COMMUNITY SERVICE ACTIVITIES: DEVELOPMENT OF ENVIRONMENTALLY FRIENDLY PRODUCTION PROCESSES IN THE PASURUAN FURNITURE INDUSTRY TO INCREASE PRODUCTIVITY AND SUSTAINABILITY OF SMEs

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Abstract

The furniture industry in Pasuruan, East Java, is one of the important sectors in the local economy and contributes greatly to Indonesian product exports. However, despite the large potential of this industry, the furniture sector faces serious challenges related to sustainability and the environmental impact of its production process. Most of the furniture industry in Pasuruan, especially among small and medium enterprises (SMEs), still relies on traditional technology and production methods that are less efficient and have a negative impact on the environment, such as the use of non-renewable raw materials, poorly managed wood waste, and high energy consumption. This community service activity (CSA) aims to provide solutions in the form of implementing environmentally friendly technology in the furniture production process in Pasuruan. The proposed environmentally friendly technology includes energy efficiency methods, wood waste management, and the use of more sustainable raw materials, such as wood from reprocessing or environmentally friendly alternative materials. This activity will increase the awareness and capacity of furniture SMEs to implement production processes that are not only efficient but also environmentally friendly. Thus, these industry players can reduce negative impacts on the environment while increasing the competitiveness of their furniture products in domestic and global markets that increasingly demand environmentally friendly products. In addition, this CSA aims to improve the quality of furniture products from Pasuruan SMEs by integrating sustainability principles into every stage of the production process. SMEs will be given training and assistance in identifying opportunities to implement environmentally friendly production practices, from selecting more efficient raw materials to better waste management methods. With an environmentally friendly, technology-based approach, SMEs will benefit from reduced production costs, energy savings, and increased competitiveness of higher quality and more sustainable products. The expected impact of this activity is the realization of a more sustainable furniture industry in Pasuruan, with the success of SMEs adopting environmentally friendly technology and being able to compete with international furniture products that increasingly pay attention to sustainability aspects. The implementation of this technology not only has an impact on production efficiency and reducing carbon footprints but can also contribute to the creation of new, larger market opportunities, with increasing global demand for environmentally friendly products. With more competitive, innovative, and sustainable results, the development of the furniture industry in Pasuruan will not only provide economic

benefits for SMEs but also have a positive impact on the quality of life of the surrounding community, especially through the creation of better and more sustainable jobs. In addition, this effort also supports global efforts to mitigate climate change and ensure the sustainability of the manufacturing industry in general.
Keywords: Community Service Activities, Environmentally Friendly Production, Pasuruan Furniture Industry, SMEs, Industrial Sustainability, Energy Efficiency, Waste Management.

Abstrak

Industri mebel di Pasuruan, Jawa Timur, merupakan salah satu sektor yang penting dalam perekonomian lokal dan berkontribusi besar terhadap ekspor produk Indonesia. Namun, meskipun potensi industri ini cukup besar, sektor mebel menghadapi tantangan serius terkait keberlanjutan dan dampak lingkungan dari proses produksinya. Sebagian besar industri mebel di Pasuruan, khususnya di kalangan Usaha Kecil, dan Menengah (UKM), masih mengandalkan teknologi dan metode produksi tradisional yang kurang efisien dan berdampak buruk terhadap lingkungan, seperti penggunaan bahan baku yang tidak terbarukan, limbah kayu yang tidak dikelola dengan baik, serta konsumsi energi yang tinggi. Kegiatan Pengabdian kepada Masyarakat (PkM) ini bertujuan untuk memberikan solusi berupa penerapan teknologi ramah lingkungan dalam proses produksi mebel di Pasuruan. Teknologi ramah lingkungan yang diusulkan meliputi metode efisiensi energi, pengelolaan limbah kayu, serta pemanfaatan bahan baku yang lebih berkelanjutan, seperti kayu dari hasil pengolahan ulang atau bahan alternatif yang ramah lingkungan. Kegiatan ini akan meningkatkan kesadaran dan kapasitas pelaku UKM mebel untuk mengimplementasikan proses produksi yang tidak hanya efisien, tetapi juga ramah lingkungan. Dengan demikian, para pelaku industri ini dapat mengurangi dampak negatif terhadap lingkungan, sekaligus meningkatkan daya saing produk mebel mereka di pasar domestik dan global yang semakin menuntut produk ramah lingkungan. Selain itu, PkM ini bertujuan untuk meningkatkan kualitas produk mebel dari UKM Pasuruan dengan mengintegrasikan prinsip keberlanjutan dalam setiap tahap proses produksi. Para pelaku UKM akan diberikan pelatihan dan pendampingan dalam mengidentifikasi peluang untuk menerapkan praktik produksi yang ramah lingkungan, mulai dari pemilihan bahan baku yang lebih efisien hingga cara-cara pengelolaan limbah yang lebih baik. Dengan adanya pendekatan berbasis teknologi ramah lingkungan, UKM akan mendapat manfaat berupa pengurangan biaya produksi, penghematan energi, serta peningkatan daya saing produk yang lebih berkualitas dan lebih berkelanjutan. Dampak yang diharapkan dari kegiatan ini adalah terwujudnya industri mebel yang lebih berkelanjutan di Pasuruan, dengan keberhasilan UKM yang mengadopsi teknologi ramah lingkungan dan dapat bersaing dengan produk-produk mebel internasional yang semakin memperhatikan aspek keberlanjutan. Implementasi teknologi ini tidak hanya berdampak pada efisiensi produksi dan pengurangan jejak karbon, tetapi juga dapat berkontribusi pada penciptaan peluang pasar baru yang lebih besar, dengan meningkatnya permintaan global terhadap produk-produk ramah lingkungan. Dengan hasil yang lebih kompetitif, inovatif, dan berkelanjutan, pengembangan industri mebel di Pasuruan tidak hanya akan memberikan manfaat ekonomi bagi UKM, tetapi juga membawa dampak positif terhadap kualitas hidup masyarakat sekitar, terutama melalui penciptaan lapangan kerja yang lebih baik dan berkelanjutan. Selain itu, upaya ini juga mendukung upaya global untuk memitigasi perubahan iklim dan memastikan keberlanjutan industri manufaktur secara umum.
Kata Kunci: *Kegiatan Pengabdian kepada Masyarakat, Produksi Ramah Lingkungan, Industri Mebel Pasuruan, UKM, Keberlanjutan Industri, Efisiensi Energi, Pengelolaan Limbah.*

Introduction

The furniture industry in Pasuruan Regency has long been one of the mainstays of the regional economy. Pasuruan Regency in East Java Province is considered one of the largest furniture-producing areas in Indonesia, supported by the presence of many small and medium enterprises (SMEs) that are actively involved in various stages of the production process. The furniture industry is not only the backbone of the local manufacturing sector but also contributes to the significant growth of regional economic activities. As reflected by the Pasuruan Communication and Information Service in 2022, this industry is very strategic in generating jobs and raising revenue, realizing economic sustainability for the surrounding community. Not only does Pasuruan furniture meet the domestic market demand, but the products have also entered the export market, thus strengthening it even more for the national economy.

Pasar Bukir in Pasuruan Regency, which has been known as the center of the people's furniture industry in East Java, is increasingly strengthening its role as one of the key elements in the supply chain of the Indonesian furniture industry. This market functions as the main hub that offers various furniture products with creative designs created by local craftsmen. In addition, Pasar Bukir also has a strategic role as a transaction center, not only serving local consumers but also attracting buyers from outside the city and even abroad. Thus, the development of this market is very crucial in supporting the sustainability and competitiveness of the furniture industry in Pasuruan, as well as promoting superior products to the global market (Lestari, 2023; Nurdiyanto, 2023). Even though the furniture industry in Pasuruan has played a significant role in contributing to the regional economy, various general problems affect this business area, precisely in the field of sustainable production and the use of technology within. Particularly, the application of simple technologies and low applications of green principles in production. This must be addressed immediately if the industry is to be sustained in the long term. From this perspective, it can be expected that the Pasuruan furniture industry will further adapt and develop to face global challenges demanding sustainability and product competitiveness (Arief, 2018).

The application of environmentally friendly technology in the furniture industry in Pasuruan has a strategic function in strengthening its position as the main driver of the regional economy. With the Pasar Bukir area being one of the key production centers of East Java, the Pasuruan furniture industry has great potential to expand its market while competing internationally with the implementation of the sustainability concept. This contribution, as suggested by Kominfo (2024), is highly considerable towards the local economy but also in conserving the environment. Putri and Abdulrahim (2020) indicated that adopting a cluster-based approach within the development of the furniture industrial cluster in Pasuruan can improve coordination within SMEs for sharing environmentally friendly technology. Additionally, the technical support to SME actors quickens the rate of adoption of such innovations. The SME business development strategy includes various comprehensive approaches, including product innovation to create better competitiveness by adapting to evolving market needs, as well as expanding marketing networks, especially through digital platforms, in order to reach a wider market and increase product visibility. Other measures are individual counseling and direct support to the SMEs themselves, allowing them to raise

particular problems with appropriate solutions. Attention is also given to the usage of technology in the line of production and marketing, so it helps raise their effectiveness and enhance their product quality to the market standards, adding value, and meeting the expectations of the consumer. Such approaches are designed with one important motive behind every action, especially empowering SMEs for inclusive economic growth to add better value to their welfare condition towards small and medium enterprise development. (Putri, 2022).

Through this business development strategy, it is hoped that the furniture industry in Pasuruan can become more productive and highly competitive, which in turn will establish Pasuruan as one of the centers of creative and sustainable industries in East Java, as is the important role of Pasar Bukir so far (Lestari, 2024). Thus, the sustainability of SMEs in the furniture industry is not only a short-term target but also a strategic solution for the local and global economy. Therefore, through community service that focuses on increasing the capacity of SMEs in the Pasuruan furniture industry, it is hoped that concrete solutions can be found to overcome various existing problems while supporting the transformation of the Pasuruan furniture industry towards sustainability and high competitiveness in the global market. One of the crucial steps that need to be taken is to implement environmentally friendly technology and a more efficient production process so that it can encourage regional economic growth while strengthening Pasuruan's position as a center for a modern and sustainable furniture industry. This community service activity aims to (i) Increase production efficiency by implementing environmentally friendly technology in the selection of raw materials, energy use, and waste management in the Pasuruan furniture industry; (ii) Improve the quality of furniture products by ensuring that the production process is more environmentally friendly, producing products that are more durable, of higher quality, and in accordance with market preferences that increasingly prioritize sustainability; (iii) Encourage the SMEs to innovate in such a way that the local renewable raw materials are utilized and energy-efficient production processes are put in place to lower long-term production costs and reduce dependency on non-renewable resources; and (iv) Improve competitiveness for Indonesian furniture products within world markets by enhancing product quality and viability in line with the principles of environmental sustainability. Figure 1 presents the Community Service Activity Team, Department of Industrial Engineering, Faculty of Engineering, Universitas 17 Agustus 1945 Surabaya.

Materi and Methods

Community service activities play an important role in supporting sustainable development, especially among SMEs. In the Pasuruan furniture industry, these activities of community service include not only the transfer of technology and skill improvement but also eco-friendly production that can be viable for economic growth, social welfare, and environmental preservation. The SMEs in the furniture industry are also facing severe challenges in business sustainability because of the rapidly changing market demand and global demand pressures for more responsible and quality goods. Community service programs in Pasuruan create opportunities for new and innovative methods of production with sustainability through an approach by the government, private institutions, and academics for SMEs to take part in. The impact is economically positive not only for business

players but also brings benefits to the community surrounding them, enhances the work environment, and ameliorates the image of the industry in local and global markets.

Figure 1. Community Service Activity Team, Department of Industrial Engineering, Faculty of Engineering, Universitas 17 Agustus 1945 Surabaya

In this Community Service activity (CSA), the main focus is to provide useful information for furniture SMEs in Pasuruan so that they can adopt environmentally friendly technology and increase the effectiveness and sustainability of their production. The information provided is designed to be practical and relevant and can be applied directly in real conditions faced by SMEs in the furniture industry. Some of the materials discussed in this CSA activity include: (i) understanding environmentally friendly production; (ii) waste management and efficiency of material use; (iii) environmentally friendly production technology for SMEs; (iv) how to improve product quality through environmentally friendly processes; and (v) implementation of this knowledge in the production process.

1. Knowledge about Environmentally Friendly Production

SMEs have great potential in integrating environmentally friendly production principles into their production processes, which support environmental sustainability and

can also strengthen their business competitiveness in a global market that increasingly gives priority to sustainability. Some of the actions that could have been taken on environmentally friendly production include renewable energy, whereby SMEs apply renewable energy like solar energy and biomass to diminish dependence on fuels from fossil sources said to be environmentally hazardous. This not only boosts greener enterprises but can also have a long-run effect on operating costs (Putri, 2024).

In addition, SMEs can also develop creative industries based on local values that include the principles of environmentally friendly production. In this case, SMEs can utilize natural and local raw materials, which support product sustainability while maintaining and utilizing Indonesia's natural and cultural wealth. This environmentally friendly production process not only focuses on reducing waste but also on the use of processes that minimize emissions and pollution, which is in line with global trends that increasingly prioritize environmental sustainability (Putri & Abdulrahim, 2019). In addition, the application of appropriate technology in environmentally friendly production is very important to increase efficiency, reduce waste, and optimize available resources. This technology can also enable SMEs to increase their production capacity while minimizing the environmental impacts they produce. Thus, the integration of innovative technologies that support sustainability and efficiency can accelerate the growth of SMEs (Putri & Ramadani, 2024).

With these steps, SMEs not only contribute to environmental preservation but also have the opportunity to open a wider market by taking advantage of the sustainability trend that is increasingly in demand by consumers around the world. Therefore, it is important for SMEs in Indonesia to continue to adopt and develop environmentally friendly production practicesr to support their economic and social sustainability in the long term.

2. Waste Management and Material Use Efficiency

Waste management and efficient material use play an important role in the development of SMEs to, among others, support business sustainability and reduce negative impacts on the environmental aspect brought forth by production processing. An alternative action that can be carried out is that SMEs could carry out a type of efficiency strategy in utilizing their raw material ingredients. This means that proper management of raw materials would avoid waste and increase profit margins, which entrenches long-term competitiveness (Putri, 2022). Saving raw materials is quite relevant, especially since the resources owned by SMEs are limited. In this regard, with the right attitude toward the management of raw materials, their operational costs would go down, giving SMEs ample space to grow and develop.

In addition, the development of product prototypes based on local potential can be a solution to increase efficiency in the use of raw materials. Utilization of local potential not only reduces dependence on imported materials but also has a positive impact on the local economy and the environment. By producing materials required within the region, it could minimize the cost to incur for obtaining raw materials from other regions and the ecological impacts of raw material transportation. Accordingly, in such conditions, the use of appropriate technology at the stage of manufacturing the product has a very vital role in reducing wastes that would occur during production. By innovation in technology, waste from production could be reduced to a minimum, with optimal use of raw materials (Putri & Halik, 2022).

Another innovation that contributes to production efficiency is the development of technology for waste separation. Separating waste by type allows businesses to reuse unused materials in the production process, thereby reducing waste and utilizing raw materials more efficiently. In this case, appropriate technology (TTG) plays a role in accelerating and simplifying this separation process. A machine designed to separate cracker waste, for example, can help increase production efficiency and reduce waste that is usually wasted (Putri & Ramadani, 2024).

On the other hand, cooperation among SMEs in an industrial cluster is also highly promising in terms of enhancing resource efficiency and handling waste more properly. The concept of an industrial cluster provides an avenue for small and medium enterprises to share technology and resources with optimized use of raw materials. With this approach, waste produced by one business can be used by other businesses as raw materials, thus supporting a more sustainable economic cycle. In addition, by joining an industrial cluster, SMEs can reduce the operational costs faced by each business, as well as increase production capacity with lower environmental impact (Putri, 2014).

All of these efforts—from more efficient use of raw materials, product development based on local potential, waste separation technology innovation, to collaboration in industrial clusters—can strengthen the competitiveness of SMEs, both locally and globally. In addition, these steps also have a positive impact on environmental and economic sustainability as a whole. SMEs that successfully implement waste management practices and efficient use of materials will be able to survive in the long term and contribute to more sustainable economic development. Collaboration between SMEs and the utilization of local potential are important keys to achieving better efficiency and supporting business sustainability.

3. Environmentally Friendly Production Technology for SMEs

Huge potential benefits might be viewed as environmentally friendly technology adoption for SMEs in the sustainability view as well as for business competitiveness. Environmental technology mainly deals with renewable energy resources, which would reduce the use of exhaustible natural resources like fossil fuel. By utilizing abundant raw materials, this technology not only helps energy efficiency but also reduces carbon emissions and pollution that are harmful to the environment (Putri, 2024). In addition, the application of appropriate technology (TTG) in production is very crucial for SMEs, because this technology can increase production efficiency by maximizing the use of existing raw materials and reducing waste. This allows SMEs to reduce waste, minimize environmental impacts, and improve product quality without increasing costs too high (Putri & Ramadani, 2024). With increased efficiency, SMEs can operate at lower costs, increase competitiveness, and increase profitability.

Furthermore, the development of small and medium industries with a focus on the application of environmentally friendly technology allows SMEs to reduce negative impacts on natural resources and the environment. Innovation in environmentally friendly technology can also help SMEs in more effective waste management, which not only maintains environmental sustainability but also meets increasingly stringent environmental regulatory standards. Reducing pollution and efficiency in the use of raw materials ultimately strengthens the competitiveness of SMEs, giving them a better position in a market that

increasingly prioritizes sustainability and environmental awareness (Putri, 2016). Overall, environmentally friendly technology has the potential to support the growth and sustainability of SMEs. This would be important for SMEs to succeed in a period when all business actors are under pressure to be more concerned with their environmental aspects during the production cycle. The reason SMEs should act to reduce environmental impacts and enhance operational efficiency is because this will mean that they meet the demands of the increasingly environmentally conscious market while opening opportunities for greener, more sustainable business growth.

4. Improving Product Quality Through Environmentally Friendly Processes

Various strategies can be effectively employed to develop environmentally friendly production techniques that will improve product quality in SMEs. One key factor for SMEs to apply environmentally friendly production techniques is a sustainability-based approach that not only minimizes the use of hazardous chemicals but also reduces their negative impacts on the environment. Energy-efficient production techniques and maximizing the use of existing natural resources, such as the use of water and renewable energy, allow SMEs not only to improve the quality of their products but also to support environmental sustainability in a sustainable manner (Putri, 2022). This strategy leads to the creation of higher-quality products and is recognized in a market that increasingly values corporate social responsibility towards the environment.

Second, no less important is the usage of local potential in manufacturing products. For instance, SMEs can reduce production costs by using local raw materials and also reduce the carbon footprint generated by the process of transporting raw materials from outside the region. Besides, often, a local potential is reflecting the uniqueness of the local culture that can be used as an additional selling point. In this context, the produced products are also supposed to be more environmentally friendly since production is nearer the source of raw materials, energy waste is minimal, and there is an encouragement of a more sustainable economic system. This approach gives the opportunity for innovation by SMEs in producing a product with distinct characteristics, which eventually leads to the quality of the products and wider opportunities in markets (Putri & Halik, 2022).

Furthermore, the application of environmentally friendly appropriate technology (TTG) is a solution to increase efficiency in the production process. Technologies such as waste separator machines, which are used to reduce waste of raw materials, can help SMEs reduce their environmental impact while improving the quality of the products produced. The use of this technology makes it possible to minimize waste, save raw materials, and increase productivity. For example, technology that optimizes the process of separating recyclable materials provides the dual benefit of reducing production costs and reducing environmental pollution, in line with improving the quality of more sustainable products (Putri & Ramadani, 2024).

Eventually, a broader diffusion of environmental business practices will strengthen the SMEs' market competitiveness. Examples of measures in this direction that can help the achievement of the goal of reaching higher product quality while attracting consumers, who are ever more concerned by the state of the environment, are the development of renewable energies, material recycling, and product innovation based on sustainability. Introducing

products based on sustainability principles is also a good strategy for SMEs to differentiate themselves in an increasingly competitive market. As more and more consumers take note of the importance of sustainability, environmentally friendly strategies put SMEs in a better place within the global and local markets, adding added value to their products (Putri, 2022; Putri & Halik, 2022; Putri & Ramadani, 2024).Therefore, carrying out eco-friendly strategies at all levels of production will lead not only to the qualitative improvement of products but also create huge opportunities for the sustainable development of SMEs with a view to environmental sustainability.

5. Implementation of Knowledge in Production

The application of knowledge in the production process in SMEs could be done in various ways to support each other: prototype-making assistance based on local potential, integrated marketing strategies, improvement of production quality, proper application of technology, and digital transformation. Assistance in making product prototypes based on local potential plays an important role because it allows SMEs to utilize the resources around them so that they not only reduce production costs but also identify local potential that can be a characteristic of the product. This can strengthen the attractiveness of the product in the local market and increase its selling value (Putri & Halik, 2022). In addition, the implementation of a marketing strategy that is integrated with the production process will increase the competitiveness of SME products. Assistance in this case helps SMEs understand the importance of quality control and product design innovation to ensure that the products produced not only meet market standards but also compete with similar products in the global market. With good marketing, these products can be reached by a wider range of consumers, as well as increase customer loyalty (Maduwinarti et al., 2022).

The application of appropriate technology also plays a major role in increasing the capacity and efficiency of SME production. For example, the use of machines or tools that are appropriate to production needs can reduce waste of raw materials and speed up the production process without sacrificing product quality. Through the application of TTG, the production process can be more efficient, reduce dependence on intensive labor, and increase the consistency of results produced in large quantities, which ultimately maximizes profits (Putri & Ramadani, 2024). Finally, the application of digital technology, especially in the context of the industrial revolution 4.0, is key for SMEs to remain competitive. Using digital technology as the basis of a production management system and data analytics, SMEs can optimize their systems in all dimensions of production, from planning through quality control to product distribution. This technology even affords the opportunity for outreach to wider markets through digital platforms, thereby creating product introduction on wider scales that are more time- and cost-effective (Putri et al., 2023). All these approaches together will add to enhancing the quality, efficiency, and competitiveness of SME products for facing the ever-growing competitive market in this digital era.

6. Measuring Success

The measurement of success in SMEs involves an integrated approach where the analysis of operational efficiency and best use of resources are targeted to attain the desired output. Success here is not just about the revenue or profit that would be generated but also

how effectively the SMEs manage the resources like raw materials, labor, and time of production to develop goods or services that meet the market demand. Technical efficiency is an indication of SME performance that could mean that a business may have more outputs using fewer inputs when compared to a similar business setup in the market. Besides, other external factors related to market demand changes, the level of competition, as well as the government policies governing business, affect SME performance, as stated by Putri & Chetchotsak (2018).

A great level of efficient management of available resources for such businesses promises further accomplishment of successful intended functions concerning productivity and cost efficiency levels associated with customer satisfaction. SME businesses need to remain mainly concerned about how production or distribution flow gets handled and what is being effectively done regarding production capitals and available labors within or for them (Putri, 2022). Efficiency in management is, therefore, critical in realizing business sustainability and relevance even on a long-term basis, especially under economic challenges or changes within the market.

On the other hand, sustainability and innovation are important factors in measuring the success of SMEs. In an increasingly competitive business world, SMEs are required to be able to adapt to changes in technology, market trends, and consumer needs. This requires continuous performance improvement supported by innovation in products or business processes. Measuring the success of SMEs must also include their ability to develop and survive in a dynamic environment, as well as adapt strategies to developments in the times, including success in taking advantage of new market opportunities and reducing obstacles in their operations (Putri, 2021). Thus, measuring the success of SMEs is more than just assessing short-term performance; it also prioritizes continuous improvement and adaptation to existing market changes.

Results and Discussion

1. Positive Impact on the Environment

One of the most significant impacts of community service activities in the Pasuruan furniture industry is the increasing awareness and application of environmentally friendly principles in every stage of production. SMEs that have begun to adopt sustainable production practices, such as the use of environmentally friendly raw materials and more efficient management of wood waste, have also had a very positive impact on environmental sustainability. Paying attention to more efficient wood waste management and using natural raw materials will result in the generation of less waste, thus avoiding air and water pollution. In general, the furniture manufacturing process requires many harmful chemicals that may contaminate the environment if not managed well. The realization of these eco-friendly measures overrides this challenge.

The furniture industry is a way to participate directly in protecting already existing ecosystems, substituting a number of raw materials for other materials considered friendlier with nature by making use of well-managed sources. By direct impact, harm is reduced in the forests themselves and, likewise, any cuts prohibited by law in nature can keep balance intact. In addition, the use of alternative materials pays attention to the sustainability of raw material

supplies that are not only useful for industry, but also for long-term environmental sustainability.

No less important, the application of environmentally friendly technology and energy efficiency in the furniture production process plays a major role in reducing the carbon footprint produced by this industry. By increasing the efficiency of energy use, the furniture industry not only achieves higher sustainability targets, but can also reduce its operational costs. Therefore, the steps taken by SMEs in the Pasuruan furniture sector provide benefits not only for the company itself, but also for the environment and the wider community.

2. Positive Impact on SME Economy

Community service activities that focus on introducing sustainable technology and production methods have a very significant impact on the economic development of SMEs in Pasuruan. Through the application of sustainability principles, SMEs in the furniture sector are able to feel direct benefits that strengthen their position in the market. First, by applying sustainability principles in the production process, furniture SMEs can improve the quality of the products they produce. This increase in quality also drives greater market demand. More environmentally friendly products, such as furniture that uses natural materials and sustainable production processes, are increasingly in demand by consumers who are increasingly aware of the importance of maintaining environmental sustainability. This brings SMEs to greater profit opportunities.

Besides, other important factors of operational cost reduction will be better waste management, energy-saving technologies usage, and avoiding excessive use of raw materials. These steps will help SMEs minimize the cost of production. It is this efficiency that allows them to further push their profit margins while still sustaining high standards of sustainability.In addition, the implementation of sustainable community service programs gives the Pasuruan SMEs a competitive advantage in the market, both nationally and globally. Now, more and more consumers pay attention to environmentally friendly products, so local furniture products become more attractive. The opportunities to expand their market share will increasingly open up to the domestic and international markets.

3. Positive Impact on Society and Workers

In addition to providing positive impacts on the economic and environmental aspects, community service activities also bring about very beneficial social changes, especially for the community and workers in the Pasuruan furniture industry. This activity plays a role in improving the quality of social life and better working conditions. One of the main impacts is increasing the knowledge and skills of workers. The training and education provided in the context of this service targets increasing understanding of environmentally friendly principles and the application of more sophisticated production technologies. As a result, furniture sector workers have higher skills and better professional abilities. They are also increasingly feeling that they themselves become a part of the industry's effort to achieve sustainability and even further develop pride and a sense of ownership about their work. Besides, because of the demand for friendly-environment products, most SMEs in the furniture sector have started opening new jobs.

Increasing friendly-environment furniture production gives the surrounding community an opportunity for work, decreasing unemployment and contributing to the local economy in Pasuruan. Socially, workers receiving training with knowledge in the principles of sustainability within the furniture industries stand a better chance of obtaining better employment.More skilled jobs that meet sustainability standards have the potential to provide a better life. In addition, attention to the principles of occupational safety and improving working conditions contribute to the welfare of workers. In the long term, this attention to welfare can also improve the quality of social life in the region.

4. Positive Impact on the Role of Government and Private Institutions

Community service activities also open up opportunities for active participation by the government and private institutions in efforts to support the sustainability of the furniture industry in Pasuruan. The collaboration between the two parties greatly contributes to the development and progress of the SME sector in the furniture sector. First, collaboration between the government and SMEs is very important to advance the environmentally friendly furniture industry. Community service programs implemented by the government, both at the local and central levels, allow for closer cooperation between the government and business actors. The support provided includes a deeper understanding of environmentally friendly policies, as well as the provision of assistance in the form of training, funding, and access to a wider market. All of these things further strengthen the ability of SMEs to apply sustainability principles and increase the competitiveness of their products in the market.

These may be supported by the government and private institutions in such a way that they can work together in strengthening infrastructure that will help ensure the sustainability of the industry, such as waste processing facilities that are environmentally friendly and support energy-saving technologies that would benefit the furniture industry in the long term. The provision of adequate infrastructure provides SMEs with the opportunity to operate more efficiently, reduce environmental impacts, and at the same time reduce operational costs. This joint approach has the potential to strengthen the sustainability of the furniture industry in Pasuruan in a sustainable manner.

5. Positive Impact on SME Image and Marketing

In addition to providing direct economic benefits to furniture SMEs in Pasuruan, community service activities also have a strategic role in strengthening the positive image and advancing the marketing strategy of local products in an increasingly competitive market. This impact makes a significant contribution to business sustainability and market expansion. By implementing environmentally friendly production practices, SMEs are able to increase consumer trust and awareness of their products. Currently, consumers, especially in the global market, are increasingly concerned about sustainability issues and environmental quality. Products that prioritize environmentally friendly aspects are not only preferred but also tend to be priced higher. In addition, the ability of SMEs to demonstrate a commitment to sustainability can be a competitive advantage that distinguishes them from other competitors, both in the domestic and international markets.

The positive impact of this better image also affects the ability of SMEs to build networks and collaborate with external parties. SMEs that actively integrate sustainability principles in

production often attract the attention of large companies or international partners who have a similar vision. This kind of collaboration can be in the form of partnerships in marketing, distribution cooperation, or new product development. With increasing exposure to the global market, SMEs in Pasuruan not only have the opportunity to expand their market but also increase their overall business capacity.

In addition, SMEs can be more active in utilizing this positive image to design more effective marketing strategies, including using sustainability narratives as added value in promoting their products. This approach is very relevant, especially in the digital era where sustainability is attractive to the younger generation, who have a big influence on modern consumption trends. By creating a strong story about how environmentally friendly practices are implemented, local Pasuruan products can more easily penetrate a wider market while maintaining their local identity and quality. This effort not only strengthens the position of Pasuruan SMEs in market competition but also gives them space to continue to develop sustainably while providing positive benefits to the wider community and the environment. Community service activities in the Pasuruan furniture industry are presented in Figure 2. Wood, as the main raw material for the furniture industry, is presented in Figure 3.

Figure 2. Community Service Activity in the Pasuruan Furniture Industry

Figure 3. Wood as the Main Raw Material for the Pasuruan Furniture Industry

Conclusion

Community service activities in the Pasuruan furniture industry have had a significant impact on environmental sustainability, economic growth, social welfare, and strengthening the position of SMEs in the furniture industry. By implementing environmentally friendly practices in the furniture production process, both in terms of the use of sustainable raw materials, waste management, and energy efficiency, furniture industry players in Pasuruan

can reduce negative impacts on the environment while increasing the efficiency and quality of their products.

In economic terms, this would help bolster the competitive edge of Pasuruan-made furniture products in both national and international markets. Lowering operational costs—and improving product quality—has long-lasting advantages for SMEs, since this ensures their expansion and job retention. Besides, sustainability principles also provide new opportunities to establish a more favorable reputation in a marketplace with increasingly strong values. From a social perspective, this activity has contributed to providing input/information related to increasing the knowledge and skills of furniture industry workers, helping them to develop in their profession and improve their welfare. Socialization of environmentally friendly practices and innovation in the production process can also have an impact on improving the quality of life of the surrounding community that is directly or indirectly involved in the furniture industry.

Thus, this community service activity shows the importance of collaboration between the government, community, and private sector in creating the sustainability of the furniture industry in Pasuruan. By continuing to support environmentally friendly initiatives and strengthening related infrastructure, the furniture industry in Pasuruan can achieve better economic sustainability, produce high-quality products, and play an active role in preserving the environment and improving the welfare of local communities.

References

Kominfo, "Industri Mebel, Motor Penggerak Perekonomian Kota Pasuruan," Kominfo Pasuruan Kota, 10 Jan. 2022. [Online]. Available: https://kominfo.pasuruankota.go.id/2022/01/10/industri-mebel-motor-penggerak-perekonomian-kota-pasuruan/. [Accessed: 05 Jan. 2025].

R. A. T. Lestari, "Pasar Bukir Pasuruan, Pusat Industri Mebel Rakyat Jawa Timur," Times Indonesia, 23 Ags. 2023. [Online]. Available: https://timesindonesia.co.id/ekonomi/465740/pasar-bukir-pasuruan-pusat-industri-mebel-rakyat-jawa-timur-#google_vignette. [Accessed: 05 Jan. 2025].

W. Nurdiyanto, "Pasar Bukir Pasuruan, Pusat Pasar Mebel Jawa Timur," Jatim Times, 23 Ags. 2023. [Online]. Available: https://jatim.times.co.id/news/ekonomi/5xvgr4vybt/Pasar-Bukir-Pasuruan-Pusat-Pasar-Mebel-Jawa-Timur. [Accessed: 05 Jan. 2025].

F. R. Arief, "Industri Rumah Mebel Pasuruan Harus Bisa Jadi Penggerak Perekonomian," Times Indonesia, 06 Apr. 2018. [Online]. Available: https://timesindonesia.co.id/foto/1187/industri-rumah-mebel-pasuruan-harus-bisa-jadi-penggerak-perekonomian-. [Accessed: 05 Jan. 2025].

E. P. Putri and M. Abdulrahim, "Business Development of Small and Medium Enterprises Due to Poverty Alleviation Efforts in East Java Province, Indonesia," in Proceedings of the 2016 International Conference on Physics, Mechanics of New Materials and Their Applications, I. A. Parinov, S.-H. Chang, and M. A. Jani, Eds., New York, USA: Nova Science Publishers, 2017, pp. 627-633.

E. P. Putri, "Penyuluhan Strategi Pengembangan Bisnis UMKM Desa Minggirsari, Kecamatan Kanigoro, Kabupaten Blitar, Provinsi Jawa Timur," PSHPM: Prosiding Seminar Hasil Kegiatan Pengabdian Masyarakat, vol. 1, no. 1, pp. 204-212, 2022, doi: https://doi.org/10.30996/scfp.v1i1.740

E. P. Putri, "Renewable energy: Charcoal briquettes from coconut shells," in *Physics and Mechanics of New Materials and Their Applications. PHENMA 2023*, I. A. Parinov, S. H.

Chang, and E. P. Putri, Eds., vol. 41, *Springer Proceedings in Materials*, Cham, Switzerland: Springer, 2024, pp. 541–548.

E. P. Putri and M. N. Ramadani, "CSA in Jerukgamping Village: TTG Crackers Separation Machine to Increase SMI's Production," JPM17: Jurnal Pengabdian Masyarakat, vol. 02, no. 09, pp. 91-98, 2024, doi: https://doi.org/10.30996/jpm17.v9i02.10915.

E. P. Putri and A. Halik, "Pendampingan pembuatan prototype produk berbasis potensi lokal di Desa Minggirsari Kabupaten Blitar," *Prosidings Seminar Nasional dan Call for Paper Konsorsium UNTAG Se-Indonesia Tahun 2022*, pp. 39-50, 2022.

E. P. Putri and I. Supardi, "Establish the regional excellence through the cluster development of small and medium manufacturing industry center with effective and dynamic," *Adv. Mater. Res.*, vol. 931-932, pp. 1701-1704, 2014, doi: 10.4028/www.scientific.net/AMR.931-932.1701.

E. P. Putri, "Cluster development of small and medium manufacturing industry in Surabaya City, East Java, Indonesia," in *Proceedings of the 2015 International Conference on Physics, Mechanics of New Materials and Their Applications*, I. A. Parinov, S.-H. Chang, and V. Yu. Topolov, Eds., New York: Nova Science Publishers, 2016, pp. 565-570.

A. Maduwinarti, S. Andayani, and E. P. Putri, "Strategi Pemasaran Produk UMK dan Pendampingan Proses Produksi di Desa Minggirsari Kecamatan Kanigoro Kabupaten Blitar," JHP 17: Jurnal Hasil Penelitian, vol. 7, no. 1, pp. 1-10, Jan. 2022, doi: https://doi.org/10.30996/jhp17.v7i1.6103.

E. Putri, S. Supardi, L. Narulita, I. Kusumaningayu, B. Putra, A. Purnamasari, and V. Pranata, "MSMI Development Strategy in the Era of the Industrial Revolution 4.0 and Society 5.0," in Proc. 4th Int. Conf. Adv. Eng. Technol. (ICATECH 2023), 2023, pp. 292–298, doi: https://doi.org/10.5220/0012103800003680

E. P. Putri and D. Chetchotsak, "Performance evaluation using DEA-multipliers model: A case study of small and medium-size enterprises in Thailand," in Proceedings of the 2017 International Conference on Physics, Mechanics of New Materials and Their Applications, I. A. Parinov, S.-H. Chang, and V. K. Gupta, Eds., Nova Science Publishers, New York, Oct. 2018, pp. 499–510.

E. P. Putri, "Performance measurement using DEA-multipliers method: A case study of clean water companies in Indonesia," Proc. International Exchange and Innovation Conference on Engineering & Sciences (IEICES), vol. 8, pp. 114–121, Oct. 2022, doi: https://doi.org/10.5109/5909075

E. P. Putri, Z. Arief, and I. Yuwono, "Performance evaluation using input-oriented envelopment DEA method: A case study of micro and small industry in Indonesia," in Materials Science and Technologies: Physics and Mechanics of New Materials and Their Applications, 2021–2022, I. A. Parinov, S.-H. Chang, and A. N. Soloviev, Eds., Nova Science Publishers, New York, 2023, pp. 289–304. doi: https://doi.org/10.52305/QLWW2709