Journal of Community Development | E-ISSN. 2747-2760 | Volume: 4, Nomor 2, December, **2023**, *Page*: 120-129

Socialization of Composting Technology for Culinary Waste Management in Kampung Emas

Kusmendar*, Arya Dani Setyawan, Ardian Arief, Yudam Alkolid, Tri Aji Purnomo, Nurul Istiqomah, Refiana Eka Asita Damayanti, Rina Apriyanti

Universitas Sarjanawiyata Tamansiswa, Yogyakarta, Indonesia

kusmendar@ustjogja.ac.id

DOI: https://doi.org/10.47134/comdev.v4i2.161
*Correspondensi: Kusmendar
Email: kusmendar@ustjogja.ac.id

Received: 17-11-2023
Accepted: 20-12-2023
Published: 23-12-2023

Abstract

The Kampung Emas Tourism Area, renowned for its traditional eateries offering authentic Javanese cuisine, has become a favored destination for tourists. However, the surge in tourist numbers has contributed to increased organic waste. Addressing this issue is crucial to prevent environmental problems and negative perceptions of Kampung Emas. The community service initiative aims to introduce rapid composting technology as an innovative solution to enhance understanding and effectiveness in waste management within Kampung Emas. The activity was conducted on August 12, 2023, involving 15 managers from the tourism sector. Emphasizing organic waste management, the initiative introduced the innovative solution of rapid composting technology. Evaluation was carried out through questionnaires distributed before and after the activity. Participants grasped organic waste management concepts yet demonstrated a greater understanding of composting technology. The evaluation results showed a significant improvement post-activity, with an understanding rate of 83% for waste management concepts and 60% for composting technology. In conclusion, the initiative successfully increased knowledge and understanding among Kampung Emas management regarding rapid composting technology, providing a solid foundation for implementing more effective and sustainable culinary waste management practices.

Keywords: kampung emas, tourism area, community services, organic waste, composting technology

I. INTRODUCTION

The Tourism Area of Kampung Emas, known for its traditional eateries offering authentic Javanese dishes such as *ingkung*, has become a primary attraction in the Putat Urban Village, Patuk Subdistrict, Gunungkidul Regency. However, the increase in tourists in the Kampung Emas Tourism Area has led to a rise in the volume of generated waste (Aridito & Ma'arif, 2019; Ma'arif, 2019). With the advancement of culinary tourism, Kampung Emas now faces the challenge of managing culinary waste, particularly organic waste. Initially, garbage in the Kampung Emas Tourism Area was considered inconsequential, and waste management relied on burning it in the landfill (Figure 1). However, this waste incineration can create negative impacts and a less favorable image for Kampung Emas Tourism Area visitors. While burning waste may be deemed acceptable in rural areas (Koliotasi et al., 2023), sustained burning practices can harm the environment and diminish the comfort of tourists.

Figure 1. Waste Disposal Site in the Kampung Emas Tourism Area

To maintain environmental Sustainability in Kampung Emas, managing organic waste becomes a primary focus that needs to be addressed. Despite being an appealing culinary destination, an ineffective waste management system can adversely affect the surrounding environment (Rajmohan et al., 2019). Therefore, a comprehensive understanding of waste management issues in the tourist area is essential to formulate appropriate and sustainable solutions (Ma'arif, Sari, et al., 2023). This community service initiative aims to introduce rapid composting technology as an innovative solution for organic waste management in Kampung Emas. The primary objectives include raising community awareness and improving the organic waste management system in the area. The activity is anticipated to positively impact the environment, public health, and the Sustainability of culinary tourism.

The uniqueness of this initiative lies in introducing rapid composting technology as an innovative and environmentally friendly solution for organic waste management. Implementing this composting technology is expected to mitigate the negative impacts of waste on the surrounding environment and contribute positively to the Sustainability of Kampung Emas as a culinary tourism destination (Ayilara et al., 2020). It is paramount to recognize that through this initiative, the management of the Kampung Emas Tourism Area aims to effectively adopt rapid composting technology, creating an exemplary model for other tourist areas to follow suit in managing organic waste efficiently and sustainably. The importance of this activity cannot be overstated, as it directly aligns with the broader goal of achieving sustainable practices in the tourism sector.

II. METHOD

Design of the Activities

This community service activity occurred in the Kampung Emas tourism area, located in the Putat Urban Village, Patuk Subdistrict, Gunungkidul Regency, and Special Region of Yogyakarta Province. The activity was conducted on August 12, 2023, with the participation of 20 management members from the Kampung Emas Tourism Area. The activity aimed to enhance participants' awareness of proper organic waste management. The activity format involved a lecture delivered by Mr. Kusmendar, who also served as the head of the service team. The lecture focused on conveying information and understanding about composting technology (Ma'arif, Yunitasari, et al., 2023). Unlike conventional composting systems that utilize biological processes, composting technology employs a rapid system that utilizes physical and chemical processes. The activity aimed to provide additional knowledge to participants in the practical handling of daily organic waste, contributing positively to environmental conservation efforts and the Sustainability of the Tourism Area of Kampung Emas.

Stages of the Activities

Figure 2. Flowchart of the Activities

The stages of this community service activity consist of four steps:

1. Survey

   The community service team conducted direct field observations and interacted with the management of Kampung Emas Tourism Area. The survey aimed to delve deeper into identifying issues related to waste management (Fatimah et al., 2020), particularly those arising from culinary tourism activities in Kampung Emas. The interaction revealed that waste management in traditional eateries faced challenges, especially concerning organic waste handling. Currently, waste generated by visitors to traditional eateries in Kampung Emas is merely burned at the dump site. Based on this, a more effective and sustainable solution for waste management in this tourist destination must be sought.

2. Problem Formulation and Alternative Solutions

   After identifying waste management issues in the Kampung Emas Tourism Area, the next step involved engaging the Management of Kampung Emas in selecting appropriate solutions. In determining solutions, attention must be given to the community's sustainable behavior aspects (Ma'arif, Sari, et al., 2023). This activity focused not only on resolving current problems but also on shaping sustainable behavior that could have a positive impact not only on the environment but also on the community around the Kampung Emas Tourism Area. The most relevant and effective solution was to provide a lecture introducing rapid composting technology for waste management (Nurhayati et al., 2022; Yunitasari et

al., 2023). With this step, it is expected that the Kampung Emas community can better understand and adopt this technology, bringing about positive changes in waste management and fostering sustainable behavior in the surrounding environment after the completion of this activity.

3. Implementation of the Activities

The introduction of rapid composting technology at traditional eateries in Kampung Emas was attended by the Community Service Team from Universitas Sarjanawiyata Tamansiswa (UST) and participants from the Managements of Kampung Emas Tourism Area. The activity comprised a lecture involving participants to enhance their understanding of waste management, specifically focusing on introducing rapid composting technology, its benefits, goals, and implementation processes. A total of 15 participants representing the Management of Kampung Emas Tourism Area attended, while the Community Service Team comprised faculty members and students. Mr. Kusmendar, the head of the Community Service Team, served as the main speaker, delivering content related to waste management and introducing how rapid composting technology could be an innovative solution for waste management in the Kampung Emas Tourism Area. Participants were asked to complete questionnaires provided before and after the activity (Figure 3). With this interactive atmosphere, the activity is expected to motivate and prepare tourism management to adopt this technology effectively, creating a sustainable positive impact on waste management in the Kampung Emas Tourism Area. After the activity concluded, it ended with a group photo between the community service team and participants (Figure 4).

a) The head of the community service team giving a lecture

b) Participants filling out questionnaires

Figure 3. Atmosphere During the Implementation of Community Service Activities in Kampung Emas

Journal of Community Development | E-ISSN. 2747-2760 | Volume: 4, Nomor 2, December, **2023**, *Page*: 120-129

Figure 4. Group Photo After the Activity is Completed

4. Results Analysis and Activity Evaluation

The success of this activity is measured based on the improvement in participants' understanding (Ma'arif, Susetyo, et al., 2023), the number of questionnaires collected after the event was 15. The parameter for improving participants' understanding was taken from questionnaires distributed before and after the activity. There were five identical questions at both times, namely:

1. Knowledge about organic waste (Q1)
2. Knowledge about the benefits of organic waste management (Q2)
3. Knowledge about various composting technologies (Q3)
4. Knowledge about the functions and goals of composters (Q4)
5. Knowledge about rapid composters (Q5)

Each question was rated on a scale of 1 to 5, with the order being very unfamiliar, unfamiliar, neutral, familiar, and very familiar. To analyze the results of the improvement in understanding, two percentages were calculated: the percentage of those who answered unfamiliar and the percentage of those who answered familiar for each question. This evaluation analyzed the improvement in participants' knowledge before and after the activity. The results of this analysis serve as a basis for further improvement and development in future community service activities. The goal is for the activity to enhance participants' understanding and motivate them to apply it in their daily activities.

Journal of Community Development | E-ISSN. 2747-2760 | Volume: 4, Nomor 2, December, 2023, *Page*: 120-129

III. RESULTS AND DISCUSSION

The collected questionnaire data were processed to create a graph reflecting participants' levels of understanding before and after the activity. The graph illustrating participants' understanding before the activity is shown in Figure 5, while the graph depicting participants' understanding after the activity can be seen in Figure 6. Based on the data visualization through graphs, observing and analyzing the changes in participants' understanding throughout this activity becomes more accessible.

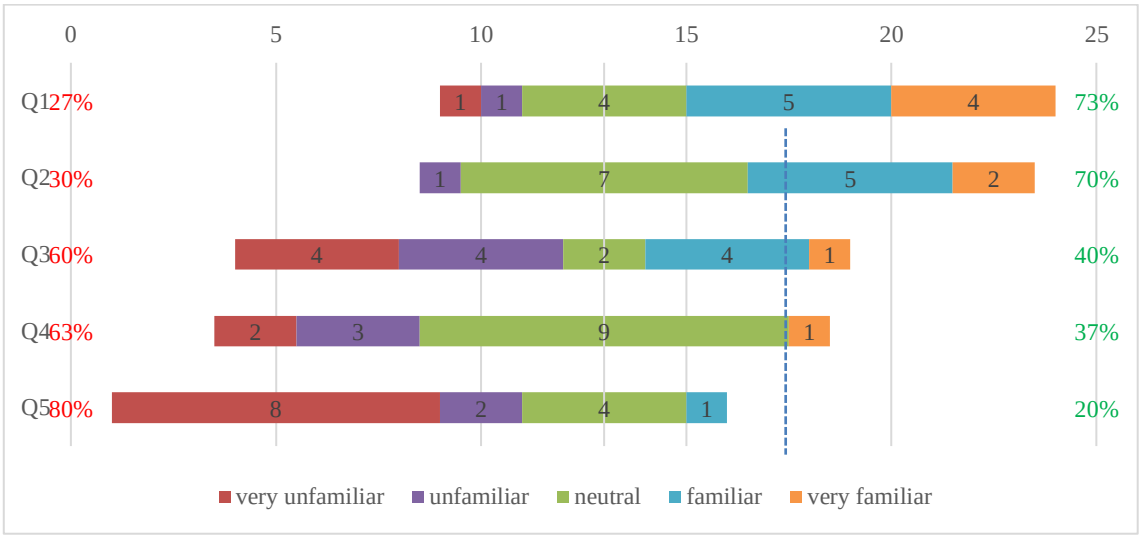

Figure 5. Participants' Understanding Before the Activity

Figure 5 displays the level of participants' knowledge before the introduction of rapid composting technology in the Kampung Emas Tourism Area. Most participants (73%) had already grasped the concept of organic waste (Q1), indicating sufficient understanding before the activity took place. However, it was found that 30% of participants still needed to fully comprehend the benefits of organic waste management (Q2), signifying the need for further emphasis on its positive aspects. Concerning various composting technologies (Q3), most participants (60%) had yet to understand them fully, indicating the necessity for additional information on available technology options. Understanding the functions and goals of composters remained a focal point (Q4), with 63% of participants needing adequate knowledge. Notably, the concept of rapid composters showed a high level of misunderstanding (Q5), reaching 80%, emphasizing the need for a more intensive approach to explaining this technology to participants. Based on this data, it is evident that before the activity, some participants knew about organic waste, but there needed to be more knowledge regarding rapid composting technology. This indicates that the introduction of this technology plays a crucial role in enhancing participants' understanding and improving the effectiveness of organic waste management practices in the tourism area (Iacovidou & Zorpas, 2022; Rashid & Shahzad, 2021), specifically in the Kampung Emas Tourism Area.

Journal of Community Development | E-ISSN. 2747-2760 | Volume: 4, Nomor 2, December, 2023, *Page*: 120-129

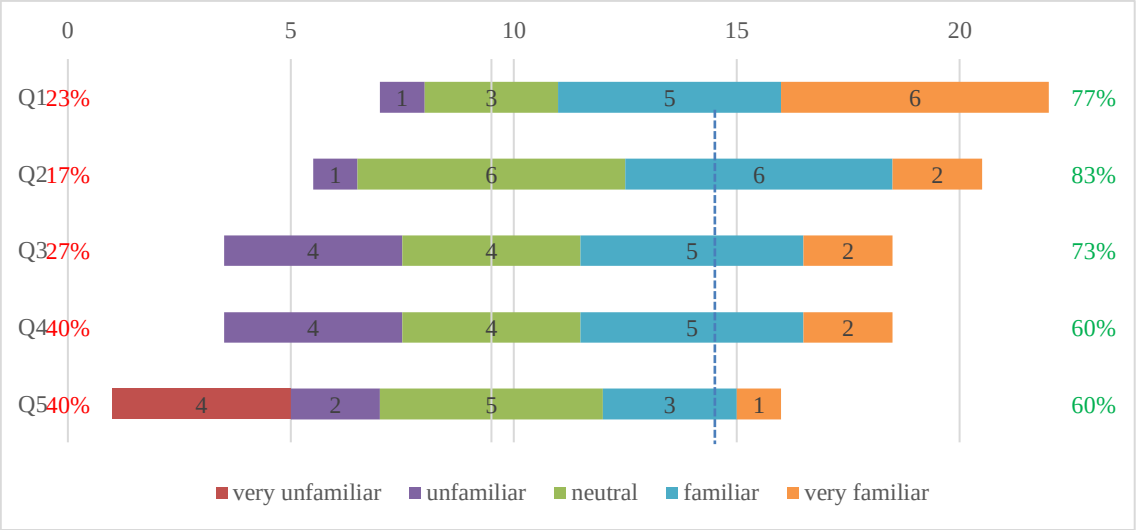

Figure 6. Participants' Understanding After the Activity

Figure 6 reflects participants' knowledge levels after introducing rapid composting technology in the Kampung Emas Tourism Area. Based on the graph, positive results are apparent in participants' understanding. The data shows a significant improvement in various aspects of knowledge related to organic waste management. Previously, approximately 73% of participants understood organic waste (Q1), and after the activity, there was a slight increase, reaching 77%. Similarly, knowledge about the benefits of organic waste management (Q2) experienced a significant surge, with 83% of participants expressing understanding after the activity, compared to only 70% before. This indicates that the activity has successfully provided positive benefits from organic waste management practices.

Regarding understanding various composting technologies (Q3), there was a significant increase after the activity, reaching 73% from the previous 40%. This indicates the effectiveness of the activity in providing better insights into composting technology options. Additionally, knowledge about the functions and goals of composters (Q4) and the concept of rapid composters (Q5) also showed a significant increase, reaching 60% from the previous 37% and 20%. Although there was a significant improvement, some participants still require further explanation. Overall, a positive picture emerges regarding the impact of introducing rapid composting technology, confirming its potential implementation to enhance organic waste management in the Kampung Emas Tourism Area. The results of this community service activity provide a solid foundation to continue developing and implementing technology to achieve sustainable waste management goals in this destination(Bruni et al., 2020; Singer et al., 2019).

Before the activity, some participants needed more knowledge, especially about rapid composting technology. However, through this introduction activity, a very significant positive change is evident after the activity. There is an improvement in participants' understanding of organic waste, the benefits of waste management, and various composting technologies. Although some participants still require further understanding, this positive achievement proves that introducing rapid composting technology successfully

creates a positive impact and provides a solid foundation for understanding to enhance organic waste management practices in the Kampung Emas Tourism Area.

IV. CONCLUSION

The comprehensive analysis indicates a significant shift in participants' understanding of organic waste management in the Kampung Emas Tourism Area. Before the activity, a knowledge gap existed, particularly regarding the concept of rapid composting technology. While most participants had a grasp of organic waste, attention was focused on understanding rapid composting technology. Although certain aspects still require further attention, the results affirm that introducing rapid composting technology positively impacts and is a solid foundation for enhancing organic waste management practices in the Kampung Emas Tourism Area.

The integration of rapid composting technology in the Kampung Emas Tourism Area has instigated a considerable and positive transformation in participants' comprehension of organic waste management. Prior to the activity, approximately 73% of participants had a foundational understanding of organic waste, yet a knowledge gap existed, particularly regarding rapid composting technology. Post-activity, a conspicuous enhancement is evident across all facets of participants' knowledge. Comprehension of the concept of organic waste (Q1) increased by 4%, reaching 77%, while understanding the benefits of organic waste management (Q2) experienced a significant surge of 13%, reaching 83%. There was a notable upswing in understanding various composting technologies (Q3), escalating from 40% to 73%, signifying the efficacy of the activity in providing deeper insights into composting technology options. Similarly, comprehension of the functions and goals of composters (Q4) and the concept of rapid composters (Q5) witnessed substantial increases, each by 23% and 40%, reaching 60%. Despite these positive advancements, some participants still require additional clarification.

Looking ahead to future community service activities, it is recommended to continuously reinforce content related to rapid composting technology through more interactive lecture methods. Organic waste management in the Kampung Emas Tourism Area can be further improved through advanced activities such as practical training and workshops. Additionally, demonstrating a waste management model using rapid composters as a concrete step can enhance understanding. With this approach, community service activities are expected to remain a cornerstone in raising awareness and implementing sustainable practices in the Kampung Emas Tourism Area.

ACKNOWLEDGEMENTS

This community service activity is supported by the Research and Community Service Institute of Universitas Sarjanawiyata Tamansiswa (LP2M UST) under the Internal Grant Program for Community Service in 2023 with Contract Number: 064/UST/LP2M/K/ABDIMAS/AKM/VI/2023. Gratitude is also extended to the Management of the Kampung Emas Tourism Area as the partner in this community service initiative.

REFERENCES

Aridito, M. N., & Ma'arif, S. (2019). Potensi Energi Listrik dari Sampah Berbasis Gasifikasi di Kawasan Village Potensi Energi Listrik dari Sampah Berbasis Gasifikasi di Kawasan Village Center Bali. *Prosiding Konferensi Nasional Engineering Perhotelan*, *X*, 391–395.

Ayilara, M., Olanrewaju, O., Babalola, O., & Odeyemi, O. (2020). Waste Management through Composting: Challenges and Potentials. *Sustainability*, *12*(11), 4456. https://doi.org/10.3390/su12114456

Bruni, C., Akyol, Ç., Cipolletta, G., Eusebi, A. L., Caniani, D., Masi, S., Colón, J., & Fatone, F. (2020). Decentralized Community Composting: Past, Present and Future Aspects of Italy. *Sustainability*, *12*(8), 3319. https://doi.org/10.3390/su12083319

Fatimah, Y. A., Govindan, K., Murniningsih, R., & Setiawan, A. (2020). Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia. *Journal of Cleaner Production*, *269*, 122263. https://doi.org/10.1016/j.jclepro.2020.122263

Iacovidou, E., & Zorpas, A. A. (2022). Exploratory research on the adoption of composting for the management of biowaste in the Mediterranean island of Cyprus. *Cleaner and Circular Bioeconomy*, *1*, 100007. https://doi.org/10.1016/j.clcb.2022.100007

Koliotasi, A.-S., Abeliotis, K., & Tsartas, P.-G. (2023). Understanding the Impact of Waste Management on a Destination′s Image: A Stakeholders′ Perspective. *Tourism and Hospitality*, *4*(1), 38–50. https://doi.org/10.3390/tourhosp4010004

Ma'arif, S. (2019). Potensi Energi Listrik Hasil Gasifikasi Sampah Organik dari Wisatawan di Potensi Energi Listrik Hasil Gasifikasi Sampah Organik dari Wisatawan di Pantai Parangtritis. *Prosiding Konferensi Nasional Engineering Perhotelan*, *X*, 405–409.

Ma'arif, S., Sari, R. E., & Indraswari, N. M. (2023). Peran Perilaku Berkelanjutan dalam Manajemen Lingkungan untuk Pengembangan Desa Wisata Berbasis Energi Terbarukan. *Prosiding Seminar Nasional Penelitian Dan Pengabdian Kepada Masyarakat*, 202–207. https://doi.org/10.24002/senapas.v1i1.7388

Ma'arif, S., Susetyo, Ag. E., Nurhadi, N., Aridito, M. N., Pujianingsih, E. D., Anggraeni, D. D., & Istiqomah, N. (2023). Introduction to Waste Processing Technology to Address Organic Waste Issues in the Baru Beach Tourism Area. *Asian Journal of Community Services*, *2*(11), 993–1002. https://doi.org/10.55927/ajcs.v2i11.7121

Ma'arif, S., Yunitasari, E. W., Kusmendar, K., Rezkita, S., Nurdaningsih, N. W., Sugito, P. R. A., & Pradhana, R. N. (2023). Dissemination of the Use of Biomass Stoves and Biomass Pellets in Herbal Powder Drink Business Actors. *Randang Tana - Jurnal Pengabdian Masyarakat*, *6*(1), 55–64. https://doi.org/10.36928/jrt.v6i1.1469

Nurhayati, E., Ma'arif, S., Susetyo, Ag. E., Supriyadi, D., Isnaini, S. N., Syahidin, Y., & Safitri, S. (2022). Diseminasi Teknologi Pengalengan Makanan Sebagai Sistem Pengawetan Alami pada Kelompok Pelaku Usaha Rumah Mandiri Perempuan (Rumpoen) Klaten. *Prosiding Seminar Nasional Hasil Penelitian Dan Pengabdian Kepada Masyarakat*, 690–699.

Rajmohan, K. V. S., Ramya, C., Viswanathan, M. R., & Varjani, S. (2019). Plastic pollutants: effective waste management for pollution control and abatement. *Current Opinion in Environmental Science & Health*, *12*, 72–84. https://doi.org/10.1016/j.coesh.2019.08.006

Rashid, M. I., & Shahzad, K. (2021). Food waste recycling for compost production and its economic and environmental assessment as circular economy indicators of solid waste management. *Journal of Cleaner Production*, *317*, 128467. https://doi.org/10.1016/j.jclepro.2021.128467

Singer, J., Kieu, K. T., & Pravitasari, A. E. (2019). Solid Waste Management in Tourist Destinations in Developing Nations: Case Studies in Hoi An, Vietnam, and Puncak, Indonesia. In *Environmental Sustainability and Education for Waste Management. Education for Sustainability* (pp. 189–206). Springer. https://doi.org/10.1007/978-981-13-9173-6_11

Yunitasari, E. W., Ma'arif, S., & Alfiansyah, A. S. (2023). Peningkatan Kualitas Penanganan Buah Kurma di UMK Sehat Alami Jogja melalui Pelatihan Quality Control. *Prosiding Seminar Nasional Penelitian Dan Pengabdian Kepada Masyarakat*, 265–269. https://doi.org/10.24002/senapas.v1i1.7392