Barriers and Facilitators of Sustainability for Batik SMEs

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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 implementation of sustainability-oriented practices in SMEs has also been discussed frequently over the years. To improve SMEs sustainability, we need to understand the barriers and facilitators of sustainability, especially in its institutional context so the SMEs could be better supported by the institutions.

Keywords: batik industry ; policy recommendations ; sustainable entrepreneurship ; Indonesia ; Institutional barriers

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 [4]. The ratio of women-led TEA increased in 2020 (1.10) compared to the data from 2018 (1.01) [5]. 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 [6] 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) [7]. Socio-ecological and economic challenges have, thus, risen for the batik industry in Indonesia [8-10].

Batik can be defined as a piece of art applied onto fabric using hot wax by creating little dots [8]. Batik is well-known for its cultural value and heritage function, representing the national identity of Indonesia [11]. It is mostly hand-crafted by women crafters [12,13] (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. Batik crafters are primarily home-based, and the production often involves collaboration among micro-, small-, and medium-sized enterprises (MSMEs). Approximately 212,000 Indonesians earn a living from making batik through inherited skills, 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. Due to its unique characteristics, Indonesian batik is considered part of the World's Intangible Cultural Heritage of Humanity. 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. 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. 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. 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. 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. Recent studies on sustainability in the batik industry have mainly focused on the links between ecological and economic sustainability. 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, the focus here is 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, herein, it 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. Researchers have categorized the factors influencing sustainability in SMEs into individual, organizational, and institutional factors.

### 2. 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. 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. On the other hand, compared to larger companies, SMEs also have limitations in terms of financial, technological, and human resources. 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. 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 [28]. 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 [20][21][22][23]. 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 [31][32][33][34]. 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 nonrenewable 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) [29]. The industry was also the biggest contributor to yearly CO₂ emissions [29]. 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 dying processes or through overproduction [19][22], as well as in the sewing and packaging processes [22]. It was assumed 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 [2], increasing resource efficiency (including water, fabrics, wax, and dyes) [17][18][19], and using renewable energy [20]. Shifting to natural dyes could protect the environment and is safer for both the crafters’ and consumers’ skin [2]. In addition, using a greener energy source, such as solar panels, could be an ecological option to increase production capacity and profitability [20][21]. 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 [23]. 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% [20]. 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 [24].

Herein, 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. Herein, hence, provides additional knowledge in the domain of sustainable entrepreneurship, particularly in the context of SMEs within developing countries.

### 3. Barriers to Achieving Sustainability Goals in SMEs

According to [18], 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 [18]. In addition, there is no substantial difference between sustainable and regular entrepreneurs in terms of their perception of financial barriers [28]. The focuses are 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 [18][19][27]. 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 [28]. 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 [30]. 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. 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, 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. 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. Similarly, as shown by [9], 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. 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.

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. Insufficient regulations and support from the government for environmental strategies are often found to be barriers to the transition to greater sustainability. However, if better-developed (and this is ultimately reflected upon in the final part here), 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. 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. 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, 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.

### 4. Facilitators of Sustainability in SMEs

Facilitators of sustainability in SMEs may vary based on the industry. In the tourism sector, Crnogaj et al. 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. Technological innovation could help seize opportunities and gain commercial benefits. Although sustainability researchers in SMEs use different terms, the focus on facilitators 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. 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.

In the Indonesian batik industry, conservation values are important to sustainability. Conservation values concern tradition, conformity, and security. Moreover, Crnogaj et al. (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. 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 \(^1\). 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 \(^2\). 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 \(^4\). Policy interventions can also help new sustainability-oriented firms survive in the early stages through subsidies and regulatory adaptation \(^4\). 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 \(^5\). 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 \(^2\) 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.

### 5. Empowerment towards Sustainability for Women-Led SMEs

As Wood et al. \(^2\) (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 \(^5\). 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 \(^5\). However, increasing empowerment is an iterative process that takes time \(^5\), 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 (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.

### References


6. EKONID. Clean Batik Initiative: Third Year Achievement Report; EKONID—German-Indonesian Chamber of Industry and Commerce; EKONID: Jakarta, Indonesia.


