

Transforming Used Cooking Oil into a Superior Eco-Friendly Product

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ABSTRACT

Used cooking oil is the primary contributor to water contamination, behind industrial chemical waste. Government rules for the disposal of industrial and residential trash are governed by national legislation on the management of hazardous and toxic products, as well as the management of household waste and hazardous raw material waste. The village in the district, Regency, possesses the potential for MSMEs as producers of snack products: processed goods from the village. Daily production yields 6–8 liters of utilized frying/cooking oil per quintal. Recycling wasted cooking oil into aromatherapy wax items is an economically viable and promising alternative. The recycling of used cooking oil in the village engages the community and youth through workshops. The implementation consists of three primary stages: (1) Preparation, (2) Implementation, and (3) Evaluation & Reporting. Each level involves coordinated and ongoing contact between the implementation team and the training participants, namely the villagers. Comprehensive community engagement aimed at establishing a creative village characterized by exceptional, environmentally sustainable, educational products with significant market value.

Keywords: Recycling; Waste Oil; Highlighted Products

INTRODUCTION

Environmental contamination is an important subject that needs to receive attention and solutions. Certain causes of environmental contamination originate from various household activities. The establishment and implementation of waste banks in diverse locations constitute a viable and efficient strategy for mitigating pollution through effective management. The Waste Bank has demonstrated its efficacy in generating supplementary revenue for family

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requirements. The current limitation of the Waste Bank is its inability to accept a diverse range of refuse from home activities. Management is confined to the area of inorganic waste with significant marketability, including various types of paper and plastics (Deraman et al., 2020).

The community engages in agricultural processing by transforming local vegetables into various processed chips and rambak crackers. The chip manufacturing process generates both biological and inorganic waste. Organic waste, including residual peels of bananas, sweet potatoes, and cassava, is recycled through a degradation process, ultimately yielding fertilizer. Simultaneously, inorganic waste generated from frying oil or used cooking oil has not been effectively utilized or handled. Individuals dispose of used cooking oil in sewers, bury it underground, and resell it in 20-liter quantities for Rp 40,000. This poses a risk as it deteriorates the quality of water and soil, which are essential resources for the agricultural and plantation sectors in Pereng Village; additionally, there exists a potential for the repurposing of spent cooking oil for purification and subsequent consumption (Deshpande & Jyothi, 2022). This is the primary catalyst for the onset of lethal diseases, specifically cancer, cardiovascular conditions, and stroke. The innovative concept of converting and repurposing wasted oil into aromatherapy wax items serves as a remedy to mitigate environmental harm. A further beneficial effect is that individuals can exercise creativity with discarded candles, offering them as distinctive gifts representative of the community with significant market appeal. Anticipated income will induce alterations in individuals' well-being.

The recycling of used cooking oil is an effort to educate and build awareness of the people of Village to care about environmental sustainability and the importance of the process of recycling waste/waste into environmentally friendly products of value to improve the economy. The Team of has a commitment and responsibility to implement the results of research by contributing as an agent of change for society. This is realized by working together in a service activity. The problems identified based on the preliminary description are how to provide understanding to the people of Village about the potential of recycling used cooking oil and how to transfer the expertise of recycling used cooking oil into creative products of aromatherapy candles with high economic value, so that it becomes a distinctive flagship of Village. Understanding of the dangers and negative impacts of environmental damage due to careless disposal of used cooking oil needs to be socialized to the people of Village (Lawal et al., 2012). The target recipients of information and participants of recycling activities in the training format are women and Youth Organizations. Communicative and attractive delivery packaging is needed to motivate them to practice consistently after completing the training. The urgency of implementing the service of used cooking oil recycling training is as an effective solution for environmental conservation by processing waste into products with economic selling value. The great benefits obtained by the people of Village by participating

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in this activity are growing awareness to preserve the environment and fostering creativity by utilizing waste/waste with the creation of useful/empowered products (Woma et al., 2019). The outline of this service activity is the value of education to the wider community about the importance of environmental sustainability and wise consumption by prioritizing environmentally friendly products.

RESEARCH ELABORATIONS

The implementation of this community service workshop was implemented in three stages of activities. The three stages include: Preparation, Implementation, and Evaluation & Reporting. The formulation of these stages is effective for the implementation of service activities and has been tested in previous activities. The preparation stage is used by the Implementation Team to gather information from the people of Pereng Village about problems that arise and require effective and appropriate solutions. Furthermore, the determination of the material and workshop participants with discussion and agreement with the community. The potential group of trainees are women who become knowledge transfer agents for families and Youth Organizations as the younger generation who hold important keys to social regeneration. The preparation of materials and props by the Implementation Team is in accordance with the training plan in the form of recycling used cooking oil into aromatherapy candles (Karmakar et al., 2020).

Some of the materials used have chemical properties, so safety elements are considered in the implementation process, to minimize the risk of injury/accident. The implementation stage is divided into three parts, namely the introduction, the core, and the end/presentation. Introduction to the activity in the form of the initial stage of implementation with socialization, information, and education about the importance of preserving the environment through recycling activities; as well as the benefits and business opportunities of recycling used cooking oil (Sivasamy et al., 2009). The core of the activity is the practice of making aromatherapy candles with steps that are easy to follow and clear, the Implementation Team considers to package a presentation that makes it easier for participants. The final activity is in the form of packaging aromatherapy candle products, so as to attract consumers to buy, use, and be loyal (become a customer, reorder/repeat order). Evaluation and reporting are the final stages of the overall set of activities. The end of the activity does not mean that it is over, but evaluation is needed for further implementation improvement. The important role of evaluation is the nature of control, so that shortcomings and mistakes made by the Implementation Team during subsequent activities can be avoided. A strategy is needed so that activities can run optimally,

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so that zero errors can be achieved as an indicator of the accuracy of procedures/implementation steps. Reporting is an administrative consequence for accountability to the institution, as well as a record of data/archives/documentation of activities

RESULTS AND DISCUSSIONS

The training activities were divided into two sessions, namely socialization and discussion as well as the practice of making aromatherapy candles. The activity was attended by all village officials, community representatives, owners of snack SMEs, representatives of Pokdarwis, and representatives of the Youth Organization, with a total of 20 people. Socialization and discussions were carried out as a series of trainings, with the subject matter of the importance of managing used cooking oil waste which will have a good/positive impact because it reduces environmental pollution, especially soil and water. After the socialization and discussion activities, it was followed by a demonstration/practice of making aromatherapy candles made from used cooking oil on the second day. Then the team provided training on used cooking oil management techniques to be created into creative products of aromatherapy candles with high selling value. The role of art in the environment is real as a means of building public awareness that things that look useless, actually have many benefits by being managed optimally. This can be seen in the implementation of community service activities by the Art Study Group Research. Material on how to package and serve to attract consumer interest was also provided by the Team, with the aim that the results of service activities can be continued into a leading creative business typical of Village. This used cooking oil recycling service activity is correlated with the downstream of previous research products, namely the recycling of straw waste into creative paper. Candle packaging is packaged using glass made of bamboo that grows wild and lush in the yard gardens of the village community.

The socialization and discussion sessions, as well as the practice of making candles, received a good response and enthusiasm from the participants who attended. The dialogue was formed with a variety of ideas and information exchange from each participant. The idea was born to experiment using used oil which is widely available in workshops around the village. The proposal is accommodated as a problem that will be solved together through research and service activities in the next stage. One by one, participants were asked to practice making aromatherapy candles. An interesting part of the socialization and discussion session was the presentation of the logo visualization process for the Village. The logo is included in the visual branding section that can be implemented in various activities. The final target of socialization and training activities is to increase the insight and awareness of the people of Pereng Village about the importance of processing waste. The results of the final evaluation of

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the activity show that the community's interest in the processing of used cooking oil waste has been evenly disseminated to the smallest scope in the meeting of women at the hamlet and hamlet levels. The community has a high commitment to continue the results of the training as a superior product of the village. This is in line with the village development plan as a creative tourism pilot area. The realization of the formation of business entities involving various elements is an initial effort and an indicator of success that service activities are needed by the people of Pereng Village as a solution to the problem of environmental pollution and improvement of welfare.

CONCLUSIONS

The benchmark for the success of community service activities does not come from the large number of publications and outputs produced. The success in question is the enthusiasm of the community to continue activities independently. Aromatherapy candle products based on the results of discussions on the implementation of activities have been able to arouse public awareness, especially about the importance of preserving the environment with simple actions, namely recycling. The recycling habit has been carried out by the people of Village through a Waste Bank which is coordinated through Pokdarwis and women per hamlet. The difference is that the waste that has been sorted is not recycled but sold to be recycled as plastic seeds on a factory scale. The used cooking oil left over from cracker production was initially sold per kilo to be reprocessed into fuel. The sale of used cooking oil has the risk of being refined and resold into bulk oil. This will be detrimental and has the opportunity to increase the risk of cancer sufferers, because used cooking oil that is re-consumed is a carcinogen/cancer trigger. This service activity is limited to one kind of product, namely aromatherapy candles. Another potential for processing used used cooking oil that has been neutralized using activated charcoal is for soap. Clinical trials for the safety level of soap products from used cooking oil are necessary, as they are consumed by rubbing on human skin. Diverse skin characters require a guarantee of the quality of a product. This is interesting to continue as the next project opportunity.

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