

## Waste to Masterpiece: Community Service in Wood Waste Management at Mojowarno Jombang

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### ABSTRACT

*Wood waste management is an important issue in the Mojowarno Jombang area, due to the high production of waste from the wood processing industry while its utilisation is only for firewood. This service aims to increase community awareness about the utilisation of wood waste into economically valuable products, while reducing negative impacts on the environment. The service partners include small and medium enterprise (SME) groups and local communities active in the handicraft industry. The method used is socialisation and technical training on processing wood waste into creative products such as handicrafts and economic goods. The training covers basic processing techniques, product design, and marketing. The results showed an increase in community skills and understanding in managing wood waste, as well as an increase in income through the sale of processed products. In conclusion, this service successfully created a circular economy model in Mojowarno by utilising wood waste into value-added products. This result is important because it shows that a community-based approach to waste management can be an effective solution to environmental and local economic problems. This service is expected to be an example for other areas with similar problems.*

**Keywords:** Wood Waste, Waste Management, Creative Crafts, Circular Economy

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### INTRODUCTION

The wood processing industry in Mojowarno Jombang, East Java, generates a significant amount of wood waste each year (Diskominfo, 2023). This waste is often simply dumped or incinerated, contributing to environmental pollution. This condition raises concerns, especially in relation to increased air pollution and potential negative impacts on public health (Abdulhameed et al., 2023). In addition, the lack of awareness and knowledge about wood waste utilisation exacerbates this problem, leading to waste not being optimally utilised. Figure 1 showed a variety of wood waste that researchers encountered in Mojowarno Jombang.



**Figure 1.** Various Wood Wastes in Mojowarno Jombang

To overcome this problem, researchers together with various parties, including local governments and community organisations, took the initiative to carry out a community service programme. This programme aims to increase community awareness and skills in utilising wood waste into economically valuable products. The involvement of various parties is important to ensure that the community service programme is effective and sustainable, and can provide long-term benefits to the local community (Charnley, 2023; Blesia et al., 2021; Rochmayanto et al., 2023).

Several studies have been conducted to address wood waste. The study by Tang et al. (2022) examined the use of wood waste as a raw material to produce environmentally friendly composite materials, focusing on reducing environmental impacts through recycling. Meanwhile, the study by Nair et al. (2022) explored the conversion of wood waste into bioenergy fuels, showing great potential in minimising waste and harnessing renewable energy. In addition, research by Kumar & Bhattacharya (2021) developed biochar technology from wood waste that can be used as a pollutant sink, thus not only reducing waste but also assisting in soil and water quality management. These three studies demonstrate innovative approaches to wood waste management for sustainability purposes.

The service activities included socialisation and technical training on wood waste processing, which focused on small and medium enterprise (SME) groups and local communities involved in the craft industry. The training covered not only basic wood waste processing techniques, but also aspects of product design and marketing strategies. This holistic approach is expected to help local communities develop relevant new skills and increase the added value of the products produced.

The main objective of this service is to create a circular economy model in Mojowarno, where wood waste is transformed into a valuable resource. Thus, this service not only aims to reduce the environmental impact of wood waste, but also to improve the economic welfare of the community through job creation and income generation. This is in line with the principle of sustainable development, where improving the quality of life and preserving the environment go hand in hand.

## METHODS

The approach used in this service is participatory, by actively involving the local community in every stage of the activity (Abdussamad et al., 2024; Harnilawati et al., 2024). This direct involvement is important to ensure that the knowledge and skills acquired are in line with local needs and potential. The programme began with a socialisation session to raise awareness of the importance of wood waste management and its economic potential (figure 2). This socialisation was followed by technical training focused on processing wood waste into various products such as handicrafts, simple furniture and decorative items.

The training activities were divided into several sessions, each focused on a different aspect of the production process. The initial session included an introduction to tools and materials, as well as basic wood processing techniques. The next session covers product design, where participants are taught how to design attractive and functional products. The final stage is marketing strategies, where participants are given insights on how to market their products, both through local and online channels. All training sessions are guided by instructors who are experienced in their fields, and participants are given the opportunity for hands-on practice.

Evaluation of activities is carried out on an ongoing basis to assess the effectiveness and impact of this service. The evaluation was conducted through surveys and interviews with participants, as well as direct observation of the products produced. Evaluation criteria include improvement in technical skills, quality of products produced, and changes in participants' income. This evaluation aims to identify areas for improvement and ensure that the programme is running in accordance with the set objectives. This operational approach was chosen as it allows for adjustments and improvements to the programme based on feedback received, ensuring sustainability and long-term success.

## RESULTS AND DISCUSSION

Community service in wood waste management in Mojowarno, Jombang, involves a series of activities designed to increase the awareness and skills of the local community. The mentoring process began with a socialisation session aimed at educating the community about the environmental impacts of wood waste and its economic potential. Figure 2 shows researchers and a number of agencies working together to socialise and educate the community about the environmental impacts of wood waste and its economic potential.



**Figure 2.** Socialisation of Trainees

The event attracted a large number of participants, including small and medium-sized enterprises (SMEs) and members of the local community. The session was followed by technical training involving the introduction of tools and materials, basic processing techniques, and product design. The active participation of the participants showed a high level of enthusiasm to learn and contribute to waste management efforts.



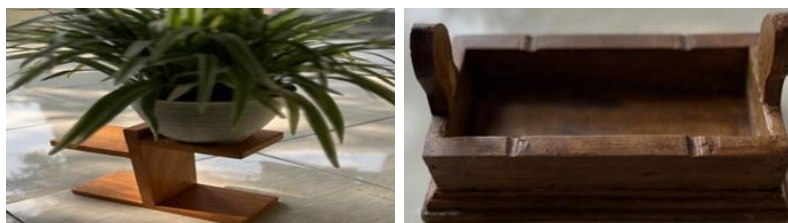
**Figure 3.** Participants Designing the Product

Product design training emphasises aesthetics and functionality, with the aim of creating products that appeal to the market. In Figure 3, participants were taught how to design products in line with market trends, while utilising available raw materials.



**Figure 4.** Participants Making Products

In the production session, participants were given the opportunity to practice their newly learnt skills, with direct guidance from the instructors (figure 4). The products produced included various types of handicrafts and simple furniture, demonstrating the improved quality and creativity of the participants (figure 5).



**Figure 5.** Various Wood Waste Products into Economical Goods



Marketing strategies were the focus of the final stage, where participants were provided with knowledge on various distribution channels and marketing techniques, both locally and online (figure 6).



**Figure 6.** Online Order Delivery

This activity not only improved their understanding of the importance of marketing, but also introduced them to digital platforms that can expand their market reach. The mentoring provided practical insights on business management, from production to marketing, which is essential for the sustainability of their businesses.

This service also brought significant social change. There is an increased awareness among the community about the importance of waste management and the economic opportunities that can be generated. This is in line with findings in recent literature that community-based empowerment programmes can encourage behaviour change and increase participation in environmental conservation efforts (Sullivan-Wiley et al., 2023; Samkin & Wingard, 2021; Drasopolino et al., 2023; Nkansah-Dwamena, 2023). In addition, the formation of new working groups in the form of local cooperatives that focus on the production and marketing of processed wood products, demonstrates the emergence of new institutions that serve as platforms for collaboration and innovation.

Behavioural changes were also evident in the form of increased community participation in waste management activities and craft production. Participants showed greater interest in learning and innovating, and were more open to new ideas about sustainability and the circular economy. These changes reflect an increased understanding of the importance of environmental sustainability and the economic potential of waste, which can be the foundation for broader social transformation.



**Figure 7.** Product Exhibition Attended by Various Agencies

The emergence of proactive local leaders in organising and leading this initiative is one of the significant outcomes of this service. These local leaders not

only play an important role in encouraging community participation but also in ensuring the sustainability of the programme. Their existence is in line with findings from recent research that emphasises the importance of local leadership in the success of community empowerment programmes (Hornyak et al., 2022; Wongpreedee & Sudhipongpracha, 2024; Sumiyana et al., 2022; Russell et al., 2024). With strong institutional support and local leaders, the Mojowarno community is now in a better position to continue developing and expanding this initiative going forward.

### Evaluation of Service Activities

The evaluation of this programme was conducted through two main methods: surveys and interviews with the participants, as well as direct observation of the products produced. The interviews revealed that the participants had a better understanding of the production process from the beginning to the marketing stage. They were able to recognise the important steps in the transformation of raw materials into finished products that have economic value. Direct observation of the resulting products showed innovation, with participants successfully transforming waste into marketable goods, signalling an increase in creativity and technical skills.

**Table 1.** Evaluation of Service Activities

| Aspects of Evaluation              | Descriptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Evaluation Methods                 | <ul style="list-style-type: none"><li>○ Surveys and interviews with participants: Understand the production process from start-up to marketing.</li><li>○ Direct observation of the products: Seeing the innovation from waste to economic goods.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                            |
| Criteria for Evaluation            | <p><b>Technical Skills Enhancement:</b></p> <ul style="list-style-type: none"><li>○ Understanding of the production process: From raw material selection to the final stage.</li><li>○ Product design: Products that are in line with market trends.</li><li>○ Sales strategy: Effective and efficient sales methods.</li></ul> <p><b>Product Quality:</b></p> <ul style="list-style-type: none"><li>○ Assessment of products that sell well in the market: Analyse which products appeal to consumers.</li></ul> <p><b>Revenue Change:</b></p> <ul style="list-style-type: none"><li>○ Assessment of products that sell well in the market.</li></ul> |
| Purpose of Evaluation              | <ul style="list-style-type: none"><li>○ Identify areas for improvement.</li><li>○ Ensure the programme is working as intended.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Operational Approach to Evaluation | <ul style="list-style-type: none"><li>○ Adjust and improve the programme based on feedback.</li><li>○ Support the sustainability and long-term success of the programme.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

The evaluation criteria covered several important aspects, including the improvement of participants' technical skills. After participating in the programme, participants have a better understanding of the production process, from the selection of raw materials, product design in accordance with market

trends, to effective and efficient sales strategies. Product quality is also a key focus in the evaluation, where the products produced are assessed based on their level of acceptance in the market. This includes analysing which products have managed to attract consumer interest and gain good sales.

In addition, the evaluation also assessed the impact of the programme on participants' income. Although the recorded increase in income is still small, it shows a positive trend that can be further improved. The main objective of the evaluation was to identify areas for improvement, as well as to ensure that the programme is on track with its stated objectives. This comprehensive evaluation approach allows for continuous adjustment and improvement, which not only supports the sustainability of the programme but also its long-term success. As such, it serves as an important tool in ensuring that the programme provides maximum benefit to participants.

## CONCLUSION

The results of this service activity show a significant increase in the skills and understanding of the Mojowarno community in managing wood waste. The community was not only able to process wood waste into value-added products, but also managed to increase income through the sale of these processed products. This creates an effective circular economy model, where waste that previously had no value is now transformed into products that are in demand by the market. This success underlines the potential of community-based approaches in addressing local environmental and economic issues, making waste management a solution that can be adopted in other areas with similar conditions.

However, despite the positive results, there are some limitations that need to be noted. Firstly, the scale of the programme is still limited to certain areas in Mojowarno, so its impact has not been widely felt. Secondly, limitations in terms of resources and technological support restrict further innovation and development of more diverse products. In addition, the change in income achieved by participants is still relatively small, suggesting that there is still room for improvement in terms of production scale and market access.

One of the uniqueness of this service is the approach that emphasises direct community involvement in every stage of the process, from production to marketing. This not only improves the community's technical skills, but also gives them a deeper understanding of the circular economy and the importance of waste management. As suggestions for related agencies and future researchers, it is recommended to expand the reach of this programme to other areas, as well as increase support in terms of advanced training and access to more sophisticated technology. In addition, it is important to build a wider marketing network so that processed wood waste products can reach a larger market, so that they can provide more significant economic benefits to the community.

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