

Community Empowerment through Digital Marketing and Ecobrick-Based Environmental Initiatives: A Social Marketing Approach

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ABSTRACT

Plastic waste has become an increasingly significant environmental issue along with the growing level of community activities. Before this program, residents of Yosowilangun Kidul Village commonly disposed of organic and inorganic waste together, regarded plastic waste as valueless refuse, and had never received structured training in waste segregation or recycling; this condition reflected limited practical knowledge rather than an unwillingness to change. Community empowerment efforts were therefore needed to shift this baseline condition toward more responsible waste management behavior. This community service program was conducted in Yosowilangun Kidul Village, Lumajang Regency, using a social marketing approach delivered through waste management socialization, ecobrick production training, digital marketing training, and continuous community mentoring. Following the program, participants shifted from passive waste disposal to active waste processing: they were able to sort plastic waste independently, produce ecobricks without facilitator assistance, and had begun using social media to promote products made from recycled materials. These changes were documented through facilitator observation and participant discussion across sessions, indicating measurable gains in both understanding and practical skill, although they were not captured through a formal pre-post instrument. This activity demonstrates that a sequenced education-training-mentoring model within a social marketing framework can be an effective and replicable strategy for shifting community behavior toward more sustainable plastic waste management at the village level.

Keywords: Ecobrick; Plastic Waste Management; Community Empowerment; Social Marketing; Digital Marketing



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INTRODUCTION

Waste refers to materials that are no longer used or residual by-products generated from human activities. As long as human activities continue, waste generation will remain inevitable and will continue to increase, making proper waste management essential (Defitri, 2023). However, the increasing volume of waste has not been matched by the availability and capacity of waste

management infrastructure and facilities (Rayhan, Nurikah, dan Jazuli, 2024), resulting in progressively worsening environmental pollution over time. When communities are not adequately prepared to manage waste, governments and other institutions have a responsibility to facilitate this preparedness through training programs and public awareness initiatives that have demonstrated positive outcomes. Waste that is improperly disposed of in the environment poses significant threats to environmental quality and public health, particularly human well-being (Rayhan, Nurikah, dan Jazuli, 2024). Consequently, waste management has become a major contemporary issue that requires serious and comprehensive attention (Damanhuri dan Padmi, 2011). Waste management challenges are not solely environmental issues but are also closely related to community behaviour and public awareness regarding responsible waste management. Limited public knowledge of waste segregation and management practices has resulted in most waste being disposed of indiscriminately or mixed without prior treatment (Samputri et al., 2025; Setyowati & Mulasari, 2013). In fact, effective waste management can be achieved through simple approaches, such as waste segregation at the source, reducing the use of single-use plastics, and reusing or recycling materials that still possess economic or functional value (Penebel et al., 2023). Therefore, improving public knowledge and awareness through educational programs, training, and community outreach constitutes a crucial strategy for promoting sustainable waste management. Waste management remains a significant challenge in Yosowilangun Kidul Village, Lumajang Regency. Preliminary observations revealed that many residents continue to mix organic and inorganic waste and have yet to implement effective waste management practices. As a densely populated residential area, Yosowilangun contributes substantially to the generation of household waste, particularly plastic waste. This situation has not been adequately supported by a waste management system based on source segregation and resource recovery. Plastic waste is still commonly regarded as valueless refuse and is ultimately disposed of without efforts to reduce, reuse, or recycle it.

Nevertheless, the local community has considerable potential to actively participate in waste management when supported by enhanced knowledge, practical skills, and approaches tailored to local social and environmental characteristics. These findings indicate the need to strengthen public understanding of the importance of waste segregation and management at the source. Accordingly, this community service program was implemented through educational outreach and hands-on training on waste management to enhance community awareness and improve residents' capacity to manage waste more responsibly and sustainably. A closer examination of the situation in Yosowilangun Kidul Village indicates that low participation in waste segregation is not merely a matter of insufficient awareness, but is rooted in the absence of any prior structured intervention: no waste segregation infrastructure or program has previously reached the village, no market linkage exists that would give plastic waste perceived economic value, and no accessible skill-based training has been available at the household level. Without an economic incentive attached to segregated waste, awareness alone provides limited motivation for behavioural change. Previous studies on this topic have tended to address these issues separately rather than as an integrated system. Counselling-based studies such as those on 3R practices and public awareness of waste sorting have concentrated on strengthening cognitive understanding of waste management but have not extended into product-based skill training or market-oriented follow-up. Conversely, technical training studies on ecobrick production have concentrated on the manufacturing process itself, with limited attention to how the resulting products can be sustained economically once training ends. This community service program differs from these prior efforts by combining behaviour-change communication, hands-on production skills, and a market-facing digital marketing component within a single social marketing framework, so that the economic incentive created through product promotion reinforces the segregation behaviour taught in the earlier stages. This integrated design constitutes the specific contribution of the present program relative to previous community service and outreach initiatives on plastic waste management.

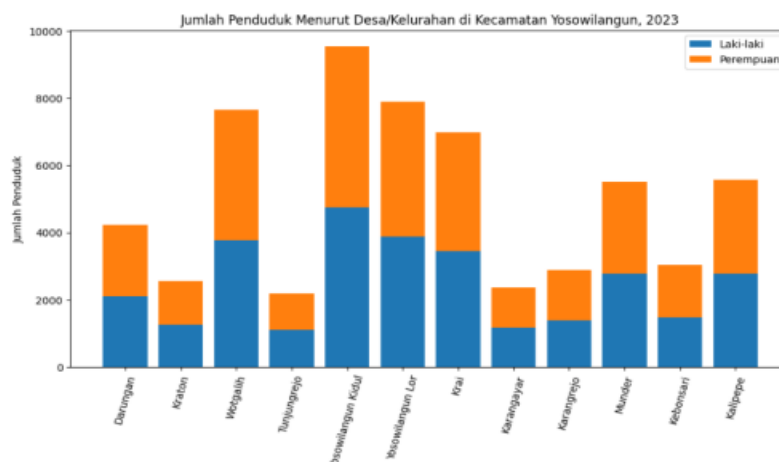


Figure 1. Population by Village/Subdistrict in Yosowilangun District

Source: (BPS Lumajang, 2022)

According to the 2023 Statistics of Yosowilangun District published by the Central Bureau of Statistics (BPS), Yosowilangun Kidul Village is one of the most populous villages in the district, with approximately 4,600–4,800 inhabitants. This population is considerably higher than that of neighbouring villages such as Dawuhan, Dadapan, and Karanganyar, each of which has fewer than 2,000 residents. The male and female populations are relatively balanced, although females slightly outnumber males in most villages. The large population indicates a high level of household activity and a substantial potential for the generation of inorganic waste. Consequently, waste management education represents a relevant and necessary intervention to mitigate the environmental impacts of household waste. Furthermore, the residents of Yosowilangun Kidul Village have considerable potential to participate actively in community-based environmental management initiatives. This potential is reflected in the community's involvement in various social activities and village development programs. Through appropriate educational and training programs, community members can be encouraged to adopt waste segregation practices at the source and reuse materials that still possess functional or economic value. Such efforts are expected not only to reduce the volume of waste disposed of into the environment but also to enhance public awareness of the importance of maintaining environmental cleanliness and sustainability. One practical approach to managing plastic waste at the community level is the production of ecobricks. An ecobrick is created by filling cleaned and compacted plastic waste into plastic bottles to produce a dense, reusable material that can serve as a simple construction material or be transformed into creative products (Ngafiyah et al., 2024). This method is considered highly suitable for community implementation because it does not require sophisticated technology and can be carried out independently at the household level. In addition to reducing plastic waste generation, ecobrick production has the potential to create added value when developed into creative products with economic benefits.

Furthermore, ecobrick-based products can be promoted through digital marketing strategies to expand their market reach. By utilising digital platforms, particularly social media, communities can promote recycled products more effectively, thereby increasing their economic value. This approach aligns with the concept of social marketing, which emphasises behavioural change through communication strategies and community empowerment to generate social and environmental benefits. Accordingly, waste management initiatives extend beyond environmental conservation by creating economic opportunities for local communities. Therefore, this community service program aims to enhance public knowledge and awareness of plastic waste management through ecobrick production while introducing digital marketing to promote recycled products, thereby creating added value for both the community and the environment.

METHODS

This community service program was conducted in Yosowilangun Kidul Village, Lumajang Regency, targeting residents involved in household waste management activities. The program adopted a social marketing approach aimed at encouraging behavioural change in plastic waste management through educational sessions, hands-on training, and community mentoring. Through these activities, participants were expected not only to acquire knowledge of plastic waste management but also to develop practical skills in producing ecobricks and utilising digital media as a platform for promoting recycled products. The implementation of the program consisted of three main stages: the preparation stage, the implementation stage, and the evaluation stage. The social marketing approach (Carmenza et al., 2025) emphasises behavioural change through communication strategies designed to generate social benefits for both individuals and the environment (Kotler & Lee, 2011). By adopting this approach, community members were expected to become more motivated to transform their plastic waste management practices into environmentally responsible behaviours. This approach was selected specifically because the root causes identified in Yosowilangun Kidul Village were not limited to a lack of awareness: residents also lacked practical segregation and processing skills, and had no economic incentive linked to plastic waste. A purely informational campaign would therefore have addressed only the awareness dimension of the problem. The four-stage sequence, socialization, production training, digital marketing training, and mentoring, was designed so that each stage directly targeted one root cause: socialization addressed the awareness gap, production training addressed the skill gap, digital marketing training addressed the absence of economic incentive by linking recycled products to a market, and mentoring addressed the risk that newly acquired behavior would not persist once formal sessions ended. The overall implementation process is illustrated in the following framework:



Figure 2. Community Service Implementation Framework

Source: Developed by the authors (2026)

The preparation stage involved site observation and coordination with the village authorities. During this stage, the community service team assessed the existing waste management practices in Yosowilangun Kidul Village. It held discussions with village officials to identify local needs and determine appropriate activities that could support community-based waste management initiatives.



Figure 3. Village Coordination Session

Source: Authors' documentation (2026)

The next stage involved a waste management education program for the local community. This activity aimed to increase public understanding of the importance of proper waste management, particularly household waste segregation and the reduction of single-use plastic consumption. Through this educational program, participants were expected to develop greater awareness of the environmental impacts of waste and recognise the important role of community participation in maintaining environmental cleanliness. Following the educational session, participants attended an ecobrick production training program as an alternative approach to utilising household plastic waste. During this stage, community members received both theoretical instruction and hands-on practice in producing ecobricks using properly segregated plastic waste. The training was designed to equip participants with practical skills for transforming plastic waste into products with functional value. The next activity consisted of digital marketing training, which aimed to introduce participants to using digital media as a platform for promoting recycled products. Community members were introduced to social media and other digital platforms that could be utilised to market products created from recycled waste materials, thereby enhancing their market reach and economic potential. The subsequent stage was community mentoring, which provided continuous assistance to help participants apply the knowledge and skills acquired during the educational and training sessions. This mentoring process was intended to ensure that community members were able to consistently produce ecobricks and effectively utilise digital media to support the promotion of recycled products. The final stage was program evaluation, which was conducted to assess the overall effectiveness of the community service program. The evaluation involved observations and discussions with participants to examine improvements in their knowledge and awareness of waste management, as well as their ability to apply the practical skills acquired throughout the program.

RESULTS AND DISCUSSION

This community service program was implemented through a series of activities, including waste management education, ecobrick production training, digital marketing training, and community mentoring. The program aimed to enhance public knowledge and awareness of plastic waste management while equipping community members with practical skills to transform plastic waste into products with functional and economic value. The program began with an educational session on household waste management, emphasising the importance of waste segregation at the source. During this stage, participants were introduced to the environmental impacts of plastic waste and various waste management practices that can be implemented at the household level. This educational activity was designed to increase public awareness of the importance of adopting more responsible and sustainable waste management practices.



Figure 4. Household Waste Management Education

Source: Authors' documentation (2026)

The next stage involved ecobrick production training. During this session, community members received both theoretical instruction and hands-on practice in utilising plastic waste by compacting it into plastic bottles to create dense ecobricks that can be used as alternative materials with practical value. This training provided participants with direct experience in applying a simple and practical method of plastic waste management that can be easily incorporated into their daily lives.



Figure 5. Ecobrick Production Training

Source: Authors' documentation (2026)

In addition, the community service program included digital marketing training to enhance participants' understanding of how digital media can be utilised to promote recycled products. Community members were introduced to the use of social media as a marketing platform to showcase products made from recycled waste, thereby creating opportunities to increase the economic value of these products and support community-based income generation.



Figure 6. Digital Marketing session

Source: Authors' documentation (2026)

The results of the community service program demonstrated an improvement in participants' understanding of plastic waste management and ecobrick production. This was reflected in the increased level of community participation during the hands-on ecobrick-making sessions and the participants' enthusiasm throughout the entire program. Furthermore, community members began to recognise that plastic waste should not merely be regarded as refuse requiring disposal but also as a resource that can be transformed into products with functional value. The success of the program can be assessed through several key indicators, including improved public knowledge of plastic waste management, enhanced practical skills in producing ecobricks, and increased awareness of the importance of waste segregation at the source. In addition, the active participation of community members throughout the program and their ability to independently produce ecobricks further demonstrated the effectiveness of the activities. Interpreted through Kotler and Lee's (2011) social marketing framework, these changes correspond to a progression from awareness to knowledge, from knowledge to skill acquisition, and from skill to independent action, indicating that the intervention moved participants beyond passive understanding toward self-directed practice.

It is important to note that these indicators were derived from facilitator observation and participant discussion rather than from a standardised pre-post measurement instrument; they therefore represent qualitative, process-level evidence of behaviour change rather than statistically verified outcomes. Within this scope, the results achieved so far- participants producing ecobricks and initiating product promotion- are best characterised as program outputs, that is, immediate results of the training itself. Whether these outputs translate into a lasting outcome, namely a sustained reduction in the volume of unmanaged plastic waste at the household level and a durable source of supplementary income, cannot yet be established from a single round of activities and would require follow-up monitoring over a longer period. Despite these positive outcomes, several challenges were encountered during the program implementation. One of the primary challenges was the limited awareness among some community members regarding the importance of waste segregation, as many residents still mixed organic and inorganic waste. In addition, producing high-quality ecobricks requires patience and considerable time to compact plastic waste into dense bottles, indicating the need for continued mentoring to ensure the long-term adoption of this practice. Nevertheless, the program offers several advantages when considered within the context of Yosowilangun Kidul Village. The ecobrick production method is relatively simple and can be implemented using household plastic waste that is readily available within the community. Moreover, the community empowerment approach, which combines training with ongoing mentoring, provides opportunities for residents to develop sustainable community-based waste management initiatives in the future. Looking ahead, this initiative has strong potential for further development through the establishment of community groups dedicated to waste management and the production of ecobrick-based creative products. Furthermore, the use of digital media as a promotional platform can expand market opportunities for recycled products with economic value, thereby supporting community empowerment while contributing to environmental sustainability.

CONCLUSION

This community service program demonstrates that the root causes of low plastic waste management participation in Yosowilangun Kidul Village, namely limited practical skills and the absence of an economic incentive linked to waste, cannot be fully addressed by awareness-raising alone. The key lesson from this program is that sequencing behaviour-change communication, hands-on production skills, and a market-facing promotional component within a single social marketing framework allows each stage to reinforce the others: skill training gives residents something to do with segregated waste, and digital marketing training gives that output a reason to be sustained. This sequenced model, socialisation followed by skill training, followed by market linkage, followed by mentoring, offers a structure that can be replicated in other villages facing a similar combination of low awareness, limited skill, and absent market access, rather than being specific to ecobrick production alone. At the same time, because the evaluation in this program relied on facilitator

observation and participant discussion rather than a standardised measurement instrument, the contribution reported here is best understood as evidence that the sequenced model is feasible and well received, not as a quantified measure of long-term waste reduction or income generation. Future community service programs adopting this model would benefit from incorporating a simple pre-post knowledge assessment and a follow-up visit several months after the mentoring stage ends, so that claims about sustained behavioural outcomes, rather than immediate output, can be supported with firmer evidence.

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