

Implementation of Green Business in Micro, Small, and Medium Enterprises (MSMEs) in Bontang City

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economic development, accounting for approximately 60% of the national Gross Domestic Product (GDP) and employing more than 97% of the formal workforce. Despite this substantial contribution, MSMEs continue to face various challenges, particularly those related to the environmental impact generated from production and operational activities. Many MSMEs, particularly in manufacturing, construction, and agriculture, continue to employ resource-intensive and inefficient production and marketing methods. Therefore, adopting green business practices has become an essential agenda to minimize environmental degradation while strengthening MSMEs' competitiveness in the global market. Green business refers to business practices that prioritize the efficient use of natural resources, minimize pollution, and integrate environmental sustainability across all stages—from raw material selection and production processes to distribution. Key aspects include waste reduction, energy efficiency, and product recycling. For MSMEs, adopting green practices offers long-term advantages such as reduced operational costs, enhanced brand reputation, and improved access to international markets with strict environmental standards. However, MSMEs often face challenges in implementing these practices, mainly due to limited capital, restricted access to green technologies, and high initial investment requirements, such as those for renewable energy systems or recycling facilities. Additionally, low public awareness and the lack of strong regulatory support hinder MSMEs from transitioning toward environmentally friendly business models. Many business owners still perceive green practices as costly and burdensome. Therefore, implementing green business within MSMEs requires a practical, measurable, and resource-appropriate approach that aligns with their operational capacities.

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INTRODUCTION

In the era of globalization and the Fourth Industrial Revolution, MSMEs face increasing pressure to enhance their business processes and product quality, including consistency in sustainability practices. Global markets, especially in developed countries, now impose strict environmental regulations, creating strong demand for products aligned with sustainability principles. MSMEs that fail to adopt these principles risk losing competitiveness, particularly in export markets.

Green business refers to practices that prioritize efficient resource use, minimize pollution, and integrate environmental sustainability across all stages of production and distribution. Key components include waste reduction, energy efficiency, the use of environmentally friendly raw materials, and product recycling. For MSMEs, the long-term benefits are substantial—lower operational costs, a stronger brand image, and improved access to financing and international markets. The Indonesian government also supports this transition through initiatives such as the National Plastic Waste Reduction Movement and various sustainability-focused programs, enabling MSMEs to access incentives and expand market opportunities.

Growing consumer awareness of eco-friendly products further strengthens the market potential for green MSMEs, while green technologies offer efficiency gains and cost reductions. International institutions such as UNDP and the World Bank additionally provide green financing and support mechanisms. However, MSMEs still face challenges, including limited capital, restricted access to technology, insufficient public awareness, and inadequate infrastructure in many regions.

Despite these challenges, several Indonesian MSMEs have successfully implemented green practices, demonstrating the significant economic and environmental benefits. In Bontang City, PT Pupuk Kalimantan Timur has supported MSMEs in production and marketing, yet the adoption of green business principles remains limited.

Therefore, this community service activity aims to provide socialization and practical guidance on implementing green business principles for MSMEs in Bontang City, enhancing their capacity to adopt sustainable practices and strengthen their competitiveness.

METHOD

The approach methods used in carrying out the service activities are detailed as Figure 1.

Partner Needs Analysis Stage

The partner needs analysis stage is conducted through interviews and observation.

Demographics & Participant Selection

- 25 MSMEs under PKT's guidance
- Food and Beverage, crafts, agriculture, textiles, textile services, and services sectors
- Scale: 64% micro, 28% small, 8% medium

- The majority have never participated in green business training (72%)

Implementation Stages

The implementation of Green Business in MSMEs is carried out thru training and technical guidance, delivering training materials consisting of:

- Basic Concepts and Practices of Green Business in MSMEs
- Green Accounting and Resource Efficiency in MSME Operations
- Green Marketing Strategies and Branding of Environmentally Friendly Products
- Green Business Design Practices.

Consultation and Sustainability Stages

This consultation forum is conducted by providing an online consultation forum for 3 months or offline with funding from partners.

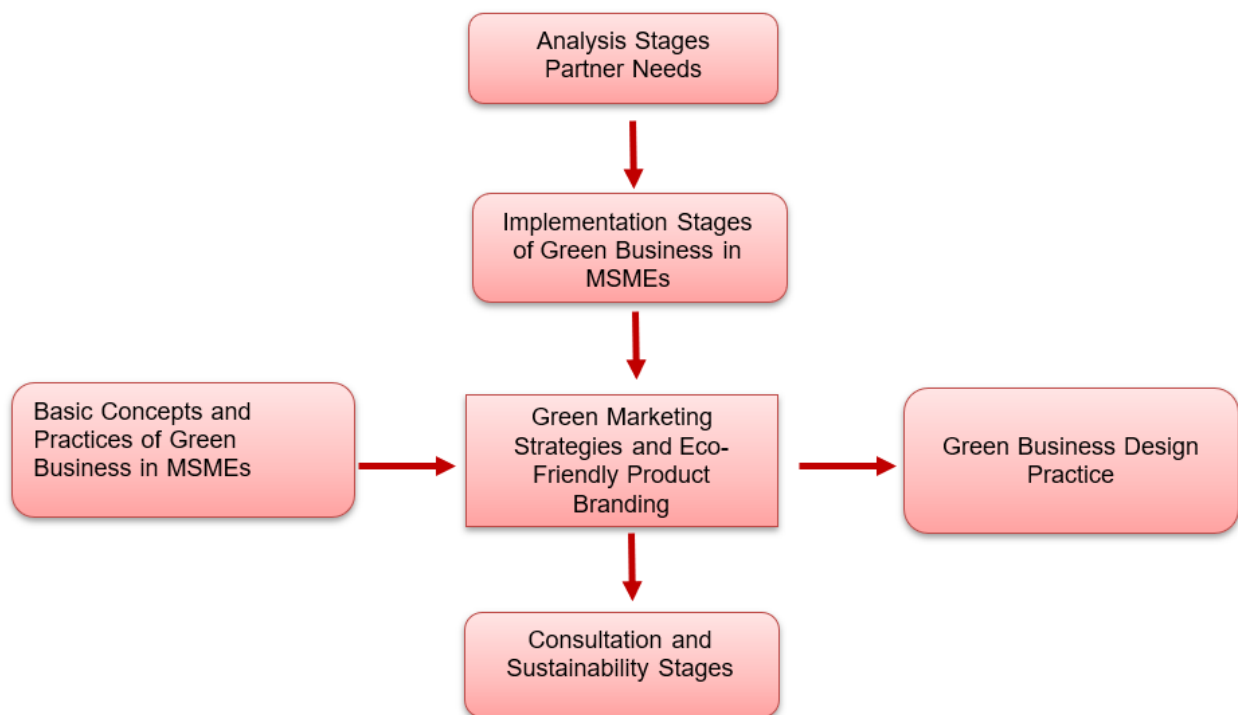


FIGURE 1. Community service activities

RESULTS AND DISCUSSION

This Community Service activity encompasses several strategic aspects designed to strengthen the understanding and implementation of the Green Business concept among MSMEs mentored by PT Pupuk Kalimantan Timur (PKT). Several studies show that implementing green business can increase efficiency and reduce costs. For example, MSMEs that use renewable energy such as solar power or

biomass can save on long-term electricity costs. Additionally, consumers are increasingly concerned about the origin of the products they purchase. More environmentally conscious consumers tend to choose products that are sustainably produced and free from negative impacts on the ecosystem.

Mutamimah and Sri Handoko (2012) found that Green Business had a negative but insignificant effect on financial performance. Corporate Social Responsibility (CSR) cannot moderate the relationship between Green Business and financial performance. Similarly, Green Business has a positive but not significant effect on market performance. Implementing green business not only affects financial performance, market performance, and community well-being. This is very reasonable, as the goal of implementing green business is not only to improve the company's financial performance but also to enhance market performance. This means that with this influence, it can be studied how the market or investors respond to companies that implement green business.

Mohamad Nur Utomo and Sulistya Rini Pratiwi (2021) concluded that the performance of Small and Medium Enterprises in Tarakan City is positively and significantly influenced by Green Output, Green Marketing, and Community Awareness Level. MSME actors and households can be at the forefront of the successful implementation of green business because MSMEs are the largest economic sector, accounting for 64%. However, in practice, green business faces several obstacles in its implementation. One effort that the government can make is to establish regulations or policies that govern the implementation of green business. There must be synergy between the community, companies, media, education, and the government.

The conclusion reached by Borza & Talmaciu (2014) in their study on green business entrepreneurship in metropolitan areas of Romania is that "The concern of entrepreneurs regarding the implementation of environmental factor protection strategies is reduced solely to the mandatory state, the orientation toward green businesses is limited, and strategic projects for the next 5-10 years are extremely low, targeting the specific practices of the green economy." In other words, the level of concern among business owners (entrepreneurs) is limited to mere obligation.

Astuti & Catur Wahyuni's (2018) research concluded that the implementation of Green Human Resource Management in MSMEs is highly necessary. This is supported by the very important role of MSMEs in the country's economic development and the labor-intensive characteristics of MSMEs. However, the process of implementing green HRM needs to begin with strong policies/commitments from MSME owners to implement the concept.

Earnhart and Lizal (2006) researched the impact of environmental performance on financial performance during the economic transition period of 1993-1998. The results show that good environmental performance will increase profits by minimizing costs and increasing revenue. Conversely, Filbeck and Gorman (2004) did not find a positive relationship between environmental performance and financial performance. However, this is partly due to research focusing on the electricity industry, which differs from most other industries due to its regulation. Studying the financial and environmental performance of the utility industry gives us the opportunity to see what role regulation plays in improving or reducing the relationship between financial and environmental performance.

Green business, or green business, is a sustainable and environmentally friendly business practice that aims to minimize negative impacts on the environment. This practice often has significant social impacts as well.

Social Impact

- **Job Creation:** Green businesses often create new jobs in sectors such as renewable energy, recycling, organic farming, and eco-friendly manufacturing. Example: The renewable energy industry, such as solar and wind power, has created many new jobs in various countries.
- **Public Health Improvement:** Reducing air and water pollution thru green business practices can improve public health. Example: Companies that reduce carbon emissions and hazardous waste help lower the risk of respiratory illnesses and cancer.
- **Environmental Education and Awareness:** Green businesses often play a role in raising environmental awareness and education among the public. Example: Marketing campaigns and CSR (Corporate Social Responsibility) programs that focus on the importance of environmental conservation.
- **Improved Quality of Life:** Implementing green business practices can improve the quality of life thru a cleaner and healthier environment. Example: A company that invests in the local community to develop green spaces and sustainable infrastructure.
- **Reducing Social Inequality:** Many green businesses are committed to fair and ethical trade practices, ensuring workers receive fair wages and good working conditions. Example: A fashion company that uses organic materials and ensures its supply chain is free from worker exploitation.
- **Support for Local Communities:** Green businesses often support local economies by using local resources and labor. Example: Organic farms that market their products locally can support the economies of surrounding communities and reduce the carbon footprint of transportation.
- **Innovation and Technology Development:** Green businesses foster innovation in environmentally friendly technologies, which can have a positive impact on society as a whole. Example: The development of clean energy technology accessible to rural communities that previously lacked access to electricity.

Economic Impact

Green business, or green business, also has a significant economic impact. Here are some economic impacts of green business:

- **Increased Efficiency and Cost Savings:** Green businesses often adopt more efficient practices in resource utilization, such as energy and water, which can reduce operational costs. Example: Using renewable energy and energy-efficient technologies can reduce a company's electricity bills in the long run.
- **Creation of New Jobs:** Green sectors, such as renewable energy, eco-friendly technology, and recycling, create new jobs. Example: The solar and wind power industries require labor for installation, maintenance, and component production.
- **Increased Competitiveness and Innovation:** Adopting green business practices often drives innovation, which can enhance a company's competitiveness in the global market. Example: Developing environmentally friendly products that meet the demands of increasingly environmentally conscious consumers.
- **Access to New Markets and Customers:** Green businesses can open access to new markets and attract customers who care about environmental issues. Example: Organic and sustainable products

often have a fast-growing niche market.

- **Increased Company Value and Reputation:** Companies that adopt green practices can enhance their reputation, which can boost brand value and customer loyalty. Example: Companies known for being environmentally friendly often receive more support from consumers and investors.
- **Risk and Uncertainty Reduction:** By minimizing environmental impact, green businesses can reduce risks related to environmental regulations and potential future litigation. Example: Companies that meet strict environmental standards can avoid costly fines and legal fees.
- **Investment and Economic Growth:** Investment in green technology and sustainable infrastructure can stimulate long-term economic growth. Example: Green infrastructure projects, such as electric public transportation and sustainable buildings, can create positive economic multiplier effects.
- **Economic Diversification:** Developing green sectors can help diversify the economy and reduce dependence on unsustainable industries. Example: Countries that invest in renewable energy can reduce their dependence on imported fossil fuels.
- 9. **Increasing Government Revenue:** Governments can generate additional revenue thru taxes and incentives related to the green industry. Example: Carbon taxes and incentives for companies that reduce emissions can increase government revenue that can be allocated to other environmental programs.

Environmental Impact

Green business, or green business, has a significant positive impact on the environment. Some environmental impacts of green business include:

- **Greenhouse Gas Emission Reduction:** Green businesses strive to reduce greenhouse gas emissions by using renewable energy sources such as solar, wind, and biomass. Example: A company that switches from using fossil fuels to renewable energy can significantly reduce its carbon footprint.
- **Pollution Reduction:** Green business practices reduce air, water, and soil pollution by using more environmentally friendly materials and implementing clean technologies. Example: Companies that adopt clean production systems reduce industrial waste and water pollution.
- **Conservation of Natural Resources:** Green businesses promote the sustainable and efficient use of natural resources, such as water and raw materials. Example: Industries that adopt recycling and reuse practices reduce the exploitation of natural resources.
- **Waste Reduction:** Green businesses focus on reducing, reusing, and recycling waste to minimize environmental impact. Example: Companies adopting zero-waste programs strive to eliminate all waste that cannot be recycled or reused.
- **Biodiversity Conservation:** Green businesses support practices that protect and promote biodiversity, such as organic farming and sustainable forest management. Example: Companies that support organic farming help maintain natural ecosystems and reduce the use of harmful chemical pesticides.
- **Energy Efficiency:** Green businesses implement energy efficiency measures in their operations, such as using energy-saving technologies and environmentally friendly building designs. Example: Companies that adopt LED lighting technology and energy management systems reduce their energy consumption.
- **Reducing Ecological Footprint:** By adopting green practices, businesses can reduce their ecological

footprint, which is the total impact of human activities on the environment. Example: Companies that reduce fossil fuel use, decrease water consumption, and minimize waste contribute to a lower ecological footprint.

- Sustainable Agriculture Promotion: Green businesses often support sustainable farming methods that reduce negative environmental impacts. Example: Organic farming and agroforestry reduce the use of synthetic chemicals and improve soil health.
- 9. Water Consumption Reduction: Green businesses strive to reduce water consumption thru more efficient technologies and practices. Example: Companies that adopt efficient water management systems and wastewater treatment technology can reduce water consumption and pollution.
- 10. Increased Environmental Awareness and Education: Green businesses often participate in environmental education and awareness campaigns for the community. Example: A CSR program focused on environmental conservation and a campaign to reduce the use of single-use plastics.

Results Achieved from the Community Service Activity

Success Analysis

Based on the series of mentoring activities carried out over four days, it can be concluded that this Community Service program is effective and on target. The success of the activity can be analyzed from the following aspects:

- Participant Participation and Engagement The level of participation of MSMEs in each training and discussion session indicates enthusiasm and openness to the concept of green business. Participants actively asked questions, provided case studies from their businesses, and showed interest in adapting the concepts presented. This shows that interactive delivery methods are able to increase participant engagement and practical understanding.
- Understanding Aspect Before the activity began, most MSMEs had a limited understanding of the green business concept and considered sustainability to be synonymous with additional costs. However, after the educational session and simulation of green marketing strategies, participants began to understand that the concept of sustainability can be applied simply and even has the potential to reduce operational costs. This serves as an indicator that knowledge transfer has been successfully achieved.
- Mindset Aspect One of the main successes of this activity is the shift in the perspective of MSMEs from being merely conventional business owners to those oriented toward sustainability and product value addition. This is evident in the participants' ability to formulate independent action plans and their willingness to communicate green values in product branding.
- Production Aspect of Action Plans The success of the activity is not only measured by the delivery of the material, but also by the participants' ability to produce concrete action plan documents (quick wins) that are appropriate for their respective business capacities. The fact that every SME is able to outline the initial steps for implementing green business shows that this activity is not only theoretical but also practical.
- Aspects of Preparing Green Accounting-Based Financial Statements One aspect of the success of this activity is the participants' increased awareness of presenting evidence of green business practices thru Financial Statements by including environmental cost aspects in the Financial Statements.

- **Post-Activity Aspect** The formation of an online consultation forum is proof that this activity has implementation sustainability, not just one-way training. This forum allows MSMEs to continue receiving guidance and monitoring in implementing their action plans, ensuring the service program has a lasting impact after its completion.

Implementing green business practices in MSMEs requires a practical, measurable, and resource-appropriate approach, considering the varying capacities of MSMEs in Bontang City. This Community Service program demonstrates that structured socialization combined with training and continued mentoring is effective in increasing MSME readiness to adopt sustainable practices. Empirical results show a significant improvement in participants' knowledge, with post-test scores increasing by 34–36% across key materials, including green business concepts, green accounting, and green marketing.

Interviews conducted after the training reveal a positive shift in participants' attitudes, where 76% of MSMEs expressed readiness to implement at least one low-cost green initiative, and 68% acknowledged that sustainability efforts can reduce operational costs rather than increase them. In addition, 84% of participants successfully formulated feasible green action plans tailored to their business capacities.

The three-month consultation period further provided evidence of early implementation, with several MSMEs beginning to reduce waste, adopt eco-friendly packaging, and improve energy efficiency. These indicators demonstrate that the program not only enhanced theoretical understanding but also encouraged concrete behavioral changes and initial practice-level adoption.

Overall, this Community Service activity has proven effective in improving MSMEs' awareness, capacity, and motivation to transition toward environmentally responsible business practices. Strengthening collaboration among MSMEs, partner institutions, and government agencies will be essential to sustaining these outcomes and ensuring broader adoption of green business principles in Bontang City.



FIGURE 1. Green Production Socialization



FIGURE 2. Socialization of Green Accounting



FIGURE 3. Socialization of Green Marketing



FIGURE 4. Implementation of Green Business

CONCLUSION

Implementing green business practices in MSMEs requires a practical and measurable approach, considering the limited resources and capacity of MSMEs. Here are some recommendations to help MSMEs effectively adopt green business practices:

- Start Small
 - ✓ Identify Areas for Improvement: Begin with small, easily implementable changes, such as reducing single-use plastic consumption or replacing light bulbs with LEDs.
 - ✓ Pilot Project: Test green initiatives on a small scale before implementing them fully. For example, start with a recycling program in one part of the business before expanding it company-wide.
- Engage the Entire Team
 - ✓ Education and Training: Provide employees with training on the importance of sustainability and how they can contribute.
 - ✓ Employee Engagement: Encourage employees to actively participate in green initiatives and recognize their contributions.
- Energy and Water Efficiency
 - ✓ Energy Conservation: Use energy-efficient equipment and train employees to turn off equipment when not in use.

- ✓ Water Management: Implement water-saving technologies, such as automatic faucets and water-efficient toilets, and use rainwater for non-potable needs.
- Waste Management
 - ✓ 3R Principle: Apply the Reduce, Reuse, and Recycle principle in daily operations.
 - ✓ Recycling: Implement an internal recycling program and collaborate with third parties for managing waste that cannot be recycled internally.
- Sustainable Raw Material Sources
 - ✓ Choose Eco-Friendly Materials: Use more environmentally friendly and sustainable raw materials, such as organic or recycled materials.
 - ✓ Collaborate with Suppliers: Select suppliers who are also committed to sustainable practices.
- Use of Renewable Energy
 - ✓ Solar Panels: Consider installing solar panels to reduce reliance on fossil fuels.
 - ✓ Other Renewable Energy: Explore other options such as wind or biomass energy if possible.
- Environmentally Friendly Packaging
 - ✓ Reduce Plastic: Replace plastic packaging with recyclable or biodegradable alternatives.
 - ✓ Redesign Packaging: Design packaging to be more material-efficient and easily recyclable.
- Transparency and Communication
 - a. Sustainability Report: Create a simple sustainability report to communicate green efforts to customers and stakeholders.
 - b. Financial Report: Present financial statements that demonstrate the implementation of green practices in business operations.
 - c. Customer Education: Educate customers about the importance of sustainability and encourage them to support green initiatives.
- Product and Process Innovation
 - ✓ Sustainable Products: Develop more environmentally friendly products using sustainable materials and production processes.
 - ✓ Efficient Processes: Optimize production processes to reduce waste and improve efficiency.
- Utilize Digital Technology
 - ✓ Digitalization: Reduce paper usage by adopting digital technology for data management and communication.
 - ✓ Automation: Use automation systems to improve energy efficiency and reduce human error.
- Participation in Sustainability Programs
 - ✓ Government Programs: Take advantage of programs and incentives offered by the government for sustainable businesses.
 - ✓ Certification: Pursue relevant green certifications to enhance credibility and market appeal.
- Feedback and Evaluation

- ✓ Gather Feedback: Obtain feedback from employees, customers, and other stakeholders regarding the green initiatives implemented.
- ✓ Evaluation and Improvement: Use the feedback results to continuously improve the quality of environmentally friendly production.

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