

Exploring concerns in the implementation of green accounting: A case study on MSMEs Batik Business

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Abstract. Green accounting, also known as environmental accounting, focuses on a more comprehensive view of an organisation's financial performance by taking into account environmental impacts. The batik business has a considerable influence on the preservation of nature due to several factors related to the production process and the raw materials used. This research was conducted on MSMEs batik business in the Madura region. This type of business was chosen because this type of business has a considerable influence on natural sustainability. This research explores the extent to which business people as one of the main elements care about the environment and know and have knowledge about green accounting. This research uses a qualitative method with a case study approach. Data collection techniques are observation, interview, and documentation. Data analysis was carried out with the stages of data reduction, data presentation, and conclusion drawing. The results of the study state that batik business actors in the Madura region have a good understanding and concern for protecting their business environment as a form of green accounting implementation. This understanding is evidenced by how business actors understand and allocate business costs and environmental costs, and separate personal funds from business funds. Although their understanding of specific business and environmental costs is limited, they already understand that environmental costs are costs charged to their business as a form of responsibility. The implications of this research are expected to be useful in realising optimal green accounting practices, not only for batik business MSMEs but also for business actors in other business fields.

1 Introduction

The Covid-19 pandemic has implications for uncertainty and slowing economic growth. Meyer et al stated that a greater share of firms report significant or severe disruptions to sales activity than to supply chains [1]. The slowdown in economic growth is also followed by an increase in unemployment, which according to World Bank data, increased from 5.28% in 2019 to 7.07% in 2020 [2]. Micro, Small, and Medium Enterprises (MSMEs) are one of the sectors affected. The government's strategic steps in improving the people's economy include optimising and developing the existence of MSMEs. The existence of MSMEs is still a mainstay of the government because it plays a major role in economic growth both in providing productive business activity management, lending management and in terms of employment [3]. It is proven that based on data from the Ministry of Cooperatives and Small and Medium Enterprises (Ministry of KUKM) in 2021, the number of MSME players in Indonesia reached 64.2 million with a contribution to gross domestic product (GDP) of 61.07% or IDR 8,573.89 trillion [4]. MSMEs are able to absorb 97% of the total labour force and are able to raise up to 60.4% of total investment in Indonesia. Realising the huge role of MSMEs, the

government provides various assistance so that MSMEs can develop their businesses quickly. The presence of the creative economy is also supported by the development of increasingly sophisticated information and technology, so that there is a lot of interest among the community in running a business [5]. Government support for MSMEs is manifested in various forms of regulation, including taxation, licensing, a wide range of market access, and funding with low interest as stated in Number 7 of 2021 [6].

The government's attention to MSMEs is expected to be balanced by not ignoring the obligation to protect the environment around their place of business. In general, the more business activities develop for profit, the greater the impact on the surrounding environment [7]. A fact that often occurs is the disposal of production waste from a business [8]. If this is allowed to continue, the environmental impact left behind will increase and have a negative impact. In reality, a business that is related to production either directly or indirectly still has an influence on the surrounding environment. As in Pentiana's research [9] shows that the understanding of tofu and tempeh SMEs in Bandar Lampung city is still lacking [9]. This is due to the interest preferences of these SMEs are still focused on business profits, and not on product quality or environmental quality.

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Often MSME actors are not fully aware that their business activities can have a negative impact. Awareness of social responsibility should be owned by every business actor. However, some MSME actors object to social responsibility because it will add and allocate separate costs that can reduce business profits. In addition to social responsibility, MSMEs can use strategies to protect the environment through accounting knowledge. Accounting also has a role through financial statements by including environmental costs. In the 1970s, the concept of green accounting began to develop in Europe. Green accounting means including accounts related to environmental costs in the accounting system [10]. Green accounting is specifically an action for the identification, calculation and allocation of environmental costs, incorporating environmental costs in business and recording environmental liabilities [9].

The application of green accounting is not only limited to large companies, but can also be done by MSMEs [11]. The green accounting strategy that can be carried out by MSMEs is to include costs that are separate from the management of waste generated from business operations which are usually referred to as green costs or environmental costs. Green costs or environmental costs come from the impacts arising from the financial and non-financial sides that must be fulfilled as a result of an activity (business) related to the environment. Environmental costs incurred in a business are one of the factory overhead costs that are difficult to calculate and track directly, because these costs are hidden in the cost centre, and there is no clear evidence of recording or reporting related to environmental costs [12].

Environmental accounting aims to provide information about the company's operational performance based on protection and concern for the environment, so that companies do not easily process resources without regard to the impact on society [13]. The application of environmental accounting will encourage the company's ability to minimise the environmental problems it faces. The purpose of the application of this accounting is to improve the efficiency of environmental management by assessing environmental activities from the point of view of costs (environmental costs) and benefits or effects (economic benefits) [14]. The implementation of green accounting in Indonesia requires a process of adjusting ecological-based economic attitudes and behaviours that may not apply in one area of social accounting, or have a very broad impact in another area [15].

Indirectly, the value of MSME business ethics will increase if MSMEs can implement green accounting well. The relationship between the two can be seen when MSMEs add environmental costs to handle operational waste or costs to protect the environment so as to reduce the negative impact of business activities. The surrounding community will assess that these MSMEs have good ethics in terms of environmental ethics. On the other hand, this increased assessment will indirectly increase the company value or income of MSMEs. However, to implement green accounting in Indonesia, it requires a process of acculturation of ecological-based

economic attitudes and behaviours that are not necessarily applicable in one area of social accounting, or have a broad spectrum of effects in other areas [13]. This acculturation process requires the readiness of knowledge, technology, and especially conventional awareness in business practices and certainly requires a long time to implement. For now, in Indonesia, there is no regulation on the implementation of green accounting specifically for MSMEs, but for private companies it is regulated in No. 47 of 2012 which is a follow-up to the Limited Liability Company Law No. 40 of 2007.

This research was conducted on batik-producing MSMEs in the Madura region. This type of business was chosen because this type of business is considered to have a considerable influence on natural sustainability. Related to this, this study aims to explore the extent to which business actors as one of the main elements care about the environment and have knowledge about green accounting. It is hoped that this research will be useful in realising optimal green accounting implementation practices, especially for batik producing MSMEs in the Madura Region and for business actors in other business fields. MSMEs are expected to not only be profit-oriented and improve product quality, but also always not ignore environmental costs for business sustainability.

2 Literature review

2.1 Green accounting

Green accounting, known as Environmental Accounting according to Ikhsan [16], is a term related to the inclusion of environmental costs in the accounting practices of companies or government agencies. Environmental accounting (green accounting) is a means of reporting the operations of an institution (country/city/company/organization) that are linked to the environment. The aim is to provide information regarding the company's operational performance based on environmental protection and concern. Companies that are classified as MSMEs are usually only profit-oriented and do not care about the environment [17]. Therefore, understanding environmental accounting (green accounting) is very important for business actors in MSMEs because when MSME actors understand environmental accounting and care about the environment where they do business, efforts to reduce the various environmental problems they face will be realized.

Research by Teoh and Thong (1986) in Musyarofah [18] states that an organization can be categorized as taking part in protecting the environment if it has attention to the environment itself (environmental awareness), which is then followed by the organization's involvement in environmental problems (environmental involvement). This needs to be followed by environmental reporting, especially the organization's performance in overcoming the impact of organizational activities on the environment, which is then refined with

environmental auditing activities to measure and evaluate organizational performance. Therefore, it can be concluded that at least four factors are needed in terms of organizational responsibility towards the environment, namely environmental concern, environmental involvement, environmental reports and environmental audits. According to Kwarto [19], several considerations for companies to implement environmental accounting as part of the company's accounting system are: (1) Make it possible to reduce and eliminate environmental costs. (2) Improving the company's environmental performance which may have a negative impact on people, health and the company's business success. (3) It is hoped that it will produce more accurate costs or prices for products from the desired environmental process and enable it to meet the needs of customers who expect better products/environmental services.

2.2 Environmental costs

Environmental costs are impacts arising from the financial and non-financial side that must be borne as a result of activities that affect environmental quality [16]. Environmental costs that occur within a company are one of the factory overhead costs that are very difficult to identify directly because these costs are often hidden in cost centers and there is no clear evidence of recording or reporting related to environmental costs [16]. Activities in implementing green accounting certainly incur costs. These activities are costs that must be charged by the company which arise in conjunction with the provision of goods and services to consumers. With the burden that has been allocated, it is hoped that a healthy and sustainable environment will be created. Environmental performance is an important measurement in supporting a company's success.

Several reasons that can support the implementation of environmental accounting include [20]: 1) Environmental costs can be significantly reduced or eliminated as a result of business decisions, ranging from changes in operations and maintenance to investments in green technology processes as well as for redesign products produced; 2) If environmental costs do not receive special attention, they will be unclear and included in overhead accounts or will even be ignored; 3) Many companies have found that environmental costs can be offset by generating revenue through the sale of waste as a product; 4) Better management of environmental costs can result in improved environmental performance and provide significant benefits for human health and corporate success; 5) Understanding environmental costs and performance of processes and products can encourage more accurate product costing and pricing and can help companies design production processes, goods and services that are more environmentally friendly for the future; 6) The company has a competitive advantage obtained from environmentally friendly processes, goods and services; 7) Accounting for environmental costs and

environmental performance can support the company's development and operation of the overall environmental management system; and 8) Disclosure of environmental costs will increase shareholder value because of the company's concern for environmental preservation.

3 Method

This research uses a qualitative descriptive method, which aims to understand the phenomena experienced by the research subject holistically by describing in the form of words and language, in a special natural context and by utilising natural methods [21]. Qualitative research methods generally involve the process of collecting, analysing and interpreting data, as well as writing research results [22]. The qualitative method was chosen because this research aims to get "depth" about the extent to which MSME business actors as one of the main elements that care about the environment and have knowledge about green accounting. In this research, a case study approach is used. A case study is a research strategy in which researchers closely investigate a programme, event, activity, process, or group of individuals [22]. Cases are limited by time and activity, and researchers collect information using a variety of time-based data collection procedures.

The types of research data are primary data and secondary data. Primary data is in the form of semi-structured in-depth interviews with MSME business actors, especially batik business producers regarding the extent of understanding and concern of MSME actors in the Madura region as a form of implementing green accounting in carrying out their business activities. Secondary data in the form of regulations, data, or documentation relevant to the research objectives. The informants of this research are MSME players who produce batik craftsmen spread across 4 districts in the Madura region, as presented in table 1.

Table 1. Informant demographics.

Name	Business Name	District
Alim Hafidz	Zulpah Batik (ZB)	Bangkalan
Imaniyah	Shalempang Batik (SB)	Sampang
Ahmadi	Aneka Batik (AB)	Pamekasan
Imam Mustain	Canteng Koneng (CK)	Sumenep

The research data collection was carried out through several stages as follows: 1) Observation, carried out on all aspects. Researchers went directly to the field to observe informatics activities at the research location. Observation can also be done virtually, if conditions do not allow for direct entry into the field. 2) In-depth interviews with the informants described earlier. The

interviews are conducted in an unstructured and open-ended manner, designed to elicit the views of the informants. The interview mechanism and technique will evolve according to the situation and conditions during the research. 3) Documentation. The documentation process is conducted in the form of photographs, recordings, writings and social media searches that can provide information for the research process.

This research data analysis uses the Miles and Huberman data analysis model [23], the stages of analysis: 1) Data reduction means simplifying, classifying and discarding unnecessary data in such a way that the data can produce meaningful information and make it easier to draw conclusions. This reduction stage is carried out to find out whether the data is relevant or not to the ultimate goal. 2) The next step is data presentation. Data presentation is an activity when a set of data is arranged systematically and is easy to understand, thus providing the possibility of drawing conclusions. The form of presenting qualitative data can be in the form of narrative text (in the form of field notes), matrices, graphs, networks, or charts. By presenting the data, the data will be organised and arranged in a relationship pattern, so that it will be easier to understand. 3) Drawing conclusions and verifying data is the final stage in qualitative data analysis techniques carried out by looking at the results of data reduction while still referring to the analysis objectives to be achieved. This stage aims to find the meaning of the data collected by looking for relationships, similarities or differences to draw conclusions as answers to existing problems.

The data validity method aims to ensure the validity of the data found in the field. The data validity method in this study uses the triangulation method. There are several triangulations in research, including triangulation of data, sources, theories, researchers, environments, and methods [21]. The triangulation method used in this research is source and method triangulation. Source triangulation is carried out by collecting information related to understanding and concern in implementing green accounting by MSME batik business producers in the Madura region and information from the community around the business place. The information or data obtained was then compared to determine the validity of the data obtained, so that the resulting research results were in accordance with what happened in the field. The triangulation method is used to validate the truth of information obtained from research informants by conducting interviews and observations.

4 Result and Discussion

4.1 Demographic portrait of batik producers in madura region

This research uses descriptive qualitative research methods with a case study approach. The informants of this research are MSMEs, especially batik business

producers in the Madura region. Consisting of 4 informants in sub-districts spread across Madura, namely Zulpah Batik (Bangkalan District), Shalempang Batik (Sampang District), Aneka Batik (Pamekasan District), and Canteng Koneng (Sumenep District). Researchers conducted in-depth interviews with informants to identify their understanding and concern regarding the implementation of green accounting by MSME batik business producers as a tourism driver in the Madura region.

The existence of MSMEs is still a mainstay of the government because of its important role in economic growth, both in providing management of productive business activities, management of credit distribution and in terms of employment, thus providing employment opportunities to local residents. Realising the huge role of MSMEs, the government continues to provide various policies so that MSMEs can develop their businesses quickly. It is hoped that the government's attention to MSMEs will be matched by these entities not neglecting their obligations to protect the environment around their businesses. The phenomenon in the field is that there are still MSMEs that pay less attention to handling environmental waste, because they prioritise profit and turnover in their business activities, so that environmental costs are often ignored. It is undeniable that the production operations of batik-producing MSMEs can have a negative impact on the environment if not handled properly, and can result in a decrease in the quality of the surrounding environment such as soil, water and air pollution.

Zulpah Batik is one of the batik producers in the Madura region, precisely in Tanjung Bumi Bangkalan. Mr Alim Hafidz is the owner and manager of the Zulpah Batik gallery. The beginning of the formation of Zulpah Batik began in 2008, which initially did not produce itself but took batik from local neighbours and then marketed it. Gradually, Mr Alim Hafidz was determined to open the Zulpah Batik gallery and operate until now. The current turnover is around Rp 50 million and the profit ranges from 5 to 10 million, but the profit tends to fluctuate. Zulpah Batik has 3 permanent employees who work in the gallery and the batik craftsmen are spread in 2 villages around Zulpah Batik. Zulpah Batik hopes to build a gallery in Bangkalan city with a different business name in the future. In processing batik waste, Zulpah Batik builds and uses a Waste Water Treatment Plant (WWTP) which is assistance from Bhayangkara University Surabaya in the form of making absorption wells / WWTPs that use solar power. This WWTP for the batik industry can reduce the level of pollutants in the liquid waste of the batik industry, the goal is that the waste meets environmental quality standards. One of the advantages of this WWTP in Zulpah Batik is the use of sunlight as an energy source. This is reinforced by the statement of Mr Alim Hafidz:

"This is because the Paseseh Village area in Tanjung Bumi Sub-district often experiences power outages. Moreover, the frequency of blackouts increases during the rainy season". Therefore, in the process of processing batik

waste, it utilises sunlight as a source of electrical energy through a Photovoltaic (PV) or solar power plant."

One of the uniqueness of Tanjung Bumi batik is that one piece of batik cloth is done by several people because those who have specialised in one area do not want to work on other parts. In general, the batik process begins with kethel, then rengrengan which goes through a long process, followed by kuri or small motifs and becomes the background for the main motif. Making Kuri is quite complicated because it consists of several motifs and is done repeatedly after each colouring process. Essean is the next process where this is the process of filling the motif, usually taking 1 month, depending on the smoothness of the desired motif. Nebbeng is the next process after Essean, which is the process of covering motifs that do not want to be coloured in the first colouring process and it takes 3-7 days for nebbeng. The next stage is Sereben, which is the background colouring process. After the stages of the colouring process are complete, the cloth is put to soak in a large barrel.

Shalempang Batik is also one of the batik producers in the Madura region, precisely in Sampang district. Mrs Imaniyah is the owner and manager of this batik gallery. The number of employees/craftsmen of Shalempang Batik is currently around 15 people. The current turnover is around Rp 50 million, and the profit is around 5 - 10 million and the profit tends to fluctuate. Batik colouring in Shalempang Batik uses natural and synthetic materials. Batik motifs at Shalempang Batik also vary, batik whose motifs are quite difficult to do in the gallery directly as well as colouring, but if the motif tends to be easier to bring to the craftsman's house. Waste in the batik process is in the form of liquid waste (non-organic). Initially, the waste was disposed of in the ditch, and until now there has been no warning from residents. The sewer is far from the river so it is safe, and it is combined with wastewater from other places such as bathrooms so that the waste from the batik colouring process is mixed. In addition, solid waste in the form of fabric pieces (made into other products such as tablecloths) and waste in the form of malan (made into additional fuel for wood). In 2023, Shalempang Batik is in the process of building a WWTP to process or filter batik waste, where the funds to build the WWTP are assistance from Bhayangkara University Surabaya. The hope of Shalempang Batik in the future is the renewal of the gallery and can complete the WWTP.

Turning to batik businesses in Pamekasan district, one of them is Aneka Batik. Mr Ahmadi as the owner and manager of the Aneka Batik gallery explained how he pioneered and managed this batik business until it still exists today. Initially, there were around 300 craftsmen in Aneka Batik. However, during and after the Covid-19 pandemic hit, batik craftsmen dropped dramatically, and now there are only around 15-20 batik craftsmen who work with Aneka Batik. Regarding the profit obtained, Mr Ahmadi said that the way to determine the profit is around 15% of the production cost and the length of production time. In

addition, the Aneka Batik gallery also has absorption wells that are used to treat batik waste. Absorption wells are also found at several points in the location of batik craftsmen where these absorption wells are assistance / programmes from the government. Well maintenance costs more than 1 million per year, usually 4 times drained per year.

In the Sumenep district, there are also many batik business producers, one of which is Canteng Koneng. Mr Imam Mustain as the owner and manager of the Canteng Koneng gallery explained how to pioneer and manage this batik business until it still exists today. Every pattern painted on Canteng Koneng Batik seems to refer to one point of view, causing consumers to be immediately attracted when they first see it, namely "tera' bulen". Marketing has penetrated overseas marketing such as Malaysia, Singapore, Korea, and even the Netherlands. Currently, the company has 6 branches, with 60 employees. Profit every month is around 30 million, depending on sales and batik production. Social media management is also maximised by Canteng Koneng, one of which is Instagram to archive copyrights if there is a new batik that has just been made with a new motif. In addition, doing piety management is prioritising honesty. For direct waste disposal into the ravine by minimising the use of liquid waste. The future plan is to expand abroad again with international marketing. Build new branches and open many jobs for young people who are looking for work.

4.2 Exploring the concerns of green accounting implementation: viewed in terms of knowledge of business costs

Supporting the activities and operations of a business is very important to do. Business actors continue to make every effort so that the business they are starting can continue to operate and generate the expected profits. One of the things that is a factor in determining various management decisions is the emergence and allocation of business costs. According to Mulyadi [25] cost is "a sacrifice of economic resources measured in units of money, which has occurred, is occurring, or is likely to occur for a specific purpose,". Harnanto [26] defines cost as a certain amount of money from (economic) resources that are sacrificed (that have occurred and will occur) in order to obtain something or achieve certain goals. According to Hansen & Mowen [27] business cost knowledge includes costs incurred to support the activities carried out by the business unit and to finance the impacts that arise from its business operations. This knowledge includes the ability of business actors to identify the costs that arise in the production process in order to correctly calculate their profits.

Table 2. Knowledge of Business Costs.

No	Business Cost Knowledge Indicator	Response			
		Zulpah Batik	Shalempang Batik	Aneka Batik	Canteng Koneng Batik
1	Do you understand how to prepare funds to meet business costs?	Yes, I agree, currently there is also assistance from Universitas Bhayangkara Surabaya in the form of making absorption wells (WWTP) that use solar power.	Yes, I understand	Yes, I understand, and prepare funds for the cost of this business and also cooperate with one batik business in a different area.	Yes, I understand because what is called starting a business must already know how to prepare the business funds.
2	Do you measure business performance by the amount of profit?	Yes, usually if profit increases business performance also increases	No, there is no limit to business performance	Yes, the hope is that profits will increase business performance will also increase	Yes, profit increases in proportion to the increase in business performance
3	Do you know the components of business costs?	Yes, I understand quite well.	Yes, I know, but it is not written in detail. Business costs depend on stock-outs, whatever materials run out, they are ordered immediately.	Yes, such as raw material costs, electricity costs, Borongan wages, transport costs and others.	Yes, I understand
4	Do you have sufficient experience to manage business costs?	Yes, I understand, Business costs include the purchase of raw materials	Yes, I understand it, because I manage all the business costs myself.	Yes, from the start of this business I have managed the costs of this business.	Yes, because from the beginning of the establishment of this chanting koneng, I handled all the costs.
5	Do you know how to charge business costs in product price calculation and profit calculation?	Yes, I understand	Yes, I understand that the calculation of the cost of goods is based on my experience in running the business.	Yes, I know, I charge business expenses to calculate the price of the product so that I can get a profit.	Yes, from the determination of the cost of goods, for example the calculation of profit, I take 30%.

The majority of informants as batik business producers in the Madura region already know how to manage and allocate business costs. The ability to manage is obtained by self-taught and experience in managing their business. The experience is by calculating costs directly. Generally, they allocate business costs related to purchasing batik raw materials, paying the wages of batik craftsmen, and paying business operational costs (transportation costs, electricity and water costs). To determine the selling price and calculate the profit to be obtained, the business actors add up all expenses and the amount of batik produced. As one of the informants stated as follows :

"Yes, I know the costs that I incur every time I produce batik, and also I adjust my employees' salaries according to their performance, the more they produce and the more difficult the batik is to work on, the more expensive the wages will be." (Owner of Chanteng Koneng batik, Mr Imam Mustain, 2023)

"Yes, I know the costs I use, the costs I incur I organise myself, so I know what costs are needed." (Batik Shalempang Owner, Mrs Imaniyah, 2023)

Interesting facts from the informants' statements as batik business producers in the Madura region show that they already have concern about the application of green

accounting in terms of business cost knowledge as presented in table 2. 1) First, informants as batik business producers in the Madura region already know how to manage and allocate business costs for business sustainability. 2) Second, one of the benchmarks in measuring their business performance is by knowing how much profit is obtained. Increased profits indicate that business performance is also increasing. Although the profits obtained had declined when the covid-19 pandemic took place at the end of 2020, after the pandemic it has gradually improved even though profits have not increased significantly. 3) Third, they already know the components of business costs such as costs for purchasing batik raw materials, paying wages to batik craftsmen, and paying business operational costs (transportation costs, electricity and water costs). However, for the details of expenses and income, sometimes they do not record systematically and regularly, so there is no financial report. 4) Fourth, they have sufficient experience to manage business costs based on their own experience from year to year. Finally, 5) Fifth, they already know how to charge business costs in calculating product prices and calculating/determining profits.

4.3 Exploring the concerns of green accounting implementation: in terms of environmental cost knowledge

Ikhsan [16] describes environmental costs as the impact arising from the financial and non-financial side that must be borne as a result of activities that affect environmental quality. According to Gunawan [28]

environmental costs are defined as costs incurred due to low environmental quality as a result of the production process carried out by small and medium enterprises. Through the application of green accounting, it is expected that the environment will be preserved, because in applying green accounting, business actors will voluntarily comply with these government policies in running their business.

Table 3. Environmental Cost Knowledge.

No	Environmental Cost Knowledge Indicator	Response			
		Zulpah Batik	Shalempang Batik	Aneka Batik	Canteng Koneng Batik
1	Do you agree that environmental costs are the business responsibility of the company?	Yes, I agree, we also received assistance from Bhayangkara University Surabaya in the form of a batik wastewater treatment plant (IPAL) that uses solar power.	Yes, I agree, because it is our responsibility to protect the environment.	Yes, I agree, currently we also receive assistance from the government in the form of making absorption wells.	Yes, because it is part of our responsibility
2	Do you understand the allocation of environmental costs that need to be met/paid?	Yes, costs such as maintenance of the batik tools used.	Yes, I understand, because I pay for it myself.	Yes, costs such as maintenance of absorption wells. The cost of purchasing waste neutralisers.	Yes, I understand it, but the environmental costs we incur are not too high.
3	Do you understand the details of each expenditure on environmental costs?	Yes, I understand.	Yes, I understand, because I paid for it myself.	Yes, I understand.	Yes, because we very rarely use the environmental fee because we direct the waste water to the ravine near my house.
4	Do you use environmentally friendly materials to make batik?	Yes, one of the materials used is natural materials, but synthetic materials are also used.	Yes, because I use natural materials and also organic materials.	Yes, one of the materials used is natural.	We do not use natural materials, we use synthetic colouring materials which we process before using them.
5	Do you understand the various costs involved in managing business waste?	Yes, but I did not spend much on it, because my waste management uses solar power. But yesterday I had to repair it because the solar power was struck by lightning.	Yes, because I spent money on the maintenance of the waste disposal site.	Yes, such as the cost of maintenance of absorption wells, the cost of purchasing neutralising agents.	Yes, I know, but because the environmental cost for batik is not that big, because we produce little waste. And it is safe to dispose of it directly.
6	Do you charge environmental costs as part of operating expenses?	Yes, included in business expenses.	Yes, I have now built this waste filtration plant, and the initial cost of making the batik production waste channel from the pipe to the sewer	Yes, included in business expenses.	Yes, of course, but this environmental cost is not that big.

In general, MSME batik producers in the Madura region are aware of the associated environmental costs. They are aware of the importance of environmental costs as a form of accountability for their business operations. Environmental costs incurred as business expenses have been accommodated to the business operating costs that are borne by business actors. However, despite knowing about environmental costs that are charged to business expenses, they do not spend much on environmental costs in such a large amount.

Interesting facts from the informants' statements as batik business producers in the Madura region show that they already have a concern for the application of green accounting in terms of knowledge of environmental costs, but are still not optimal in reconciling details related to environmental cost expenditures.

This is evidenced by the following indicators as presented in table 3 : 1) First, informants as batik business producers in the Madura region agree that environmental costs are a form of accountability for the

sustainability of their business. 2) Second, they understand the environmental costs that need to be met/paid. Such as the cost of maintaining the batik tools used, maintaining absorption wells and the cost of purchasing waste neutralisers. 3) Third, they understand every expenditure made for environmental costs. However, the environmental costs they incur do not contain detailed details of their expenses. There are even those who rarely allocate environmental costs, because the batik waste produced is only a little and is directly thrown into the ravine, as is the case with Batik Canteng Koneng. 4) Fourth, using environmentally friendly materials to make batik, but there are also those who use synthetic dyes like in Batik Canteng Koneng. 5) Fifth, understanding the variation of costs incurred to manage business waste. They do not incur a large amount of environmental costs. Lastly, 6) Sixth, charging environmental costs as part of the cost of production.

4.4 Exploring the concerns of green accounting implementation: viewed in terms of personal expenditure style

This personal spending style is used as a form of measurement to determine how far business actors understand the expenditure of funds and how to manage finances for the business being managed. This personal spending style can provide special attention for business actors to be able to sort out the interests of business funds and personal funds. According to Pentiana [9] the personal spending style of business actors will have an influence on their individual spending style. This is an important thing that every batik business owner must pay attention to.

Table 4. Personal Spending Style.

No	Personal Spending Style Indicator	Response			
		Zulpah Batik	Shalempang Batik	Aneka Batik	Canteng Koneng Batik
1	Do you differentiate between personal expenses and business expenses?	No, because I organise all the incoming and outgoing funds in this batik myself	Yes, I differentiate between my personal expenses and my business expenses, for the sake of the long term.	Yes, I distinguish between the two	Yes, I distinguish between the two
2	Is it important for you to understand and know that for business activities not to make wasteful expenses?	Yes, so that expenses can be minimised and for the long-term good of the business.	Yes, I understand and it is important not to incur expenses that are deemed unnecessary, for the sake of business continuity.	Yes, I have managed well in such a way from the beginning of building this business.	Yes, for me it is important for business continuity
3	Do you check the availability of funds when deciding to buy something for your business?	Yes, I check so that I know how much to spend on the business that will be run. And if there are excess funds then I can stock raw materials.	Yes, because I have to know how much to spend on my business and check my funds.	Yes, of course I always check the raw materials and when checking the stock I adjust to the existing funds.	Yes, I adjusted to the available funds.
4	Are you always more careful with personal expenses than business expenses?	No, I make purchases according to my needs	Yes, it is necessary to check every expense, especially for business expenses.	Yes, because the two expenses are different, I did not mix them.	Yes, it is necessary to differentiate between personal and business expenses.
5	Do you not worry about spending money on environmental needs as an important business expense?	No, because it is for the sake of business continuity.	No, spending on business costs does reduce profits, but it is also for the sake of protecting the environment.	No, yes, inevitably the environmental costs are our responsibility.	No, environmental costs are our responsibility.

In general, batik MSME actors in Madura have been able to sort out expenses for personal activities and for their business expenses. However, there is one business owner who still has not separated personal funds from business funds, such as Zulpah Batik. The management of business funds is important to be separated from personal funds, so that business financial management can be known in detail and clearly. One way to separate personal and business money is to create two different accounts. One account is for business transactions,

while the other is for personal accounts. This is important to do, whether the business is still on a small scale or already large. The impact of separating these funds is that it can assess business performance and facilitate decision making.

Interesting facts from the informants' statements as batik business producers in the Madura region show that they already have a concern for the application of green accounting in terms of personal spending style. This is evidenced by the following indicators as presented in

table 4: 1) First, they have been able to distinguish personal expenses from business expenses. However, there is one business owner who still does not separate personal funds from business funds, such as Zulpah Batik. This is because they feel that they can manage all the entry and exit of business funds by themselves. In the future, Zulpah Batik is expected to be able to separate between personal funds and business funds in order to determine business profits and business performance. 2) Second, for them it is important to understand and know that for business activities do not make expenditures in vain, in order to sustain the business, long-term goals, and maximise profits. 3) Third, the majority of them as business actors when deciding to make expenses, they will first check the availability of funds. 4) Fourth, they also prioritise a cautious attitude in making personal expenses compared to business expenses, by not mixing the two. Finally, 5) Fifth, they do not worry about spending money on neighbourhood needs as a business expense that is important for the sustainability of the business.

4.5 Exploring the concerns of green accounting implementation: viewed in terms of environmental concern

According to Puspitasari & Rokhimah [29] the sacrifice of environmental costs incurred by business actors is not just valued in units of money that have been issued or have not been issued. The sacrifice of environmental costs in question is more about how business actors can care more about the surrounding environment by doing real examples that exist. It is common that batik waste can have an impact on environmental pollution, if business actors are not aware of their concern for the surrounding environment. According to Yuliana & Silistyawati [24] the awareness of the community towards their environment gave the idea to hold a green movement as a form of consequence of the industry concerned. This environmental concern is what underlies the emergence of green accounting.

Table 5. Environmental Concern.

No	Environmental Concern Indicator	Response			
		Zulpah Batik	Shalempang Batik	Aneka Batik	Canteng Koneng Batik
1	Do you know how to protect the environment?	Yes, I know, so I made a waste filter so that the waste can be reused and so far the waste has no problems.	Yes, like this business makes waste filters, so that the waste does not damage the environment.	Yes, I know, so I made an effluent filter so that the effluent can be used for watering plants.	Yes, I know, even if I throw the waste into the ravine. I consider whether it is safe or not, to avoid damage.
2	Do you know that protecting the environment is the same as maintaining business survival?	Yes, in order not to pollute the environment and also for the benefit of the business in the long term, so it is necessary to protect.	Yes, that's right.	Yes, so as not to pollute the environment and also for the benefit of the business in the long term.	Yes, because that is part of us protecting the environment.
3	Do you always keep your business waste from polluting the environment?	Yes, I always take care, such as using this WWTP to treat the waste.	Yes, I make a filter for this business waste so that it does not pollute the environment.	Yes, I always take care of it, such as filtering the absorption wells.	Yes, I take care of this.
4	Do you always use environmentally friendly raw and auxiliary materials?	Yes, like natural materials, but I also use synthesised materials.	Yes, I use dyes that are made from natural materials.	Yes, like natural materials	Yes, although I use synthesised materials before use we process them first.
5	Do you always sort out organic and non-organic business waste?	No, because I filter it in the same filtering device, namely the WWTP.	Yes, but usually this batik production waste is in the form of liquid waste.	Yes, usually the batik production waste is in the form of liquid waste. We also rarely have batik waste here because usually those who produce batik at the batik craftsmen's place.	Yes, we use non-organic materials, because even though we use non-organic materials we minimise the waste.
6	Do you always buy environmentally friendly business equipment?	Yes, one of them is colouring from natural materials.	Yes, the hope is to preserve the environment. There is batik production from natural dyes, and there are also synthetic or artificial dyes.	Yes, one of them is dyes from natural materials, and also waste from malan is used as burning by residents.	Not really, because the materials used here are organic materials.

The informants already know about protecting the environment around the batik-making business, and also provide support by building a batik IPAL (Waste Water Treatment Plant) as a form of protecting the environment so that their business waste does not pollute the environment around their place of business. As in Zulpah Batik and Shalempang Batik, which have built WWTPs to treat batik waste in order to preserve the environment and business sustainability. Interesting facts from the informants' statements as batik business producers in the Madura region show that they already have concern about the application of green accounting in terms of environmental care. This is evidenced by the following indicators as presented in table 5: 1) First, they as business actors know ways to protect the surrounding environment, such as filtering waste by making a batik waste treatment plant so that the waste does not pollute the environment. Of the four informants, not all of them have built a WWTP, only Zulpah Batik and Shalempang Batik. Aneka Batik uses absorption wells, while Canteng Koneng Batik channels/discharges batik waste into the ravine, which still pays attention to the surrounding environment. 2) Secondly, they understand that preserving the environment is the same as preserving the survival of the business for the long term. 3) Third, they keep the business waste from polluting the environment, such as filtering the absorption well. 4) Fourth, they use environmentally friendly business equipment and raw materials, although not all batik colouring materials use natural dyes. 5) Fifth, sorting organic and non-organic business waste, and 6) Sixth, always buying environmentally friendly business equipment.

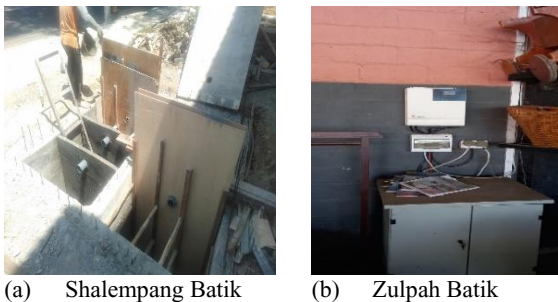


Fig. 1. Batik Liquid Waste Treatment through Wastewater Treatment Plant (WWTP).

Green accounting or often also called environmental accounting is an accounting concept that links or includes environmental costs or budgets in corporate activities. Green Accounting is accounting in which it identifies, measures, presents, and discloses the indirect costs and benefits of corporate activities related to the environment and social. Green accounting is a type of environmental accounting that describes efforts to incorporate environmental benefits and costs into economic decision making or a business's financial results. Through the application of green accounting, it is expected that the environment will be increasingly preserved. The goal is to increase the efficiency of environmental management by assessing environmental activities from the point of view of costs (environmental

costs) and benefits or effects (economic benefits), and produce environmental protection effects.

The objectives of implementing green accounting include the following 1) Encourage entity accountability and increase environmental transparency; 2) Assist entities in setting strategies to respond to environmental issues in the context of the entity's relationship with society and especially with activist or pressure groups related to environmental issues; 3) Provide a more positive image so that the entity can obtain funds from groups and individuals, along with increasing ethical demands from investors; 4) Encourage consumers to buy green products and thus give the entity a more competitive marketing advantage compared to non-disclosing entities; 5) Demonstrate the entity's commitment to environmental improvement efforts; and 6) Prevent negative public opinion given that companies operating in environmentally risky areas will generally receive challenges from the public.

5 Conclusion

Batik producers in the Madura region as business actors as well as MSMEs in the creative economy sector have a good understanding and concern in protecting their business environment as a form of implementing green accounting. This understanding and concern is reflected in the understanding and allocation of business costs and environmental costs, as well as the separation of personal funds from business funds. Although in practice they have not been able to know and show details related to business costs and environmental costs, they have understood that environmental costs are costs charged to their business as a form of responsibility. Responsibility for environmental care is something that must be considered in business management. Zulpah Batik and Shalempang Batik are among the batik producers that have built a Waste Water Treatment Plant (WWTP) to treat their batik waste. Zulpah Batik has not separated business funds from personal funds. Although the owner is careful in spending funds, it would be better if personal funds and business funds are separated. The impact on the management of business costs and environmental costs is not good. This happens because the actors' abilities are obtained by themselves, this experience is one of the concerns for the government to improve socialisation. The government and related parties can provide socialisation on the importance of a business protecting the environment around its business by managing business costs and environmental costs as a form of green accounting implementation. Suggestions for further research can use different research methods, or can also add a wider research object.

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References

1. Meyer, B. H., Prescott B., & Sheng, X. S. *The Impact of the COVID-19 Pandemic on Business Expectations* International Journal of Forecasting, **38**, 2, 529-544 (2022), <https://doi.org/10.1016/j.ijforecast.2021.02.009>
2. Kemenkeu, 2023. Pandemi Covid-19 dan Menurunnya Perekonomian Indonesia. <https://www.djkn.kemenkeu.go.id/artikel/baca/16064/Pandemi-Covid-19-Dan-Menurunnya-Perekonomian-Indonesia.html#:~:text=Di%20Indonesia%2C%20pandemi%20Covid%2D19,turunnya%20volume%20investasi%20yang%20dilakukan>. Diakses pada 21 Mei 2024.
3. Herlindawati, D., Kantun, S., Widayani, A., & Tiara, T. (2022). Pemahaman dan kepedulian dalam implementasi green accounting oleh UMKM produsen kain batik. *Akuntabel: Jurnal Akuntansi dan Keuangan*, **19**(1), 22–32. <https://doi.org/10.30872/jakt.v19i1.10792>
4. Kemenkeu, 2022. Peran Penting UMKM dalam Ancaman Isu Resesi. <https://www.djkn.kemenkeu.go.id/kpkn-balikpapan/baca-artikel/15677/Peran-Penting-UMKM-dalam-Ancaman-Isu-Resesi.html#:~:text=UMKM%20mampu%20menyerap%2097%20persen,serap%20tenaga%20kerja%20sangat%20besar>.
5. Listiyaningrum, A., Rustiana, A., & Saeroji, A. (2020). Strategi Pengembangan Batik Berbasis Ekonomi Kreatif Kampung Batik Kauman Pekalongan. *Business and Accounting Education Journal*, **1**(2), 116–127. <https://doi.org/10.15294/baej.v1i2.41012>
6. No. 7 Tahun 2021 Tentang Kemudahan, Pelindungan, dan Pemberdayaan Koperasi dan Usaha Mikro, Kecil, Dan Menengah.
7. Nasution, H., & Agustin, S. A. (2020). Analisis Aktivitas dan Biaya Lingkungan dalam Mewujudkan Green Accounting pada BUMDes Setia Asih. *Jurnal Penelitian Teori & Terapan Akuntansi (PETA)*, **5**(2), 17–35. <https://doi.org/10.51289/peta.v5i2.441>
8. Kusumawardhany, S. I. (2022). Strategi Green Accounting Sebagai Bagian Penerapan Etika Bisnis psada UMKM. *Jurnal Akuntansi Dan Bisnis*, **2**(2), 82–89.
9. Pentiana, D., *Pemahaman dan Kepedulian Penerapan Green Accounting: Studi Kasus UKM Tahu Tempe di Kota Bandar Lampung*, Jurnal Ilmiah ESAI, **133**, 1, 38 (2019), <https://doi.org/10.25181/esai.v13i1.1271>
10. Aniela, & Yoshi, *Peran Akuntansi Lingkungan dalam Meningkatkan Kinerja Lingkungan dan Kinerja Keuangan Perusahaan*. Berkala Ilmiah Mahasiswa Akuntansi, **1**, 1 (2012)
11. Narsi, I. Bessi, A. & Manehat, B Y., *Penerapan Green Accounting pada Pelaporan Keuangan UMKM (Studi Literatur UMKM di Indonesia)*, Jurnal Akuntansi, Keuangan, dan Audit, **8**, 1, 21-26 (2023)
12. Puspita, D. S., & Rokhimah, Z. P., *Pemahaman dan Kepedulian dalam Penerapan Green Accounting pada UKM Tempe di Kelurahan Krobokan, Kecamatan Semarang Barat* (2018)
13. Ja'far S, M., & Kartikasari, L., *Carbon Accounting: Implikasi Strategis Perencanaan Akuntansi Manajemen*. SNA XII Palembang (2012)
14. Wiedmann, T., & Manfred, L., *Third Annual International Sustainable Development Conference Sustainability – Creating the Culture*. Perth: Scotland (2006)
15. Cohen, N., & Robbins, P., *Green Business: An A-to-Z Guide*. Thousand Oaks (California: SAGE Publications Inc, 2011)
16. Ikhsan, A., *Akuntansi Lingkungan dan Pengungkapannya* (Yogyakarta: Graha Ilmu, 2008)
17. Martusa, R., *Peranan Environmental Accounting terhadap Global Warming*, Jurnal Akuntansi, **1**, 2, 164–179 (2009)
18. Musyarofah, S. Analisis Penerapan Green Accounting di Kota Semarang. Fakultas Ekonomi Universitas Negeri Semarang. ISSN 2252-6765 (2013), <http://journal.unnes.ac.id/sju/index.php/aj>.
19. Kwarto, F. Synchronization Of Green Accounting with Company Managerial Accounting; A Corporate Financial Department Perspective. (2010)
20. Fasua, Kayode Olushola, *Environmental Accounting: Concept and Principles*, Certified National Accountant, **19**,2 (2011)
21. Moleong L J. *Metodologi Penelitian Kualitatif (Remaja Rosdakarya Offset, Bandung, 2007)*
22. Creswell, J.W., *Research Design: Pendekatan Metode Kualitatif, Kuantitatif, dan Campuran*. (Yogyakarta: Pustaka Belajar, 2014)
23. Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* (Alfabeta, Bandung, 2017)
24. Yuliana, Y. K., & Sulistyawati, A. I., *Green Accounting: Pemahaman dan Kepedulian dalam Penerapan (Studi Kasus Pada Pabrik Kecap Lele di Kabupaten Pati)*, Jurnal Ilmiah Bidang Ilmu Ekonomi, **19**, 145, 45 (2021)
25. Mulyadi, *Akuntansi Biaya* (Edisi Lima. U STIM KPN, Yogyakarta, 2015)
26. Harnanto, *Akuntansi Biaya*, (Penerbit ANDI, kerjasama dengan BPFEUGM, Yogyakarta, 2017)
27. Hansen, Mowen, *Akuntansi Manajerial*, Terjemahan Dewi Fitriasari dan Deny Arnor Kwary, 7th ed. S(alemba Empat, Jakarta, 2019)
28. Gunawan, E., *Tinjauan Teoritis Biaya Lingkungan Terhadap Kualitas Produk dan konsekuensinya Terhadap Keunggulan Kompetitif Perusahaan*, Jurnal Ilmiah Mahasiswa Akuntansi, **1**, 2 (2012)
29. Puspitasari, Diana. Zulaika Putri Rokhimah

*Pemahaman dan Kepedulian dalam Penerapan
Green Accounting pada UKM Tempe di Kelurahan
Krobokan, Kecamatan Semarang Barat,
Proceeding of The 8th University Research
Colloquium 2018 (2018)*