting statements (Burrit, Herzig, Schaltegger, & Viere, 2019). Based on International Federation of Accountants/IFAC (2005), guidelines, environmental cost classification includes identification, recognition, measurement, presentation, and disclosure.

The hospital's report of the environmental costs is recognized as administrative and general costs. The measurement of environmental costs is stated in rupiah based on the expenditure of the environmental sanitation unit in waste management. Meanwhile, environmental cost accounting principally provides information about a framework containing environmental impact costs and management strategies to improve environmental performance, productivity, and company profitability.

DISCUSSION

All hospital medical activities certainly produce a lot of hazardous and toxic waste (B3) (Sherman, 2019). B3 waste needs special handling before disposing of it. The waste is divided into three types: liquid, solid, and gas waste.

Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 concerning hospital environmental health, the implementation of hospital waste management includes 1) waste minimization, 2) segregation, storage, reuse, and recycling, 3) temporary shelters, 4) transportation, 5) processing, destruction and final disposal of solid, liquid, and gas waste.

The results of the study indicate that the waste treatment process of RSSA Malang was in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019, starting from the handling of B3 waste, liquid waste and gas waste, special locations for waste storage, waste handling treatment, transportation in transporting waste to waste disposal that RSUD Dr. Saiful Anwar Malang cannot carry out.

The lack of communication the results of waste management activities, related costs, and environmental decision-making is evident from the absence of environmental accounting reports to communicate to stakeholders. Moreover, RSSA Malang has not made a special report that discusses environmental management activities, how much environmental costs are required, the amount of environmental income, etc. The available reports are only general reports on realizing the budget of the household unit and facility maintenance unit. These reports contain all activities and costs incurred by the two units in carrying out their routine activities and do not provide specific information about which activities or costs are related to environmental accounting issues.

Environmental expenses are expenses brought about by the organization to forestall natural harm or expenses brought about in case of environmental harm by medical clinic squander (Schmidt, 2015). Environmental cost classification guidelines include identification, recognition, measurement, presentation, and disclosure (IFAC, 2005).

Basically, environmental costs are always related to operational costs, processes, systems, or facilities that are important in making better decisions in the future. The depiction of decision-making in a company depends on the company itself in using the information generated from environmental cost information.

For example, company XYZ has waste emissions that require material management and financing. When analyzing and estimating costs, the total costs that will be incurred in one year of the accounting period are categorized into accounts for environmental costs prepaid on environmental costs. The value of the fees paid in advance for one year will be credited every month for continuous allocation used to finance each unit for the environmental cost account.

After conducting a search based on the available evidence related to environmental costs in RSSA Malang, the hospital has incurred costs related to its environmental activities. However, the company has not specifically identified these costs, as they are conducted to carry out the environmental cost treatment stages as a component of production costs. Production costs mean the costs of direct materials, direct wages, and overhead costs.

The cost value prepared in a certain period will decrease according to each cost unit's needs. In short, the monthly costs to manage company waste are taken from costs previously budgeted through prepaid financing. Meanwhile, RSSA Malang also classified environmental costs based on the IFAC (2005) guidelines, including:

1. Environmental Costs Identification

The identification process is significant in facilitating the preparation of financial statements because we get what elements to include in them (see Table 1). Based on the classification of environmental costs by IFAC (2005), environmental costs in RSSA Malang are divided into four categories, including:

- a) environmental prevention costs
- b) environmental detection costs
- c) internal failure costs
- d) external failure costs

Table 1. Costs related to waste from RSUD Dr. Saiful Anwar Malang

No.	Waste Types	Various Costs
1	Liquid Waste	<ul style="list-style-type: none"> - Chemical wastewater inspection fee - Cost of bacteriological wastewater inspection - Cost of sewerage maintenance and repair of water pipes - Wastewater treatment program maintenance and repair costs - Wastewater treatment program rehabilitation shopping costs - Cost of cleaning materials and cleaning tools - Cost of purchasing Urea and Goldfish

2	Solid Waste	<ul style="list-style-type: none"> - Cost of cleaning materials and cleaning tools - Incinerator ash test - Incinerator test fare fee - Shipping costs for incinerator ash - Incinerator maintenance and repair costs - Shipping costs for incinerator ash - Waste treatment costs - B3 waste treatment costs
3	Waste Gas	<ul style="list-style-type: none"> - Cost of purchasing tools - Electricity cost - Pump fee - Cost analysis

Source: Processed Data (2021)

The search for environmental costs was conducted by observing the hospital budget and the details of hospital expenditures for 2018-2019 and conducting interviews with the Head of Accounting and Budget Section.

a. Prevention Cost

The prevention cost includes the cost of materials and equipment for drinking water sanitation, cleaning materials and cleaning tools, and environmental management efforts. The expenses for exercises completed forestalling the creation of waste that can cause natural harm, for instance, assessment and determination of instruments to control contamination, plan of cycles and items to lessen and kill squander.

b. Detection Cost

Costs for exercises are to decide if items, processes and different exercises in the organization have satisfied natural material guidelines or not. For example, the cost of clean water lab examinations, AC microbiology, air microbiology, linen microbiology examinations, rectal swab lab examinations, instrument swab examinations, clean water chemistry examinations, clean water bacteriology examinations and wastewater quality inspections.

c. Internal Failure Cost

It consists of costs for managing waste using incinerators and WWTPs, office building maintenance costs, network installation maintenance costs, equipment and machine maintenance costs, and cleaning service fees.

d. External Failure Cost

The hospital does not incur external failure costs because the hospital never disposes of waste outside the environment, which causes harm to the surrounding community.

2. Environmental Cost Recognition

Components that have been distinguished will be perceived as a record and alluded to as costs when they bring benefits from the expenses on environmental financing. Recognition of costs in the account is made when receiving the benefits of the amount that has been issued.

The hospital uses the accrual basis method where the recognition is made when the benefits have been obtained even though they have not been paid in cash. For

example, when a hospital sends waste to a third party, the disposal is called a fee and only paid after obtaining evidence that the waste has been destroyed.

3. Environmental Cost Measurement

The study of costs in terms of waste management is based on the amount of money to be paid by determining the price of waste materials. The measurements are made to determine the need for funding allocations following the hospital conditions because each hospital has different measurement standards. The recording is to input the waste management costs into the account of overhead costs, material costs and direct wages allocated to products so that the amount is recorded in the income statement. Although there is still no measurement standard regarding environmental costs (in terms of waste management costs), the measurement of environmental costs is based on policies implemented by the company.

4. Environmental Cost Presentation

This identifies with the issue of how monetary data will be introduced in fiscal reports (Wang, Wang, Zhu, & Li, 2018). The costs of environmental management at the hospital are presented with other similar costs into sub-overhead costs and direct wage costs, direct material costs and other indirect costs. The presentation of environmental costs in the financial statements can be done with different account names since there is no standard provision for account names to contain the allocation of environmental financing issued by hospitals. RSSA Malang has not reported and presented environmental costs in a specific report. However, it has explained accounting policies related to environmental costs in the notes to the company's financial statements.

5. Disclosure of Environmental Costs

Exposure identifies with the method of divulgence or clarification of educational things that are viewed as significant and helpful for clients other than whatever can be expressed through the super fiscal summaries. In light of the after-effects of meetings led during the examination, RSSA Malang uncovered bookkeeping approaches in the notes to the financial statements. In any case, the environmental costs themselves have not been explicitly unveiled in the notes to the hospital financial statements (see Table 2).

Table 2. Environmental Cost Disclosure Basis

No	Description	RSUD Dr. Saiful Anwar Malang
1	Management needs to control high costs	√
2	Government Regulation and Ministry of Health	√
3	Voluntary business initiatives	√
4	Public reporting	√
5	Public relations	√
6	Investor demands	√
7	Employee considerations	√
8	Concerning the community	√
9	More reasons	√

Source: Processed Research Data (2021)

To properly assess environmental costs, hospitals must collect monetary data and non-monetary data on material usage, employee hours, and other cost drivers (Burrit et al.,

2019). The EMA places particular emphasis on materials and non-material driven costs because the use of energy, water and materials, as well as the generation of waste and emissions, are directly linked to the many impacts that organizations have on their environment, and the cost of purchasing materials is a major cost driver in many organizations (IFAC, 2005).

EMA information on RSSA Malang, in general, asks about the amount and percentage of materials that come from recycled materials, energy or fuel consumed and saved, recycled, reused, and discarded water, gas emissions, and generated processed, disposed waste. Cost information generally tells about the costs incurred and used by the hospital to carry out waste treatment, from the cost of evaluating the waste treatment process, training employees for environmental issues, emission tests, maintaining waste treatment equipment, and inspecting waste content.

RSSA Malang applied two environmental management accounting frameworks developed by Burritt (2005), which focus on the application of environmental management accounting. The two frameworks are physical information and monetary information.

According to Schmidt (2015), physical information asks about the amount and percentage of materials derived from recycled materials, energy/fuel, recycled, reused, and discarded water, gas emissions, as well as generated, treated, and disposed waste. Energy use that can be identified from the operation of RSSA Malang is the use of water and electricity energy.

RSSA Malang has been recycling solid waste and liquid waste. As for the gas emissions has no specific treatment as it is still at the research stage since the hospital does not produce hazardous gases. The energy use for water and electricity expenditure is 1,452 m³ and 1,525,200 kwh, respectively.

Most of the information needed by hospitals is the costs of evaluating and selecting control equipment, developing/designing environmentally friendly processes/products, and developing environmental management systems. These costs are related to the decision to invest in environmental control equipment or waste treatment equipment and the decision to develop an environmental treatment system in hospitals. This decision is vital since its value is categorized as quite expensive.

The hospital understands the concept of environmental management accounting. As a method of disclosing and presenting the treatment of costs associated with environmental management, EMA requires consistent and detailed steps of generally accepted accounting standards and statements. EMA can help decision-making by the hospital management. Some are decisions to use the budget and make investments of waste management.

The results of this study indicate that RSSA Malang has implemented environmental management accounting. The hospital that manages B3 waste has calculated and recorded environmental information. It is physical and monetary information. Physical information is about the use of energy and water, the amount of waste, and its pre-disposal management. Monetary information includes the costs of pre-disposal waste management and environmental care.

However, applying EMA is not easy. There are three obstacles leading to the application failure. The first is the high value of the investment plan. The value of the investment plan (e.g., the procurement of waste treatment equipment) is expensive. In other words, the hospital is currently unable to provide funding and human resources to carry out activities to reduce and overcome the environmental damage due to the hospital activities. Second, the hospital considers the environmental costs to have the same position as other costs and have no significant effect on business activities and hospital financial reports. Third, there is a discrepancy in the recording of environmental costs due to the absence of EMA standard rules.

CONCLUSION

The analysis results conclude that RSUD Dr. Saiful Anwar Malang implements the EMA correctly. This is confirmed by the environmental management accounting information needed by the hospital, which is divided into two, namely monetary information and physical information. In addition, the recording of environmental costs is in accordance with the guidance framework of IFAC. However, the reporting of environmental costs is not stated in detail in the financial statements as there are still no specific rules for it.

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DECLARATION OF CONFLICTING INTERESTS

The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

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