

Article

Institutional Barriers and Facilitators of Sustainability for Indonesian Batik SMEs: A Policy Agenda

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Abstract: The implementation of sustainability-oriented practices in small- and medium-sized enterprises (SMEs) has been discussed frequently over the years. Recent studies on sustainability have focused mainly on links between ecological and economic sustainability. This exploratory study aims to explore institutional barriers and facilitators regarding the implementation of sustainability-oriented practices in the Indonesian batik industry and to provide policy recommendations. The Indonesian batik industry is well-known for its cultural heritage and for being part of the Indonesian identity. Batik products are mostly hand-crafted by women crafters. The study used in-depth insights from two focus groups conducted with entrepreneurs active in the batik industry, while also building on earlier empirical insights. The lack of customer knowledge and socio-cultural and regulatory factors were found to be barriers to sustainability in batik SMEs. Ecological, technological, socio-cultural, and political factors were found to facilitate achieving sustainability objectives. This study contributes to the sustainable entrepreneurship and women entrepreneurship literature by considering facilitators and barriers as they are experienced by batik entrepreneurs and by furthering the conceptualization of sustainable entrepreneurs as either “committed” or “followers”.

Keywords: batik industry; policy recommendations; sustainable entrepreneurship; female entrepreneurs

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1. Introduction

During the past two years, COVID-19-related measures have forced small- and medium-sized enterprises (SMEs) in developing countries to reduce their production capacity and employment, which has created an undesirable situation. The total early-stage entrepreneurial activity (TEA) in Indonesia has decreased dramatically from 14.09% (in 2018) to 9.60% (in 2020) [1]. This indicates that Indonesians, in general, seem to have become more cautious in creating new ventures, especially during the pandemic, due to high levels of uncertainty and instability.

Looking at the participation of women in entrepreneurship, it is interesting to note that Indonesia and MENA countries, i.e., countries in the Middle East and North Africa, on the one hand, show similarities in terms of religious beliefs and patriarchal systems, which might also ultimately affect the ways in which entrepreneurship is conducted [2]. On the other hand, interestingly enough, unlike MENA countries, as reported by [3], according to the Global Entrepreneurship Monitor (GEM), Indonesia and Kazakhstan are the only middle-income countries with an average TEA of women higher than that of men [1]. The ratio of women-led TEA increased in 2020 (1.10) compared to the data from 2018 (1.01) [1]. This indicates that Indonesian women seem to be more willing or able to deal with uncertainty during the pandemic than their male counterparts. This is an important observation because previous studies have argued that improving women entrepreneurship and increasing the number of women-led enterprises may play a significant role in

achieving a country's sustainable development goals [3] and creating more gender equality in the labor market, as well as in society as a whole. However, great concern for the ecological sustainability of these enterprises and how this might affect these entrepreneurs' living conditions and wellbeing remains.

Irresponsible consumption and production continue to burden our planet with waste and pollution. Waste and pollution from various industries disrupt the environment and affect people, while also endangering the long-term survival of whole industries. Consequently, ecological and social values have become the center of attention in Indonesia's tourism and creative sectors. SMEs are forced to critically re-evaluate their business strategies, especially regarding cleanliness, health, safety, and environmental sustainability (CHSE) [4]. Socio-ecological and economic challenges have, thus, risen for the batik industry in Indonesia [5–8].

Batik can be defined as a piece of art applied onto fabric using hot wax by creating little dots [9]. Batik is well-known for its cultural value and heritage function, representing the national identity of Indonesia [10]. It is mostly hand-crafted by women crafters [11,12] (see Figure 1).



Figure 1. Female batik crafter in Indonesia.

Since the industry is dominated by women, feminine qualities (e.g., caring for others and the environment, including other people's ideas and backgrounds in the business, taking care of kinship relations, and bearing in mind the prospects of the families involved in their enterprises) are often associated with the entrepreneurs in the industry [13,14]. Batik crafters are primarily home-based, and the production often involves collaboration among micro-, small-, and medium-sized enterprises (MSMEs) [9]. Approximately 212,000 Indonesians earn a living from making batik through inherited skills [15], and most live in rural areas. According to data provided by the Indonesian Ministry of Industry and Trade, there are approximately 50,000 batik enterprises in Indonesia, mostly concentrated in central Java in cities such as Cirebon, Yogyakarta, Pekalongan, and Surakarta [9]. Due to its unique characteristics, Indonesian batik is considered part of the World's Intangible Cultural Heritage of Humanity [10]. Nowadays, batik represents the identity and culture of a broader Indonesian society through a culturally meaningful piece of art that is used for daily activities from childhood until death. Batik fabrics are used to carry babies in a sling, for business and academic settings, for wedding rituals, to wrap the dead

during funerals, and much more [10]. Hence, the batik industry plays a significant economic and socio-cultural role in Indonesia and the surrounding developing countries.

The Indonesian batik industry is a sector with many SMEs. However, batik SMEs are hardly known for their ecologically sustainable behavior [6,7]. For example, per kilogram of batik produced, a batik SME can produce up to 125 L of wastewater, which may contain harmful substances from synthetic dyes and is often drained into rivers without proper water treatment [5]. Moreover, exposure to toxic substances and water pollution, in the long run, may have a domino effect for the women crafters, as they usually breastfeed their babies. Therefore, even though batik SMEs individually may not be the most significant contributor to environmental degradation—because they are small businesses and are home-based—their cumulative environmental impact could endanger the health and welfare of many families and communities [7,8]. This implies that a lack of ecological sustainability threatens to disrupt this industry's social and economic sustainability.

The Brundtland Commission (1987) defined sustainable development as the act of fulfilling current needs without disturbing the fulfillment of future needs. This definition suggests that resources available today should be used responsibly, effectively, and efficiently so that future generations can also use the resources to meet their needs. The three dimensions of sustainability, known as the triple bottom line, include ecological, social and cultural, and economic sustainability [16]. Recent studies on sustainability in the batik industry have mainly focused on the links between ecological and economic sustainability [17–20]. However, little attention has been given to the socio-cultural aspects of sustainability within this field. Hence, in order to address a gap in the literature concerning the triple bottom line in this industry and how this relates to gender issues, this paper aims to obtain better insight into how female and male Indonesian ecopreneurs who strive for sustainability can be encouraged to become more sustainable, with a focus on ecological and socio-cultural aspects.

Based on insights from an earlier pilot study concerning ecopreneurs' motivations towards (ecological) sustainability, this exploratory study seeks to understand the institutional barriers and facilitators with respect to implementing sustainability-oriented practices as experienced by sustainable entrepreneurs. Previous studies have found that facilitators of sustainability in SMEs are often related to socio-cultural factors and ecological factors [2,21–23]. Researchers have categorized the factors influencing sustainability in SMEs into individual, organizational, and institutional factors [24,25].

To explore institutional barriers and facilitators with respect to increasing sustainability in the Indonesian batik industry and to provide recommendations for policymakers, such as the Center of Craft and Batik, the following research questions are formulated:

- (1) *What are the institutional barriers experienced by female and male crafters in Indonesian batik SMEs to becoming more sustainable?*
- (2) *What are the institutional facilitators experienced by female and male crafters in Indonesian batik SMEs to becoming more sustainable?*
- (3) *How can batik SMEs, in general, and women-led batik SMEs, in particular, be supported to become more sustainable?*

The study is structured as follows: First, the study reviews the literature on sustainability in SMEs in general and, more specifically, in batik SMEs to provide a theoretical background. Then, the literature on the barriers and facilitators of sustainability in SMEs, particularly ecological and socio-cultural factors, is reviewed to identify theoretical concepts and gather data. We also investigate to what extent women can be empowered through sustainable entrepreneurship. Next, to complement and confront the literature review with empirical insights, data collected through two focus group discussions (FGDs) with four sustainable entrepreneurs in each session—hence, eight in total—is used. The FGDs explore the institutional barriers and facilitators of sustainability as they are experienced by entrepreneurs. Using a content analysis approach, the data are analyzed using Atlas.ti. The results of this analysis are provided and discussed, answering

the first and second research questions. Policy recommendations are formulated that address the third research question. Finally, a conclusion is provided to emphasize this study's theoretical and practical contributions and limitations, as well as an agenda for future research.

2. Literature Review

This section presents the perspectives used in this study. Firstly, it discusses sustainability in SMEs, in general, and in batik SMEs, in particular. Secondly, it reviews how prior research has discussed barriers and facilitators of sustainability in SMEs. Moreover, the review introduces the theoretical concepts used in the data analysis.

2.1. Achieving Sustainability Goals in SMEs

SMEs account for the majority of firms in developing countries, including Indonesia. In Indonesia, they are typically owned and managed by families who often tend to focus on daily operations and respond only to critical situations [26]. This implies that changing organizational strategies (towards increased sustainability) means changing the entire family business operation and beliefs. On the one hand, researchers argue that SMEs are often less flexible, as they are often more risk-averse [27]. On the other hand, compared to larger companies, SMEs also have limitations in terms of financial, technological, and human resources [23,26,28]. This implies that SMEs have specific strengths and weaknesses in responding to changes, especially those required to increase sustainability. Moreover, SMEs depend highly on their owners and managers for formulating and executing strategic decisions, as their values and beliefs concerning the organization and its environment often influence the decision-making process [26,27]. Thus, it can be said that the implementation of sustainability strategies in SMEs is mainly the result of the entrepreneur's desires and convictions.

Ecological sustainability goals can be achieved by adopting ecological entrepreneurship (i.e., ecopreneurship) practices, such as cleaner production practices, especially if the industry is prone to using harmful substances and inefficient resource utilization. Cleaner production is defined as strategic environmental management in the production process to reduce risks for people and the environment [29]. Therefore, adopting cleaner production approaches may significantly improve an industry's sustainability.

Threats to Sustainability in Batik SMEs

Sustainability in batik SMEs has mainly been associated with addressing ecological problems, which could also affect socio-economic sustainability. Ecological problems in the batik industry occur in most phases of the production process. Water, energy, and resource efficiency are fundamental challenges in the industry [7,20,28,30,31]. Wastewater generated by a batik producer can be up to 80% of the total water used [29]. In addition, batik wastewater contains hazardous substances, such as heavy metals, organic chemicals, and other nonbiodegradable substances, which are often drained into rivers without proper treatment [7,17,18,28,30]. Polluting rivers with hazardous wastewater could cause serious health risks for the people, animals, and plants near the river [30].

Energy-wise, prior studies have pointed out that batik SMEs often still use non-renewable energy, such as kerosene, in the production process [31]. Inefficient energy use contributes to ozone layer destruction and terrestrial ecotoxicity (the impact of toxic substances emitted to the ecosystem) [20]. The industry was also the biggest contributor to yearly CO₂ emissions [30]. Furthermore, the industry's inefficient use of raw materials is also a problem. Previous studies have found that much of the waste in the batik production process is derived from defective products produced during the pattern designing, waxing, and dyeing processes or through overproduction [19,32], as well as in the sewing and packaging processes [20]. This study assumes that increasing ecological sustainability could also be key to business improvement, which could help SMEs become more efficient

in production, protect the environment, and contribute to society whilst preserving their cultural heritage.

Examples of ecological entrepreneurship (ecopreneurship) practices in the batik industry include using natural dyes [7], increasing resource efficiency (including water, fabrics, wax, and dyes) [17–19], and using renewable energy [20]. Shifting to natural dyes could protect the environment and is safer for both the crafters' and consumers' skin [7]. In addition, using a greener energy source, such as solar panels, could be an ecological option to increase production capacity and profitability [20,31]. Regarding resource efficiency, previous studies have found that, if waste can be reduced and recycled, an SME could save up to EUR 5900 annually (converted to the current currency value from IDR), thus improving the efficiency rate up to 88.1% [19] and contributing to the local economy [33]. SMEs are often suggested to use local and reuse raw materials [20]. Moreover, other researchers have stressed that SMEs should introduce a long-term cleaner production strategy, such as Good Housekeeping (GHK) [20], that could increase their productivity by up to 118% [30]. Another study discussed how disruptive innovations in entrepreneurship could reduce poverty in emerging countries, such as China, and how the community, e.g., cultural group, plays a role in influencing the sustainability of a venture [34].

Based on this review, it appears that the ecological and economic aspects of sustainability have been discussed extensively in the literature. However, only a few researchers have discussed socio-cultural sustainability, especially in the batik industry in Indonesia. Our study, hence, provides additional knowledge in the domain of sustainable entrepreneurship, particularly in the context of SMEs within developing countries.

2.2. Barriers to Achieving Sustainability Goals in SMEs

According to [35], barriers to sustainability can be divided into four categories: knowledge barriers, financial barriers, market barriers, and regulatory barriers. However, financial and market barriers are often less perceived as such, mostly because sustainable entrepreneurs are less market-driven and have a long-term financial orientation [35]. In addition, there is no substantial difference between sustainable and regular entrepreneurs in terms of their perception of financial barriers [36]. As this study focuses on the ecological and socio-cultural aspects of sustainability, knowledge and regulatory barriers may be more apparent to sustainable entrepreneurs. Ecological and socio-cultural aspects of sustainability may also be apparent in knowledge- and market-related barriers. Socio-cultural aspects of sustainability can be apparent in regulatory barriers, as regulations usually set boundaries in the communities by defining which practices are and are not acceptable in the community.

Knowledge barriers are issues related to the structural absence of information about required technical skills, potential markets, technological innovation, and finding supportive partners for sustainability [16,35,37]. In batik SMEs, these knowledge barriers may also include a lack of knowledge about the potential risks of using hazardous and toxic substances in the production process that could pollute the environment, endanger the crafters' health, and disrupt the long-term profit [38]. In addition, there is a lack of knowledge about the conservation of plants for natural dyes and limited information about the availability of natural raw materials because the government rarely promotes or subsidizes the use of natural materials [39]. These limitations in terms of knowledge, thus, often relate to ecological aspects of sustainability practices, such as reducing pollution and opting for safer raw materials. A lack of sustainability awareness is also caused by limited information obtained by entrepreneurs about the ecological, social, and economic benefits and risks of becoming more sustainable [39–42]. There is also a lack of awareness related to the socio-cultural aspects of sustainability, as entrepreneurs are often unsuccessful in integrating sustainability into their SMEs' cultures. More specifically, for women, inadequate knowledge is often caused by limited access to education and business networks, which influences how women can acquire specific skills and abilities [3], including the competencies to respond to sustainability challenges in business. Thus,

knowledge barriers play an essential inhibiting role in SMEs' transition to greater sustainability.

In addition, for SMEs in developing or southeast Asian countries, in general, socio-cultural issues might hinder entrepreneurs from becoming more sustainable [42,43]. Other researchers identified cultural barriers at the institutional level, mostly related to the current norms and legislation in the industry, public policies, and the boundaries of what is considered acceptable behavior [36]. Similarly, as shown by [3], when reflecting on the entrepreneurial practices in MENA countries, in Indonesia, entrepreneurship still seems to be influenced by what society considers acceptable and desirable for different genders [2]. This implies that women not only have less access to entrepreneurial networks, capital, and knowledge but also have to conduct their businesses within the culturally ascribed boundaries of what is deemed acceptable for women entrepreneurs. In addition to gender, other identity categories, such as age and education, often also suffer from stereotypes in society. According to intersectionality theory, aging professionals are frequently stereotyped as weak, senile, possessing outdated skills, and prescriptive, which results in assumed underperformance at work [44,45]. As regulations and policies can create a part of social and environmental justice where each individual has the same rights to social and environmental progress, it is also important to include them in this study. Insufficient regulations and support from the government for environmental strategies are often found to be barriers to the transition to greater sustainability [42,43,46,47]. However, if better-developed (and this is ultimately reflected upon in the final part of this study), regulations and policies could also be considered to act as facilitators.

National governments usually formulate an environmental policy independently from the standards used in sustainability projects conducted by international organizations such as the United Nations, which might be problematic [48]. Government policies, such as unfavorable tax incentives, low prices of water, high energy subsidies, and weak enforcement of regulations, may cause delays in adopting cleaner production technologies in the industry [43,48]. As projects conducted by international organizations follow global standards, such as the SDGs, entrepreneurs are challenged to wisely adopt the recommended ecological practices with the local policies and regulations. UNIDO [48], short for the United Nations Industrial Development Organization, for instance, suggested that regulatory barriers should be tackled by making technical assistance available, building countries' capability, facilitating access to information on options that have worked, and supporting the generation of knowledge and information on the costs and benefits of reform and nonaction.

2.3. Facilitators of Sustainability in SMEs

Facilitators of sustainability in SMEs may vary based on the industry. In the tourism sector, Crnogaj et al. [22] suggested that, apart from socio-ecological factors, political and technological factors should also be considered in fostering sustainability in SMEs. This is due to the importance of the government's role in preserving natural and cultural heritage and ensuring that appropriate infrastructure, such as utilities, taxes, services, and regulations, is provided to support sustainable entrepreneurship [22]. Technological innovation could help seize opportunities and gain commercial benefits [22]. Although sustainability researchers in SMEs use different terms, the focus on facilitators in this study is mainly on improving performance to have positive effects on people and the planet.

Entrepreneurs face opportunities and risks in their businesses that are framed by contextual factors, such as informal and formal institutional structures [49]. Entrepreneurs, as the agents of institutional change, have to interact with these structures, including building relationships with stakeholders, building legitimacy, planning market entry strategies, and adopting technologies [49].

In the Indonesian batik industry, conservation values are important to sustainability [2]. Conservation values concern tradition, conformity, and security [50]. Moreover, Crnogaj et al. [22] (p. 381) contend that "socio-cultural sustainability implies respect for

social identity and social capital, community culture and its assets, and strengthening social cohesiveness and pride that will enable people to control their own lives.” This implies that cultural aspects are difficult to separate from sustainable behavior, as they often form the social norms attached to people’s ways of living. The presence or absence of social support can trigger different sustainable behaviors among entrepreneurs [49]. The presence of social support can positively influence sustainable behavior. Entrepreneurs might become more confident in adopting sustainable behavior, as confidence in one’s abilities generally enhances motivation [51]. The necessity to be supported by society is, particularly in a patriarchal society such as Indonesia, important for women to increase their self-confidence and acquire more independence, as well as more ‘institutionalized’ support from the government that their entrepreneurship is being legitimized. This, ultimately, could also positively affect the growth of their venture, as women sometimes tend to believe less in their own capabilities than men [3]. In contrast, the absence of social support in society may cause undesirable entrepreneurial behavior.

Furthermore, a positive climate for experimentation and learning about sustainable technologies can be fostered by formal institutions through policy interventions [49]. Policy interventions can also help new sustainability-oriented firms survive in the early stages through subsidies and regulatory adaptation [49]. Sustainability-supporting policies could also provide intangible benefits, such as building a positive image and a good reputation in the community, attracting skilled and loyal employees, and reducing the risk of noncompliance to socio-ecological sustainability [27]. Moreover, environmental standards and the competitiveness of new firms can be much improved by government-led knowledge transfer initiatives. Both Costache et al. and Munoz & Cohen [27,49] further mention that pressures from stakeholders, laws, and regulations, as well as standards and certifications, were found to be facilitators of sustainable behavior in business. Thus, it can be concluded that the government plays a significant role in enabling and assisting (female) entrepreneurs in making their businesses more sustainable.

2.4. Empowerment towards Sustainability for Women-Led SMEs

As Wood et al. [52] (p. 11) pinpointed, for women entrepreneurs in a collectivist society such as Indonesia, empowerment means “an enabling process of the individuals to contribute on a collective level for political and social change.” This means that to empower women to sustain their businesses and create political and social change, e.g., a sustainability movement, the programs offered in a particular country should be aligned with the women entrepreneurs’ personal goals and values. Empowerment aims to improve individuals’ capabilities, increase self-confidence to make strategic decisions, and translate these capabilities into desired outcomes [53]. Entrepreneurs who are not empowered tend to be trapped by institutional barriers, have limited access to potential markets, and lack the resources, knowledge, and information to help their enterprises grow [53]. However, increasing empowerment is an iterative process that takes time [52], similar to the process of making a business more sustainable. Currently, the entrepreneurial programs for women-led SMEs offered by the Indonesian Government are inflexible and require them to produce quick results. This contradicts the women’s needs to internalize entrepreneurial empowerment according to their personal goals and values (in this case, sustainability goals and values). Thus, there appears to be an urgent need to modify sustainable entrepreneurship programs and, specifically, to empower women-led SMEs by providing more space and flexibility for women to engage in the process of making their businesses more sustainable, including considering different age groups and education levels. Ultimately, for women entrepreneurs in such collectivist societies, to create a social movement towards sustainability in the creative sector, the concept of sustainability needs to be aligned with cultural norms, such as religious and ethnic values.

To conclude this literature review, the theoretical concepts used in this study point to the dimensions of barriers in the extant literature as knowledge, socio-cultural, and policies or regulations [35,36,38–41,48]. In comparison, the dimensions of facilitators

include ecological, socio-cultural, technological, and political factors [21–23,25,49]. These concepts are further discussed in the discussion section.

3. Methods

This study followed the suggestion of Nyumba et al. [54] to conduct focus group discussions (FGDs) to explore the perceptions and experiences of a target group on a specific issue—in this case, the institutional barriers and facilitators of sustainability experienced by sustainable entrepreneurs in Indonesia. An FGD is a scientifically recognized technique that involves a group of people aiming to better understand their personal experiences, beliefs, perceptions, attitudes, and challenges regarding a product, service, idea, or policy through a moderated interaction [54,55]. The FGD approach is mainly used by researchers to explore a topic that requires collective views, such as the barriers and facilitators of a phenomenon, and to extend knowledge, e.g., the findings of studies relating to the specific topic under study. As Redman-McLaren et al. [56] argued, it is an appropriate way to extend the analysis of existing qualitative data and to co-create new primary data. As elaborated before, in this exploratory study, we drew on an earlier pilot study. Moreover, FGDs can, through this co-creative nature, also be seen as a tool to jointly come up with new solutions or recommendations concerning a specific issue, which is in line with the last research question.

The technique is also often widely used among participants with tight schedules, and online FGDs are particularly aimed at participants in situations such as the COVID-19 restrictions and have been adopted in various cases by other researchers [57,58]. In addition, an online FGD is more dynamic, modern, and successful (due to its flexibility), especially in addressing problems that often occur in classical FGDs [54]. Virtual FGDs are considered a novel method for qualitative studies during the pandemic [57]. However, with an online FGD, participants living in rural areas might suffer from an unstable Internet connection or other technical issues. Nevertheless, an online FGD seemed to be the most suitable approach for this study, since the entrepreneurs in the batik SMEs were very busy and, at the time of collecting the data, travel limitations (due to COVID-19) were in place.

The first author facilitated the FGDs as a moderator and was assisted by a research assistant in each FGD who was familiar with the FGD technique. The research assistant advised the moderator of the FGD and was in charge of taking notes and timekeeping. The moderator acted as the host of the online FGDs, facilitated the discussions, and formulated follow-up questions to clarify answers. The set-up of the FGDs and the guidelines for the FGDs were carefully discussed with the other authors. Before addressing the data analysis and its results, we describe the sampling strategy and the participants' characteristics.

3.1. Sampling Strategy

Most of the participants in this study were purposely selected and invited to participate by approaching the prospective sustainable entrepreneurs through personal messages via WhatsApp and Instagram, as well as through snowballing. A total of ten participants were selected based on the rules of thumb recommended by other qualitative researchers [55,56]. For example, Bernard [59] (p. 175) suggests that “10–20 knowledgeable participants, for qualitative research other than ethnographic research, are enough to uncover and understand the core categories in any well-defined cultural domain or study of lived experiences.” Moreover, other researchers suggested that “a sample of six interviews may have been sufficient to enable development of meaningful themes and useful interpretations” [60] (p. 78). Therefore, we contend that our sample of seven female and three male batik entrepreneurs sufficed to develop meaningful themes and useful interpretations about the institutional barriers and facilitators perceived among women and men entrepreneurs in the batik industry in Indonesia.

SME owner-managers in the batik industry were the participants in this study. The role of owner-managers as the decision-makers in their enterprises and their adequate understanding of the SMEs' sustainable values, strategies, and practices were the main criteria for selecting them as participants. In addition to being the owner-manager of an SME, one of the participants, Satria, who was also the chief of the Batik Entrepreneurs and Crafters Association in Indonesia, had much overall knowledge in this field and knew much of sustainable batik entrepreneurship, including barriers and facilitators the entrepreneur experience. Observing clear patterns and similar themes in the 10 interviews, we determined that it was likely that a saturation point was reached [60,61]. Moreover, it has been noted that a bigger sample size could actually lead the researcher to fail to grasp the essence of complex and diverse data [62].

3.2. Participant Characteristics

The participants' demographics are provided in Table 1. The participants consisted of seven female owner-managers and three male owner-managers, aged 30–53 years old. We used pseudonyms to safeguard their privacy. The youngest SME was 4 years old, and the oldest was 23 years old. The number of employees varied from 3 to 300 people. Most of them produced handmade batik fabrics and ready-to-wear batik. Their ecological initiatives varied, but they mainly used natural dyes (wholly or partly), a wastewater treatment plant, and upcycling products.

Table 1. Participant characteristics.

No.	Owner ¹	Age (In Years)	Sex	Location	Firm Age (In Years)	No. of Crafters (People)	Products ²	Sustainable Practices ³
1.	Sumiyati	32	Female	Yogyakarta	21	5	BF	PND, IBS
2.	Arum	42	Female	Bantul	14	10	BF	PND, CP
3.	Bagas	38	Male	Bali	6	40	BWF	FND, WOE
4.	Mirna	30	Female	Jakarta	4	10	RWB	FND, AATHP, LM, IBS
5.	Ratna	38	Female	Jakarta	6	3	RWB	FND, ZWC
6.	Sutejo	50	Male	Gunung Kidul	20	15	BF	PND, IBS
7.	Satria	53	Male	Bandung	23	300	BF, RWB, Acc, HI	FND, IBS, WWTP
8.	Laksmi	46	Female	Yogyakarta	17	20	BSF	FND, IBS
9.	Larasati	52	Female	Bantul	13	20	BF, RWB	PND, WWTP
10.	Maharani	53	Female	Bantul	12	19	BF	PND

Notes: ¹ All names used in this study are pseudonyms; ² products: BF = batik fabrics; BWF = batik and woven fabrics; RWB = ready-to-wear batik; Acc = accessories; HI = home interior; BSF = batik and shibori fabrics; ³ sustainable practices: IBS = inherited batik-making skills; CP = continuous production; AATHP = above-average take-home-pay; FND = full natural dyes; PND = partly natural dyes; WOE = women and orphan empowerment; LM = local motifs; ZWC = zero-waste cutting; WWTP = wastewater treatment plant.

3.3. Data Collection

The study used primary data from two focus group discussions (FGDs). Based on findings from a previous qualitative study about entrepreneurs' ecopreneurship motivations in the batik industry [2], the FGDs were intended to explore the barriers and facilitators of becoming more sustainable in the batik industry more in-depth. FGD guidelines were developed to help the researcher conduct the FGDs (provided in Annex 1). The two in-depth FGDs lasted around 90 min. Each FGD was attended by four participants. The FGDs were conducted in the Indonesian language and were video-recorded. The

transcripts were translated into English with non-verbatim transcription. Due to the COVID-19 pandemic, the FGDs were conducted via Zoom. In addition, semi-structured, in-depth interviews with two additional women entrepreneurs in the batik industry were conducted to ensure saturation.

There were a few technical issues that affected the data collection. One of the participants could not join the discussion due to an unstable internet connection. Another participant was quite reluctant in evaluating the government's role as a facilitator, as well as their programs (Certification for Green Batik Industry Standards), due to his or her previous close relationship with government officials and prior involvement in one of the programs. However, the researcher managed to put all the participants at ease and convinced them to answer in objective terms about their experiences regarding the effectiveness of the Green Batik Industry Standards.

Reflecting on the data collection, in line with Nyumba et al. [54], there are three biases that often occur in group-based techniques such as FGDs that need to be discussed. First, to minimize the dominance effect [54], the researcher gave equal chances to every participant to answer the questions according to their experience and beliefs. In the beginning, the moderator (researcher) also mentioned that any opinion would be highly valued, as they were as important as any other opinions and that the researcher aimed to explore all the answers. Second, although the halo effect was inevitable [54] due to the well-known status of two participants, the researcher still aimed to explore all the participants' experiences and opinions; thus, follow up questions were formulated to reveal other interesting information from all the participants to include the experiences of the whole group. The well-known participants were urged by the researcher to be aware of their status and respect the other participants by giving them a chance to speak their minds. Last, to avoid group-think [54], the researcher managed to redirect answers following the participants' conditions to sharing their own experiences.

3.4. Data Analysis

The primary data were processed using Atlas.ti software for better documentation and data management. The FGDs and interview transcripts were analyzed using content analysis, as Nyumba et al. [54] suggested. Content analysis allows a researcher to systematically analyze data by organizing the information into categories and recognizing an undetectable pattern by only listening to recordings or reassigning transcripts. The FGD and interview transcripts were coded based on theoretical concepts from the literature to improve the conceptual development.

The data were coded deductively in two stages: initial and focused coding. In the initial coding stage, the researcher, i.e., the first author of this article, listed emerging ideas and identified keywords that often occurred as indicators of important themes. In the focused coding stage, the data were coded and categorized into conceptual themes using inclusion and exclusion criteria. This meant that only data related to the focus of this study were included in this process. The entrepreneurs' perspectives on the barriers and facilitators for sustainability in batik SMEs, especially those related to the ecological and socio-cultural aspects of sustainability, were analyzed.

The reporting of the categories using the most illustrative excerpts concerning the topics identified in relation to the ecopreneurs' experienced barriers and facilitators was inspired by a discursive approach. This meant that we, while reflecting on the excerpts, not only took into account what kinds of issues these sustainable entrepreneurs experienced, but also looked at how these themes were discussed and interpreted why they were discussed in these ways [63]. Lastly, the excerpts, terms, categories, and theoretical concepts were summarized, presented in Tables 2 and 3, and discussed based on the literature.

Table 2. Barriers to sustainability in batik SMEs.

Excerpts	Initial Coding		Focused Coding
	1st Theme	Category	Theoretical Concept
I still have to educate my customers about the complexity of the production process of eco-friendly batik products (Mirna, 30, F).	Sustainable products	Lack of batik knowledge	Customer knowledge
It is difficult to shift batik crafters' mindsets towards sustainability due to their low level of education. This is especially true for older crafters (Arum, 42, F).	Elderly crafters	Shift of mindset	Socio-cultural
Many crafters think that they do not need to follow the global trend because they are happy as they are right now, although it has become apparent that the financial loss is real (Satria, 53, M).	Comfort zone	Risk-averse	
I often have doubts about the sustainability of my business and how my idealism could make the business be sustained not only ecologically and socially, but also economically (Ratna, 38, F).	Idealism and business	Harmony	
Unhealthy competition among batik crafters is still happening, also to me. This is what hinders batik crafters to innovate sustainably (Mirna, 30, F).	Unhealthy competition	Sustainable innovation	Regulatory
Batik SMEs still depend on imported raw materials, while Indonesia is a very rich country with an abundance of local resources, particularly those derived from nature (Mirna, 30, F).	Local raw materials		
Based on my experience, people identify sustainable products by their certified use of local materials. For some materials, the certificate is available, but for some it is not (Ratna, 38, F).	Certified local materials		
Batik production is dominated by low-budget markets, such as schools and civil servant uniform producers, and currently the government overlooks the potential of eco-batik for public procurement (Sutejo, 50, M).	Local public procurement	Lack of support	
To me, supporting export regulations for sustainable batik SMEs is important to help them promote their products abroad and increase the SMEs' willingness to provide excellent products (Bagas, 38, M).	Export		
The current standards to certify the authenticity of batik are not supported by laws, which would help protect the rights of batik SMEs who have obtained the certificate (Satria, 53, M).	Intellectual property rights		
There are many civil servants in governmental institutions who make the process of becoming more sustainable more difficult (Laksmi, 46, F).	Bureaucracy	Conflicts of interest	

Table 3. Facilitators of sustainability in batik SMEs.

Excerpts	Initial Coding		Focused Coding
	1st Theme	Category	Theoretical Concept
Indonesia has a great potential for natural raw materials, which should be further explored. That is why I use natural raw materials in my business (Ratna, 38, F).	Natural raw materials	Local resources	Ecological
In terms of values, our communities welcome our eco-friendly batik, although the synthetic-dyed batik is still preferred due to its brighter colors and lower price (Arum, 42, F).	Sustainable values	Community support	Socio-cultural
We are concerned with the other women crafters in our neighborhood. Therefore, we want to be able to share our	Sustainability knowledge		

knowledge on eco-friendly batik with them so they can try it themselves (Larasati, 52, F).			
I see emerging interest in sustainable products among youngsters in Indonesia through community groups, and this is what keeps me motivated (Ratna, 38, F).	Sustainable products	Interest among youngsters	
I collaborate with fashion designers for my collections because I think this is a great idea to develop new products, especially to attract young generations (Satria, 53, M).	Collaboration with designers		
For me, the most important support is from the crafters themselves; without them, we are nothing (Arum, 42, F).	Support	Crafters	
Being able to generate a decent income for the crafters is what keeps me going in producing sustainable batik (Mirna, 30, F).	Decent payment		
I am glad that my friend lent me his dyeing machine to make my production process more efficient (Sutejo, 50, M).	Dyeing machine	Efficiency in production	
Digitization to store batik motifs is necessary due to unexpected occurrences of natural disasters, unorganized handling, and the loss of cultural archives (Satria, 53, M).	Batik motifs	Digital archiving	Technological
I would feel more confident if the government would give moral support for sustainable batik SMEs, like us. It means a lot to us (Bagas, 38, M).	Appreciation	Moral support	
I always try to abide by the referrals and suggestions from the government, so we can run the business smoothly, and using natural dyes is suggested by the government (Maharani, 53, F).	Regulations	Regulatory support	Political

4. Results

This section explains the FGD results and, thus, the barriers and facilitators to becoming more sustainable in the batik industry as experienced by the interviewed sustainable entrepreneurs. Although, as said before, the participants in the FGDs also mentioned barriers and facilitators related to economic sustainability, this study focused on the other aspects of sustainability, namely ecological and socio-cultural sustainability. This is because economic sustainability has already been widely discussed in the literature. The barriers and facilitators found in this study are presented deductively based on the associated theoretical concepts and are explained by the excerpts from the participants. The knowledge-related, socio-cultural, and regulatory barriers are summarized in Table 2. The facilitators, including ecological, socio-cultural, technological, and political support, are presented in Table 3.

4.1. Barriers to Sustainability: Batik Entrepreneurs' Perspectives

The study found three institutional barriers related to environmental and socio-cultural aspects of sustainability. The barriers included customer knowledge, as well as cultural and regulatory barriers.

4.1.1. Knowledge Barriers

According to Mirna, one of the FGD participants, customers lack knowledge about sustainable products. She mentioned that:

"I still have to educate my customers about the complexity of the production process of eco-friendly batik products." (Mirna, 30, F)

This excerpt shows that becoming more sustainable requires a considerable effort for SMEs due to the limited knowledge of their customers. Educating the customers about eco-friendly products may take years to fully understand the benefits and influence other

customers to buy. The challenge might also be due to the incorrect identification of the target market. The ecological value of an eco-friendly product is most valued by ecologists or sustainability enthusiasts. Low-budget customers have an economic orientation, while eco-friendly customers may be more aware of ecological and socio-cultural sustainability due to ecopreneurship practices.

4.1.2. Socio-Cultural Barriers

Regarding the cultural barriers, the study found three issues: the required shift in mindset among elderly crafters, a lack of harmony between idealism and business, and risk-averse traits amongst the crafters. To shift the mindsets of elderly crafters is not an easy task for entrepreneurs in the batik industry. Arum shared her experiences in this respect during the FGD:

“It is difficult to shift batik crafters’ mindsets towards sustainability due to their low level of education. This is especially true for older crafters.” (Arum, 42, F)

From this excerpt, it can be understood that elderly crafters come from an elementary education background. Some of them might not even have had the chance to experience education at all. They have inherited batik-making skills from their parents or ancestors, and they use these skills to earn a living. These elderly crafters seem to be more conservative than younger crafters. This shift in mindset has been a barrier for most entrepreneurs who want to become more sustainable. Since old crafters currently dominate the batik industry, the barrier has become more apparent, especially when the regeneration of crafters is limited. In addition to a low level of education, older crafters are often unwilling to leave their comfort zones. Satria explained this as follows:

“Many crafters think that they do not need to follow the global trend because they are happy as they are right now, although it has become apparent that the financial loss is real.” (Satria, 53, M)

This excerpt emphasizes that the crafters are often risk-averse. They are comfortable following their habit in making batik. The older crafters dye batik using synthetic dyes, as their ancestors taught them. Shifting towards sustainability means changing their habitual sequences of making batik, which also means learning a new technique. Learning new techniques might not be accessible for some people due to their cognitive abilities. Socio-culturally, these barriers have become an important issue due to the sustainability of cultural heritage and batik values.

Another cultural barrier experienced by the batik entrepreneurs was the lack of harmony between sustainable idealism and the economic sustainability of the SME. Ratna mentioned:

“I often have doubts about the sustainability of my business and how my idealism could make the business be sustained not only ecologically and socially, but also economically.” (Ratna, 38, F)

From this excerpt, it can be understood that, on the one hand, Ratna would like to be sustainable by acting in ecologically and socially responsible ways. On the other hand, she would like to keep her business economically sustainable. During the FGD, Ratna further explained that, with the current situation (COVID-19 pandemic) where it has been a challenge not only for regular entrepreneurs but also for sustainable entrepreneurs, her business is experiencing a hard time, too. However, the turbulence of the pandemic has made her think more creatively. Although she sometimes had doubts about her idealism and consistency in adopting sustainable practices, she managed to turn the challenges into opportunities.

In addition, Mirna shared her bitter experiences in becoming more sustainable in business. She mentioned that:

“Unhealthy competition among batik crafters also exists. It also happened to me. This is what hinders batik crafters from innovating sustainably.” (Mirna, 30, F)

Mirna further testified that, earlier on, a competitor stole the name of her brand, the concept, and the identity of her business. In this case, nothing could be accomplished to regain the brand name. Therefore, Mirna had to create a new brand with a more mature concept and precautions regarding any disrespectful behavior from competitors. From Mirna's case, we learned that the more unique a business concept is, the more attractive it is for competitors to copy and paste the ideas onto their own business. Worse, in some situations women entrepreneurs seem to be viewed as less powerful in protecting their businesses due to their feminine values of living in harmony. Thus, women often become the victims of disrespectful behavior among business actors. However, seeing challenges as an opportunity is a skill needed by an entrepreneur to sustain their business. This is also what Mirna achieved; she overcame the misfortune by building a more sustainable enterprise with a different brand name, and now the brand is internationally renowned.

4.1.3. Regulatory Barriers

Lacking support from the government and bureaucracy issues have created substantial barriers to SMEs' intentions to become more sustainable. The government's lack of support includes support for promoting local raw materials, local public procurement, and intellectual property rights (IPRs). Related to the (lack of) support for local raw materials, Mirna shared her opinion as follows:

"Batik SMEs still depend on imported raw materials, while Indonesia is a very rich country with an abundance of local resources, particularly those derived from nature."
(Mirna, 30, F)

From the excerpt, it becomes clear that Mirna emphasized that Indonesia has much natural potential to be explored. However, this great potential remains underexplored. One of the local raw materials widely available in Indonesia is hemp fiber. Mirna knew about this natural potential from other crafters but had not heard any recommendations from the government about these local raw materials, which can be used in batik production. Mirna further mentioned that the crafters would significantly benefit from hemp fiber in batik production. Ecologically, they could protect the environment from chemical pesticides, which is the most durable natural fiber. Despite the abundance of benefits of using hemp fiber, the plant is similar to cannabis, which is forbidden from being cultivated in Indonesia. This might explain why using hemp fiber is not recommended by the government.

The following regulatory barrier is lacking support from the government in certifying local raw materials and local public procurement. The concern was explained by Ratna:

"Based on my experience, people identify sustainable producers by their certified use of local materials. For some materials the certificate is available, but for some, it is not."
(Ratna, 38, F)

This excerpt emphasizes that, in Indonesia, certified local raw materials for batik production are still rare, whereas in developed countries, these raw materials play an important part in producing sustainable products. This implies that, if batik SMEs could use certified local raw materials at an affordable price, they could market their sustainable products abroad and have a greater chance of complying with export regulations. Furthermore, still related to the locality, limited local public procurement is also a problem that hinders SMEs from producing eco-friendly batik. Sutejo explained that:

"Batik production is dominated by low-budget markets, such as schools and civil servant uniform producers, and currently, the government has overlooked the potential of eco-batik for public procurement." (Sutejo, 50, M)

From what Sutejo explained, it can be deduced that the demand for eco-friendly batik products currently mainly comes from nongovernmental and nonschool customers. In Indonesia, however, batik uniforms are mandatory in every governmental institution and

school. Batik has become the identity of the students and civil servants. Public procurement follows the regulations and budget of each region. If the regulations do not force these institutions to purchase eco-friendly products (batik) and the budget is limited, public procurement orders more affordable synthetically dyed batik, or even worse, uniforms from textiles with batik-like motifs.

In addition, there appears to be a lack of supportive export regulations for batik producers. This barrier was mentioned by Bagas:

“To me, supporting export regulations for sustainable batik SMEs is important to help them promote their products abroad and increase the SMEs’ willingness to provide excellent products.” (Bagas, 38, M)

Hence, Bagas emphasized that SMEs are having difficulties meeting export regulations. As a consequence, not many SMEs can sell their products abroad. Whereas, if the SMEs were able to meet the standards, they could obtain more recognition from international consumers who are more sustainability-oriented. In addition, the batik SMEs would also become more motivated to produce sustainable products.

In terms of intellectual property rights (IPRs), Satria shared his experience that protecting his products from irresponsible SMEs is a great challenge. He further explained that,

“The current standards to certify the authenticity of batik are not supported by laws, which could help protect the rights of batik SMEs who have obtained the certificate.” (Satria, 53, M)

During the FGD, Satria shared that he tried to use the latest technology of Batik Mark Apps offered by the Center of Craft and Batik (BBKB). These apps help customers identify authentic batik, but when other SMEs used the same pattern, he faced difficulties claiming his products.

Lastly, bureaucracy was part of the regulatory barriers. According to Laksmi, Indonesia is too rigid as a result of bureaucracy. She further mentioned:

“There are many civil servants in governmental institutions who make the process of becoming more sustainable more difficult.” (Laksmi, 46, F)

From the excerpt, it can be understood that Laksmi was having difficulties when she tried to become more sustainable. This might be due to the multilayered bureaucracy in Indonesia, where officials may have different interests from the crafters, causing confusion and wasting time, energy, and money. In the batik industry, innovation, such as sustainable innovation, would be at its best if the crafters and the system could have the same goals towards sustainability. Socio-culturally, this barrier seems to show that the system is not yet supported.

4.2. Facilitators of Achieving Sustainability Goals: Batik Entrepreneurs’ Perspectives

Shifting towards greater sustainability is a challenge and needs support from different stakeholders and the availability of resources. According to the Indonesian batik entrepreneurs involved in the FGDs, this study found that ecological, technological, socio-cultural, and political or governmental support were the main institutional factors that influenced the entrepreneurs to become more sustainable.

4.2.1. Ecological Facilitators

Ecologically, the presence and availability of local resources acted as an important facilitator for the entrepreneurs. Batik entrepreneurs, such as Ratna, believe that:

“Indonesia has a great potential of natural raw materials, which should be further explored. That is why I use natural raw materials in my business.” (Ratna, 38, F)

Here, Ratna’s excerpt shows that the country where the entrepreneurs currently live offers an excellent opportunity to support the entrepreneurs to become more sustainable. However, the natural raw materials are still underexplored and poorly managed by the

government. Some entrepreneurs who understand how to find and use the raw materials seem to be more interested in using local raw materials (for example, natural dyes). This emphasizes that further exploration and promotion is needed to foster more entrepreneurs in becoming more ecologically sustainable.

4.2.2. Technological Facilitators

Technologically, the entrepreneurs mentioned that efficiency in batik production and digital archiving are important factors supporting ecological and socio-cultural sustainability. Production efficiency, such as using a dyeing machine for production, can help an entrepreneur save time and energy in dyeing the fabrics when they receive big-quantity orders from customers. In this excerpt, Sutejo explained as follows:

"I am glad that my friend lent me his dyeing machine to make my production process more efficient." (Sutejo, 50, M)

From the excerpt, we understand that Sutejo was supported by the offer to use the dyeing machine for his production. He further explained that using the dyeing machine could save his time and energy as it became more efficient than dyeing manually. Technological innovation in the batik industry could be an option to accelerate production time while maintaining the traditional method of making batik to preserve its cultural values. Ecologically, the dyeing machine reduces production time and cost. Culturally, it does not affect the authenticity of batik; thus, it preserves the cultural heritage.

Moreover, digital archiving was also mentioned by the entrepreneurs, such as Satria. He shared his experience concerning archiving batik motifs in digital form, such as vector. Satria mentioned that:

"Digitization to store batik motifs is necessary due to unexpected occurrences of natural disasters, unorganized handling, and the loss of cultural archives." (Satria, 53, M)

This means that, traditionally, batik motifs are stored in a bundle of paper. Satria emphasized that Indonesia is prone to natural disasters such as earthquakes, floods, eruptions, etc. By archiving batik motifs digitally, he does not have to worry about these natural disasters. The data can be stored in digital storage, such as the cloud, a flash disk, or a hard disk, so the collection of batik motifs is not lost, destroyed, or burnt in fire. Digital method of storing data could, thus, preserve cultural heritage.

4.2.3. Socio-Cultural Facilitators

Regarding socio-cultural aspects of sustainability, factors related to community support and creating interest among youngsters and the crafters were important for the entrepreneurs in the batik SMEs in Indonesia. Arum, one of the entrepreneurs, mentioned during the FGD that:

"In terms of values, our communities welcome our eco-friendly batik, although the synthetic-dyed batik is still preferred due to its brighter colors and lower price." (Arum, 42, F)

From this excerpt, we understand that, on the one hand, the communities show a positive attitude towards the ecological practices implemented in the batik SMEs. On the other hand, when it comes to buying power and willingness, people in the communities choose to buy affordable batik products with synthetic dyes. This implies that eco-friendly batik products are less desired due to personal preference and economic reasons. This might be the case since people are used to brightly colored and affordable batik. In addition, they might have limited knowledge of the values of producing eco-friendly batik. Furthermore, in addition to their concerns for the community in general, women entrepreneurs in the batik industry have concern for other women batik entrepreneurs in their communities. As Larasati in the excerpt below stated:

"We have concern for the other women crafters in our neighborhood. Therefore, we want to be able to share our knowledge on eco-friendly batik with them, so they can try it themselves." (Larasati, 52, F)

From this excerpt, we understand that, in order to have the community support Larasati's intentions to become more sustainable, she needs to share her knowledge in (ecological) sustainability with other batik entrepreneurs. She needs to motivate the others to be confident in adopting sustainable innovation in their businesses by educating the community about the benefits of sustainability for the people, the environment, and the local economy. If the community would start using eco-friendly batik products, the entrepreneurs would be more motivated to become sustainable. However, from the FGD, we learned that the entrepreneurs did not seem to have a major problem with support from the community

Increasing interest in batik production and consumption among young generations has been an issue in the batik industry for decades. Nevertheless, entrepreneurs do see youngsters' interest in more sustainable products, including batik (see Ratna's excerpt). Similarly, Satria gained interest from younger generations as he collaborated with fashion designers. The following excerpts show how interest for batik products among youngsters can be further increased:

"I see emerging interest in sustainable products among youngsters in Indonesia through community groups, and this is what keeps me motivated." (Ratna, 38, F)

Satria added:

"I collaborate with fashion designers for my collection, and I think this is a great idea to develop new products, especially to attract young generations." (Satria, 53, M)

From the above excerpts, we learn that both entrepreneurs observed and experienced increasing interest among younger generations through different channels. As mentioned by Ratna, a sustainable community group was experienced as a motivational way to approach and support sustainability-oriented younger generations. Many activities related to sustainability could be pursued through this community group to encourage sustainable behavior. Furthermore, Satria experienced that, by collaborating with fashion designers, he managed to develop new collections of batik, which invited young customers to visit his batik gallery. Satria seemed excited about sharing his experience because he could unexpectedly target younger generations.

Lastly, relating to socio-cultural factors, support from the crafters and the motivation to improve the crafters' prosperity was a positive influence for the entrepreneurs to become more sustainable. This was apparent in Arum's and Mirna's excerpts. Arum highly appreciated the crafters, saying:

"For me, the most important support is from the crafters themselves; without them, we are nothing." (Arum, 42, F)

From this excerpt, it can be concluded that Arum's business depends on the crafters' contributions, such as in production, marketing, promotions, and distribution. The crafters seem to be the reason why has Arum continued her business until now. This is also supported by Mirna's excerpt, in which she mentioned that:

"Being able to generate a decent income for the crafters is what keeps me going in producing sustainable batik." (Mirna, 30, F)

In this excerpt, Mirna explained that what motivates her to be sustainable in her business is to provide a decent payment for her crafters and improve the crafters' prosperity. She further told the moderator that she would like to erase the image of poor batik crafters and attract younger generations to the industry, continuing the cultural heritage of batik.

4.2.4. Political Facilitators

Finally, moral support from political actors appeared important for batik entrepreneurs to become more sustainable. As Bagas mentioned:

“I would feel more confident if the Government would give moral support for sustainable batik SMEs, like us. It means a lot to us.” (Bagas, 38, M)

From the FGD, we understood that Bagas experienced a boost in his confidence to sustainably produce batik products when the government appreciated or encouraged him to become more sustainable. It seemed to generate additional energy that keeps him committed to producing sustainable batik products.

Moreover, Maharani also added that complying with government referrals and suggestions is important for her business. She mentioned that:

“I always try to abide by the referrals and suggestions from the Government so we can run the business smoothly, and using natural dyes is suggested by the government.” (Maharani, 53, F)

The excerpt shows that the government plays a major role in encouraging or discouraging women entrepreneurs to become more sustainable. Positive moral support could encourage a positive attitude towards sustainability. Consequently, it might influence society perspectives on sustainability and grow interest in sustainable products.

5. Discussion

5.1. Barriers

5.1.1. Knowledge Barriers

In the analysis of the focus group data, this study found barriers to achieving higher levels of sustainability in the lack of customer knowledge about sustainable batik. This might be because customers of batik products are mostly women. Women in Indonesia still experience limited access to information, especially those who live in rural areas; thus, their knowledge regarding sustainable products is still limited. Knowledge barriers have also been identified in previous research on individual entrepreneurs, who may have limited information about the potential benefits and risks of becoming more sustainable [39–42], but none of these studies has mentioned the struggle connected with a lack of knowledge on the customer side. This study, thus, adds a new perspective on knowledge barriers, specifically in the context of batik SMEs.

5.1.2. Cultural Barriers

Analyzing the cultural barriers, the findings in this study support the findings of Switch Asia [38], where poor education became a problem for women crafters. Ultimately, this is because the batik SMEs are dominated by elderly women, who, in the past did not have the chance to experience proper education or were forced to help their families due to poverty. Poor education affects their choices of living and their self-confidence in adopting sustainable practices [38]. Moreover, elderly crafters have often been making batik for more than 20 years, and it has become a cultural habit to maintain using the same techniques over the years. This finding adds to [3]’s research, which found that women in an unsupportive culture tended to be, generally, less confident in making strategic decisions. According to intersectionality research, elderly people are often stereotyped as weak, senile, possessing outdated skills, and prescriptive, which results in perceived underperformance at work [44,45]. This explains why elderly women crafters with low education levels are often discriminated against by younger crafters. However, we argue that being old does not necessarily mean being unable to perform. Thus, a tailored approach for older crafters needs to be developed so that the ‘new’ paradigm of pursuing entrepreneurship, which adopts sustainable values, and the ‘old’ ways of doing business can be merged and made acceptable for older crafters as well.

In contrast, Ratna showed her confidence in creative thinking and a willingness to innovate. Although Ratna is also a woman, she is relatively young (in her 30s) and was able to obtain a Master’s degree. The fact that Ratna was born in a less conservative environment might be the reason that she was more open-minded and took more risks

compared to the older crafters. Being well-educated increased her self-confidence. As Be'nabou & Tirole [51] (p. 871) argued, confidence in one's ability could enhance motivations, in this case, in becoming more sustainable.

Furthermore, learning from the case of Mirna, the feminine value of living in harmony was reflected in her decisions to build a new brand instead of insisting on retrieving her old brand from the competitor. This often happens to women entrepreneurs. Unlike men, women often tend to make peace instead of creating controversies (as a result of taking an extreme position) in a community because women tend to care about others (in this case, the crafters who depend on jobs to earn a living) [2]. Thus, based on the findings in this study, age, education, and gender might influence an entrepreneur's agility in shifting their strategy towards sustainability.

5.1.3. Regulatory Barriers

Related to regulatory issues, the entrepreneurs mentioned several sustainability-inhibiting issues the government could address. This is in line with previous studies, which have found that insufficient government support negatively influences the propensity of sustainability [42,43,46,47]. In addition, political support for sustainability, as affirmed by Bagas, can not only increase the entrepreneurs' motivations, but also enable the government to contribute to preserving natural and cultural heritage and ensuring appropriate infrastructures such as utilities, taxes, services, and regulations [22]. This study also hinted at bureaucracy as a barrier to sustainable crafting, which has not been discussed in previous studies. The more complex the official surrounding bureaucracy, the less flexibly the ecopreneurs could adapt to change. Whereas, given the nature of the batik industry as dominated by women, flexibility and space are what they need to grow their businesses, contribute to society, and create political and social movements [52] for sustainability. However, little is known about the influence of bureaucracy on the propensity of batik entrepreneurs to become more sustainable, and hence, it needs further investigation.

5.2. Facilitators

5.2.1. Ecological Facilitators

However, previous researchers have not discussed that ecological facilitators found in the Indonesian natural environment could become a supporting factor for these entrepreneurs. SMEs could gain competitive advantages from ecological practices [25] such as using natural materials. This means that Indonesian SMEs have the privilege to improve their competitiveness through ecological practices compared to nonecologically supporting countries. Naturally, one could argue that women are close to nature due to the fact they are often (and particularly in these developing countries) socialized to take care of their direct environment. Consequently, the abundance of natural materials provided in Indonesia could empower women-led SMEs more than men-led SMEs to produce eco-friendly products. Moreover, technological factors that support sustainability in batik SMEs align with the argument that technological innovation could help seize opportunities and gain commercial benefits [22] without disturbing cultural values.

5.2.2. Socio-Cultural Facilitators

Concerning socio-cultural facilitators, the findings suggested that the community of the younger generation crafters is important for SMEs to become more sustainable. These findings are also supported by prior studies [2,21,23]. The entrepreneurs in this study were concerned with people's welfare and interests [50]. As crafters are often part of an entrepreneur's family, the findings in this study also support that an entrepreneur's (sustainable) behavior is influenced by family members' opinions or support [21,23]. This was, for instance, demonstrated in the excerpts from Arum and Mirna, as they emphasized that the crafters' support and their prosperity were the main concerns of the entrepreneurs. These ecopreneurs are active women entrepreneurs in a collectivist society, as extensively

explained in Wood et al.'s [52] research, which exemplified how women's entrepreneurship often focuses more on fulfilling the community's needs instead of their personal needs.

5.2.3. Technological Facilitators

Technological innovations have been widely discussed in the literature and are considered to be one of the largest supporting factors for sustainability [22]. Similarly, this study found that the entrepreneurs felt supported by the presence of technology in their production systems. Technological improvement can be used in many of the processes in batik production. In addition, although batik production is strongly associated with traditional cultural processes, technology can help in increasing efficiency in the dyeing, motif-tracing, washing, and drying processes to improve ecological contributions. In addition, it could safely archive batik motifs to prevent the motifs from damage or loss, which is considered as safeguarding cultural heritage. As Crnogaj et al. [22] emphasized, technologically supported SMEs could better support sustainable development, as technology often contributes to opening new opportunities, such as ecological improvement and the possibility for research and development (R&D). We also observed that technological innovation was mainly mentioned as a facilitator of sustainability by male entrepreneurs. It seemed that women entrepreneurs were less confident with using technology to accelerate their businesses to become more sustainable. The reason might be the stereotype that technology is associated with men (in terms of workplace culture, payment, education, retention, leadership, employment, and representativeness) [64]. Thus, there is an urgent need to educate women entrepreneurs in the batik industry to increase the adoption of technological innovations for sustainability reasons.

5.2.4. Political Facilitators

Political stability could increase entrepreneurs' confidence in their strategic decisions [22]. This was also apparent in this study. The batik entrepreneurs would feel more confident if the government were more supportive and showed more appreciation to sustainable entrepreneurs. The entrepreneurs believed that moral support from the government and from society would further motivate them to become more sustainable. This is because government institutions shape the regulatory environment wherein businesses operate and provide physical and commercial infrastructure to help SMEs grow towards sustainability [22]. Thus, political support factors play an important role in enabling more sustainable batik production. Again, this is supporting the arguments of [48] that women in a collectivist society tend seek political support in entrepreneurship due to their focus on living in harmony with the institutional environment.

Based on these findings, this study proposed a number of policy recommendations (for example, for the Center of Craft and Batik (BBKB)) to foster batik SMEs in becoming more sustainable. The findings suggested that differences in behavior existed between older and younger generations and between well-educated and poorly educated crafters, and hence, these categories need to be supported and directed differently. Moreover, it is important to consider that the barriers and facilitators were perceived differently between entrepreneurs with stronger sustainability mindsets (committed entrepreneurs) and those who only followed the sustainability trend (follower entrepreneurs).

Reflecting on our findings, we argue that 'committed' sustainable entrepreneurs tended to be more independent, confident, and innovative in running their sustainable businesses than 'follower' sustainable entrepreneurs. They were intrinsically motivated for sustainability, for example, by values such as altruism. Although they were fully aware that shifting towards sustainability is a challenge, this type of entrepreneurs would put much effort into raising the awareness of people and toward implementing sustainable practices. In contrast, 'follower' sustainable entrepreneurs tended to be motivated by extrinsic factors, such as economic benefits and being inspired by the success of sustainability-committed entrepreneurs. They would produce more sustainable products when the

demand was high, but when the demand was low, they would turn back to producing regular products. Follower entrepreneurs depended on the government's role in supporting their businesses through incentives, trainings, and rewards. To conclude, the two categories of sustainable entrepreneurs were distinctive in their orientations and motivations.

Accordingly, the study proposed several recommendations while considering these differences. In our recommendations, the categories for improvement were divided into three domains, namely the socio-cultural, regulatory, and technological domains. Ecological improvements were mostly related to the regulatory and technological domains, and the availability of local natural materials was not specifically found to act as a facilitator for SMEs. These recommendations hopefully can support the BBKB in addressing and reducing barriers and improving sustainability-facilitating factors. The recommendations are presented in Table 4:

Table 4. Recommendations for the Center of Craft and Batik (BBKB).

No.	Issues	Young Generations	Older Generations	Committed SMEs	Follower SMEs
1.	Socio-cultural	<p>(1) Encourage younger generations to share their best practices in sustainability with older crafters by providing incentives (such as tax waives or national and international recognition).</p> <p>(2) Support younger generations to explore and express their creativity in developing batik industry sustainably by creating theme-based exhibitions or KTL.</p> <p>(3) Facilitate collaborative actions and create synergy among stakeholders in the batik industry to encourage sustainability.</p>	<p>(1) Support older crafters' skills to make batik, which emphasizes the preservation of cultural heritage, e.g., by creating special events dedicated to older crafters and promoting traditional methods of making batik.</p> <p>(2) Provide incentives for crafters who are willing to innovate and become more sustainable, such as pension funds, education funds, and health funds.</p> <p>(3) Offer trainings and workshops for older crafters to become more sustainable, which should be tailored based on their limitations to maintain the crafters' consistency and commitment to becoming more sustainable.</p>	<p>(1) Appreciate committed ecopreneurs, e.g., by creating a competition with guaranteed national or international exposure for their brands to keep them motivated and to stimulate more involvement in sustainable practices.</p> <p>(2) Ensure an excellent service for SMEs to show that the government supports them in promoting sustainability in the industry.</p>	<p>(1) Create working groups among follower SMEs that are mentored by a committed SME within the same region to help the follower SMEs become more sustainable and build long-term mindsets.</p> <p>(2) Evaluate the SMEs by conducting regular assessments of the SMEs' performances, especially of their implementations of sustainable development.</p> <p>(3) Encourage SMEs to collaborate with fashion designers to improve the attractiveness of their products.</p>
2.	Regulatory	<p>(1) Support the use of locally produced raw materials, such as hemp fiber, by developing a policy that strictly obliges SMEs to use these local materials.</p> <p>(2) Support local batik SMEs by developing a policy that strongly encourages schools and government institutions to use locally produced eco-batik.</p>			

	<ul style="list-style-type: none"> (3) Support the export of sustainably produced batik by providing export workshops that provide information on regulations, markets, taxes, etc., to assist the SMEs in fulfilling export requirements. (4) Protect the IPRs of batik producers by developing and enforcing laws that protect batik SMEs against plagiarism. (5) Reduce bureaucracy to avoid conflicts of interest between sustainable SMEs and civil servants. (6) Develop a standard for batik crafters' take-home pay to ensure the crafters are paid in line with their efforts.
3. Technological	<ul style="list-style-type: none"> (1) Develop machines that can help the SMEs improve their production efficiency without ignoring the importance of the authenticity of batik. (2) Develop a system that can archive batik-related data digitally to avoid the loss of data, and provide workshops to assist the SMEs in using the system.

A specific recommendation for the BBKB is to better support women-led batik SMEs in Indonesia and to support the empowerment of women entrepreneurs in this sector. This study suggests that every woman in the SME sector, as an essential change agent towards sustainability, should be involved in all aspects of the process of becoming more sustainable: in conceiving, planning, executing, evaluating, and developing further improvements. As recommended in prior research, increasing their participation in industry associations allows women to build networks and connect with stakeholders beyond their families [49]. This implies that women could play a significant role in strategic decision-making processes, such as in responding to sustainability challenges. Furthermore, access to resources mostly depends on institutional structure [53], in this case, in the creative industry. Thus, if they are more actively included in political environments, access to resources and education is also more accessible for women. This also refers to considering the intersections of other identity categories among women entrepreneurs, such as different age groups and education levels. In addition, multiple stakeholders, such as formal or informal, private or public, and profit or nonprofit institutions, should be involved in the process of making the industry more sustainable and gender-equal to allow horizontal-vertical and bottom-up collaboration and coordination [] among actors in the batik industry. The BBKB should also encourage women entrepreneurs more intensely than men entrepreneurs in adopting technological innovation to accelerate their sustainable behaviors. Accordingly, this would ensure more inclusiveness and equality in the batik industry.

6. Conclusions

To conclude, this study explored barriers and facilitators of achieving higher levels of sustainability in batik SMEs in Indonesia by conducting and analyzing data from two FGDs with eight SME owner-managers while building upon earlier empirical insights. The findings showed that the barriers faced by the owner-managers included a lack of customer knowledge, socio-cultural limitations, and regulatory aspects that hampered more sustainable batik crafting. Facilitators of sustainability in batik SMEs included ecological, technological, socio-cultural, and political factors. This study also found that the lack of availability of natural raw materials did not seem to be a barrier for the batik SMEs. However, the potential of local products, such as hemp fiber, has not been fully explored and considered as alternative raw materials by the government for sustainable batik production.

From a theoretical perspective, we contended that sustainable entrepreneurs in the batik industry could be categorized into 'committed' and 'follower' entrepreneurs. This categorization was based on the entrepreneurs' orientations towards sustainability. Accordingly, our study, thus, contributed to the sustainable entrepreneurship literature by making sense of the diverse sustainable entrepreneurs in the batik industry and how their motivations were related to their (institutional) environments and personal values. Moreover, since the batik industry is dominated by women, addressing sustainability issues

also enriched the women entrepreneurship literature by providing important insights on how women crafters in a middle-income country, such as Indonesia, perceive institutional barriers and facilitators to becoming more sustainable within their entrepreneurship. This study also contributed to discussions regarding the empowerment of women through entrepreneurship in collectivist societies by illustrating how, through their entrepreneurialships, these women were able to acquire a better socio-economic status and, hence, were able to act as important role models for women's emancipation.

From a managerial perspective, the Center of Craft and Batik (BBKB) might be inspired to draw on our recommendations when formulating their policies to foster the Indonesian batik SMEs to achieve higher levels of sustainability. The policy implications are obviously contextual in the sense that these should be sensitive in terms of age, education, and the type of entrepreneurs they are geared towards. Technological innovations should be adapted according to the specific needs of the batik industry, too. These needs include, for example, manually covering the motifs of the fabric with hot wax. In addition, as women entrepreneurs are the main agents of change in the batik industry, this study provided insights for these entrepreneurs to address institutional barriers and maximize the use of their current facilities. Considering the maximization of the potential of women in advancing the batik industry through sustainable practices, policymakers should facilitate women entrepreneurs in terms of their access to networks and resources, support them in sustainable growth (ecologically, socially, and economically), and eliminate barriers to sustainability through inclusive participation in developing regulations.

Although the sample was limited geographically, as well as in size, we contend that this exploratory study provided important indications regarding the factors hampering sustainability in the Indonesian batik industry. We acknowledge that the FGDs did not specifically group the participants based on their geographic locations, age groups, or educational background within one FGD due to the SMEs' tight schedules. However, given the exploratory nature of this study, we argue that it was important to have variance in the FGDs and to, firstly, explore the experiences of batik female and male entrepreneurs. In future studies, the number of participants could be increased, so the results could become more representative with regard to specific regions, age groups, or education levels. Next to this, more action research could be conducted in the future to increase motivations and practices concerning sustainability since cultural systems are slowly changing, as argued before, and hence, structural change concerning sustainability, as well as gender equality, is challenging. Accordingly, certain restrictive cultural barriers could be eliminated to allow inclusive, sustainable practices in the batik industry and to increase women's motivations to become ecological entrepreneurs, as well as to start more sustainable businesses.

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