

COMMUNITY EMPOWERMENT THROUGH THE UTILIZATION OF USED COOKING OIL TO PRODUCE COFFEE-SCENTED AROMATHERAPY CANDLES IN BALUN VILLAGE

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Abstrak

The management of used cooking oil at the household level remains an environmental issue requiring attention, including in Balun Village, Wanayasa District, Banjarnegara Regency. Improperly managed used cooking oil poses a risk of environmental pollution; however, utilizing it as a raw material for non-food products can generate both utility and economic value. This community service initiative aims to raise public awareness regarding used cooking oil management while imparting practical skills to transform it into coffee-scented aromatherapy candles a product reflecting Wanayasa's local potential. The activity employed a participatory approach involving local housewives. The stages of the initiative included situational observation and analysis, outreach and socialization, demonstrations, hands-on practice, packaging guidance, and monitoring and evaluation. Observations revealed that households in Balun Village generate an average of 300–500 ml of used cooking oil per week, indicating a significant potential supply of raw material for productive use. The initiative received a positive response, evidenced by the participants' enthusiasm, active discussion, and engagement throughout the training process. Transforming used cooking oil into coffee-scented aromatherapy candles offers a waste management alternative while creating opportunities to develop creative economy products based on local potential. This activity serves as a starting point for fostering more sustainable waste management practices and community-based ecopreneurship in Balun Village.

Keywords: *Used Cooking Oil, Aromatherapy Candles, Local Coffee*

INTRODUCTION

Balun Village is one of the villages in Wanayasa District, Banjarnegara Regency, Central Java, which is located at an altitude of around 1,800 meters above sea level so that it has a cool climate and is suitable for horticultural cultivation such as cabbage, potatoes, tomatoes and carrots, which are the main livelihood of its residents (Pemerintah Desa Balun, 2021). Like other villages in Indonesia, this village produces increasing amounts of cooking oil waste, both from household cooking activities and home culinary businesses. Such oil is often considered worthless waste and simply dumped down the drain, but it can pollute soil and water and pose health risks. Repeated use of cooking oil can trigger kidney disorders, hypertension, stroke, and blood clots conditions caused by the acrolein compound formed during the repeated heating process so it is much more appropriate to reuse the oil as a non-food raw material (Mayasyafira, 2025).

On the other hand, Wanayasa District is known as the main producing area for Arabica coffee in Banjarnegara. Dieng Highlands Arabica coffee is cultivated across 68 villages spanning seven districts including Wanayasa with the Senggani Arabica variety from Pegundungan Village even recognized as one of the best Arabica coffees at the national level. The distinctive aroma of this local coffee has the potential to become a product identity that reflects the richness of Wanayasa District, while also increasing the selling value of products produced from household waste (Zuhaena et al., 2022; Zuhaena Fatwa et al., 2025). Various community service initiatives in various regions have shown that used cooking oil can be processed into aromatherapy candles that have economic value through stages such as purification using activated charcoal, mixing with paraffin, adding dyes and essential oils, and the final stage of printing (Rinanto et al., 2024; Sukmawati et al., 2024). This kind of program has proven to be able to change the perception of the community in Aek Subdistrict, Batu City candles made from used cooking oil were reported to help reduce stress while repelling insects in Tambakboy Village and similar training succeeded in increasing partner knowledge by up to 80%, where all participants gained the ability to produce the candles independently (Ika et al., 2025). The fundamental problem behind this activity stems from the suboptimal management of used cooking oil in Balun Village This oil tends to be simply disposed of without processing, thus creating a risk of pollution to the surrounding environment (Lisanty et al., 2024; Mayasyafira, 2025). This situation is exacerbated by the lack of public knowledge regarding the dangers of reusing cooking oil, as well as low awareness of processing it into useful non-food products (Mayasyafira, 2025; Sukmawati et al., 2024). On the other hand, the potential of the local coffee aroma a hallmark of Wanayasa District as a producer of premium Arabica coffee has not yet been fully leveraged to add value to products derived from household waste (Surveyandini & Zuhaena, 2022). In addition, skills and opportunities for home businesses focused on waste processing are still very limited among housewives, even though such activities have the potential to become a source of additional income (Ika et al., 2025; Wardani et al., 2021).

To address this issue, the initiative offers training on making aromatherapy candles using used cooking oil and coffee bean scents this simultaneously tackles the challenge of household waste management and strengthens local identity centered on Wanayasa's signature coffee. Technically, the process follows steps that have proven successful in similar programs filtering and clarifying used cooking oil using activated charcoal, mixing it with a hardening agent such as stearin or paraffin, adding local coffee bean powder or essence and natural coloring, and finally, molding the mixture into ready to use candles (Ramadhani et al., 2025; Sukmawati et al., 2024). The implementation includes raising awareness about the dangers of used cooking oil, followed by demonstrations and hands on practice an approach that has proven effective in Aek Subdistrict, Batu City, and Tambakboy Village (Ika et al., 2025; Mayasyafira, 2025). The choice of coffee aroma is based on the fact that this aroma has been proven to provide a relaxing effect, relieve headaches, reduce stress and anxiety, improve mood, and help overcome insomnia consequently, the resulting product offers functional value while possessing market appeal as a creative economy product with distinctive regional characteristics (Pachimsawat et al., 2021, 2024).

This initiative aims to educate the residents of Balun Village about the environmental and health risks associated with the repeated use of used cooking oil providing practical training on processing the oil into coffee scented aromatherapy candles covering all stages from filtration to packaging highlighting the potential of local Wanayasa coffee as a key element of product identity and value and foster the growth of eco-friendly home based businesses rooted in the creative economy. Ultimately, the project seeks to reduce the volume of used cooking oil that pollutes land and water, raise awareness about the health and economic impacts of reused cooking oil, create new home based business opportunities from a previously worthless resource, and raise the profile of Wanayasa coffee through innovative, value added products (Ika et al., 2025; Wardani et al., 2021).

SOLUTIONS AND TARGETS

Considering the problems identified in Balun Village particularly the suboptimal management of used cooking oil at the household level a solution is needed that not only reduces waste but also provides practical benefits and economic value for the community. Consequently, this community service initiative proposes utilizing used cooking oil as a raw material for producing coffee scented aromatherapy candles. This product choice is based on the potential to repurpose household waste into a useful non-food item, while the coffee scent serves as a distinctive feature reflecting the local characteristics of Wanayasa District. This proposed solution is implemented through several intervention steps providing education to the public regarding the impacts of improper disposal and repeated use of cooking oil; provide technical training in oil processing through filtration and purification processes and conducting hands on workshops for making aromatherapy candles. This approach aims to foster an understanding that household waste does not have to be simply thrown away, but can be managed and turned into valuable products. In addition, the use of coffee aroma is expected to build local identity and increase product appeal, thereby contributing to the development of the community's creative economy.

This activity targets housewives who are directly involved or have the potential to be involved in household waste management and the development of productive economic activities. Specifically, this initiative aims to increase public knowledge and awareness regarding used cooking oil management, develop practical skills in processing the oil into aromatherapy candles, and build basic capabilities in product packaging and identifying market opportunities. Another objective is to encourage an ecopreneurship mindset the ability to view environmental issues as opportunities to create products with economic value.

IMPLEMENTATION METHOD

Based on the problems and solutions described previously, this community service activity was carried out in Balun Village, Wanayasa District, Banjarnegara Regency, on August 21, 2026. This initiative involved housewives, considering that they are the main producers of used cooking oil and the parties who will receive the most direct benefits from processing this waste into products with economic value. A participatory approach is implemented to ensure active community involvement from the beginning to the end of the program, so that residents do not simply become passive observers.

This approach was selected because it has proven more effective in waste management community service programs, allowing the community to experience the production process firsthand rather than simply receiving one-way information. The implementation process began with an initial situation analysis which included surveys and interviews with village officials and residents to map household cooking oil usage patterns, estimate the volume of cooking oil waste generated, and measure the level of community awareness of the associated risks. This stage also involves procuring local coffee powder or beans from Balun Village which function as aroma givers and product characteristics. Based on these findings, the team proceeded to the preparation phase by gathering the necessary materials and equipment waste cooking oil from residents, activated charcoal for purification, stearin or paraffin as hardening agents, coffee powder or essence for fragrance, and supporting tools such as wicks, molds, heating vessels, and stirring implements. Next, the team carried out outreach and education activities regarding the environmental and health impacts of the disposal or repeated use of cooking oil waste, while also introducing the concept of ecopreneurship by showing how seemingly worthless waste can be transformed into products that have sales value.

The core of this activity is a demonstration and hands on practice of candle making. The implementation team demonstrated the steps in sequence filtering used cooking oil purifying it with activated charcoal to reduce rancid odor, heating and mixing it with a hardening agent until dissolved, adding coffee powder or essences for fragrance and natural coloring, and finally, pour the mixture into a mold that has been fitted with a wick to harden. Participants then practiced the entire process themselves under the team's guidance to ensure they fully mastered the skills and could apply them independently. The activity continued with guidance on packaging including attractive presentation methods as well as an overview of marketing opportunities through social media and local markets, thus opening up the potential for developing these skills into sustainable home businesses. To conclude, evaluation and monitoring were conducted through direct observation of participant engagement and understanding, a Q&A session to assess mastery of the material, and post activity follow up to track the continued application of the skills learned.

RESULTS AND OUTCOMES

This community service activity was conducted on August 21, 2026, at the village hall of Balun Village, Wanayasa District, Banjarnegara Regency. This event was attended by 15–20 participants, all of whom were housewives. The enthusiasm of the participants was clearly visible from the initial socialization stage, which was reflected in the various questions asked and their active participation in the discussion. Initial observations of households in Balun Village showed that the average volume of used cooking oil produced by housewives ranged from 300 to 500 ml per week. This volume indicates that household activities especially cooking routinely produce oil waste that can continue to accumulate if not managed properly. This finding reinforces the situation that has been explained in the background section, namely that the management of used cooking oil at the household level in Balun Village is still not optimal.

The production of such large quantities of used cooking oil routinely highlights waste management issues that require attention, particularly regarding how the oil is used and handled once it is no longer suitable for cooking.



PICTURE 1.



PICTURE 2.



PICTURE 3.

Thus, this initial observation not only provides an overview of the volume of used cooking oil produced by households, but also reveals the potential of this raw material to be managed and reprocessed into aromatherapy candles. This situation has become the main basis for community service initiatives especially in providing education and offering alternative uses for used cooking oil to ensure that the oil does not simply become household waste, but can provide greater utility value and benefits for the people of Balun Village.

CONCLUSION

Community service activities in Balun Village, Wanayasa District, Banjarnegara Regency, show that the management of used cooking oil at the household level has significant development potential through an approach that converts this waste into products with practical and economic value. Preliminary observations indicate that each household generates an average of 300–500 ml of used cooking oil per week. These findings suggest a relatively stable supply of raw materials, while also highlighting the need for more appropriate management alternatives to prevent the oil from becoming waste that could potentially pollute the environment.

This program which includes awareness raising activities, demonstrations, hands-on practice, and a guide to making coffee scented aromatherapy candles from used cooking oil provides a real alternative for communities to turn household waste into useful products. The enthusiasm of the participants, as seen from the active discussion and various questions asked, showed a positive response to the material and the concept of reusing used cooking oil into non-food products. The participatory approach allows participants not only to gain theoretical knowledge, but also to experience firsthand the process of processing used cooking oil into usable products. In addition, the use of coffee aroma has strategic value because it links household waste management with the potential of local commodities in Wanayasa District. This approach has the potential to improve product characteristics while opening up opportunities for developing a creative economy based on local resources. Thus, the initiative goes beyond mere waste reduction it introduces an ecopreneurship perspective, demonstrating how environmental challenges can be transformed into opportunities to create economic value for the community.

Overall, this community service initiative is an initial step to build awareness and skills among Balun Village residents regarding the productive and sustainable use of used cooking oil. The program's future sustainability needs to focus on strengthening production skills, standardizing product quality and safety, developing design and packaging, establishing a brand identity rooted in local Wanayasa coffee, and providing marketing support through both local markets and digital platforms. By strengthening these aspects, it is hoped that the utilization of used cooking oil will not just stop at the training stage, but will develop into sustainable waste management practices and become the foundation for home businesses in Balun Village that combine the creative economy with environmental sustainability.

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