Reviewer Invitation for THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE

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This study aims to examine the effect of the environmental accounting strategy on sustainability performance and explore waste management as a mediation between environmental accounting strategy and the sustainability performance of Micro, Small and Medium Enterprises (MSME's). Research data was collected from 200 MSME's in Indonesia through online and offline questionnaires. Data analysis was performed with PLS-SEM. The results of the study found that the MSME's environmental accounting strategy had an effect on sustainability performance, and it was proven that MSME's waste management mediated the environmental accounting strategy for MSME sustainability performance. The originality of this research is the development of research instruments, from various sources from previous researchers, GRI standards and Indonesian Government Regulations so that they can contribute Environmental Management Accounting literature and practical contributions to MSME's and related institutions in determining sustainability performance strategies. The implications of future research can collect larger data and can compare developing countries with developed countries. The implications for the government can provide guidance and training for MSME's human resources.

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THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE
--Manuscript Draft--

Full Title:	THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE
Manuscript Number:	COGENTBUSINESS-2022-1967
Article Type:	Research Article
Keywords:	environmental accounting strategy; waste management; sustainability performance; MSME's
Manuscript Classifications:	50.6.1 Economics; 50.6.2.11 Environmental Economics; 50.6.4 Business, Management and Accounting
Abstract:	This study aims to examine the effect of the environmental accounting strategy on sustainability performance and explore waste management as a mediation between environmental accounting strategy and the sustainability performance of Micro, Small and Medium Enterprises (MSME's). Research data was collected from 200 MSME's in Indonesia through online and offline questionnaires. Data analysis was performed with PLS-SEM. The results of the study found that the MSME's environmental accounting strategy had an effect on sustainability performance, and it was proven that MSME's waste management mediated the environmental accounting strategy for MSME sustainability performance. The originality of this research is the development of research instruments, from various sources from previous researchers, GRI standards and Indonesian Government Regulations so that they can contribute Environmental Management Accounting literature and practical contributions to MSME's and related institutions in determining sustainability performance strategies. The implications of future research can collect larger data and can compare developing countries with developed countries. The implications for the government can provide guidance and training for MSME's human resources.

THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE

Abstract

This study aims to examine the effect of the environmental accounting strategy on sustainability performance and explore waste management as a mediation between environmental accounting strategy and the sustainability performance of Micro, Small and Medium Enterprises (MSME's). Research data was collected from 200 MSME's in Indonesia through online and offline questionnaires. Data analysis was performed with PLS-SEM. The results of the study found that the MSME's environmental accounting strategy had an effect on sustainability performance, and it was proven that MSME's waste management mediated the environmental accounting strategy for MSME sustainability performance. The originality of this research is the development of research instruments, from various sources from previous researchers, GRI standards and Indonesian Government Regulations so that they can contribute Environmental Management Accounting literature and practical contributions to MSME's and related institutions in determining sustainability performance strategies. The implications of future research can collect larger data and can compare developing countries with developed countries. The implications for the government can provide guidance and training for MSME's human resources.

Keywords: environmental accounting strategy; waste management; sustainability performance; MSME's

1. Introduction

Companies produce goods or services using raw materials and other materials in the production process. As a result, it impacts material waste, product, and packaging waste. The impact on economic sustainability can reduce sales and operating profits because consumers prefer environmentally friendly products. The impact on environmental sustainability not only can reduce environmental damage such as soil and water pollution and increased global warming but also decrease in employee welfare along with a decrease in operating profit.

Moreover, management's understanding and knowledge of environmental accounting strategies and waste management are essential in achieving business sustainability in companies, including Micro, Small, and Medium Enterprises (MSMEs). Environmental problems are mostly caused by the impact of economic and social activities of companies, including Micro, Small Medium Enterprises (MSMEs). Polluted water sources, polluted air, deforested forests, and global warming have damaged the environment. People's awareness demands the importance of protecting environmentally friendly production processes and being concerned with business continuity than the short-term goal of profit.

Accounting management is one of the management strategies in achieving the company's sustainability performanceResearch on *Environmental Management Accounting (EMA)* conducted in Indonesia needs consistent findings**.** Abdullah et al. (2020) found that *firm size, leverage* , profitability, environmental performance as measured by PROPER certificates affect the disclosure of corporate carbon emissions in Indonesia. Sari et al. (2020) found that the application of environmental management accounting has a positive effect on organizational performance. Likewise Raharjo (2019) found that stakeholder demand, resources, knowledge, and product uniqueness have a significant effect on the implementation of green management, and *green management* has a significant effect on sustainability performance.

Handayani & Wahyudin (2020) shows that there is a significant negative effect between profitability and leverage on environmental performance. Research on social responsibility and the performance of MSMEs was also carried out by Le & Behl(2022) which proved to have found the Mediating Role of Social Responsibility Engagement and Environmental Responsibility Engagement in the relationship between Corporate Governance and Firm Performance in MSMEs. Likewise Sroufe & Gopalakrishna-Remani (2019) found that sustainability management has a positive direct relationship with social sustainability performance.

The investment in waste management is large, it requires planning, implementation, control and management knowledge about environmental accounting (Syarif & Novita, 2019). EMA is an important part of what companies do because it can encourage better operational procedures and improve corporate environmental management practices (Schaltegger (2018) in Syarif & Novita (2019) .Furthermore, Luthfiani & Atmanti (2021) regarding waste management in Indonesia. found that the

waste management efficiency of *the Waste Management System* in Indonesia is still not good with an average efficiency of 0.39. Economic and social factors have a significant effect, but the educational factor has the biggest influence on efficiency negatively.

In addition, MSMEs have limited human resources, experience, and even a record of their financial success, making it challenging to evaluate their performance. Hanaysha et.al.(2022) researched on the sustainability performance of MSMEs conducted research on the sustainability performance of MSMEs Measuring the performance of MSMEs is difficult because MSMEs have limited human resources and knowledge and do not even have a record of their business performance. Research on the sustainability performance of MSMEs has been carried out by (Hanaysha et al., 2022) Business sustainability is measured based on various items developed by Khan dan Quaddus (2015) in Hanaysha et.al(2022) found that product innovation and service innovation have a significant positive effect on business continuity.

Measurement of the performance of MSMEs in Indonesia has been researched by Madyaratry et al(2020). The results shows there are four measures of MSME performance that have high (good) scores, namely: ecological, social, economic and institutional dimensions. Furthermore, Maziriri(2020) found that MSME business performance should be seen not only as monetary execution but also as non-financial execution such as consumer loyalty, client maintenance, social recognition, corporate image and employee fulfillment.

Research on the sustainability of MSMEs with external pressure factors has been carried out by previous researchers. Kurniawati et.al.(2022) that Innovation is proven to have a positive relationship with sustainability performance. Moreover, Ramos et al(2016) found that environmental impact evaluation can benefit SMEs in the food industry. Unlike Mady et.al(2022), found that environmental regulations proved to have no effect on eco-innovation in Small and Medium Enterprises in Egypt.Ulupui et al.(2020) regarding green accounting at cement companies listed on the Indonesia Stock Exchange (IDX) found that green accounting as measured by the GRI G-4 index has an effect on environmental performance as measured by PROPER.

In terms of waste management, the responsibility of MSMEs to achieve responsible and environmentally friendly products, and sustainability performance is a unity of economic, social and environmental aspects (triple bottom line). The reason for choosing MSMEs is because they have different characteristics from large

companies, have a positive contribution to the country regarding employment but also have a negative impact related to the environment. The novelty of this research was conducted on SMEs which have different characteristics compared to large companies so that they may have different findings. The research instrument is the development of various sources, namely based on the GRI Standards, Madyaratry et.al(2020), Hansen&Mowen(2009) and from government regulation Permen PU/PR No.3/PRT/M/2013 which has never been made by researchers before.

This research contributes to both scientific and practical contributions. Scientific contributions can add references, especially in the field of Management Accounting, especially Environmental Accounting, by proposing waste management as an environmental accounting mediation for the sustainable performance of MSMEs. As for the practical contribution, the results of this study can be used as information in making MSME management decisions in managing production waste and environmental costs. regarding the sustainability of SMEs.

The remainder of this paper is organized as follows. The next section is a brief summary of the literature on environmental accounting strategy, waste management and the sustainability performance of MSMEs. Next is the development of hypotheses from related literature and conceptual framework. Then we explain the research methods, research results as well as discussion and research conclusions including limitations and future research.

2. Theoritical background and hypotheses development

2.1. Environmental Accounting Strategy

The term Environmental Accounting is also called environmental management accounting (Environmental Management Accounting). The definition shares the same objectives, namely: identifying, collecting, calculating and analyzing material and energy related costs; internal reporting and use of information on environmental costs ; provide other costs related , information in the decision - making process , with a view to adopting decisions that are efficient and contribute to environmental protection (Ikhsan, 2008).

Environmental Management Accounting Strategy is one of the existing systems in environmental accounting that is useful for assisting internal decision making according to The United Nations Division for Sustainable Development (2001). It can be said that environmental management accounting as a process of identifying, collecting, and analyzing information about costs and performance to assist

organizational decision making. According to Chang(2007), environmental costs presented in EMA usually refer to the types of costs to control or prevent environmental damage. Based on IFAC (2005), environmental costs under the EMA consist of other monetary information necessary to manage an organization's environmental performance effectively Tsui (2014) about the benefits associated with the application of EMA, including: reduced costs, increased product prices, attractive human resources, and increased corporate reputation. Apart from Tsui(2014) found that management accounting practices are facilitators for the continuous improvement of environmental performance, compliance with environmental legislation, communication with interested parties, and employee engagement. It can be said that Environmental management Accounting is a process of identifying, measuring and allocating environmental costs and integrating environmental costs carried out by MSMEs entities into making business decisions.

This study uses the concept of environmental accounting strategy from Hansen&Mowen (2009:413), is an environmental cost measured by its application to the following indicators: Environmental prevention costs, namely costs arising from activities to prevent the production of waste that can damage the environment; Environmental detection costs, namely costs incurred as a result of activities carried out to identify that products, processes and other activities within the company have met applicable environmental standards, both from the government, voluntary (ISO 14001) and management policies; environmental internal failure costs are costs incurred in activities carried out due to the production of waste and garbage, but not disposed of to the outside environment and external environmental failure costs incurred as a result of activities carried out after releasing waste or garbage into the environment.

One subtype of environmental accounting (enviromenatal accounting) is green accounting, which describes the actions taken by companies to incorporate environmental benefits and costs as important information into corporate decision-making processes or as business financial results. Based on the three basic pillars of Elkington, green accounting has three basic pillars, namely: environmental accounting, social accounting and financial accounting. Environmental accounting is the process of recognizing, measuring, recording, summarizing and reporting environmental transactions, events or objects to produce environmental accounting information. (Lako, 2018). Green accounting is more appropriate to use because it is more fundamental and has an ecological nuance (Thornton, 1992 & 2013; Gallhofer and

Haslam, 1997; Greenham, 2010 in Lako(2018). Green accounting means accounting that cares and loves, and takes into account values and is accountable for environmental, social and economic information of corporate entities in an integrated manner in the process of accounting and reporting information. (Nguyen et al., 2020).

2.2. Waste Management

Big cities and provincial capitals contribute a large part of the amount of waste in Indonesia. Currently, Indonesians living in cities produce 105,000 tonnes per day and it is predicted that this will increase to 150,000 tonnes per day by 2025 (World Bank, 2019). The increase in population, economic activity and urbanization causes the amount of waste in this area to tend to be greater than in other cities or regencies in the vicinity. The Government of Indonesia through Presidential Regulation No. 97/2017 has targeted 100% of waste to be managed by 2025. This can be achieved by reducing 30% of waste and 70% of waste handling or service (Luthfiani & Atmanti, 2021).

The government through Permen PU/PR No.3/PRTM/2013 states that the method of waste management carried out by the government is sorting, collecting, transporting, processing and final processing. Final waste processing, generally in big cities in Indonesia, is carried out using a sanitary landfill system. Accumulated waste is buried in soil in landfills known as Final Disposal Sites (TPA). MSMEs are one of the entities that must comply with Ministerial Regulation PU/PR No.3/PRTM/2013 because their waste is a type of small waste. MSMEs can use their waste management strategy in accordance with the stages regulated by the Ministerial Regulation.

2.3. MSME's Sustainability Performance

Sustainability is also known as sustainability development and experts define sustainability differently. Referring to the notion of sustainability according to Brutland (1987) in Sukoharsono & Andayani(2021) that sustainable development is development that can meet the needs of the present without compromising the ability of future generations to meet their needs. The ideal business referring to sustainability is a business in which there is a balance between planet, people and profit in making decisions or what is known as the Triple Bottom Line which was introduced by Elkington in 1972.(Sukoharsono & Andayani, 2021). Likewise according (Hanaysha et al., 2022)Hanaysha et al.(2022) that business continuity focuses on achieving three

different objectives; economic, environmental and social performance with the aim that the concept of sustainability emphasizes the fulfillment of business goals and human welfare.

The performance of MSME's business sustainability is the result of business processes that pay attention to the balance of the planet, people and profit. Various studies have found a measure that can be used to measure the sustainability of MSME's. Setiawan et.al.(2021) found that performance measurement and management model for sustainability proven not only based on financial performance but also based on non-financial performance which is referred to as the 5S introduced by Takashi Osada in the early 1980s consisting of: shitsuke (sustain/discipline), seiri (sort), seiton (set in order), seiso (clean/shine), seiketsu (standardize). As well Hale et. al(2019) found that the sustainability of the agricultural industry can be measured by the financial interests of farmers and environmental practices through changes in behavior, reducing the use of fertilizers and recruiting members. The sustainability performance of MSME's can be measured by social sustainability efforts in the SME supply chain and supply chain performance (Mani et al., 2020). It is strengthened Yang & Jang(2020) that sustainability in the fashion industry refers to compatible systems that do not adversely affect happiness or the environment. Schönborn et.al(2019) based on empirical results there are four dimensions of social sustainability related to corporate culture which are specific predictors of companies classified as financially successful consisting of: sustainability strategy and leadership; Mission, communication and learning; Social concerns and work life; and Loyalty and identification.

Referring to the findings of previous research, the measurement of MSME's sustainability in this study consists of financial and non-financial indicators according to the triple bottom line concept, namely: planet, people and profit and pressure from external parties.

2.4. Environmental Accounting Strategy has an effect on MSME's Sustainability Performance

Several studies on environmental accounting have proven to have an effect on environmental performance. Abdullah et al.(2020) found that firm size, leverage, profitability, environmental performance as measured by PROPER certificates have an effect on the disclosure of carbon emissions of companies in Indonesia that are listed on the Jakarta Islamic Index from 2012 to 2016. Sari et al.(2020) found that the

application of environmental management accounting has a positive effect on organizational performance. Raharjo(2019) conducting a research at Batik SMEs in Surakarta, found that stakeholder demand, resources, knowledge, and product uniquenes affects the implementation of green management, and green management has a significant effect on sustainability performance.

Based on stakeholders theory, the organization as a system that considers not only the interests of the owner, but also the interests of other groups in the environment in which the business operates. MSME's must also carry out their operations by paying attention to all their stakeholders, especially with regard to providing products that are environmentally friendly and environmentally responsible, including in managing their production waste. Parmar et al.(2010) states that stakeholders are focused on the value and operational improvement of the company. Stakeholders theory put forward by Freeman in 1984, previously also stated that stakeholders depend on the company in satisfying their own interests. The main focus in several literacies of stakeholder theory is also the discussion that stakeholders manage well with things for their own interests. Parmar et al.(2010) defines stakeholders as "any group or individual who can affect or be affected by the achievement of company goals. Based on the description above, the first hypothesis is:

H1: Environmental accounting Strategy has an effect on the sustainability performance of MSME's

2.3. Environmental accounting Strategy has an effect on MSME's waste management

The results of research on MSME's environmental accounting related to how MSME's management manages waste have been carried out (Maulidah & Muhaimin (2021) on Sustainable Business Models. The results of this study indicate that the Potato agro-industry MSME's achieves sustainable performance. Strengthened by Huang et. al(2022) that analysis of the global context of sustainability to reduce and design waste as a new way to change the traditional linear economic model.

In accordance with Legitimacy theory that legitimacy can be directly linked to the concept of "social contract". In particular, it is considered that the survival of the organization will be threatened if society perceives that the organization is operating in an acceptable or lawful manner, then society will effectively revoke the organization's "contract" to continue its operations (Deegan, 2002). In the context of MSMEs managing waste, it is a special contract with the community, especially with

regard to environmental sustainability and producing responsible and environmentally friendly products. Based on this description, the second hypothesis is:

H2: The environmental accounting strategy has an effect on MSME's waste management

2.3. Waste Management has an effect on the sustainability performance of MSME's

Based on the Polluters Pays Principle (PPP) Theory(Ilelaboye, 2014), the company is responsible for environmental costs and bears the cost of environmental pollution. PPP first appeared in the recommendations of the Organization for Economic Co-operation and Development (OECD) in 1972 and was reaffirmed in 1992. The PPP theory is set forth in Principle 16, which regulates the internalization of environmental costs by taking into account that polluters must bear the costs of pollution, public interest and without distorting international trade and investment. The company not only covers pollution prevention and control measures, but also covers liabilities in terms of cleaning costs. The PPP theory believes that if companies take into account and disclose their environmental costs, it will increase the trust and good image of the company, which will ultimately improve performance.

According to empirical evidence based on research results Abdel-Kader(2011), Schmidt & Nakajima(2013) which states that MFCA can improve environmental performance. Likewise, Cuc & Tripa (2018) conducted research Design recycling Clothing industry in Romania. It was found that by encouraging the creativity of fashion designers to make new models with different fabric combinations so that there is no more leftover cloth to become waste because it is processed into environmentally friendly products. In addition, the company can reduce the cost of waste treatment and can make a profit. Then, the third hypothesis is:

H3: Waste management has an effect on the sustainable performance of MSME's

2.4. Environmental accounting Strategy affects the sustainability performance of MSME's through Waste Management

According to the stakeholder theory, which views the organization as a system that considers not only the interests of the owners, but also the interests of other groups in the environment in which the business operates. MSMEs must also carry out their operations by paying attention to all stakeholders, especially with regard to providing products that are environmentally friendly and environmentally responsible, including in managing their production waste. (Martin, 2014)(Charles et.al(2014). Findings Moneva & Ortas(2010) that companies that obtain better

environmental performance can improve internal efficiency and can improve environmental performance in the next period. Malesios et.al(2021) who conducted a literature review of published journal articles in 2018 found that the sustainability performance of MSMEs was most focused on the economy and environment

This is in accordance with the Institutional Theory which states that organizations are not only subject to economic pressures, but also social and cultural pressures that arise from interactions between organizations in their institutional environment.(Suddaby, 2010). The theory views that the holder of an important role in management and organizational theory is the pressure and dynamics in an environment that can form an organization. Based on this description, the fourth hypothesis:

H4: Environmental accounting Strategy influences the sustainability performance of MSME's through waste management

3. Research Methods

3.1. Sample Data

This research was conducted with a quantitative approach, namely testing the proposed research hypothesis. The data was obtained by distributing questionnaires to MSME's owners in Indonesia who are members of the Cooperative and MSME's Development Office. The research sample was conducted randomly. Researchers sent questionnaires to MSME's groups under the auspices of the Cooperative Service by sending a Googleform link. In addition, researchers also conducted direct surveys of MSME's in East Java. The survey was conducted starting in early May 2022 and ending in June 2022. There were 185 questionnaires filled out via Googleform and 32 questionnaires filled in directly by MSME's. However, 17 questionnaires could not be processed further because many answers were not filled in. So that the number of questionnaires processed was 200 respondents.

3.2. Research and measurement variables

The research variables consist of: the dependent variable is the sustainable performance of MSME's, the independent variable is environmental accounting strategy, the waste management mediation variable and the control variable are turnover and the number of MSME employees. Researchers developed research instruments based on GRI Standards and Madyaratry et.al.(2020) by adding government regulations Permen PU/PR No.3/PRT/M/2013 and Hansen&Mowen, (2009). Prior to sending the questionnaires to the respondents, a trial of the instrument was carried out on SMEs and students who have

businesses as many as 20 respondents. The results of the pilot test found that a total of 21 questions were invalid, so the questions were eliminated. The results of the construct validity test showed that the environmental accounting variable was valid (0.842) and reliable with an Average Variance Extracted value of 0.619. However, the results of the construct validity test of the waste management and sustainability performance variables showed valid but not reliable with the conbranch alpha values of 0.830 and 0.852 respectively and the Average Variance Extracted of 0.281 and 0.351, respectively. After tracing questions about Sustainability performance, numbers 4,5,7,8,9,10,11 were invalid and dropped. Questions about waste management number 1,3,4,8,9.10,11,12.13,14,15,16,17 and 18 are also eliminated.

Based on the pilot test, there are 15 indicators with loading factor values above 0.5, with details of 5 environmental accounting strategy variable indicators, 6 sustainability performance variable indicators, and 4 waste management variable indicators. Following are the results of the validity test with the outer model analysis:

Table 1: Pilot Test Validity test results

Indikator	Loading Factor Value	Indikator	Loading Factor Value
X_1	0,803	Y_{12}	0,822
X_2	0,937	Y_{13}	0,707
X_3	0,759	Y_{14}	0,743
X_4	0,626	Z_2	0,761
X_5	0,778	Z_5	0,763
Y_1	0,634	Z_6	0,732
Y_3	0,667	Z_7	0,719
Y_6	0,860		

Data analysis technique was carried out using Partial Least Square assisted by SmartPLS version 3.0 software. PLS analysis consists of two models, namely the measurement model and the structural model (Ghozali, 2021). The data analysis includes: Descriptive Statistical analysis, with the aim of describing research data in general by measuring the mean, median, mode, minimum, maximal values; Evaluation of the Measurement Model (Outer Model-Measurement Model). To describe the relationship between indicator blocks and their latent variables, it can be described through outer analysis. The criteria for viewing the outer model consist of: convergent validity, discriminant validity and composite reliability (Ghozali,2014). Convergent

validity of the measurement model with reflexive indicators can be seen from the correlation between the item score/indicator and the construct score. Individual reflective measure is high if more than 0.70 with the construct you want to measure. However, in the scale development stage research, loading 0.50 to 0.60 is still acceptable. Next, the composite reliability test is used to measure the reliability of constructs or latent variables. The reliability test is reliable if the composite reliability value is at least 0.7 for all constructs. Then, R^2(R-square) indicates the size of the endogenous variables that can be explained by exogenous variables. Criteria for limiting the value of R^2 is 0.50 (Ghozali, 2014)

To assess whether the measurement of exogenous latent variables on endogenous variables has a substantive effect, it can be seen from the change in the R^2 value through the effect size. Effect size can be done by Chi Square test and fit test. By looking at Chi^2 predictive relevance if the Chi^2 value is greater than 0 it indicates the model has predictive relevance, while less than 0 indicates the model has no predictive relevance value. The fit test is seen from the NFI value, to see the model as a whole. If the NFI value is above 0.8 it can be said that the overall measurement model and structural model are fit.

The following is the model equation according to Barron & Kenny (1986):

$SP = \alpha + \beta_1 EAS + e_1$…………………………………..1)

$WM = \alpha + \beta_1 EAS + e_2$ ……………………………..2)

$SP = \alpha + \beta_1 EAS + \beta_2 WM + e_3$……………………. ..3)

$SP = \alpha + \beta_3 EAS + \beta_4 WM + \beta_5 K + e_4$……………… 4)

With, SP is sustainability performance MSME's, EAS is environmental accounting strategy, WM is waste management and K is control variable and e is residual.

Hypothesis testing is carried out based on the results of testing the inner model. The decision to accept the hypothesis provided that the t-table value of the two tailed test is 1.96 for a maximum siginifiancy of 0.1. To see if a hypothesis is accepted or rejected can look through the value of the calculation of the probability value. So that the hypothesis test criteria are said to be accepted if the t-statistical value is above the t-table value of 1.96 and the p-value < 0.1

4. The Data Analysis and Results

The sample of this research is SMEs in Indonesia with various types of businesses. The largest sample is MSME with the type of food and beverage business (57%) and the least is the Batik business (1.5%). When viewed from the age of the company, the most are MSMEs with age less than 5 years (94%). Most of the samples in this study were from the micro category because they were dominated by MSMEs with a workforce of less than 10 people (94%) and a total turnover of less than IDR 300 million (76%) as shown in table 3 below:

Table 3: Results of Respondent Demographic Statistics

Type of Business	Frequency	Percentage (%)
Food and Drinks	114	57,00
Businesses	40	20,00
Laundry	6	3,00
Batik	3	1,50
Furniture	11	5,50
Agriculture and Animal Husbandry	26	13,00
Total	200	100
Company age	Frequency	Percentage (%)
< 5 years	94	47,00
5 years - 10 years	56	28,00
> 10 years	50	25,00
Total	200	100
Total Worker	Frequency	Percentage (%)
< 10 people	158	79,00
10 people - 20 people	24	12,00
> 20 people	18	9,00
Total	200	100
Total Profit	Frequency	Percentage (%)
< Rp 300 million	152	76,00
Rp 300 million – Rp 2,5 billion	37	18,50
> Rp 2,5 billion	11	5,50
Total	200	100
Province	Frequency	Percentage (%)
East Java	194	97,00

	Frequency	Percentage
Central Java	3	1,50
West Java	1	0,50
DKI Jakarta	1	0,50
NTT	1	0,50
Total	200	100

The following is the demographic data of the respondents in this study. It appears that most of the fillers in this questionnaire are male (51%) with the most education being undergraduate (52%) and positions in the company are owners (89.50%) as shown in table 4 below:

Table 4: The Data of The Respondents

Gender	Frequency	Percentage (%)
Man	98	49.00
Women	102	51,00
Total	200	100
Education	Frequency	Percentage (%)
Postgraduate	11	6,00
Degree	104	52,00
Highschool	69	35,00
Junior High School	16	8,00
Total	200	100
Position	Frequency	Percentage (%)
General Employee	19	9,50
Marketing	2	1,00
Owner	179	89,50
Total	200	100

Tabel 5: Variable Descriptive Statistical Results

Variabel	Mean	Min	Max	Standar deviasi
Environmental Accounting Strategy(X)	3,629	1	5	0,9700
Sustainability performance MSME's(Y)	3,476	1	5	1,0119

Waste Management (Z)	3,747	1	5	1,0055

Table 5 shows that the average MSME's in Indonesia has implemented an environmental accounting strategy with an average value of more than 3,000, which means they tend to agree. MSME's have achieved sustainability performance with an average value of 3.476. MSMEs have also carried out waste management with an average value of 3.747, which means that they quite agree tend to agree.

Table 6: MSME's Responsibilities for Product Waste

Waste Management	Mean	Median	Standar Deviasi
Waste Type Labeling (Z_2)	3,613	4,000	1,040
Distinguish The Color Of The Waste Container (Z_3)	3,648	4,000	1.026
Closed Waste Container (Z_4)	3,980	4,000	0,895
Collect Facility (Z_7)	3,704	4,000	0,960
Waste Is Sold Directly (Z_8)	3,161	3,000	1,091

Based on table 6, MSME's have not been optimally responsible for product waste. (Z_2, Z_3, Z_4) proves that they have not labeled the type of waste, have not distinguished the color of the waste container and all the waste containers have not been closed. Based on table 6, it shows that the mean value is below the median value, indicating that waste management has not been carried out optimally. Waste management carried out by MSME's after being collected is then only transported with simple means or then sold directly to waste collectors.

The result of the less than optimal waste management has an impact on low sustainability performance. The following is evidence of the low sustainability performance of MSME's in table 7 below:

Table 7: MSME Sustainability Performance

Sustainability Performance Indicator	Mean	Median	Standar Deviasi

		Mean	Median	Standar Deviasi
Enviromental Aspects	Use of less than 50% recyclable material (Y1)	3,613	4,000	0,975
	temperature measurement for heater (Y4)	3,510	4,000	0,963
Social Aspects	Provision of benefits in the form of salary and other benefits to employees (Y6)	4,000	4,000	0,814
Economy Aspects	Invest in infrastructure and services for the public interest (Y7)	3,561	4,000	0,961
Institutional Aspects	Environmental training (Y8)	3,528	4,000	1,011
	Environmental certificate (Y9)	3,377	4,000	1,063

Based on table 7, sustainability is based on environmental performance aspects with a minimum indicator of using 50% recyclable material and checking heating temperatures during the production process, has not been fully carried out by MSME's, it appears that the mean value is below the median value. Sustainability performance on the social aspect shows that MSME's have provided benefits to employees with a mean value equal to the median value. Sustainability performance in the economic aspect shows that MSME's have participated in infrastructure and services for the public interest, although it is still low. Likewise, when viewed from the institutional aspect, MSME's have low sustainability performance, it is evident that employee training on the environment is still low and the acquisition of environmental certificates is also still low, with a mean value below the median value.

The result of the less than optimal waste management has an impact on low sustainability performance. This is also because MSME's understanding of Environmental Accounting is still low as shown in table 8 below:

Table 8: MSME's Environmental Accounting Strategy

Environmental	Mean	Median	Standar Deviasi

Accounting strategy Component			
Environmental prevention costs for waste reduction employee training (X₁)	3,763	4,000	0,910
Waste recycling training environmental prevention costs (X₂)	3,513	4,000	0,982
Environmental detection costs for inspection of environmentally friendly products (X₃)	3,915	4,000	0,813
Internal failure costs for sewage treatment(X₄)	3,462	4,000	1,041
External failure costs for cleaning up polluted environments(X₅)	3,513	4,000	1,017

MSME management's understanding of Environmental Accounting can be said to be quite understandable. Based on table 8 above, it shows that MSMEs have carried out employee training on waste reduction and waste recycling as a form of environmental prevention costs, although it is not optimal with a mean value below the median value. The cost of environmental detection for inspection of environmentally friendly products has been carried out optimally by MSMEs, it is proven that the mean value is close to the median value. The costs of internal failure for waste treatment and external failure for environmental cleaning have been carried out by SMEs but are still not optimal, it is proven that the mean value is below the median value.

The need for a strategy on Environmental Accounting and Waste Management in supporting the Sustainability Performance of MSMEs. Based on the evidence of sub-optimal waste management, the understanding of MSME regarding Environmental Accounting is relatively low which has an impact on the achievement of MSME Sustainability performance which is less than optimal. Then a management strategy is needed related to waste management and Environmental Accounting to achieve Sustainability performance. The following is an alternative model offered by researchers, namely an exploration of waste management which can mediate an

understanding of Environmental Accounting to achieve Sustainability performance for MSMEs.

2.3. Hypothesis test

The stages of hypothesis testing are carried out by evaluating the outer model and then the inner model. Following are the results of the stages of testing the hypothesis:

The Evaluation of Measurement Model(Outer Model)

The convergent validity testing with the aim of testing related units in a variable, does not compare with other variables by looking at the loading factor value. This research is only at the development stage, so a loading scale of 0.50 to 0.60 is still acceptable (Ghozali, 2016). Evaluation of the outer loading value is said to be valid if the outer loading value is > 0.5 and ideal if the outer loading value is > 0.7. Based on this, there are 3 indicators of MSME sustainability performance variables that are invalid (Y_2, Y_3 and Y_5), and 2 indicators of waste management (Z_5 and Z_6) and 1 indicator of the control variable (K_2) which are invalid so they are eliminated. Then a second stage outer test was carried out with the result that the Z_1 indicator was invalid so it was eliminated for the next test. The following are the results of the outer model test after Z_1 is dropped:

Table 9: Outer Loading Factor Estimation Results for the third stage

Variable	Indicator	Loading Factor Value	Explanation
Environmental	X_1	0,783	Valid
Accounting Strategy	X_2	0,854	Valid
	X_3	0,741	Valid
	X_4	0,865	Valid
	X_5	0,791	Valid
Sustainability	Y_1	0,544	Valid
Performance	Y_4	0,722	Valid
MSME's	Y_6	0,500	Valid
	Y_7	0,764	Valid
	Y_8	0,798	Valid
	Y_9	0,829	Valid
Waste management			
	Z_2	0,879	Valid

	Z_3	0,889	Valid
	Z_4	0,722	Valid
	Z_7	0,568	Valid
	Z_8	0,665	Valid
Size	K_1	0,877	Valid
	K_3	0690	Valid

The evaluation of the model is then carried out by measuring the reliability of constructs or latent variables as measured by their composite reliability. Following are the results of the reliability test:

Table 10: Composite reliability values

Variable	Composite reliability	conclusion
Environmental Accounting Strategy	0,904	Reliable
Sustainability Performance	0,851	Reliable
Waste management	0,866	Reliable
Control	0,765	Reliable

Based on table 10, all constructs have a composite reliability value of more than 0.7, so it can be concluded that all indicators of reflective constructs are reliable.

Hypothesis testing is carried out based on internal model testing which includes: fit test and parameter coefficients and t statistics. According to the research design that has been determined, the level of confidence maximum used is 90% and the p value is less than 0.1, so the research hypothesis successfully supported.

The results of path statistics for hypothesis testing shows bellow :

Tabel 11: Path Coefficients

Relationship	Original Sample	t statistic	p value	Conclusion
Environm Acc Strat$\rightarrow$ Sustainability performance	0,558	5,315	0,000***	H_1 supported
Environm Acc. Strat$\rightarrow$ Waste Management	0,711	14,784	0,000***	H_2 supported
Waste Management $\rightarrow$ Sustainability performance	0,290	2,862	0,004**	H_3 supported

Environm Acc.Strat→ Waste Management →Sustainability performance	0,206	2,915	0,004**	H$_4$ supported
Size → sustainability	0,053	1,496	0,135	Not be a variable control

Note: *** Significant on p < 0,01, ** Significant p < 0,05

It is based on table 11 that the resulting path coefficient values all show a statistical t value above 1.96 with a p value of less than 0.1. This means that all of the research's hypotheses are supported. Based on the predicted results of the effect of the environmental accounting strategy variable on the sustainability performance of MSMEs is positive at 0.558 and statistically significant with a p value of 0.000. The coefficient shows a strong and significant influence, meaning that if the environmental accounting strategy variable increases by 1%, the sustainability performance will increase by 0.558%(H$_1$ is supported). The prediction results for the effect of environmental accounting strategy on waste management are positive at 0.711 and statistically significant with a p value of 0.000(H$_2$ is supported). The coefficient shows a strong and significant influence, meaning that if the environmental accounting strategy variable increases by 1%, waste management will increase by 0.711% and the P-value of 0.000.

The predicted results of the effect of waste management on the sustainability performance of MSMEs are positive by 0.290 and statistically significant with a p value of 0.004. The coefficient shows a weak and significant influence, meaning that if variable waste management increases by 1%, sustainability performance will increase by 0.290% (H$_3$ is supported).

The predicted result of the indirect effect of environmental accounting strategy through waste management on the sustainability performance of MSMEs is positive at 0.206 with a p value of 0.004. The coefficient shows a weak and significant effect, meaning that if the environmental accounting strategy variable increases by 1% then through an increase in waste management by 1% there will be an increase in sustainability performance of 0.206% (H$_4$ is supported).

Furthermore, the fit model evaluates the structural model predictions using R2, Chi square, f2 and SRMR.

Table 12: R square, Chi square and f square values

variabel	Nilai

Sustainability performance	R^2 =0,645	Adjusted	R^2
		=0,640	
Waste Management	R^2 =0,505	R^2 =0,503	
	Chi Square	521.307	
f^2 EAS		0,430	
f^2 WM		0,117	
	SRMR	0,080	

The adjusted R2 sustainability performance value of 0.640 indicates that the sustainability performance of SMEs can be explained by environmental accounting and waste management of 64.0% and the rest is explained by other variables not examined in this study. The Adjusted R2 Waste management value of 0.503 indicates that waste management can be explained by environmental accounting variables of 50.3% and the rest is explained by other variables not examined in this study and included in the moderate category.I. and H. L. Ghozali(2014)

The Chi square value of 521,307 > 0, the prediction model has predictive relevance that the theoretical model is in accordance with the empirical model (Sugiyono, 2007). The value of f2 shows the change in the value of R2 when the exogenous construct is removed from the model. The substantive impact of exogenous constructs on endogenous constructs can be evaluated in this way. The value of f2 = 0.02, 0.15, and 0.35 respectively represents the level of small, medium, and large influence, from the exogenous construct (Hair et al., 2021). The exogenous construct that has a large influence is the environmental accounting strategy and the one that has a moderate effect is waste management. If seen from the standard Root Mean Square Residual (SRMR) is 0.012; a value below 0.08 indicates good model.

Discussion

Environmental accounting Strategy has an effect on the Sustainability performance of MSMEs

The result shows that there is a positive and statistically significant influence of the environmental accounting strategy on the sustainability performance of MSMEs. The environmental accounting strategy includes: Environmental prevention costs, environmental detection costs are costs incurred as a result of activities carried out to identify that products, processes and other activities within the company have been

comply with applicable environmental standards, both from government and management policies, internal environmental failure costs are costs incurred in activities carried out due to the production of waste and garbage, but are not disposed of to the outside environment and external environmental failure costs, namely costs incurred as a result of activities that carried out after releasing waste or garbage into the environment.

The results are in-line with Charles (2014) and according to stakeholder theory which views the company as a contact link between different stakeholders. The findings of this study also supporting the findings Ali et.al(2021) that social value orientation has a positive relationship with green advertising effectiveness. Green advertising is part of environmental accounting related to environmental detection costs. It is also empirically proven that awards have an influence on the innovation performance of SMEs (Kankisingi & Dhliwayo, 2022) and in-line with Sari et al.(2020) regarding the application of environmental management accounting has a positive effect on organizational performance. Raharjo(2019) found that the application of green management has a significant effect on the sustainability performance of MSMEs. Moreover, Kantabutra & Punnakitikashem (2020) shows that MSMEs in Thailand adopt the Sufficiency Economy philosophy achieve corporate sustainability performance both from cultural, social, environmental and economic results. Wentzel et al.(2022) shows that surveyed SMEs in the South African Construction Industry (SACI) found a positive relationship between the integration of CSR in their business and sustainable business performance from an internal and external perspective.

Environmental accounting Strategy has an effect on waste management

The results of this study found that the MSME environmental accounting strategy is related to how MSME management manages waste. This research supports research on environmental accounting for SMEs in developing countries such as Indonesia, that this is influenced by the awareness of the MSME managers. As done Nyahuna & Doorasamy (2021)) found that the practice of EMA in SMEs related to the use of monetary indicators is not yet popular. The study concluded that EMA applications have not been popular with SMEs in developing countries such as South Africa, according to findings (Jamil et al., 2021) and Mohamed, 2008 in (Nyahuna & Doorasamy(2021) regarding the adoption of EMA in Malaysian SMEs is still low due to lack of awareness by managers. Chinomona (2013) that the skills training of small business employees is positively related to the performance of small businesses. It is proven in this study that the cost of employee training includes an element of

environmental prevention costs Hansen&Mowen(2009) which can affect how MSMEs manage their waste. Likewise, it strengthens the research results Maulidah & Wahib Muhaimin (2021) , also strenghtens by Huang et.al (2022)

This is appropriate Legitimacy theory(Deegan, 2002). For this reason, the company continuously ensures that they carry out activities in accordance with the limits and norms of society, for example by reducing the demand for raw materials or actions that are not in accordance with norms or regulations. This research proves that MSMEs in Indonesia have carried out activities that are based on applicable norms and regulations to convince the local community to manage their production waste.

The Waste Management Has An Effect On The Sustainability Performance Of Msmes

Based on the Polluters Pays Principle (PPP) Theory, put forward Ilelaboye(2014) that the company is responsible for environmental costs and bears the cost of environmental pollution. The PPP theory believes that if companies take into account and disclose their environmental costs, it will increase the trust and good image of the company, which will ultimately improve performance. Abdel-Kader(2011), Schmidt & Nakajima(2013) states that MFCA can improve environmental performance. The results of this study support the findings Henriques & Catarino (2015) who researched SMEs in Portugal.

The results of this study also prove that institutional pressure can influence MSMEs to carry out waste management activities in achieving sustainability goals because MSMEs manage their waste in accordance with the regulations of the Ministry of PUPR in Indonesia. This was also discovered by Ernst et.al(2022). D'Adamo et. al(2019) found that the recovery of waste embedded in 'waste electrical and electronic equipment' can achieve economic sustainability performance. Cuc & Tripa (2018) conducted research Design recycling Clothing industry in Romania. In addition, the company can reduce the cost of waste treatment and can make a profit.

This study found that the prediction of the effect of waste management on the sustainability performance of MSME's is positive with the coefficient showing a weak and significant effect. This could be due to the lack of awareness of managers and environmental training in SMEs. The results are in-line with (Balasubramanian et al., 2020) that the cost of environmental training is very expensive for MSME's. Waste management depends on the knowledge and expertise of its human resources. This is reinforced by the Amrutha & Geetha(2020) which revealed that the requirement of Corporate Social Responsibility is the main reason for Green Human Resources

management initiatives in many organizations. Moreover, according to institutional theory (Suddaby, 2010), it shows external pressure, namely government regulations have proven to encourage MSMEs to carry out waste management to achieve sustainable performance.

The Strategy Environmental accounting influences the Sustainability performance of MSMEs through waste management

Waste management is able to mediate the influence of the environmental accounting strategy on the sustainability performance of MSMEs, although not strong but significant. Thus, if environmental accounting is improved by adding waste management, it can help achieve sustainable MSME performance. According to stakeholder theory (Ang et al., 2007), the company is a contact link between different stakeholders. Thus, this theory views the organization as a system that considers not only the interests of the owners, but also the interests of other groups in the environment in which the business operates. MSMEs must also carry out their operations by paying attention to all stakeholders, especially with regard to providing products that are environmentally friendly and environmentally responsible, including in managing their production waste (Charles et.al, 2014)

This is reinforced by Crossley et.al(2021)) that SMEs use a complex mix of symbolic and substantive sustainable social and environmental practices (SEP). This research supports the findings Malesios et al(2021). So are the findings Moneva & Ortas (2010) that companies that obtain better environmental performance can improve internal efficiency and can improve environmental performance in the next period.

The waste management is proven to mediate environmental accounting strategy with sustainability performance. This can be influenced by management orientation, innovation, regulations and internal and external pressures related to the environment so that it has an impact on sustainability performance. The results of this study are consistent with the findings Adomako et. al(2021), Nawi et. al(2020) and Muñoz-Pascual et.al(2021) found that manager creativity has a mediating effect between human resource relations and sustainable product innovation performance. So are the findings Ullah et .al(2021) that innovative performance mediates the relationship between domestic financial access and MSME sustainability performance. Mady et. al(2022) found that the relationship between regulations which are performance indicators of sustainability and eco-innovation is mediated by the environmental orientation of MSMEs. Lutfi et.al(2022) shows that external pressure significantly affects

the implementation of the Accounting Information System, which in turn achieves sustainable business performance for MSMEs.

Moreover, this study proves that institutional pressure from within or outside the company can influence MSMEs to carry out waste management activities in achieving sustainability goals because MSMEs manage their waste in accordance with the regulations of the Ministry of PUPR in Indonesia. This research is in accordance with the Institutional theory which states that organizations are not only subject to economic pressures, but also social and cultural pressures that arise from interactions between organizations in their institutional environment.(Suddabv and Greenwood, 2009).

6. Conclusion, limitation and Future Research

The environmental problems are mostly caused by the impact of economic and social activities of companies including Micro Small Medium Entreprises (MSMEs). People are increasingly aware of the importance of protecting the environment. Consumers are selective in choosing products that are environmentally friendly, so companies must adjust to carry out environmentally friendly production processes and are more concerned with business continuity than the short-term goal of profit. The ideal business referring to sustainability is a business in which there is a balance between planet, people and profit in making decisions or what is known as the Triple Bottom Line. The results of the study proves that waste management can mediate environmental accounting strategies for the sustainability performance of MSMEs. This is proof that MSMEs are relatively sufficient to support the Indonesian government's SDGs program by carrying out responsible production

This study has limitations on the number of respondents and the various types of MSME businesses. Besides that, this research was conducted in Indonesia, which is a developing country, which is certainly different from MSMEs in other developed countries. Developing countries have many obstacles, especially with regard to human resource education and the waste management technology used. It is evident from the results of this study that waste management has a weak mediation in environmental accounting for the sustainability performance of MSMEs.

Future research can collect larger data on MSMEs in various sectors and can compare developing countries with developed countries. The implications for the government can provide guidance and human resource training related to waste management so that MSMEs can achieve higher sustainability performance. MSME owners should have waste planning and management in accordance with government

regulations and make efforts to obtain environmental certification so that people have more confidence in the products they produce because the production process pays attention to environmental and social responsibility and not solely to achieve profit. MSMEs can formulate waste management strategies according to their characteristics and allocate environmental costs and determine MSME key performance indicators based on environmental, social, economic and institutional aspects.

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THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE

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THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE

Abstract

This study aims to examine the effect of the environmental accounting strategy on sustainability performance and explore waste management as a mediation between environmental accounting strategy and the sustainability performance of Micro, Small and Medium Enterprises (MSME's). Research data was collected from 200 MSME's in Indonesia through online and offline questionnaires. Data analysis was performed with PLS-SEM. The results of the study found that the MSME's environmental accounting strategy had an effect on sustainability performance, and it was proven that MSME's waste management mediated the environmental accounting strategy for MSME sustainability performance. The originality of this research is the development of research instruments, from various sources from previous researchers, GRI standards and Indonesian Government Regulations so that they can contribute Environmental Management Accounting literature and practical contributions to MSME's and related institutions in determining sustainability performance strategies. The implications of future research can collect larger data and can compare developing countries with developed countries. The implications for the government can provide guidance and training for MSME's human resources.

Keywords: environmental accounting strategy; waste management; sustainability performance; MSME's

1. Introduction

Companies produce goods or services using raw materials and other materials in the production process. As a result, it impacts material waste, product, and packaging waste. The impact on economic sustainability can reduce sales and operating profits because consumers prefer environmentally friendly products. The impact on environmental sustainability not only can reduce environmental damage such as soil and water pollution and increased global warming but also decrease in employee welfare along with a decrease in operating profit.

Moreover, management's understanding and knowledge of environmental accounting strategies and waste management are essential in achieving business

sustainability in companies, including Micro, Small, and Medium Enterprises (MSMEs). Environmental problems are mostly caused by the impact of economic and social activities of companies, including Micro, Small Medium Enterprises (MSMEs). Polluted water sources, polluted air, deforested forests, and global warming have damaged the environment. People's awareness demands the importance of protecting environmentally friendly production processes and being concerned with business continuity than the short-term goal of profit.

Accounting management is one of the management strategies in achieving the company's sustainability performanceResearch on *Environmental Management Accounting (EMA)* conducted in Indonesia needs consistent findings. Abdullah et al. (2020) found that *firm size, leverage* , profitability, environmental performance as measured by PROPER certificates affect the disclosure of corporate carbon emissions in Indonesia. Sari et al. (2020) found that the application of environmental management accounting has a positive effect on organizational performance. Likewise Raharjo (2019) found that stakeholder demand, resources, knowledge, and product uniqueness have a significant effect on the implementation of green management, and *green management* has a significant effect on sustainability performance.

Handayani & Wahyudin (2020) shows that there is a significant negative effect between profitability and leverage on environmental performance. Research on social responsibility and the performance of MSMEs was also carried out by Le & Behl(2022) which proved to have found the Mediating Role of Social Responsibility Engagement and Environmental Responsibility Engagement in the relationship between Corporate Governance and Firm Performance in MSMEs. Likewise Sroufe & Gopalakrishna-Remani (2019) found that sustainability management has a positive direct relationship with social sustainability performance.

The investment in waste management is large, it requires planning, implementation, control and management knowledge about environmental accounting (Syarif & Novita, 2019). EMA is an important part of what companies do because it can encourage better operational procedures and improve corporate environmental management practices (Schaltegger (2018) in Syarif & Novita (2019) .Furthermore, Luthfiani & Atmanti (2021) regarding waste management in Indonesia. found that the waste management efficiency of *the Waste Management System* in Indonesia is still not good with an average efficiency of 0.39. Economic and social factors have a

significant effect, but the educational factor has the biggest influence on efficiency negatively.

In addition, MSMEs have limited human resources, experience, and even a record of their financial success, making it challenging to evaluate their performance. Hanaysha et.al.(2022) researched on the sustainability performance of MSMEs conducted research on the sustainability performance of MSMEs Measuring the performance of MSMEs is difficult because MSMEs have limited human resources and knowledge and do not even have a record of their business performance. Research on the sustainability performance of MSMEs has been carried out by (Hanaysha et al., 2022) Business sustainability is measured based on various items developed by Khan dan Quaddus (2015) in Hanaysha et.al(2022) found that product innovation and service innovation have a significant positive effect on business continuity.

Measurement of the performance of MSMEs in Indonesia has been researched by Madyaratry et al(2020). The results shows there are four measures of MSME performance that have high (good) scores, namely: ecological, social, economic and institutional dimensions. Furthermore, Maziriri(2020) found that MSME business performance should be seen not only as monetary execution but also as non-financial execution such as consumer loyalty, client maintenance, social recognition, corporate image and employee fulfillment.

Research on the sustainability of MSMEs with external pressure factors has been carried out by previous researchers. Kurniawati et.al.(2022) that Innovation is proven to have a positive relationship with sustainability performance. Moreover, Ramos et al(2016) found that environmental impact evaluation can benefit SMEs in the food industry. Unlike Mady et.al(2022), found that environmental regulations proved to have no effect on eco-innovation in Small and Medium Enterprises in Egypt.Ulupui et al.(2020) regarding green accounting at cement companies listed on the Indonesia Stock Exchange (IDX) found that green accounting as measured by the GRI G-4 index has an effect on environmental performance as measured by PROPER.

In terms of waste management, the responsibility of MSMEs to achieve responsible and environmentally friendly products, and sustainability performance is a unity of economic, social and environmental aspects (triple bottom line). The reason for choosing MSMEs is because they have different characteristics from large companies, have a positive contribution to the country regarding employment but also have a negative impact related to the environment. The novelty of this research was

conducted on SMEs which have different characteristics compared to large companies so that they may have different findings. The research instrument is the development of various sources, namely based on the GRI Standards, Madyaratry et.al(2020), Hansen&Mowen(2009) and from government regulation Permen PU/PR No.3/PRT/M/2013 which has never been made by researchers before.

This research contributes to both scientific and practical contributions. Scientific contributions can add references, especially in the field of Management Accounting, especially Environmental Accounting, by proposing waste management as an environmental accounting mediation for the sustainable performance of MSMEs. As for the practical contribution, the results of this study can be used as information in making MSME management decisions in managing production waste and environmental costs. regarding the sustainability of SMEs.

The remainder of this paper is organized as follows. The next section is a brief summary of the literature on environmental accounting strategy, waste management and the sustainability performance of MSMEs. Next is the development of hypotheses from related literature and conceptual framework. Then we explain the research methods, research results as well as discussion and research conclusions including limitations and future research.

2. Theoritical background and hypotheses development

2.1. Environmental Accounting Strategy

The term Environmental Accounting is also called environmental management accounting (Environmental Management Accounting). The definition shares the same objectives, namely: identifying, collecting, calculating and analyzing material and energy related costs; internal reporting and use of information on environmental costs ; provide other costs related , information in the decision - making process , with a view to adopting decisions that are efficient and contribute to environmental protection (Ikhsan, 2008).

Environmental Management Accounting Strategy is one of the existing systems in environmental accounting that is useful for assisting internal decision making according to The United Nations Division for Sustainable Development (2001). It can be said that environmental management accounting as a process of identifying, collecting, and analyzing information about costs and performance to assist organizational decision making. According to Chang(2007), environmental costs presented in EMA usually refer to the types of costs to control or prevent

environmental damage. Based on IFAC (2005), environmental costs under the EMA consist of other monetary information necessary to manage an organization's environmental performance effectively Tsui (2014) about the benefits associated with the application of EMA, including: reduced costs, increased product prices, attractive human resources, and increased corporate reputation. Apart from Tsui(2014) found that management accounting practices are facilitators for the continuous improvement of environmental performance, compliance with environmental legislation, communication with interested parties, and employee engagement. It can be said that Environmental management Accounting is a process of identifying, measuring and allocating environmental costs and integrating environmental costs carried out by MSMEs entities into making business decisions.

This study uses the concept of environmental accounting strategy from Hansen&Mowen (2009:413), is an environmental cost measured by its application to the following indicators: Environmental prevention costs, namely costs arising from activities to prevent the production of waste that can damage the environment; Environmental detection costs, namely costs incurred as a result of activities carried out to identify that products, processes and other activities within the company have met applicable environmental standards, both from the government, voluntary (ISO 14001) and management policies; environmental internal failure costs are costs incurred in activities carried out due to the production of waste and garbage, but not disposed of to the outside environment and external environmental failure costs incurred as a result of activities carried out after releasing waste or garbage into the environment.

One subtype of environmental accounting (enviromenatal accounting) is green accounting, which describes the actions taken by companies to incorporate environmental benefits and costs as important information into corporate decision-making processes or as business financial results. Based on the three basic pillars of Elkington, green accounting has three basic pillars, namely: environmental accounting, social accounting and financial accounting. Environmental accounting is the process of recognizing, measuring, recording, summarizing and reporting environmental transactions, events or objects to produce environmental accounting information. (Lako, 2018). Green accounting is more appropriate to use because it is more fundamental and has an ecological nuance (Thornton, 1992 & 2013; Gallhofer and Haslam, 1997; Greenham, 2010 in Lako(2018). Green accounting means accounting that cares and loves, and takes into account values and is accountable for

environmental, social and economic information of corporate entities in an integrated manner in the process of accounting and reporting information. (Nguyen et al., 2020).

2.2. Waste Management

Big cities and provincial capitals contribute a large part of the amount of waste in Indonesia. Currently, Indonesians living in cities produce 105,000 tonnes per day and it is predicted that this will increase to 150,000 tonnes per day by 2025 (World Bank, 2019). The increase in population, economic activity and urbanization causes the amount of waste in this area to tend to be greater than in other cities or regencies in the vicinity. The Government of Indonesia through Presidential Regulation No. 97/2017 has targeted 100% of waste to be managed by 2025. This can be achieved by reducing 30% of waste and 70% of waste handling or service (Luthfiani & Atmanti, 2021).

The government through Permen PU/PR No.3/PRTM/2013 states that the method of waste management carried out by the government is sorting, collecting, transporting, processing and final processing. Final waste processing, generally in big cities in Indonesia, is carried out using a sanitary landfill system. Accumulated waste is buried in soil in landfills known as Final Disposal Sites (TPA). MSMEs are one of the entities that must comply with Ministerial Regulation PU/PR No.3/PRTM/2013 because their waste is a type of small waste. MSMEs can use their waste management strategy in accordance with the stages regulated by the Ministerial Regulation.

2.3. MSME's Sustainability Performance

Sustainability is also known as sustainability development and experts define sustainability differently. Referring to the notion of sustainability according to Brutland (1987) in Sukoharsono & Andayani(2021) that sustainable development is development that can meet the needs of the present without compromising the ability of future generations to meet their needs. The ideal business referring to sustainability is a business in which there is a balance between planet, people and profit in making decisions or what is known as the Triple Bottom Line which was introduced by Elkington in 1972.(Sukoharsono & Andayani, 2021). Likewise according (Hanaysha et al., 2022)Hanaysha et al.(2022) that business continuity focuses on achieving three different objectives; economic, environmental and social performance with the aim

that the concept of sustainability emphasizes the fulfillment of business goals and human welfare.

The performance of MSME's business sustainability is the result of business processes that pay attention to the balance of the planet, people and profit. Various studies have found a measure that can be used to measure the sustainability of MSME's. Setiawan et.al.(2021) found that performance measurement and management model for sustainability proven not only based on financial performance but also based on non-financial performance which is referred to as the 5S introduced by Takashi Osada in the early 1980s consisting of: shitsuke (sustain/discipline), seiri (sort), seiton (set in order), seiso (clean/shine), seiketsu (standardize). As well Hale et. al(2019) found that the sustainability of the agricultural industry can be measured by the financial interests of farmers and environmental practices through changes in behavior, reducing the use of fertilizers and recruiting members. The sustainability performance of MSME's can be measured by social sustainability efforts in the SME supply chain and supply chain performance (Mani et al., 2020). It is strengthened Yang & Jang(2020) that sustainability in the fashion industry refers to compatible systems that do not adversely affect happiness or the environment. Schönborn et.al(2019) based on empirical results there are four dimensions of social sustainability related to corporate culture which are specific predictors of companies classified as financially successful consisting of: sustainability strategy and leadership; Mission, communication and learning; Social concerns and work life; and Loyalty and identification.

Referring to the findings of previous research, the measurement of MSME's sustainability in this study consists of financial and non-financial indicators according to the triple bottom line concept, namely: planet, people and profit and pressure from external parties.

2.4. Environmental Accounting Strategy has an effect on MSME's Sustainability Performance

Several studies on environmental accounting have proven to have an effect on environmental performance. Abdullah et al.(2020) found that firm size, leverage, profitability, environmental performance as measured by PROPER certificates have an effect on the disclosure of carbon emissions of companies in Indonesia that are listed on the Jakarta Islamic Index from 2012 to 2016. Sari et al.(2020) found that the application of environmental management accounting has a positive effect on

organizational performance. Raharjo(2019) conducting a research at Batik SMEs in Surakarta, found that stakeholder demand, resources, knowledge, and product uniquenes affects the implementation of green management, and green management has a significant effect on sustainability performance.

Based on stakeholders theory, the organization as a system that considers not only the interests of the owner, but also the interests of other groups in the environment in which the business operates. MSME's must also carry out their operations by paying attention to all their stakeholders, especially with regard to providing products that are environmentally friendly and environmentally responsible, including in managing their production waste. Parmar et al.(2010) states that stakeholders are focused on the value and operational improvement of the company. Stakeholders theory put forward by Freeman in 1984, previously also stated that stakeholders depend on the company in satisfying their own interests. The main focus in several literacies of stakeholder theory is also the discussion that stakeholders manage well with things for their own interests. Parmar et al.(2010) defines stakeholders as "any group or individual who can affect or be affected by the achievement of company goals. Based on the description above, the first hypothesis is:

H1: Environmental accounting Strategy has an effect on the sustainability performance of MSME's

2.3. Environmental accounting Strategy has an effect on MSME's waste management

The results of research on MSME's environmental accounting related to how MSME's management manages waste have been carried out (Maulidah & Muhaimin (2021) on Sustainable Business Models. The results of this study indicate that the Potato agro-industry MSME's achieves sustainable performance. Strengthened by Huang et. al(2022) that analysis of the global context of sustainability to reduce and design waste as a new way to change the traditional linear economic model.

In accordance with Legitimacy theory that legitimacy can be directly linked to the concept of "social contract". In particular, it is considered that the survival of the organization will be threatened if society perceives that the organization is operating in an acceptable or lawful manner, then society will effectively revoke the organization's "contract" to continue its operations (Deegan, 2002). In the context of MSMEs managing waste, it is a special contract with the community, especially with

regard to environmental sustainability and producing responsible and environmentally friendly products. Based on this description, the second hypothesis is:

H2: The environmental accounting strategy has an effect on MSME's waste management

2.3. Waste Management has an effect on the sustainability performance of MSME's

Based on the Polluters Pays Principle (PPP) Theory(Ilelaboye, 2014), the company is responsible for environmental costs and bears the cost of environmental pollution. PPP first appeared in the recommendations of the Organization for Economic Co-operation and Development (OECD) in 1972 and was reaffirmed in 1992. The PPP theory is set forth in Principle 16, which regulates the internalization of environmental costs by taking into account that polluters must bear the costs of pollution, public interest and without distorting international trade and investment. The company not only covers pollution prevention and control measures, but also covers liabilities in terms of cleaning costs. The PPP theory believes that if companies take into account and disclose their environmental costs, it will increase the trust and good image of the company, which will ultimately improve performance.

According to empirical evidence based on research results Abdel-Kader(2011), Schmidt & Nakajima(2013) which states that MFCA can improve environmental performance. Likewise, Cuc & Tripa (2018) conducted research Design recycling Clothing industry in Romania. It was found that by encouraging the creativity of fashion designers to make new models with different fabric combinations so that there is no more leftover cloth to become waste because it is processed into environmentally friendly products. In addition, the company can reduce the cost of waste treatment and can make a profit. Then, the third hypothesis is:

H3: Waste management has an effect on the sustainable performance of MSME's

2.4. Environmental accounting Strategy affects the sustainability performance of MSME's through Waste Management

According to the stakeholder theory, which views the organization as a system that considers not only the interests of the owners, but also the interests of other groups in the environment in which the business operates. MSMEs must also carry out their operations by paying attention to all stakeholders, especially with regard to providing products that are environmentally friendly and environmentally responsible, including in managing their production waste. (Martin, 2014)(Charles et.al(2014). Findings Moneva & Ortas(2010) that companies that obtain better

environmental performance can improve internal efficiency and can improve environmental performance in the next period. Malesios et.al(2021) who conducted a literature review of published journal articles in 2018 found that the sustainability performance of MSMEs was most focused on the economy and environment

This is in accordance with the Institutional Theory which states that organizations are not only subject to economic pressures, but also social and cultural pressures that arise from interactions between organizations in their institutional environment.(Suddaby, 2010). The theory views that the holder of an important role in management and organizational theory is the pressure and dynamics in an environment that can form an organization. Based on this description, the fourth hypothesis:

H4: Environmental accounting Strategy influences the sustainability performance of MSME's through waste management

3. Research Methods

3.1. Sample Data

This research was conducted with a quantitative approach, namely testing the proposed research hypothesis. The data was obtained by distributing questionnaires to MSME's owners in Indonesia who are members of the Cooperative and MSME's Development Office. The research sample was conducted randomly. Researchers sent questionnaires to MSME's groups under the auspices of the Cooperative Service by sending a Googleform link. In addition, researchers also conducted direct surveys of MSME's in East Java. The survey was conducted starting in early May 2022 and ending in June 2022. There were 185 questionnaires filled out via Googleform and 32 questionnaires filled in directly by MSME's. However, 17 questionnaires could not be processed further because many answers were not filled in. So that the number of questionnaires processed was 200 respondents.

3.2. Research and measurement variables

The research variables consist of: the dependent variable is the sustainable performance of MSME's, the independent variable is environmental accounting strategy, the waste management mediation variable and the control variable are turnover and the number of MSME employees. Researchers developed research instruments based on GRI Standards and Madyaratry et.al.(2020) by adding government regulations Permen PU/PR No.3/PRT/M/2013 and Hansen&Mowen, (2009). Prior to sending the questionnaires to the respondents, a trial of the instrument was carried out on SMEs and students who have

businesses as many as 20 respondents. The results of the pilot test found that a total of 21 questions were invalid, so the questions were eliminated. The results of the construct validity test showed that the environmental accounting variable was valid (0.842) and reliable with an Average Variance Extracted value of 0.619. However, the results of the construct validity test of the waste management and sustainability performance variables showed valid but not reliable with the conbranch alpha values of 0.830 and 0.852 respectively and the Average Variance Extracted of 0.281 and 0.351, respectively. After tracing questions about Sustainability performance, numbers 4,5,7,8,9,10,11 were invalid and dropped. Questions about waste management number 1,3,4,8,9.10,11,12.13,14,15,16,17 and 18 are also eliminated.

Based on the pilot test, there are 15 indicators with loading factor values above 0.5, with details of 5 environmental accounting strategy variable indicators, 6 sustainability performance variable indicators, and 4 waste management variable indicators. Following are the results of the validity test with the outer model analysis:

Table 1: Pilot Test Validity test results

Indikator	Loading Factor Value	Indikator	Loading Factor Value
X_1	0,803	Y_{12}	0,822
X_2	0,937	Y_{13}	0,707
X_3	0,759	Y_{14}	0,743
X_4	0,626	Z_2	0,761
X_5	0,778	Z_5	0,763
Y_1	0,634	Z_6	0,732
Y_3	0,667	Z_7	0,719
Y_6	0,860		

Data analysis technique was carried out using Partial Least Square assisted by SmartPLS version 3.0 software. PLS analysis consists of two models, namely the measurement model and the structural model (Ghozali, 2021). The data analysis includes: Descriptive Statistical analysis, with the aim of describing research data in general by measuring the mean, median, mode, minimum, maximal values; Evaluation of the Measurement Model (Outer Model-Measurement Model). To describe the relationship between indicator blocks and their latent variables, it can be described through outer analysis. The criteria for viewing the outer model consist of: convergent validity, discriminant validity and composite reliability (Ghozali,2014). Convergent

validity of the measurement model with reflexive indicators can be seen from the correlation between the item score/indicator and the construct score. Individual reflective measure is high if more than 0.70 with the construct you want to measure. However, in the scale development stage research, loading 0.50 to 0.60 is still acceptable. Next, the composite reliability test is used to measure the reliability of constructs or latent variables. The reliability test is reliable if the composite reliability value is at least 0.7 for all constructs. Then, R^2(R-square) indicates the size of the endogenous variables that can be explained by exogenous variables. Criteria for limiting the value of R^2 is 0.50 (Ghozali, 2014)

To assess whether the measurement of exogenous latent variables on endogenous variables has a substantive effect, it can be seen from the change in the R^2 value through the effect size. Effect size can be done by Chi Square test and fit test. By looking at Chi^2 predictive relevance if the Chi^2 value is greater than 0 it indicates the model has predictive relevance, while less than 0 indicates the model has no predictive relevance value. The fit test is seen from the NFI value, to see the model as a whole. If the NFI value is above 0.8 it can be said that the overall measurement model and structural model are fit.

The following is the model equation according to Barron & Kenny (1986):

$$SP = \alpha + \beta_1 EAS + e_1 \dots\dots\dots\dots\dots\dots\dots\dots\dots 1)$$
$$WM = \alpha + \beta_1 EAS + e_2 \dots\dots\dots\dots\dots\dots\dots\dots 2)$$
$$SP = \alpha + \beta_1 EAS + \beta_2 WM + e_3 \dots\dots\dots\dots\dots\dots ..3)$$
$$SP = \alpha + \beta_3 EAS + \beta_4 WM + \beta_5 K + e_4 \dots\dots\dots\dots 4)$$

With, SP is sustainability performance MSME's, EAS is environmental accounting strategy, WM is waste management and K is control variable and e is residual.

Hypothesis testing is carried out based on the results of testing the inner model. The decision to accept the hypothesis provided that the t-table value of the two tailed test is 1.96 for a maximum siginifiancy of 0.1. To see if a hypothesis is accepted or rejected can look through the value of the calculation of the probability value. So that the hypothesis test criteria are said to be accepted if the t-statistical value is above the t-table value of 1.96 and the p-value < 0.1

4. The Data Analysis and Results

The sample of this research is SMEs in Indonesia with various types of businesses. The largest sample is MSME with the type of food and beverage business (57%) and the least is the Batik business (1.5%). When viewed from the age of the company, the most are MSMEs with age less than 5 years (94%). Most of the samples in this study were from the micro category because they were dominated by MSMEs with a workforce of less than 10 people (94%) and a total turnover of less than IDR 300 million (76%) as shown in table 3 below:

Table 3: Results of Respondent Demographic Statistics

Type of Business	Frequency	Percentage (%)
Food and Drinks	114	57,00
Businesses	40	20,00
Laundry	6	3,00
Batik	3	1,50
Furniture	11	5,50
Agriculture and Animal Husbandry	26	13,00
Total	200	100
Company age	Frequency	Percentage (%)
< 5 years	94	47,00
5 years - 10 years	56	28,00
> 10 years	50	25,00
Total	200	100
Total Worker	Frequency	Percentage (%)
< 10 people	158	79,00
10 people - 20 people	24	12,00
> 20 people	18	9,00
Total	200	100
Total Profit	Frequency	Percentage (%)
< Rp 300 million	152	76,00
Rp 300 million – Rp 2,5 billion	37	18,50
> Rp 2,5 billion	11	5,50
Total	200	100
Province	Frequency	Percentage (%)
East Java	194	97,00

	Frequency	Percentage (%)
Central Java	3	1,50
West Java	1	0,50
DKI Jakarta	1	0,50
NTT	1	0,50
Total	200	100

The following is the demographic data of the respondents in this study. It appears that most of the fillers in this questionnaire are male (51%) with the most education being undergraduate (52%) and positions in the company are owners (89.50%) as shown in table 4 below:

Table 4: The Data of The Respondents

Gender	Frequency	Percentage (%)
Man	98	49.00
Women	102	51,00
Total	200	100
Education	Frequency	Percentage (%)
Postgraduate	11	6,00
Degree	104	52,00
Highschool	69	35,00
Junior High School	16	8,00
Total	200	100
Position	Frequency	Percentage (%)
General Employee	19	9,50
Marketing	2	1,00
Owner	179	89,50
Total	200	100

Tabel 5: Variable Descriptive Statistical Results

Variabel	Mean	Min	Max	Standar deviasi
Environmental Accounting Strategy(X)	3,629	1	5	0,9700
Sustainability performance MSME's(Y)	3,476	1	5	1,0119

Waste Management (Z)	3,747	1	5	1,0055

Table 5 shows that the average MSME's in Indonesia has implemented an environmental accounting strategy with an average value of more than 3,000, which means they tend to agree. MSME's have achieved sustainability performance with an average value of 3.476. MSMEs have also carried out waste management with an average value of 3.747, which means that they quite agree tend to agree.

Table 6: MSME's Responsibilities for Product Waste

Waste Management	Mean	Median	Standar Deviasi
Waste Type Labeling (Z_2)	3,613	4,000	1,040
Distinguish The Color Of The Waste Container (Z_3)	3,648	4,000	1.026
Closed Waste Container (Z_4)	3,980	4,000	0,895
Collect Facility (Z_7)	3,704	4,000	0,960
Waste Is Sold Directly (Z_8)	3,161	3,000	1,091

Based on table 6, MSME's have not been optimally responsible for product waste. (Z_2, Z_3, Z_4) proves that they have not labeled the type of waste, have not distinguished the color of the waste container and all the waste containers have not been closed. Based on table 6, it shows that the mean value is below the median value, indicating that waste management has not been carried out optimally. Waste management carried out by MSME's after being collected is then only transported with simple means or then sold directly to waste collectors.

The result of the less than optimal waste management has an impact on low sustainability performance. The following is evidence of the low sustainability performance of MSME's in table 7 below:

Table 7: MSME Sustainability Performance

Sustainability Performance Indicator	Mean	Median	Standar Deviasi

		Mean	Median	
Enviromental Aspects	Use of less than 50% recyclable material (Y1)	3,613	4,000	0,975
	temperature measurement for heater (Y4)	3,510	4,000	0,963
Social Aspects	Provision of benefits in the form of salary and other benefits to employees (Y6)	4,000	4,000	0,814
Economy Aspects	Invest in infrastructure and services for the public interest (Y7)	3,561	4,000	0,961
Institutional Aspects	Environmental training (Y8)	3,528	4,000	1,011
	Environmental certificate (Y9)	3,377	4,000	1,063

Based on table 7, sustainability is based on environmental performance aspects with a minimum indicator of using 50% recyclable material and checking heating temperatures during the production process, has not been fully carried out by MSME's, it appears that the mean value is below the median value. Sustainability performance on the social aspect shows that MSME's have provided benefits to employees with a mean value equal to the median value. Sustainability performance in the economic aspect shows that MSME's have participated in infrastructure and services for the public interest, although it is still low. Likewise, when viewed from the institutional aspect, MSME's have low sustainability performance, it is evident that employee training on the environment is still low and the acquisition of environmental certificates is also still low, with a mean value below the median value.

The result of the less than optimal waste management has an impact on low sustainability performance. This is also because MSME's understanding of Environmental Accounting is still low as shown in table 8 below:

Table 8: MSME's Environmental Accounting Strategy

Environmental	Mean	Median	Standar Deviasi

Accounting strategy Component			
Environmental prevention costs for waste reduction employee training (X_1)	3,763	4,000	0,910
Waste recycling training environmental prevention costs (X_2)	3,513	4,000	0,982
Environmental detection costs for inspection of environmentally friendly products (X_3)	3,915	4,000	0,813
Internal failure costs for sewage treatment(X_4)	3,462	4,000	1,041
External failure costs for cleaning up polluted environments(X_5)	3,513	4,000	1,017

MSME management's understanding of Environmental Accounting can be said to be quite understandable. Based on table 8 above, it shows that MSMEs have carried out employee training on waste reduction and waste recycling as a form of environmental prevention costs, although it is not optimal with a mean value below the median value. The cost of environmental detection for inspection of environmentally friendly products has been carried out optimally by MSMEs, it is proven that the mean value is close to the median value. The costs of internal failure for waste treatment and external failure for environmental cleaning have been carried out by SMEs but are still not optimal, it is proven that the mean value is below the median value.

The need for a strategy on Environmental Accounting and Waste Management in supporting the Sustainability Performance of MSMEs. Based on the evidence of sub-optimal waste management, the understanding of MSME regarding Environmental Accounting is relatively low which has an impact on the achievement of MSME Sustainability performance which is less than optimal. Then a management strategy is needed related to waste management and Environmental Accounting to achieve Sustainability performance. The following is an alternative model offered by researchers, namely an exploration of waste management which can mediate an

understanding of Environmental Accounting to achieve Sustainability performance for MSMEs.

2.3. Hypothesis test

The stages of hypothesis testing are carried out by evaluating the outer model and then the inner model. Following are the results of the stages of testing the hypothesis:

The Evaluation of Measurement Model(Outer Model)

The convergent validity testing with the aim of testing related units in a variable, does not compare with other variables by looking at the loading factor value. This research is only at the development stage, so a loading scale of 0.50 to 0.60 is still acceptable (Ghozali, 2016). Evaluation of the outer loading value is said to be valid if the outer loading value is > 0.5 and ideal if the outer loading value is > 0.7. Based on this, there are 3 indicators of MSME sustainability performance variables that are invalid (Y_2, Y_3 and Y_5), and 2 indicators of waste management (Z_5 and Z_6) and 1 indicator of the control variable (K_2) which are invalid so they are eliminated. Then a second stage outer test was carried out with the result that the Z_1 indicator was invalid so it was eliminated for the next test. The following are the results of the outer model test after Z_1 is dropped:

Table 9: Outer Loading Factor Estimation Results for the third stage

Variable	Indicator	Loading Factor Value	Explanation
Environmental	X_1	0,783	Valid
Accounting Strategy	X_2	0,854	Valid
	X_3	0,741	Valid
	X_4	0,865	Valid
	X_5	0,791	Valid
Sustainability	Y_1	0,544	Valid
Performance	Y_4	0,722	Valid
MSME's	Y_6	0,500	Valid
	Y_7	0,764	Valid
	Y_8	0,798	Valid
	Y_9	0,829	Valid
Waste management			
	Z_2	0,879	Valid

	Z_3	0,889	Valid
	Z_4	0,722	Valid
	Z_7	0,568	Valid
	Z_8	0,665	Valid
Size	K_1	0,877	Valid
	K_3	0690	Valid

The evaluation of the model is then carried out by measuring the reliability of constructs or latent variables as measured by their composite reliability. Following are the results of the reliability test:

Table 10: Composite reliability values

Variable	Composite reliability	conclusion
Environmental Accounting Strategy	0,904	Reliable
Sustainability Performance	0,851	Reliable
Waste management	0,866	Reliable
Control	0,765	Reliable

Based on table 10, all constructs have a composite reliability value of more than 0.7, so it can be concluded that all indicators of reflective constructs are reliable.

Hypothesis testing is carried out based on internal model testing which includes: fit test and parameter coefficients and t statistics. According to the research design that has been determined, the level of confidence maximum used is 90% and the p value is less than 0.1, so the research hypothesis successfully supported.

The results of path statistics for hypothesis testing shows bellow :

Tabel 11: Path Coefficients

Relationship	Original Sample	t statistic	p value	Conclusion
Environm Acc Strat→ Sustainability performance	0,558	5,315	0,000***	H_1 supported
Environm Acc. Strat→ Waste Management	0,711	14,784	0,000***	H_2 supported
Waste Management → Sustainability performance	0,290	2,862	0,004**	H_3 supported

Environm Acc.Strat→ Waste Management →Sustainability performance	0,206	2,915	0,004**	H₄ supported
Size → sustainability	0,053	1,496	0,135	Not be a variable control

Note: *** Significant on p < 0,01, ** Significant p < 0,05

It is based on table 11 that the resulting path coefficient values all show a statistical t value above 1.96 with a p value of less than 0.1. This means that all of the research's hypotheses are supported. Based on the predicted results of the effect of the environmental accounting strategy variable on the sustainability performance of MSMEs is positive at 0.558 and statistically significant with a p value of 0.000. The coefficient shows a strong and significant influence, meaning that if the environmental accounting strategy variable increases by 1%, the sustainability performance will increase by 0.558%(H_1 is supported). The prediction results for the effect of environmental accounting strategy on waste management are positive at 0.711 and statistically significant with a p value of 0.000(H_2 is supported). The coefficient shows a strong and significant influence, meaning that if the environmental accounting strategy variable increases by 1%, waste management will increase by 0.711% and the P-value of 0.000.

The predicted results of the effect of waste management on the sustainability performance of MSMEs are positive by 0.290 and statistically significant with a p value of 0.004. The coefficient shows a weak and significant influence, meaning that if variable waste management increases by 1%, sustainability performance will increase by 0.290% (H_3 is supported).

The predicted result of the indirect effect of environmental accounting strategy through waste management on the sustainability performance of MSMEs is positive at 0.206 with a p value of 0.004. The coefficient shows a weak and significant effect, meaning that if the environmental accounting strategy variable increases by 1% then through an increase in waste management by 1% there will be an increase in sustainability performance of 0.206% (H_4 is supported).

Furthermore, the fit model evaluates the structural model predictions using R2, Chi square, f2 and SRMR.

Table 12: R square, Chi square and f square values

variabel	Nilai

Sustainability performance	R^2 =0,645	Adjusted R^2 =0,640	
Waste Management	R^2 =0,505	R^2 =0,503	
	Chi Square	521.307	
f^2 EAS		0,430	
f^2 WM		0,117	
	SRMR	0,080	

The adjusted R2 sustainability performance value of 0.640 indicates that the sustainability performance of SMEs can be explained by environmental accounting and waste management of 64.0% and the rest is explained by other variables not examined in this study. The Adjusted R2 Waste management value of 0.503 indicates that waste management can be explained by environmental accounting variables of 50.3% and the rest is explained by other variables not examined in this study and included in the moderate category.I. and H. L. Ghozali(2014)

The Chi square value of 521,307 > 0, the prediction model has predictive relevance that the theoretical model is in accordance with the empirical model (Sugiyono, 2007). The value of f2 shows the change in the value of R2 when the exogenous construct is removed from the model. The substantive impact of exogenous constructs on endogenous constructs can be evaluated in this way. The value of f2 = 0.02, 0.15, and 0.35 respectively represents the level of small, medium, and large influence, from the exogenous construct (Hair et al., 2021). The exogenous construct that has a large influence is the environmental accounting strategy and the one that has a moderate effect is waste management. If seen from the standard Root Mean Square Residual (SRMR) is 0.012; a value below 0.08 indicates good model.

Discussion

Environmental accounting Strategy has an effect on the Sustainability performance of MSMEs

The result shows that there is a positive and statistically significant influence of the environmental accounting strategy on the sustainability performance of MSMEs. The environmental accounting strategy includes: Environmental prevention costs, environmental detection costs are costs incurred as a result of activities carried out to identify that products, processes and other activities within the company have been

comply with applicable environmental standards, both from government and management policies, internal environmental failure costs are costs incurred in activities carried out due to the production of waste and garbage, but are not disposed of to the outside environment and external environmental failure costs, namely costs incurred as a result of activities that carried out after releasing waste or garbage into the environment.

The results are in-line with Charles (2014) and according to stakeholder theory which views the company as a contact link between different stakeholders. The findings of this study also supporting the findings Ali et.al(2021) that social value orientation has a positive relationship with green advertising effectiveness. Green advertising is part of environmental accounting related to environmental detection costs. It is also empirically proven that awards have an influence on the innovation performance of SMEs (Kankisingi & Dhliwayo, 2022) and in-line with Sari et al.(2020) regarding the application of environmental management accounting has a positive effect on organizational performance. Raharjo(2019) found that the application of green management has a significant effect on the sustainability performance of MSMEs. Moreover, Kantabutra & Punnakitikashem (2020) shows that MSMEs in Thailand adopt the Sufficiency Economy philosophy achieve corporate sustainability performance both from cultural, social, environmental and economic results. Wentzel et al.(2022) shows that surveyed SMEs in the South African Construction Industry (SACI) found a positive relationship between the integration of CSR in their business and sustainable business performance from an internal and external perspective.

Environmental accounting Strategy has an effect on waste management

The results of this study found that the MSME environmental accounting strategy is related to how MSME management manages waste. This research supports research on environmental accounting for SMEs in developing countries such as Indonesia, that this is influenced by the awareness of the MSME managers. As done Nyahuna & Doorasamy (2021)) found that the practice of EMA in SMEs related to the use of monetary indicators is not yet popular. The study concluded that EMA applications have not been popular with SMEs in developing countries such as South Africa, according to findings (Jamil et al., 2021) and Mohamed, 2008 in (Nyahuna & Doorasamy(2021) regarding the adoption of EMA in Malaysian SMEs is still low due to lack of awareness by managers. Chinomona (2013) that the skills training of small business employees is positively related to the performance of small businesses. It is proven in this study that the cost of employee training includes an element of

environmental prevention costs Hansen&Mowen(2009) which can affect how MSMEs manage their waste. Likewise, it strengthens the research results Maulidah & Wahib Muhaimin (2021) , also strenghtens by Huang et.al (2022)

This is appropriate Legitimacy theory(Deegan, 2002). For this reason, the company continuously ensures that they carry out activities in accordance with the limits and norms of society, for example by reducing the demand for raw materials or actions that are not in accordance with norms or regulations. This research proves that MSMEs in Indonesia have carried out activities that are based on applicable norms and regulations to convince the local community to manage their production waste.

The Waste Management Has An Effect On The Sustainability Performance Of Msmes

Based on the Polluters Pays Principle (PPP) Theory, put forward Ilelaboye(2014) that the company is responsible for environmental costs and bears the cost of environmental pollution. The PPP theory believes that if companies take into account and disclose their environmental costs, it will increase the trust and good image of the company, which will ultimately improve performance. Abdel-Kader(2011), Schmidt & Nakajima(2013) states that MFCA can improve environmental performance. The results of this study support the findings Henriques & Catarino (2015) who researched SMEs in Portugal.

The results of this study also prove that institutional pressure can influence MSMEs to carry out waste management activities in achieving sustainability goals because MSMEs manage their waste in accordance with the regulations of the Ministry of PUPR in Indonesia. This was also discovered by Ernst et.al(2022). D'Adamo et. al(2019) found that the recovery of waste embedded in 'waste electrical and electronic equipment' can achieve economic sustainability performance. Cuc & Tripa (2018) conducted research Design recycling Clothing industry in Romania. In addition, the company can reduce the cost of waste treatment and can make a profit.

This study found that the prediction of the effect of waste management on the sustainability performance of MSME's is positive with the coefficient showing a weak and significant effect. This could be due to the lack of awareness of managers and environmental training in SMEs. The results are in-line with (Balasubramanian et al., 2020) that the cost of environmental training is very expensive for MSME's. Waste management depends on the knowledge and expertise of its human resources. This is reinforced by the Amrutha & Geetha(2020) which revealed that the requirement of Corporate Social Responsibility is the main reason for Green Human Resources

management initiatives in many organizations. Moreover, according to institutional theory (Suddaby, 2010), it shows external pressure, namely government regulations have proven to encourage MSMEs to carry out waste management to achieve sustainable performance.

The Strategy Environmental accounting influences the Sustainability performance of MSMEs through waste management

Waste management is able to mediate the influence of the environmental accounting strategy on the sustainability performance of MSMEs, although not strong but significant. Thus, if environmental accounting is improved by adding waste management, it can help achieve sustainable MSME performance. According to stakeholder theory (Ang et al., 2007), the company is a contact link between different stakeholders. Thus, this theory views the organization as a system that considers not only the interests of the owners, but also the interests of other groups in the environment in which the business operates. MSMEs must also carry out their operations by paying attention to all stakeholders, especially with regard to providing products that are environmentally friendly and environmentally responsible, including in managing their production waste (Charles et.al, 2014)

This is reinforced by Crossley et.al(2021)) that SMEs use a complex mix of symbolic and substantive sustainable social and environmental practices (SEP). This research supports the findings Malesios et al(2021). So are the findings Moneva & Ortas (2010) that companies that obtain better environmental performance can improve internal efficiency and can improve environmental performance in the next period.

The waste management is proven to mediate environmental accounting strategy with sustainability performance. This can be influenced by management orientation, innovation, regulations and internal and external pressures related to the environment so that it has an impact on sustainability performance. The results of this study are consistent with the findings Adomako et. al(2021), Nawi et. al(2020) and Muñoz-Pascual et.al(2021) found that manager creativity has a mediating effect between human resource relations and sustainable product innovation performance. So are the findings Ullah et .al(2021) that innovative performance mediates the relationship between domestic financial access and MSME sustainability performance. Mady et. al(2022) found that the relationship between regulations which are performance indicators of sustainability and eco-innovation is mediated by the environmental orientation of MSMEs. Lutfi et.al(2022) shows that external pressure significantly affects

the implementation of the Accounting Information System, which in turn achieves sustainable business performance for MSMEs.

Moreover, this study proves that institutional pressure from within or outside the company can influence MSMEs to carry out waste management activities in achieving sustainability goals because MSMEs manage their waste in accordance with the regulations of the Ministry of PUPR in Indonesia. This research is in accordance with the Institutional theory which states that organizations are not only subject to economic pressures, but also social and cultural pressures that arise from interactions between organizations in their institutional environment.(Suddabv and Greenwood, 2009).

6. Conclusion, limitation and Future Research

The environmental problems are mostly caused by the impact of economic and social activities of companies including Micro Small Medium Entreprises (MSMEs). People are increasingly aware of the importance of protecting the environment. Consumers are selective in choosing products that are environmentally friendly, so companies must adjust to carry out environmentally friendly production processes and are more concerned with business continuity than the short-term goal of profit. The ideal business referring to sustainability is a business in which there is a balance between planet, people and profit in making decisions or what is known as the Triple Bottom Line. The results of the study proves that waste management can mediate environmental accounting strategies for the sustainability performance of MSMEs. This is proof that MSMEs are relatively sufficient to support the Indonesian government's SDGs program by carrying out responsible production

This study has limitations on the number of respondents and the various types of MSME businesses. Besides that, this research was conducted in Indonesia, which is a developing country, which is certainly different from MSMEs in other developed countries. Developing countries have many obstacles, especially with regard to human resource education and the waste management technology used. It is evident from the results of this study that waste management has a weak mediation in environmental accounting for the sustainability performance of MSMEs.

Future research can collect larger data on MSMEs in various sectors and can compare developing countries with developed countries. The implications for the government can provide guidance and human resource training related to waste management so that MSMEs can achieve higher sustainability performance. MSME owners should have waste planning and management in accordance with government

regulations and make efforts to obtain environmental certification so that people have more confidence in the products they produce because the production process pays attention to environmental and social responsibility and not solely to achieve profit. MSMEs can formulate waste management strategies according to their characteristics and allocate environmental costs and determine MSME key performance indicators based on environmental, social, economic and institutional aspects.

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THE ENVIRONMENTAL ACCOUNTING STRATEGY AND WASTE MANAGEMENT TO ACHIEVE MSME's SUSTAINABILITY PERFORMANCE

Reviewer: SHifni-948

Introduction

In paragraph 1, it is appropriate that sentences become areas of research and claim centrality of research can refer to scientific sources (citations). This becomes the basis for theoretical coherence which will be tested in the context of the correspondence of research testing facts. This section shows that the issues written are still the center of attention in its development to date.

In paragraph 2, which shows the generalization aspect of "das Sollen" for the topic sentence, the explanatory sentence and the closing sentence need to be equipped with a scientific source from which the reference is made.

 Paragraphs 3,4,5,6,7 show that "das Sein" from the factual study has been presented quite representatively.

Paragraph 8 already shows the existence of research from previous research which shows the existence of 'unconcluded' in the theme of the problem under study. To indicate a "research gap" can also be expressed in the form of a method gap, an implication gap, or a perspective gap. Therefore, as a suggestion, it is better to add references to previous research in this context.

In this section it is necessary to put forward the "grand theory" as presented in the theory and hypothesis development section. So that the procedure for writing meets coherence in terms of writing presentation techniques. To fulfill the coherence in explaining the research model and the research hypothesis that is built.

In this introductory section, it is better if the research problem can be formulated explicitly.

2. Theoritical background and hypotheses development

It is important to state the conceptual framework of the research as stated in the introduction section, because it can show the perspective of the research being carried out. Also a research model needs to be made to be able to represent its relationship to the needs of research data and the choice of data processing techniques and measurements. So that it can meet the availability of conceptual representatives (theories, models and frameworks, Nilsen, 2015) as explanatory, controlling and predictive tools for research phenomena to be analyzed, concluded and their correspondence to the implications of research results.

In this section it is best to avoid a quoted source that also cites a previous source. Try to quote directly from theoretical sources (avoid citations such as: Brutland (1987) in Sukoharsono & Andayani (2021)

From 2.3. MSME's Sustainability Performance (paragraph 1).

Research has shown explicit reference to grand theory, presentation of "middle range theory" from previous related research, and application theory" in building research hypotheses.

Suggestion for authors that the hypothesis statement will be more representative if stated in a negative proposition sentence formulation, for reasons we are still unsure about the theory to be tested.

3. Research Methods

In the presentation of "sample data" in his statement it was stated that there were 17 data that could not be processed further. For textual, explanation above more relevant if expressed as research limitations encountered in the data collection process. The explanation in this section is more necessary to justify the 200 data processed in this study to fulfill the adequacy of the sample and population relationship. Namely by connecting the initial limit approach of 5 with a high limit of 10 multiplied by the number of research indicators. To show that the amount of data is 200, which is greater in amount than the number of initial limits and the number of final limits multiplied by the number of indicators in this research.

3.2. Research and measurement variables

It is important for researcher to state explicitly the operational definition of each variable and its reference sources, as well as the context of the item indicator descriptions or dimensions of each variable, as well as presented in the table. This is necessary to maintain the initial coherence (theory, model and conceptual framework) towards the research results and in the interest of discussing according to the research results.

4. The Data Analysis and Results

In general, this section has been fulfilled the suitability of application requirements with output models using SEM techniques. As well as for statistical processing results have been presented completely. In this section, the output of SEM analysis results will be more representative if stated in the form of figure/picture, so as to provide clarity in describing further the relationship between variables in the research model.

Discussion

Environmental accounting Strategy has an effect on the Sustainability performance of MSMEs

Paragraph 1: Comments put forward in this section should refer to the theoretical basis (preferably from a source of reference to the operational definition of the variable). To show harmony or dissent from theoretical proof side.

The discussion has been linked to previous empirical research facts, but has not been linked to (previously the need for a grand theory reference).

Environmental accounting Strategy has an effect on waste managory) of accounting. Therefore, contextually, this theory needs to be introduced in the background section previously.ement

The results of this study found that the MSME environmental accounting strategy is related to how MSME management manages waste (state here for the its reference).

The discussion in this section has been linked to the legitimacy theory (grand theory from accounting field). Therefore, contextually, this theory needs to be introduced in the background section.

Conclusion, limitation and Future Research

Procedurally, the conclusions are stated within (i) the results of the study are related to the objectives and benefits (ii) the results of the study are presented by showing the most significant things towards theories, practices (as has been stated in research gap) (iii) the relationship between the study and subsequent research (already presented in writing).

In this research, the writer needs to draw conclusions regarding the results of the study of the objectives and benefits stated in the introduction section

Then described   which research results are the most significant and which are the least significant between the results of the test: (i)   Environmental accounting Strategy towards the sustainability performance of MSME's, (ii) The environmental accounting strategy towards MSME's waste management,

(iii) Waste management towards the sustainable performance of MSME's, and (iv) Environmental accounting Strategy towards the sustainability performance of MSME's through waste management.

It is necessary to make a faraphrase of the paragraphs that have been made in the section of Conclusion, limitation and Future Research sections. It is important to distinguish between research scope and research limitations. Because this research aspect has scope related "to the limited number of

respondents and the various types of MSME businesses. In addition, this research was conducted in Indonesia, which is a developing country, of course it is different from MSMEs in other developed countries". While the limitations of the research are more on the conditions that occur or are experienced during the research process.

Referring to the implications of research MSMEs can be formulated waste management strategies according to their characteristics and allocate environmental costs and determine MSME key performance indicators based on environmental, social, economic and institutional aspects. It is important to put forward the sustainability aspect related to The four pillars of sustainability (Human, Social, Economic and Environmental) model.