



USE OF WHATSAPP AND INSTAGRAM AS A PROMOTIONAL MEDIUM FOR WASTE BANKS

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Abstract

The issue of waste management remains a critical concern at both global and local levels, encompassing environmental and economic dimensions. According to UNEP (2024), global solid waste generation is projected to rise from 2.1 billion tonnes in 2023 to 3.8 billion tonnes by 2050, with annual management costs potentially reaching USD 640.3 billion without urgent intervention. In Indonesia, the National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry recorded national waste generation exceeding 35.49 million tonnes per year in 2023. Bank Sampah Akasia Berseri, a community-based waste management unit in Pamulang District, South Tangerang City, holds significant potential to increase the economic value of waste through recycled products such as eco enzyme. However, limitations in marketing—particularly in the utilization of digital media—have constrained market reach and sales performance. This community service program (PKM) aims to enhance the skills of waste bank managers in leveraging social media, especially WhatsApp Business and Instagram, as effective and sustainable promotional tools. The implementation method employs a participatory approach encompassing problem identification, needs analysis, socialization, digital marketing training, and social media management assistance. Results indicate a significant improvement in managers' understanding and ability to create promotional content, manage social media accounts, and interact with customers online. The establishment of active digital promotional media is expected to expand market reach and enhance the economic value of waste bank products on a sustainable basis.

Keywords: Waste Bank, Digital Marketing, Social Media, Community Empowerment, WhatsApp, Instagram

INTRODUCTION

The problem of waste management has developed into a global environmental crisis that requires urgent attention from various parties. The United Nations Environment Programme (UNEP) through its Global Waste Management Outlook (2024) report revealed that the production of urban solid waste globally is projected to increase from 2.1 billion tons in 2023 to 3.8 billion tons in 2050, in line with rapid population growth and urbanization in developing countries. The direct cost of global waste management in 2020 reached USD 252 billion, and when you take into account the hidden costs of pollution, deterioration in health quality, and the impact of climate change due to uncontrolled waste disposal, the figure jumps to USD 361 billion. Without serious and comprehensive intervention, UNEP estimates that this global annual cost could nearly double to USD 640.3 billion by 2050. This condition confirms that waste management is not just a technical issue, but a strategic issue of sustainable development that touches the economic, social, and environmental dimensions at the same time. Therefore, innovative community-based approaches, including the use of digital technologies, are increasingly seen as a relevant and urgent solution (UNEP, 2024).

At the national level, Indonesia faces the challenge of waste management which is no less complex. Based on data from the National Waste Management Information System (SIPSN) managed by the Ministry of Environment and Forestry (MoEF), the total national waste generation in 2023 will reach more than 35.49 million tons per year, with the largest composition in the form of food waste (41.6%), followed by plastic (18.4%) and paper/cardboard (10.5%). The national waste handling rate has only reached around 62.72%, which means that there is still more than a third of waste that has not been managed optimally, starting from sorting at source, transportation, to final processing. In urban areas such as South Tangerang City, the pressure on the waste management system is increasing due to





high population density and intensive economic activity. The gap between the capacity of formal waste management services and the growing volume of waste encourages the urgency of developing a more adaptive and effective community-based waste management system. Waste banks as one of the community-based waste management instruments have been proven to contribute to reducing the volume of waste while empowering the community's economy through savings and recycling mechanisms (Rusdiyana et al., 2024; Matondang et al., 2025).

The concept of waste banks was first developed in Indonesia around 2008 and has now spread to various regions as a waste management model that not only focuses on environmental aspects, but also on community economic empowerment. Conceptually, waste banks work with a mechanism similar to conventional banks, where people deposit waste that has been sorted and will get a reward in the form of savings that can be disbursed at a certain time. This model has proven to be effective in encouraging community participation in waste sorting and recycling activities, while increasing the economic value of waste that was previously considered useless. The Acacia Berseri Waste Bank in Pamulang District, South Tangerang City, is one example of the implementation of this model that has successfully developed high-value recycled products, including eco enzymes—versatile liquid products produced from the fermentation of organic waste. However, the economic potential of this waste bank has not been maximized due to limitations in marketing strategies and product promotion to the wider community (Firmansyah & Alkahfi, 2023; Artanto, 2025).

The development of information and communication technology, especially social media, has opened up enormous opportunities for community-based organizations such as waste banks to expand their marketing reach at a relatively affordable cost. Based on the We Are Social and Hootsuite (2024) report, the number of social media users in Indonesia has reached more than 167 million people or around 60.4% of the total population, making Indonesia one of the largest social media markets in the world. WhatsApp is the most widely used instant messaging application with a penetration of 93% among internet users, while Instagram occupies a strategic position as a visual content sharing platform with more than 99 million monthly active users in Indonesia. Both platforms offer advanced yet easy-to-operate business features, such as WhatsApp Business with product catalog and automated messaging features, and Instagram Business with analytics features and various content formats ranging from photos, videos, to carousels. This potential is in line with the findings of various studies that show that the strategic use of social media can significantly increase brand awareness, consumer engagement, and product sales, especially in small-scale and community-based businesses (Ramdhani et al., 2024; Valiant et al., 2022; Artanto, 2025).

The Student Creativity Program (PKM) as one of the forums for community service facilitated by universities has a strategic role in bridging the needs of the community with academic resources and knowledge. PKM in the field of community service not only aims to develop student competence in transferring knowledge, but also provides real solutions to problems faced by the target community. In this context, the PKM carried out at the Akasia Berseri Waste Bank responds to a very concrete need, namely increasing the capacity of managers to utilize digital technology for promotional and marketing purposes. The conditions found in the field show that waste bank managers still rely on conventional word-of-mouth promotion methods, so that the range of information is very limited and public participation in the waste bank program is still low. In addition, the eco enzyme products produced are not widely known by the surrounding community, even though the products have significant economic value and ecological benefits. Interventions in the form of social media-based digital marketing training and assistance are seen as the most appropriate and efficient solution to overcome these problems (Rusdiyana et al., 2024; Matondang et al., 2025).

Theoretically, this activity is based on the concept of community empowerment which emphasizes the importance of increasing the capacity of individuals and groups to be able to be independent in managing their potential and resources. This concept is in line with the empowerment theory put forward by Suharto (2016) which emphasizes that empowerment is the process of providing abilities, authority, and opportunities to underprivileged groups so that they can improve their quality of life independently. In addition, the concept of digital marketing is the main operational foundation that includes the use of various digital platforms for promotional, communication, and interaction with consumers more effectively and efficiently. Previous studies have proven that structured and needs-based digital marketing training can result in significant competency improvements among community-



based business managers, even in groups that previously had low digital literacy (Ramdhani et al., 2024; Artanto, 2025; Putra et al., 2023). Based on the context and theoretical foundation, this article aims to report on the implementation, results, and impact of PKM activities in the form of training and assistance in the use of WhatsApp and Instagram as a promotional medium for the Acacia Berseri Waste Bank in Pamulang District, South Tangerang City.

METHODS

This Community Service activity was carried out at the Akasia Berseri Waste Bank, Pamulang District, South Tangerang City, Banten, on April 22, 2026, involving around 40 participants consisting of waste bank managers, partners, and the surrounding community. The main method used is a training method based on a participatory approach, which emphasizes the active involvement of participants in each stage of program implementation. The participatory approach was chosen on the basis of the consideration that the solutions produced jointly between the implementation team and partners would be more relevant, contextual, and more likely to be implemented sustainably in the field. The training method applied is designed by paying attention to the principles of adult learning (andragogi), which is that adult learners learn more effectively when the material presented is practical, applicative, and directly connected to their real needs and experiences. All training materials are presented in polite, communicative, and easy-to-understand language by participants from various educational backgrounds, considering that not all waste bank managers have higher education backgrounds or previous experience in the use of digital technology. With this approach, the training atmosphere becomes more conducive, inclusive, and encourages productive two-way dialogue between the implementation team and participants (Artanto, 2025; Ramdhani et al., 2024).

The first stage in the implementation of this program is initial coordination and presentation to the management of the Acacia Berseri Waste Bank. At this stage, the PKM team explained in detail the objectives, benefits, implementation plans, and expectations to be achieved through the training program. The session is designed in a warm and dialogical atmosphere, so that waste bank managers feel comfortable to express their conditions, hopes, and concerns openly. Communication built at this stage is horizontal and equal, avoiding a hierarchical impression between the academic team and the target community. The implementation team also emphasized that this program is not solely a one-way knowledge transfer, but a collaboration that places the community as an active subject and strategic partner. Through this polite and open coordination session, trust was built which became an important foundation for the success of the entire next series of programs.

The second stage is the identification of problems through direct observation and in-depth interviews with waste bank managers. The interview process is carried out with an empathetic and non-judgmental approach, so that managers feel free to express the obstacles and problems they face without hesitation. Based on the results of the interview, it was identified that the main obstacles faced by the Acacia Berseri Waste Bank include: (1) low community participation due to misunderstandings about the waste bank savings system; (2) limited knowledge and skills of managers in using digital media for promotion; and (3) there is no official and active digital communication channel to reach the community more widely. These findings were then systematically analyzed to develop a training program plan that is in accordance with real needs (need-based training). The implementation team submits the results of this analysis back to the manager for confirmation and input, so that the program design truly accurately reflects the needs of partners.

The third stage is the implementation of digital marketing socialization and training which is the core of this program. The socialization began with a presentation on the importance of waste management with economic value in the context of sustainable development, followed by an explanation of the potential of social media as an effective and efficient means of promotion for community-based organizations. This session was presented with an interactive lecture method interspersed with question and answer sessions, light educational games, and small group discussions so that participants remained actively involved and did not feel bored. The training was then continued with a hands-on practical session which included: (a) the introduction and activation of WhatsApp Business features, including setting up a business profile, creating an eco enzyme product catalog, and using automated messages (auto-reply) to respond to customer inquiries; and (b) the creation and management of the official Instagram account of the waste bank, including profile settings, simple photo and video content creation





techniques using mobile phones, writing attractive and informative captions, and the use of carousel and Reels features to increase reach. All training instructions are delivered in polite, gradual, and tailored to the participants' digital literacy skills, so that each participant can follow comfortably without feeling left behind or intimidated (Rusdiyana et al., 2024; Artanto, 2025).

The fourth stage is coaching and mentoring which is carried out during the training session and followed up after the training ends. At the mentoring stage, the PKM team assists managers individually and in groups in practicing the material that has been taught, providing constructive feedback, and helping to overcome technical obstacles that arise in the field. As a tangible output of this stage, the PKM team together with partners directly created the official Instagram account of the Acacia Berseri Waste Bank (@banksampah.akasiaberseri) which was then fully handed over to the manager to be operated independently and sustainably. Mentoring is carried out gradually and patiently, while still prioritizing polite and appreciative communication for every progress made by the participants. The implementation team also provides guidelines for the use of social media in the form of simple handouts that can be used as a reference by managers after the program ends.

The fifth and final stage is program monitoring and evaluation. Evaluation was carried out through two mechanisms, namely: (1) direct observation of social media use activities by managers during and after the training; and (2) collecting feedback from participants through an open discussion (focus group discussion) which was carried out at the end of the session. The evaluation instrument included an assessment of improving conceptual understanding of digital marketing, operational skills in using WhatsApp Business and Instagram, and the level of confidence of managers in managing social media independently. This evaluation aims not only to measure the success of the program, but also to identify areas that still need further development and strengthening in the future. The entire process from the identification stage to evaluation is carried out by upholding the principles of respect, equality, and appreciation for local wisdom and the potential possessed by partner communities.

RESULTS AND DISCUSSION

Results

The PKM activities carried out at the Acacia Berseri Waste Bank on April 22, 2026 showed very positive and meaningful results, both in terms of increasing the capacity of managers and in terms of the formation of sustainable digital promotion infrastructure. Before the activity was carried out, all waste bank promotion activities still relied on conventional methods, namely the dissemination of information from word of mouth (word of mouth) which was very limited in reach and unstructured. This has a direct impact on the low level of community participation in the waste bank program, which is also exacerbated by the misperception among the public that the economic benefits of the waste savings program cannot be felt directly and immediately. After a series of training and mentoring were implemented, waste bank managers showed a noticeable improvement in their ability to operate social media as an effective, structured, and consistent means of promotion. This change is not only seen from the technical side of application use, but also from the change in the mindset of managers who are starting to view social media as a strategic asset that can support the sustainability of waste bank programs in the long term (Artanto, 2025; Ramdhani et al., 2024).

The main outputs produced from this activity include two concrete achievements that complement each other. First, the activation and management of the official Instagram account of the Akasia Berseri Waste Bank under the account name @banksampah.akasiaberseri which is managed independently by the secretary of the waste bank. In a short time after creating an account, the manager has successfully uploaded several contents that includes documentation of activities, information about waste savings programs, education on household waste sorting, and promotion of eco enzyme products along with their benefits and selling prices. Managers have also been able to take advantage of the carousel feature to present more informative multislide content, as well as video and Reels features to create more dynamic content and attract new users. Second, the activation of the WhatsApp Business Acacia Berseri Waste Bank which is equipped with an eco-enzyme product catalog containing product information, photos, and prices, making it easier for potential buyers who contact the waste bank to directly see the available products without the need to communicate repeatedly. These two platforms synergistically form an integrated digital promotion ecosystem and are able to serve various consumer segments in a more professional way (Valiant et al., 2022; Matondang et al., 2025).





This activity was attended by around 40 participants from various backgrounds, including waste bank managers, implementing partners, and the surrounding community who have an interest in digital-based waste management programs. During the training process, all participants showed high enthusiasm, which was reflected in the high level of active involvement in discussion sessions, questions and answers, and hands-on practice. Many participants said that this training answered the concrete needs that they had felt but did not know where to start. Waste bank managers especially appreciate the patient, gradual, and non-judgmental approach to training, so they feel confident to try to practice the new skills they acquire. The community also provides constructive input so that similar activities can be carried out periodically with more varied and in-depth materials, especially related to more creative digital content strategies and product photography techniques using mobile phones. The enthusiasm and active involvement of these participants indicates that the training program has succeeded in creating a conducive and inclusive learning environment for all participants (Rusdiyana et al., 2024).

Table 1. Comparison of Conditions Before and After PKM Activities

Aspects	Before the Activity	After the Activity
Promotional Media	Conventional (word of mouth)	Digital via WhatsApp Business and Instagram
Digital Knowledge	Very limited	Significant increase
Content Management	Not yet	Capable of creating photo, video, and carousel content
Coverage of Information	Very limited	More widely through social media
Eco Enzyme Product Promotion	Not optimal yet	Start to be done actively and structured
Product Catalog	None	Available on WhatsApp Business
Activity Documentation	Unstructured	Neatly stored on Instagram
Technology Utilization	Minimal	Start implementing consistently
Partner Independence	Low	Improve with mentoring

Source: Primary data of PKM activities, April 2026



Figure 1. Presentation of Digital Marketing Materials and Socialization to PKM Participants
(Source: PKM Activity Documentation, April 22, 2026)



Figure 2. Documentation of Photos with PKM Team and Members of the Acacia Berseri Waste Bank

(Source: PKM Activity Documentation, April 22, 2026)



Discussion

The results of this PKM activity as a whole prove that social media-based digital marketing training is an appropriate and effective intervention to increase the promotional capacity of community-based organizations such as waste banks. The use of Instagram as a visual communication medium has proven to be very in accordance with the characteristics of the products being promoted, especially eco enzymes which have aesthetic and functional value that can be communicated more attractively through quality visual content. These findings are in line with research by Valiant et al. (2022) which states that Instagram is a very effective platform for waste banks in conducting environmental campaigns and product promotions, due to its ability to reach a younger and wider audience demographically. Furthermore, the results of Artanto's research (2025) confirm that structured and needs-based digital marketing training is able to significantly improve the ability of waste bank managers to market their products significantly, even in a relatively short training period. The consistency of these findings with previous studies strengthens the validity and reliability of the PKM program implemented (Ramdhani et al., 2024; Matondang et al., 2025).

From the perspective of using WhatsApp Business, the product catalog feature created during mentoring provides very practical added value for managers in serving potential buyers. Unlike conventional WhatsApp which only functions as a two-way communication medium, WhatsApp Business allows managers to display eco enzyme products in a structured manner complete with photos, descriptions, and prices in one professional interface that is easily accessible to consumers. The auto-reply feature that was also introduced during the training allows the waste bank to automatically provide an initial response to potential buyers outside of operating hours, thus increasing the impression of professionalism and responsiveness of the institution. Research by Rusdiyana et al. (2024) confirms that the optimal use of WhatsApp Business by community institutions can increase consumer trust and significantly expand the marketing network, especially in communities with high levels of WhatsApp users. This potential is very relevant to the context of the Pamulang community, where most of its citizens actively use WhatsApp as a medium of daily communication, so that the barriers to the adoption of new promotional technology are much lower compared to other digital platforms that may not be known yet.

Eco enzyme products produced by the Acacia Berseri Waste Bank, including dish soap and environmentally friendly cleaning liquids, are commodities with competitive selling value and are relevant to the increasing consumption trend of environmentally friendly products in Indonesia. However, before this PKM activity was carried out, these products were almost unknown to the public outside the circle of waste bank members themselves. Through promotional content that begins to be uploaded on Instagram—which includes information on the benefits, how to use it, the advantages of the product over conventional chemical products, and user testimonials—the introduction of the product to the wider community begins to run organically and consistently. This is in line with the concept of content marketing which states that informative, educational, and consistent content can build consumer trust and encourage purchase decisions gradually without the need to spend large advertising costs. Research by Purba et al. (2023) underscores the importance of Instagram social media in building a social movement that supports waste bank programs, where consistent and relevant content management has been shown to increase public awareness and community participation in the program.

From the dimension of community empowerment, this PKM activity makes a contribution that goes beyond just improving technical skills in using applications. The training and mentoring process that is carried out directly also succeeds in increasing the self-efficacy of managers in facing the challenges of the digital era, changing their perception from those who originally felt incapable or unworthy of using digital technology to individuals who believed that they too could contribute meaningfully in the digital space. This mindset transformation is the most fundamental empowerment achievement, because the sustainability of long-term digital promotion programs is highly dependent on the manager's intrinsic beliefs and motivation to continue learning and developing. This concept is in line with the self-determination theory put forward by Ryan and Deci, which emphasizes that sustained motivation grows from within an individual when they feel competent, autonomous, and connected to a

supportive community. PKM programs designed with an approach that respects and appreciates participants consistently have proven to be effective in fostering this intrinsic motivation.

The knowledge collaboration that occurred during the activity was also one of the achievements that should be highlighted. Not only the PKM team provides knowledge to the community, but waste bank partners also actively share their in-depth knowledge about the process of making eco enzymes, their ecological benefits for the environment, and the potential for their development as a superior product based on organic waste. This two-way exchange of knowledge reflects the true essence of collaborative and mutually beneficial community service, where neither party is positioned as a mere giver or receiver. This is relevant to the service-learning concept that is increasingly applied in higher education in Indonesia, where students not only contribute to society but also gain valuable contextual learning from hands-on experience in the field. Thus, this PKM activity has provided holistic and multidimensional benefits for all parties involved, covering technical, social, economic, and environmental aspects simultaneously.



Figure 3. Appearance of the Official Instagram Account @banksampah.akasiaberseri
(Source: Instagram account @banksampah.akasiaberseri)

CONCLUSION

The Community Service activity which was carried out at the Akasia Berseri Waste Bank, Pamulang District, South Tangerang City, succeeded in achieving its main goal, which is to increase the capacity of managers in utilizing WhatsApp Business and Instagram as effective, professional, and sustainable promotional media. Through a participatory training approach based on the real needs of partners and using a polite delivery method, inclusive, and respecting local wisdom, this program has succeeded in changing the conditions of waste bank promotion from purely conventional and limited to digital-based with a much wider reach. The concrete outputs produced include the official Instagram account @banksampah.akasiaberseri which is actively managed independently by the manager, as well as an eco enzyme product catalog that is available on WhatsApp Business and can be accessed directly by potential buyers. This activity not only has an impact on improving technical skills, but also contributes to the transformation of the mindset of managers who are now more confident and motivated to continue to utilize digital technology in supporting the sustainability of the waste bank program. Thus, this PKM program makes a real contribution to two dimensions of sustainable development at once, namely community economic empowerment through optimizing the marketing of recycled products, and strengthening environmental awareness through the promotion of community-based waste management programs.

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