

REDUCING PAPER USAGE THROUGH SUSTAINABLE ACCOUNTING TO ACCELERATE INCLUSIVE AND SUSTAINABLE ECONOMICS (CASE STUDY PUJASERA)

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Abstrak

Studi ini menyelidiki dampak penggunaan kertas akibat kurangnya penerapan praktik akuntansi berkelanjutan di lingkungan bisnis, khususnya berfokus pada studi kasus Pujasera di Politeknik Negeri Bali, sebuah pusat jajanan serba ada. Bab ini membahas bagaimana penggunaan kertas yang berlebihan berkontribusi terhadap degradasi lingkungan dan menimbulkan tantangan bagi pembangunan berkelanjutan. Studi ini menggunakan pendekatan penelitian studi kasus untuk menganalisis data yang dikumpulkan, menekankan pentingnya akuntansi berkelanjutan dalam mengatasi masalah sosial dan lingkungan serta transaksi keuangan. Selain itu, kami mengusulkan solusi untuk mengurangi dampak buruk penggunaan kertas, seperti transisi ke sistem pemesanan modern dan penerapan teknologi pencetakan termal. Dengan menerapkan langkah-langkah ini, dunia usaha tidak hanya dapat meningkatkan jejak lingkungannya namun juga menyelaraskan dengan prinsip-prinsip akuntansi berkelanjutan untuk keberlanjutan jangka panjang. Kajian ini diakhiri dengan menekankan pentingnya penerapan akuntansi berkelanjutan dalam pengelolaan bisnis untuk mempercepat transformasi ekonomi yang inklusif dan berkelanjutan.

Kata Kunci: Kertas, Akuntansi Berkelanjutan, Tanggung Jawab Lingkungan

Abstract

This study delves into the impact of paper usage due to the lack of implementation of sustainable accounting practices in business environments, particularly focusing on the case study of Pujasera at Bali State Polytechnic, a multi-purpose food center. It discusses how excessive use of paper contributes to environmental degradation and poses challenges for sustainable development. This study employs a case study research approach to analyze the data collected, emphasizing the importance of sustainable accounting in addressing social and environmental concerns alongside financial transactions. Furthermore, we propose solutions to mitigate the adverse effects of paper usage, such as transitioning to modern ordering systems and implementing thermal printing technology. By adopting these measures, businesses can not only improve their environmental footprint but also align with sustainable accounting principles for long-term sustainability. This study concludes by emphasizing the importance of implementing sustainable accounting in business management to accelerate inclusive and sustainable economic transformation.

Keywords: Paper, Sustainable Accounting, Environmental Responsibility

INTRODUCTION

In accounting theory and its application in the current environment, recognition, measurement, recording, summarizing, reporting, disclosure, accountability, and transparency of accounting are not only focused on financial transactions or information but also on social and environmental transactions or events that underlie financial information (Abed et al., 2022).

The development of sustainability accounting resulted in a reform of the accounting reporting format towards a Sustainability Report format (integration of financial, social, environmental, and governance reporting) (Kustinah & Lestari, 2019). Furthermore, the scope of sustainability accounting reviews includes sustainability reporting, management, performance, and governance. Sustainable Accounting is an accounting approach that considers environmental and social factors in accounting practices such as the environmental and social impacts of business activities (Kurniawan & Wahyuni, 2019).

The main aim of sustainable accounting is to ensure that the business practices carried out by companies are sustainable and do not damage the environment or surrounding communities (Dalimunthe et al., 2024). In this case, paper waste is an inevitable consequence of traditional accounting that relies on physical documents. This has a negative impact on the environment and presents a challenge to modern accounting (Banani & Sunarko, 2022).

With the implementation of sustainable accounting, which is expected to have a positive impact on the wider community and the environment, the transformation of economic growth and formation, especially an inclusive economy and a sustainable economy, is also expected to go hand in hand, as a positive impact of implementing sustainable accounting in the business world (Gupta & Kumar, 2020). The most basic reason we must pay attention to accelerating inclusive and sustainable economic development is that Indonesian society is not doing well (Permatasari et al., 2020). The goal of an inclusive and sustainable economy is to improve welfare and reduce inequality in society (Saputra & Fauzi, 2022).

One of our roles as college students is to prepare mature provisions to help build the flow of economic life in Indonesia through entrepreneurship (Elievich et al., 2021). Entrepreneurial awareness will certainly increase innovation and creativity as students, which can ultimately give birth to a younger generation of entrepreneurs (Amalia et al., 2022). The more entrepreneurs there are, the greater our opportunity to open up new jobs for the local community, so that people's welfare is guaranteed in the future (Malik et al., 2021).

However, sometimes in the business world, we forget one thing: environmental health and human resources (Babaremu et al., 2022). In the world of economics and business, we often only think about how we can obtain the maximum profit, until we forget that the smallest things, such as using waste that is difficult to recycle, can actually have an impact on health from the environment around the company (Maher et al., 2023). This is a new risk and challenge that entrepreneurs have never considered.

Here, I will take a small example from my closest scope, namely, the Pujasera or Multi-Purpose Food Center. There are many small and medium-sized businesses that sell various types of food and drinks. Sometimes, visitors to this business cannot be said to be quiet, and every day there are many visitors. Every business also has employees and business owners. This is the simplest way to help accelerate an inclusive and sustainable economy (Dalimunthe et al., 2024). However, there is

something that is an important concern for me, namely, the ordering system that still uses scraps of paper that are then written on the nails provided.

At first glance, this is not a problem at all, but as we all know, paper is one of the most common waste products produced by humans . Paper thrown into landfills also produces methane, which is a powerful greenhouse gas. Meanwhile, paper accounts for an average of 26 percent of the total waste in landfills around the world, as revealed by World Counts (2021). This is closely related to the implementation of sustainable accounting, which is not yet visible in the Pujasera at Bali State Polytechnic business. Therefore, what is the most fatal impact of excessive paper use in the Pujasera at Bali State Polytechnic business environment? How can this problem be resolved? By producing this scientific work, it is hoped that it can help provide information about the impacts of the excessive use of paper, as well as provide information on how to overcome and prevent these problems. To provide applied solutions related to businesses to accelerate inclusive and sustainable economic transformation through the implementation of sustainable accounting, particularly in preserving the environment, starting on a small scale. We believe that the small steps that we have started will become a wave of support for accelerating inclusive and sustainable economic transformation.

RESEARCH METHOD

This research uses a case study to solve a problem and understand a phenomenon, utilizing both qualitative and quantitative research strategies. Qualitative data, according to Sugiyono (2021), take the form of words, schemas, and images. The qualitative data in this research consisted of the names and addresses of the research objects. On the other hand, quantitative data is data in numerical or qualitative form that have been quantified.

The purpose of qualitative research is to discover and explain a phenomenon and the object under investigation, which are then elaborated upon using data in the form of sentences and words (Creswell & Cheryl, 2018). Qualitative research emphasizes quality over quantity, and the data collected do not come from questionnaires, but from interviews, direct observation, and other relevant official documents. Qualitative research also prioritizes the process aspects of the obtained results. This is because the relationships between the parts being studied were much clearer when observed during the process. On the other hand, the purpose of quantitative research is to develop mathematical models or data in numerical form, theories, and/or hypotheses related to a phenomenon, which will focus on determining the extent of the impact of excessive paper usage on environmental health, and the magnitude of the risks and new challenges that a company will face in implementing sustainable accounting.

The reason for choosing both qualitative and quantitative data approaches is that qualitative data provide information about the phenomenon. The author will directly immerse himself in the field to describe how the excessive use of paper affects it. Quantitative data were selected because the author planned to explain the

percentage of the impact of excessive paper usage, which can have negative effects on the company and its environment.

In scientific writing, the technique used is descriptive writing, which involves describing, outlining, elaborating, and arranging the variables studied into a coherent and systematic discussion.

Data collection was performed by conducting library research and digital information retrieval with the goal of studying the literature. Library sources are obtained by reading, analyzing, and linking information from the readings to the topic being addressed. Additionally, data collection techniques in this research are based on direct and continuous observation when visiting the Pujasera in the Bali State Polytechnic area. The type of data used in this study was primary data collected directly by the researcher. These data consisted of the results of direct observations made by the researcher.

In this study, the subject is an owner of one of the stalls in the Pujasera at Bali State Polytechnic, while the object of the study is the impact of excessive paper usage due to a food ordering system that is still very traditional.

RESULTS & DISCUSSION

Owing to technological advancements, the availability of single-use papers has also increased. This leads to a high level of consumption and waste. Additionally, the relatively affordable price of paper is one of the key factors driving high paper consumption. Over the past few decades, paper usage has increased by 400%.

Deforestation is a major issue in both developing and developed countries. A startling fact is that approximately 14% of deforestation is done to satisfy human greed for paper goods. A paper on the Rocks states that this percentage is equivalent to destroying about 4.1 million hectares of forest every year, or an area the size of the Netherlands every 365 d. Communities should be concerned about this because unused plastic waste from paper factories has long-lasting and serious negative impacts. In addition to polluting the environment, the threat and danger of paper mill waste are caused by poor management and processing.

In the data collection technique used in this study, the researcher employed direct observation based on library research and digital information retrieval with the goal of studying the literature. Library sources were obtained by reading, analyzing, and linking information from the readings to the topic being addressed. From the literature review, the percentage of waste in Indonesia can be seen in the following table.

According to SIPSN or the National Waste Management Information System (2023), the Waste Management Performance Achievements of 133 districts/cities throughout Indonesia in 2023 can be seen in Table 1.

Table 1. Waste Management Performance

Data	Percentage	Total
Waste Generation		12,213,499,07
Waste Reduction	15.75%	1,923,157.09
Waste Handling	51.00%	6,229,183.00
Managed Waste	66.75%	8,152,340.97
Unmanaged Waste	33.25%	4,061,158.10

Source: National Waste Management Information System Website (2024)

From the above data, it can be observed that the percentage of waste generated per year is greater than the percentage increase in waste reduction and handling in Indonesia. However, these results show that the percentage of managed waste was greater than that of unmanaged waste. From these data, it can be interpreted that there is still a lot of waste that cannot be managed to reduce or limit the amount of waste generated annually. This is because of the large amount of waste that cannot be recycled; thus, the source of unmanaged waste will continue to increase.

Table 2. Waste Composition Based on Type of Waste

Type Of Waste	Percentage
Food Waste	40.5%
Wood/Branches/Leaves	12.3%
Paper/Cardboard	10.3%
Plastic	18.4%
Rubber/Leather	2.4%
Fabric	2.7%
Glass	2.6%
Metal	3.6%
Others	7.1%

Source: National Waste Management Information System Website (2024)

From Table 2, it can be seen that the percentage of waste types, especially paper waste, ranks 4th based on the high level of waste generated annually. If this continues, it will have a detrimental effect on the surrounding environment because paper waste can accelerate climate change. Organic paper can be mixed with other types of waste, such as inorganic waste. This leads to decomposition in the absence of oxygen or anaerobic decomposition. Anaerobic decomposition will produce methane gas.

Sustainable accounting focuses not only on financial transactions or information but also on social and environmental transactions or events underlying financial information. Therefore, an analysis of the results based on direct observations can be seen from the calculations below: Given: Per day, the estimated paper usage is about 10-15 sheets of HVS paper, which are then cut into several pieces.

Calculation:

Paper Usage | Unit of Time | Quantity

15 Sheets | 1 Day | 15 sheets

15 Sheets | 1 Week | $7 \times 15 = 105$ Sheets

15 Sheets | 1 Month | $105 \times 4 = 420$ Sheets

15 Sheets | 1 Year | $420 \times 12 = 5,040$ Sheets



Figure 1. Pile of Usage Paper



Figure 2. Ordering Using Usage Paper

In the calculation above, paper usage almost reaches 5% overall, only limited to the scope of one seller in Pujasera at the Bali State Polytechnic. It can be imagined that there are 10 sellers in Pujasera at Bali State Polytechnic who use the traditional food ordering method using paper; the amount of paper waste contribution only in the scope of Pujasera at Bali State Polytechnic is 50,040 sheets per year. This certainly affects environmental health and negatively impacts the foundation of sustainable accounting theory.

From the data presented above, the use of paper for food ordering in Pujasera at the Bali State Polytechnic can be addressed by employing a more modern food ordering method, namely by using a cash register system or device. This system can input food orders, automatically calculate prices and totals, and generate transactional receipts. The output can be obtained from a thermal printer that uses heat to produce prints on thermal paper. Thermal printers do not require ink or toner, unlike conventional printers, making them cost-effective and easier to maintain. They used thermally sensitive materials activated by heat to produce images or text directly on paper.

The main advantage of thermal printers is their high printing speed, which makes them ideal for businesses that require mass printing in a short time. Additionally, thermal printers tend to be more durable than inkjet or laser printers because they have fewer moving components and fewer potential damages.

Thermal printers are widely used in the retail industry, restaurants, banks, and other industries. They are used to print payment receipts, parking tickets, shipping labels, and identification cards. The high printing speed, energy efficiency, and user-friendliness of thermal printers make them a popular choice for scenarios requiring speed and efficiency. When printing receipts, thermal printers use thermal paper, which is considered to be more environmentally friendly. Thermal paper has a thermally sensitive layer that changes color when exposed to heat. This layer reacts to the temperature generated by the thermal printer, producing long-lasting images or text.

The main advantage of thermal paper is its resistance to fading and ink smudge. During daily use, we often encounter papers that fade or ink that disappears

over time. However, thermal paper does not require additional ink or toner, thus eliminating the risk of fading or smudging. This makes it ideal for long-term printing, such as receipts or archival documents. Furthermore, the thermal paper is environmentally friendly. Unlike conventional paper, which produces ink or toner waste that needs to be regularly disposed of, thermal paper does not require additional ink, reducing waste and environmental impact.

From this solution, it is hoped that it can help implement sustainable accounting in the campus environment and reduce the use of paper, which has negative impacts on the environment. Furthermore, the implementation of sustainable accounting is expected to have positive impacts on both companies and the surrounding environment. This will also accelerate the transformation towards inclusive and sustainable economics. The objective of inclusive and sustainable economics is to enhance welfare and diminish disparities within society.

Paying attention to environmental health in business or entrepreneurship will yield positive long-term impacts in the long run. In entrepreneurship or business, the primary focus often lies on the total profit or gain to be acquired, which stems from human resources. If companies neglect environmental health and the surrounding communities, it will adversely affect human resources, which is a critical factor in a company's success. Disregarding environmental health solely based on business assumptions can endanger the environment and society. The higher the mortality rate due to environmental damage, such as rapid climate change caused by waste, the lower the income companies earn. This decline in income has fatal consequences for a company's viability. Job loss is a source of disparities within the community. Therefore, through the implementation of sustainable accounting, it will undoubtedly yield positive impacts on accelerating the transformation towards inclusive and sustainable economics. And one of the implementations is by changing the method of food ordering system at Pujasera at Bali State Polytechnic.

Implementing a modern ordering system may increase operational costs for businesses, which may be why food sellers in Pujasera at the Bali State Polytechnic still prefer traditional methods. However, entrepreneurs always seek ways to maximize profits without considering the implementation of sustainable accounting, especially in maintaining environmental welfare. However, how can these aspects be balanced?

One approach is to reduce the use of raw materials or seek cheaper raw material suppliers, so that the remaining costs, considered as the cost of goods sold, can be used to cover the additional costs of a cash register system or thermal paper for printing receipts, with the aim of providing a way to continue doing business while still considering the surrounding environment, especially natural resources.

The sales system within Pujasera in the Bali State Polytechnic can also utilize a DBMS-based sales system. A database is a logical arrangement or collection of data stored on a computer designed to meet the information needs of users. Database Management System (DBMS) software facilitates centralized data storage and connection to applications to ensure that databases remain organized and easily accessible. DBMS functions as an interface between application programs and

physical documents. When application programs request data, the DBMS retrieves and provides data to the application program.

The concepts applied in the database design include the following:

a. Data Normalization

Data normalization is the process of separating data into multiple entities. There are several normalization stages. The three common normalization stages are:

1) First Normal Form (1NF)

The initial stage of normalization, known as the first normal form (1NF), requires entities to comply with rules, meaning each attribute in the entity must contain a single value, and the entity must not contain repeating data groups.

2) Second Normal Form (2NF)

A more efficient design result of separating data into multiple entities is called the second normal form (2NF). The second normalization rule states that data not directly dependent on the primary key of the entity is moved to another entity. This rule means that entities must contain data representing only one entity.

3) Third Normal Form (3NF)

The third step of normalization, known as the third normal form (3NF), requires the removal of all attributes that can be derived from data contained in other attributes of the entity or other entities.

b. Data Denormalization

Data denormalization is performed to provide the ability to reproduce documents exactly as originally. For example, when printing a sales receipt, it will display the new name in the denormalized database perfectly.

The creation of this sales system container can use Microsoft Access, as shown in figure 3.

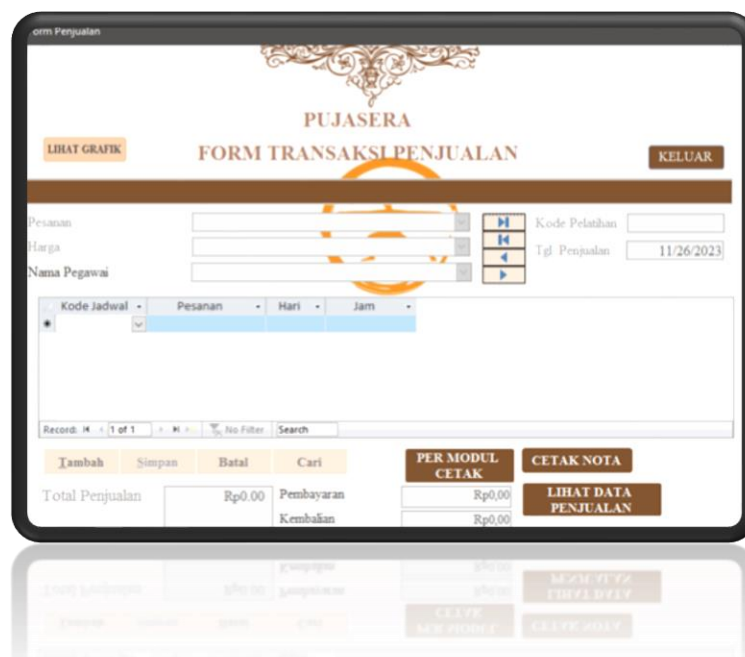


Figure 3. Example of a DBMS-based Sales System

The sales form was opened by selecting the "New Sales" command button. In this sales form, the user fills in the sales data by clicking the "Add" button and then entering the sales data according to the format provided on the form, and saving it by clicking the "Save" button. If the saving process is successful, a message box saying "Data Successfully Saved" will appear, then the user can click "Ok" to continue. The user can edit the sales data by clicking the "Edit" button and then clicking the "Save" button again to save the changes made. The user can search for sales data by clicking the "Search" button, which opens a sales search form. After the user fills in the sales data, they can print it by clicking the "Print" button, which generates a sales receipt report that is ready to be printed and handed to the customer. This form also has four navigation buttons in the sub-sales section to display and search for sales data: the "Next Record" button to display the next sales data, the "Previous Record" button to display the previous sales data, the "First Record" button to display the first entered sales data, and the "Last Record" button to display the most recently entered sales data. If the user wants to exit the sales form, they can click the "Exit" button, and a confirmation message box saying "Do you want to exit?" will appear. The user can click "Yes" to exit the sales form or "No" to cancel exiting the sales form.

CONCLUSION

The impact of paper usage due to the lack of implementation of sustainable accounting, especially in the business world, has adverse effects on the environmental ecosystem and natural resources in the future. Without proper sorting, paper waste could accelerate climate change. Organic paper can mix with other types of waste, namely inorganic waste. This causes decomposition without oxygen or anaerobic conditions. Anaerobic decomposition produces methane gas. Methane gas can accelerate climate change because it has 25 times the heat-trapping power in the Earth's atmosphere compared with carbon dioxide. The use of paper based on sustainable accounting practices that occur in Pujasera at the Bali State Polytechnic can be addressed by changing the method of food ordering, which is still very simple, into a more modern method, by using a sales system or using thermal printers with thermal paper, which is considered more environmentally friendly. In addition, to address concerns about increasing raw material costs, sellers can switch to cheaper distributors or manufacturers of raw materials or reduce the use of raw materials slightly. Thus, the profit desired at the cost of the goods sold is not significantly affected by the change in the more modern method of ordering food.

Additionally, simple steps such as the use of thermal printers with eco-friendly thermal paper and minor adjustments in raw material management can yield significant changes in environmental preservation. Not only does this approach offer practical solutions, it also opens doors to further understanding and application of sustainable accounting principles across various industrial sectors.

Active engagement from business stakeholders, both individually and collectively, plays a crucial role in mitigating the negative environmental impacts. Increasing awareness of the importance of sustainable business practices and motivating the adoption of environmentally friendly changes are vital initial steps.

Consequently, the implementation of sustainable accounting is not only a corporate responsibility but also a collective commitment to safeguard environmental sustainability for future generations.

In conclusion, awareness of the significance of sustainable accounting principles will not only enhance the relationship between business and the environment, but also bring about positive changes in how we perceive and care for the world around us. Through collaboration and shared commitment, we can create a healthier and more sustainable environment for all living beings on the planet.

It is hoped that this will help in the implementation of sustainable accounting and accelerate the transformation towards inclusive and sustainable economics, as well as provide a better impact on environmental influence. Therefore, businesses seeking profit will be balanced by environmental health impacts in the future.

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