



EFFORTS TO DEVELOP WASTE BANKS THROUGH DIGITAL MARKETING AND HUMAN RESOURCE EMPOWERMENT IN IMPROVING THE COMMUNITY'S ECONOMY

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Abstract

Waste management remains a critical strategic environmental issue with far-reaching social, economic, and ecological impacts on both urban and rural communities. This community service program was conducted at Bank Sampah Akasia, Pamulang District, South Tangerang City, with the objective of enhancing the capacity of waste bank managers and surrounding communities through Instagram-based digital marketing strategies and structured human resource empowerment. The program employed a participatory training approach encompassing observation, needs identification, socialization, digital marketing training, human resource empowerment, mentoring, and monitoring and evaluation. Results demonstrated significant improvements in participants' understanding of economically valuable waste management, proficiency in utilizing Instagram as a promotional medium for recycled products, and skills in basic business management and financial recording. Furthermore, the program successfully increased community participation in household waste sorting activities. Overall, waste bank development through digital marketing and human resource empowerment proved to be an effective strategy for improving community economic welfare while strengthening sustainable environmental awareness and participation.

Keywords: Waste Bank, Digital Marketing, Instagram, Human Resource Empowerment, Community Economy

INTRODUCTION

The problem of waste management has developed into a global environmental crisis that requires urgent attention from all levels of society, government, and academia. According to a report by the United Nations Environment Programme (UNEP, 2021), the world generates around 2.24 billion tons of urban solid waste every year, and this figure is projected to increase to 3.88 billion tons by 2050 as rapid urbanization and global population growth. UNESCO (2023) emphasizes that inadequate waste management has a direct impact on the achievement of the Sustainable Development Goals (SDGs), especially SDG 11 (Sustainable Cities and Communities) and SDG 12 (Responsible Consumption and Production). In developed countries such as Germany and Japan, waste recycling rates have reached 65–70 percent thanks to the implementation of strict waste sorting systems and a culture of environmentally conscious communities (OECD, 2022). This achievement proves that community-based waste management that is structured and supported by digital technology is able to transform waste from an environmental problem into a source of economic value. This condition is a mirror for developing countries, including Indonesia, to accelerate the reform of the national waste management system. This international experience confirms that a community-based approach strengthened with digital literacy is the key to the success of sustainable waste management (World Bank, 2022).

At the national level, Indonesia faces increasingly complex waste management challenges due to rapid population growth and increasing household consumption. Based on data from the National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry (KLHK, 2023), 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 percent), plastic (18.4 percent), and paper/cardboard (10.5 percent). The national waste handling rate has only reached around 62.72 percent, which means that more than a third of waste is still not managed optimally. 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 Government of Indonesia has issued various regulations





such as Government Regulation Number 27 of 2020 concerning Specific Waste Management and Regulation of the Minister of Environment Number 13 of 2012 concerning Guidelines for the Implementation of Reduce, Reuse, and Recycle through Waste Banks, as the legal basis for the development of national waste banks. However, the implementation of these regulations at the community level still faces various obstacles, ranging from low public awareness, limited infrastructure, to lack of access to digital marketing technology (Rusdiyana et al., 2024). This condition emphasizes the need for comprehensive interventions based on the real needs of the target community to optimize the potential of waste banks as an instrument for community economic empowerment (Matondang et al., 2025).

Waste banks as one of the community-based waste management instruments have a strategic role in reducing the volume of waste while empowering the community's economy. The concept of waste banks was first developed in Indonesia in 2008 and has now spread to more than 12,000 units throughout the archipelago (MoEF, 2023). Conceptually, waste banks work with a mechanism similar to conventional financial institutions, where people deposit waste that has been sorted and get a reward in the form of savings that can be disbursed at a certain time. This model has been 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 worthless (Asteria & Heruman, 2020; Rahmawati & Fiorentina, 2021). The Acacia Waste Bank, located in Pamulang District, South Tangerang City, is one example of the implementation of this model that has succeeded in producing various recycled products with selling value. However, the economic potential of this waste bank has not been maximized due to limitations in marketing strategies and product promotions, especially the use of digital technology (Nispawijaya & Nasdian, 2020). This reflects the urgent need for interventions that focus on increasing the digital and managerial capacity of waste bank managers as a prerequisite for program sustainability (Fauzi & Fitriani, 2022).

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 percent of the total population, making Indonesia one of the largest social media markets in the world. Instagram occupies a strategic position as a visual content sharing platform with more than 99 million monthly active users in Indonesia, and has proven to be an effective promotional medium for small-scale and community-based businesses (Saputri & Wahyuni, 2023; Lestari & Wijayanti, 2022). Instagram's business features such as Instagram Business, product catalogs, Stories, Reels, and content analytics make it easy for managers to reach consumers more broadly and measurably. However, the use of Instagram by waste bank managers in Indonesia is still very limited, especially due to low digital literacy and lack of training available (Pramusinto et al., 2021; Artanto, 2025). The gap between the potential of digital technology and the capacity of its users at the community level is a critical point that needs to be overcome through structured training and mentoring programs. Thus, digital marketing training-based interventions designed according to the real needs of the community are strategic steps that cannot be postponed (Ramdhani et al., 2024).

Human resource empowerment (HR) is an equally important dimension in the development of a sustainable waste bank. Waste bank management requires not only technical skills in waste sorting and processing, but also adequate managerial, entrepreneurial, and communication competencies (Gunartin & Sulastri, 2021). The low managerial capacity of waste bank managers is often the main obstacle to the development of the institution's economic potential, ranging from the inability to prepare simple financial reports, limitations in developing creative and value-added recycled products, to the lack of ability to build an effective marketing network (Rozalena, 2020). HR empowerment training designed with an andragogy approach — which recognizes that adults learn most effectively when the material is practical, applicative, and connected to real experience — has been shown to significantly increase managerial capacity in a relatively short period of time (Fitria & Fatiah, 2021). The Student Creativity Program (PKM) as a community service vehicle facilitated by universities has a strategic role in bridging the needs of the community with academic resources and knowledge. In this context, the PKM carried out at the Acacia Waste Bank responds to real needs identified through an in-depth observation and interview process, namely increasing the capacity of digital marketing and business





management of waste bank managers. Previous studies have proven that PKM programs designed based on real needs and implemented with a participatory approach produce greater and more sustainable impacts than top-down programs (Rusdiyana et al., 2024; Matondang et al., 2025).

Various empirical studies show that the combination of digital marketing and human resource empowerment is the most effective strategy in optimizing the performance of community-based waste banks. Artanto's research (2025) conducted in several waste banks in Java shows that the implementation of digital marketing is consistently able to increase sales of recycled products by up to 45 percent in the first three months. A similar study by Ramdhani et al. (2024) proves that structured and needs-based digital marketing training is able to significantly improve the ability of waste bank managers to market their products, even in groups that previously had low digital literacy. Meanwhile, Fauzi and Fitriani (2022) found that recycled product creativity training combined with digital marketing was able to increase the selling value of waste products up to three times compared to conventional sales. These empirical data confirm the relevance and urgency of the waste bank development program through digital marketing and human resource empowerment carried out in this PKM activity. Therefore, this article aims to report on the implementation, results, and impact of PKM activities at the Acacia Waste Bank, Pamulang District, South Tangerang City, as well as provide empirical contributions to the development of an effective and sustainable waste bank empowerment model. The findings of this activity are expected to be a reference for various stakeholders in designing and implementing similar programs in different locations (Gunartin & Sulastri, 2021; Fitria & Fatiah, 2021).

METHODS

This Community Service activity was carried out at the Acacia Waste Bank, Pamulang District, South Tangerang City, Banten, in April 2026, involving 25 participants consisting of waste bank administrators, environmental cadres, and the surrounding community who are active in waste management activities. The main method used is a training method based on a participatory approach, which places participants as active subjects in each stage of program implementation, not just passive recipients of information. This participatory approach was chosen on the basis of the consideration that the solutions formulated and implemented jointly between the implementation team and partner communities will be more relevant, contextual, and have a greater chance of being implemented independently and sustainably after the program ends. The training method applied is designed by paying attention to the principles of adult learning (andragogi), namely that adult learners learn more effectively when the material presented is practical, applicative, and directly connected to their daily needs and real 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 previous experience in the use of digital technology and formal business management. With this approach, the training atmosphere becomes more conducive, inclusive, and encourages productive two-way dialogue, so that each participant feels valued and motivated to actively participate. Overall, the method of implementing this program includes seven interrelated stages and is carried out systematically and sequentially (Artanto, 2025; Ramdhani et al., 2024).

The first stage is field observation conducted to obtain a comprehensive picture of the actual condition of the Acacia Waste Bank, including the waste management system, the marketing mechanism of recycled products, the available infrastructure, and the level of community participation in waste bank activities. Observations were carried out directly at the activity site during several visiting sessions, using structured observation guides developed based on the theoretical framework of community empowerment and digital marketing. The second stage is an in-depth interview with waste bank administrators and several purposively selected community members, aiming to explore information about training needs, problems in business management and product marketing, as well as partners' aspirations and expectations for the program to be implemented. The interview process is carried out with an empathetic and non-judgmental approach, so that the informant feels comfortable to express the obstacles they face openly and honestly. Based on the results of observations and interviews, three main problems faced by the Acacia Waste Bank were identified, namely: (1) product promotion is still carried out conventionally from word of mouth so that the market reach is very limited; (2) low digital literacy of managers in utilizing social media as a means of marketing; and (3) limited managerial skills in financial management and creative recycling product development. These findings are then





systematically analyzed to develop a training program plan that is in accordance with the real needs of the partners, and submitted back to the manager to get confirmation and input before the program is implemented (Nispawijaya & Nasdian, 2020; Gunartin & Sulastri, 2021).

The third stage is socialization which is carried out in a warm, dialogical atmosphere, and respects the local knowledge that has been possessed by the partner community. The socialization began with a presentation on the importance of community-based waste management in the context of sustainable development, followed by an explanation of the economic potential that can be generated from structured and digital-based waste management. This session was presented with an interactive lecture method interspersed with question and answer sessions, small group discussions, and real-life case examples from waste banks that have successfully utilized digital marketing, so that participants can understand the relevance of the program to the conditions and challenges they face on a daily basis. The fourth stage is Instagram-based digital marketing training which is one of the core components of this program. This training is designed in two complementary sessions, namely a conceptual understanding session on digital marketing and a hands-on practice session on the use of Instagram Business. In the practical session, participants were gradually guided in creating an official Instagram account of the waste bank, compiling a professional business profile, creating product photo and video content using mobile phones, writing informative and interesting captions, and utilizing carousel, Story, and Reels features to increase audience reach and engagement. All instructions are delivered in polite, gradual language, and adjusted to the participant's level of digital literacy ability, so that each individual can take part in the training comfortably without feeling left behind or intimidated by technology (Saputri & Wahyuni, 2023; Lestari & Wijayanti, 2022).

The fifth stage is HR empowerment training which is carried out after the digital marketing session and is designed to strengthen the managerial and entrepreneurial foundation of waste bank managers. This training includes four main modules, namely: (a) simple business management, which includes activity planning, setting business targets, and waste bank organizational development strategies; (b) basic financial records, which include simple bookkeeping, recording of income and expenses, and preparation of easy-to-understand monthly financial statements; (c) the development of creativity in recycled products, which includes techniques for processing plastic waste, patchwork, and organic materials into handicraft products with high selling value; and (d) an integrated marketing strategy that combines digital and conventional approaches to maximize market reach. Each module is delivered in an interactive and practical manner, prioritizing the active involvement of participants through live demonstrations, simulations, and group discussions guided by facilitators. The sixth stage is coaching and mentoring which is carried out individually and in groups during and after the training session, with the aim of ensuring that each participant is able to apply the material that has been learned in the real context of managing the Acacia Waste Bank. Mentoring is carried out by prioritizing appreciative, constructive, and patient communication, so that participants feel supported and confident in facing implementation challenges in the field (Fitria & Fatiah, 2021; Rozalena, 2020).

The seventh and final stage is monitoring and evaluation carried out through two complementary mechanisms, namely direct observation of Instagram usage activities and the implementation of training results by managers, as well as focus group discussions (FGD) held at the end of the program to collect comprehensive feedback from all participants. The evaluation instruments used include structured observation sheets, group discussion guides, and performance assessment rubrics that measure four main dimensions, namely increasing conceptual understanding of digital marketing and human resource empowerment, operational skills in using Instagram Business, managerial skills in managing waste bank businesses, and participants' confidence and motivation levels to continue learning and developing independently. The data from the evaluation were analyzed in a qualitative descriptive manner to identify program achievements, obstacles still faced, and recommendations for further program development. The entire process from the observation stage to the evaluation stage is carried out by upholding the principle of respect for local wisdom, equality between the implementation team and partners, and sincere appreciation for every progress achieved by the participants, no matter how small. Thus, the entire stage of the program implementation method reflects the PKM team's commitment to make a meaningful, sustainable, and real impact contribution to the capacity building of partner communities (Pramusinto et al., 2021; Rusdiyana et al., 2024).



RESULTS AND DISCUSSION

Results

The implementation of PKM activities at the Acacia Waste Bank, Pamulang District, South Tangerang City, went smoothly and received a very positive response from all participants involved. The activity, which was carried out in April 2026 involving 25 participants, showed very positive and meaningful results, both in terms of increasing the capacity of managers and the formation of a sustainable digital promotion infrastructure. Before the activities were carried out, all promotional activities of the Acacia Waste Bank still relied on conventional methods from word of mouth, which were very limited in scope and not structured systematically. This condition has a direct impact on the low level of community participation in the waste bank program and the lack of sales of recycled products to consumers outside the nearest community. 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 and structured means of promotion. This change is not only seen in terms of the technical use of applications, but also in terms of the transformation of the mindset of managers who are beginning to view social media as a strategic asset that can support the sustainability of the waste bank program in the long term (Artanto, 2025; Ramdhani et al., 2024).

The main outputs resulting from digital marketing training activities include several concrete achievements that complement each other. First, the activation and management of the official Instagram account of the Acacia Waste Bank which is managed independently by the secretary of the waste bank after the training. In a short time after the account was created, the manager has successfully uploaded various content including documentation of waste bank activities, information about waste savings programs and waste deposit procedures, education on sorting household waste based on organic and inorganic categories, and promotion of recycled products and their benefits and selling prices. Managers have also been able to take advantage of the carousel feature to present informative multi-slide content, as well as video features to create more dynamic content and attract the attention of new users. Second, the activation of the Instagram Business feature which is equipped with a professional business profile, a recycled product catalog with complete information including photos, descriptions, and prices, making it easier for potential buyers who visit the account to directly order products without the need to communicate repeatedly. Third, managers begin to understand and implement consistent content strategies, including posting schedules, selection of relevant hashtags, and simple product photography techniques using mobile phones to produce attractive and professional images (Saputri & Wahyuni, 2023; Lestari & Wijayanti, 2022).

From the aspect of human resource empowerment, simple business management training and financial recording have a significant impact on improving the managerial ability of waste bank managers. Before the program was implemented, the recording of waste savings transactions was still done manually and inconsistently, so there was no accurate data on the volume of waste received, the value of customer savings, or the institution's overall cash flow. After the training, the manager started using the simple bookkeeping format provided by the PKM team and committed to making regular recordings every week. The recycling product creativity training also produced encouraging achievements, where participants succeeded in developing several new product prototypes from plastic waste and organic materials that have a higher selling value than conventional products. The enthusiasm of the participants during the HR empowerment training session was very high, reflected in the high level of active involvement in the discussions, the number of questions asked, and the initiative of the participants to try out new techniques taught directly in front of the facilitator. The positive response indicates that the training program has succeeded in creating a conducive, inclusive, and appropriate learning environment that is in accordance with the needs and capacity of participants (Gunartin & Sulastri, 2021; Fitria & Fatiah, 2021).

Table 1. Results of Evaluation of Acacia Waste Bank Development Activities

Yes	Assessment Aspects	Results
1	Participants' understanding of waste management with economic value	Excellent
2	Participants' understanding of the concept of digital marketing Instagram	Excellent

Yes	Assessment Aspects	Results
3	Participation of participants in training and socialization activities	Excellent
4	Participants' ability to use Instagram as a promotional medium	Good
5	Participants' creativity in the development of recycled products	Good
6	Enthusiasm and active involvement of participants during the activity	Excellent
7	Increased environmental awareness and waste sorting	Excellent
8	Participants' understanding of simple business management	Good
9	Basic financial recording ability of waste banks	Good
10	Increasing community participation in waste bank activities	Excellent

Source: Primary data of PKM activities, April 2026



Figure 1. Delivery of Materials and Socialization to the Community

(Source: PKM Activity Documentation, April 2026)



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

(Source: PKM Activity Documentation, April 2026)

Discussion

The results of this PKM activity as a whole prove that Instagram-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 much in line with the characteristics of the recycled products being promoted, due to the platform's ability to present interesting and informative visual content to a wider and diverse audience. These findings are in line with the research of Saputri and Wahyuni (2023) which states that Instagram-based digital marketing is able to significantly increase the effectiveness of marketing MSME products, especially in terms of market reach and consumer engagement. Furthermore, the results of Artanto's research (2025) confirm that structured and needs-based digital marketing training is able to improve the ability of waste bank managers to market their products, even in a relatively short training period. Lestari and Wijayanti (2022) also emphasized that Instagram offers a complete digital marketing



ecosystem for community businesses, ranging from product catalog features, content analytics, to the ability to interact directly with consumers through comments and direct messages. The consistency of the findings of this PKM activity with various previous studies strengthens the validity of the program and opens up opportunities for replication in various other waste banks in Indonesia. Thus, Instagram-based digital marketing training deserves to be considered as a standard component in every nation-level waste bank development program (Pramusinto et al., 2021; Ramdhani et al., 2024).

From the perspective of human resource empowerment, simple business management and financial recording training programs make a contribution that goes beyond just improving technical skills. The training process designed with an appreciative approach and based on community strength succeeded in increasing the self-efficacy of managers in facing the challenges of the digital era, changing their perception from those who initially felt incapable 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, as underlined by Gunartin and Sulastris (2021) that the sustainability of the waste bank program is highly dependent on the belief and intrinsic motivation of managers to continue learning and developing their capacity. The recycling product creativity training also has a concrete economic impact, where some participants have succeeded in developing prototypes of new products with a higher selling value than conventional products, opening up revenue diversification opportunities for waste banks and their members. Fitria and Fatiah (2021) in their research found that economic empowerment through waste banks supported by comprehensive training was able to increase members' income by an average of 20-40 percent in the first six months of implementation. Rozalena (2020) also emphasized that the increase in the marketing communication capacity of waste bank managers is positively correlated with an increase in the number of customers and the volume of waste savings collected. These findings together prove that comprehensive and sustainable human resource empowerment is a long-term investment that produces a multiplier effect for the entire waste bank ecosystem (Fauzi & Fitriani, 2022; Nispawijaya & Nasdian, 2020).

The sustainability aspect of the program is an equally important dimension to be discussed in the context of this PKM activity. One of the most obvious indicators of sustainability is the high enthusiasm and commitment of managers to continue using Instagram as the main promotional medium after the training program ends. This commitment is manifested in the form of a joint content posting schedule plan, the division of responsibility for managing Instagram accounts among the waste bank administrators, and an agreement to hold regular content evaluation sessions. From an institutional perspective, this program has succeeded in encouraging the Acacia Waste Bank to formalize the digital marketing function as part of the organizational structure, by appointing a social media coordinator who is responsible for managing content and interacting with consumers online. This condition reflects the occurrence of systemic organizational change, not just the improvement of individual skills, which is a sign of the true success of empowerment (Rusdiyana et al., 2024; Matondang et al., 2025). However, the sustainability of the program also faces several challenges that need to be anticipated, especially related to the consistency of content creation in the midst of limited time and human resources owned by waste bank managers. Therefore, regular follow-up assistance is needed as well as the establishment of networks between waste banks as a forum for sharing experiences and digital marketing resources that can strengthen each other in the long term (Artanto, 2025; Ramdhani et al., 2024).

CONCLUSION

The Community Service activity carried out at the Acacia Waste Bank, Pamulang District, South Tangerang City, succeeded in achieving its main goal, which is to increase the capacity of waste bank managers and the surrounding community in utilizing Instagram-based digital marketing and strengthen the managerial foundation through structured and needs-based human resource empowerment training. Through a participatory training approach that respects local wisdom and uses a polite, inclusive, and appreciative delivery method, this program has succeeded in changing the conditions of waste bank promotion from purely conventional to digital-based with a much wider and measurable reach. The concrete outputs produced include the official Instagram account of the Acacia Waste Bank which is actively managed independently by the manager, basic financial recording skills that have begun to be applied regularly, as well as several prototypes of new recycled products that have a higher selling value. In addition to the technical impact, this program 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, the development of waste banks through digital marketing and human resource empowerment makes a real contribution to two dimensions of sustainable development at once, namely community economic empowerment through optimizing the marketing of recycled products, as well as strengthening environmental awareness and participation through the promotion of community-based waste management programs. This program is recommended to be replicated in other waste banks with appropriate contextual adaptation, and supported by regular follow-up assistance to ensure the sustainability of the achievements that have been achieved.

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BIBLIOGRAPHY

- Artanto, F. A. (2025). Workshop pemanfaatan digital marketing dalam pemasaran bank sampah. PaKMas: Jurnal Pengabdian Kepada Masyarakat, 5(1), 97–104. <https://doi.org/10.54259/pakmas.v5i1.3242>
- Asteria, D., & Heruman, H. (2020). Bank sampah sebagai alternatif strategi pengelolaan sampah berbasis masyarakat di Tasikmalaya. Jurnal Manusia dan Lingkungan, 27(1), 45–52. <https://doi.org/10.22146/jml.2020.45789>
- Astuti, R. D., & Nisa, D. M. K. (2021). Penghambat niat dan perilaku masyarakat aktif dalam kegiatan bank sampah. JRST (Jurnal Riset Sains dan Teknologi), 5(1), 1–10. <https://doi.org/10.30595/jrst.v5i1.9129>
- Fauzi, R., & Fitriani, N. (2022). Pengembangan kreativitas masyarakat melalui pengolahan sampah berbasis bank sampah. Jurnal Pengabdian Masyarakat Indonesia, 2(3), 155–163. <https://doi.org/10.52436/1.jpmi.570>
- Fitria, F., & Fatiah. (2021). Pemberdayaan ekonomi masyarakat melalui bank sampah. ADL Islamic Economic, 2(1), 1–14. <https://doi.org/10.56644/adl.v2i1.22>
- Gunartin, G., & Sulastri, S. (2021). Strategi pemberdayaan masyarakat melalui pengelolaan bank sampah. Jurnal Abdimas Tri Dharma Manajemen, 2(2), 115–124. <https://doi.org/10.32493/abmas.v2i2.10234>
- Kementerian Lingkungan Hidup dan Kehutanan. (2023). Sistem Informasi Pengelolaan Sampah Nasional (SIPSN). <https://sipsn.menlhk.go.id/>
- Lestari, P., & Wijayanti, A. (2022). Pemanfaatan media sosial Instagram sebagai sarana digital marketing UMKM. Jurnal Ekonomi dan Bisnis Digital, 4(1), 22–31. <https://doi.org/10.55927/jebd.v4i1.2022>





- Matondang, N., Prakoso, B. S., Ernawati, I., & Isnainiyah, I. N. (2025). Pemberdayaan masyarakat melalui digitalisasi bank sampah dan pemanfaatan minyak jelantah. *Amal Ilmiah: Jurnal Pengabdian Kepada Masyarakat*, 7(1). <https://doi.org/10.36549/amalilmiah.v7i1>
- Nispawijaya, T. C., & Nasdian, F. T. (2020). Hubungan tingkat partisipasi dalam program bank sampah terhadap perubahan perilaku pengelolaan sampah rumah tangga. *Jurnal Sains Komunikasi dan Pengembangan Masyarakat*, 4(5), 647–658. <https://doi.org/10.29244/jskpm.v4i5.647>
- OECD. (2022). Waste management and the circular economy in OECD countries. Organisation for Economic Cooperation and Development. <https://doi.org/10.1787/d0c34ffe-en>
- Pramusinto, W., Waluyo, S., Ferdiansyah, & Susanti, I. (2021). Pemanfaatan digital marketing pada bank sampah PCH. *Jurnal Pengabdian Masyarakat TEKNO*. <https://jurnal.iaii.or.id/index.php/JAMTEKNO/article/view/3796>
- Rahmawati, A., & Fiorentina, P. (2021). Pengelolaan bank sampah berbasis pemberdayaan masyarakat. *Jurnal Bina Desa*, 3(1), 20–28. <https://doi.org/10.15294/jbd.v3i1.23743>
- Ramdhani, L. S., Riyanto, A., Farlina, Y., Noviani, H., & Muttaqin, M. Z. (2024). Pelatihan digital marketing dalam upaya pengembangan pemasaran produk bank sampah IPPEC Kabupaten Sukabumi. *Abditeknika Jurnal Pengabdian Masyarakat*, 4(2). <https://doi.org/10.31294/abditeknika.v4i2.4347>
- Rozalena, A. (2020). Peningkatan pengetahuan dan keterampilan pengelola bank sampah melalui sistem cerdas komunikasi pemasaran. *JPPM (Jurnal Pendidikan dan Pemberdayaan Masyarakat)*, 7(1), 89–100. <https://doi.org/10.21831/jppm.v7i1.32647>
- Rusdiyana, E., Sugihardjo, Setyowati, R., Widiyanto, & Lestari, E. (2024). Pemberdayaan masyarakat melalui inisiasi bank sampah. *Jurnal Inovasi Hasil Pengabdian Masyarakat (JIPEMAS)*, 7(3). <https://doi.org/10.33474/jipemas.v7i3.21259>
- Saputri, N., & Wahyuni, S. (2023). Optimalisasi digital marketing berbasis Instagram dalam meningkatkan pemasaran produk UMKM. *Jurnal Manajemen Digital*, 3(2), 120–131. <https://doi.org/10.55927/jmd.v3i2.2345>
- UNEP. (2021). Drowning in plastics: Marine litter and plastic waste vital graphics. United Nations Environment Programme. <https://www.unep.org/resources/report/drowning-plastics-marine-litter-and-plastic-waste-vital-graphics>
- UNESCO. (2023). Education for sustainable development: Waste management and circular economy. United Nations Educational, Scientific and Cultural Organization. <https://doi.org/10.54675/BGXL5984>
- We Are Social & Hootsuite. (2024). Digital 2024: Indonesia. DataReportal. <https://datareportal.com/reports/digital-2024-indonesia>
- World Bank. (2022). What a waste 2.0: A global snapshot of solid waste management to 2050. The World Bank Group. <https://doi.org/10.1596/978-1-4648-1329-0>

