Engagement:
Jurnal Pengabdian kepada Masyarakat
Vol. 10, No. 04, November, 2026, pp. 985 – 995
ISSN: 2579-8375 (Print), ISSN: 2579-8391 (Online)
https://engagement.fkdp.or.id/index.php/engagement

OPEN ACCESS

Empowering Local Communities to Support Sustainable Tourism Development Through Collaborative Planning

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ABSTRACT

Background: Community participation is essential for achieving sustainable growth in ecotourism, particularly in destinations experiencing reduced competitiveness.

Purpose of the Study: The present community service program sought to enhance the capacity of tourism managers and local communities in Kalibiru Ecotourism, Kulon Progo, Indonesia, through collaborative planning and participatory empowerment.

Methods: The program, conducted from June to December 2025, involved 40 participants, comprising tourism managers, community people, and representatives from local government organizations. Program activities included initial field observations, focus group discussions (FGDs), four participatory training sessions, three mentoring sessions, and a thorough program evaluation.

Results: Capacity-building activities improved participants' understanding and competence, as evidenced by an increase in the average evaluation score from 60.82 on the pre-test to 88.50 on the post-test. All 20 tour operators who participated in the professional competency certification successfully passed the assessment, and 88.5% of participants reported satisfaction with the mentoring program. These findings indicate that participatory capacity building and ongoing mentoring can effectively enhance the competency of Kalibiru tourism managers, strengthen collaborative governance, and promote sustainable ecotourism. The empowerment model developed through this program offers a practical reference for sustainable tourism development in other rural destinations facing comparable challenges.

Keywords
Ecotourism; Community participation; Kalibiru; Sustainable tourism

Article History:
Received: Nov 06th 2025
Revised: Aug 08th 2026
Accepted: Nov 30th 2026

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Introduction

Ecotourism, also known as sustainable tourism, is a form of tourism that emphasizes environmental conservation, the sustainable use of natural resources, and the preservation of local cultural values while providing economic benefits for local communities (K.C., 2018). Beyond serving as a recreational activity, ecotourism promotes environmental awareness and encourages responsible tourism practices that support long-term ecosystem sustainability. The success of ecotourism depends largely on the active participation of local communities in tourism planning and management, as their involvement contributes not only to environmental conservation but also to improving local livelihoods and strengthening sustainable destination governance. Therefore, community participation and collaborative management are widely recognized as essential components of sustainable ecotourism development (Morrow, 2021; Seervi, 2023; Sobhani et al., 2022).

Kalibiru, located in Kulon Progo Regency, Yogyakarta, is one of Indonesia's well-known community-based ecotourism destinations, offering panoramic views of the Menoreh Hills and the Sermo Reservoir. Despite its considerable tourism potential, Kalibiru has experienced a substantial decline in visitor numbers in recent years. The number of visitors decreased to 40,517 in 2020, representing only 33.67% of the 2019 level and 9.14% of the peak visitation recorded in 2016. Visitor numbers declined further to 22,422 in 2021, representing only 18.62% of the 2019 level and 5.06% of the 2016 peak, underscoring the need for comprehensive efforts to restore the destination's competitiveness (Hidayat et al., 2024). In addition, field observations conducted during this community service program found that approximately 30% of visitor facilities, including gazebos, trekking paths, and waste disposal facilities, were in poor condition, reducing visitor comfort and the overall tourism experience. Other challenges identified included limited capacity for digital promotion, inadequate waste management practices, and insufficient community involvement in tourism planning and destination development. These baseline conditions indicate that strengthening stakeholder capacity and collaboration is essential to improving the destination's sustainability and resilience (Wadhwani & Malpani, 2023).

To address these challenges, this community service program aimed to strengthen the capacity of tourism managers and local communities through participatory discussions, training, and mentoring in sustainable ecotourism management. Community empowerment was selected as the primary intervention because the long-term sustainability of community-based ecotourism depends on local stakeholders' ability to manage tourism resources and respond collaboratively to emerging challenges. The program therefore implemented a series of participatory activities, including focus group discussions (FGDs), training on sustainable tourism management, and mentoring for tourism managers and community representatives. These activities were designed to enhance stakeholders' knowledge and skills in destination management, digital tourism promotion, visitor services, and collaborative planning while strengthening coordination among tourism stakeholders. Ultimately, the community service program sought to increase community participation in tourism management, foster collaborative governance, and support the long-term sustainability of ecotourism in Kalibiru, in line with the principles of sustainable development.

Method

This community service program was implemented from June to December 2025 using a participatory empowerment approach involving tourism managers, local community representatives, and local government stakeholders to strengthen sustainable ecotourism management. A total of 40 participants took part in the program, representing Kalibiru tourism managers, community members, and local government institutions. The program was designed to enhance stakeholder capacity through collaborative learning, participatory planning, and

continuous mentoring. The overall implementation stages of the community service program are presented in Figure 1.

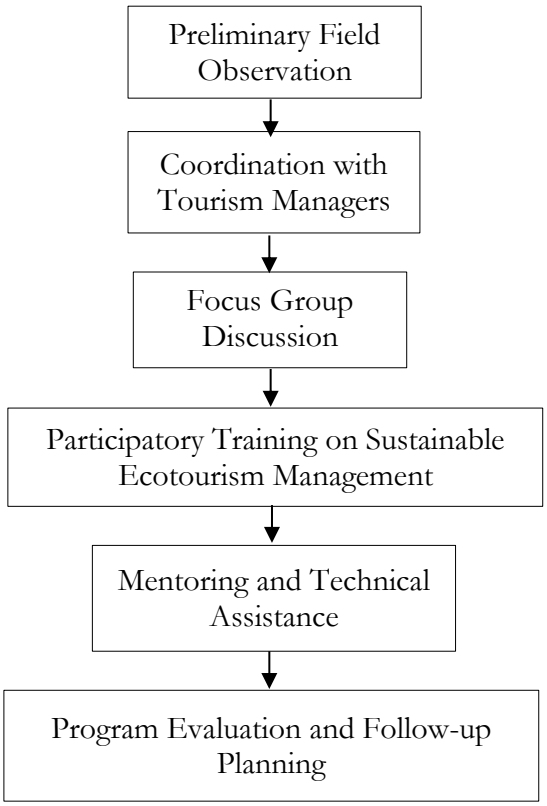


Figure 1. Flowchart of Community Service Program

The community service initiative began with systematic observation and coordination with Kalibiru tourism managers to identify priority issues related to tourism facilities, destination management, digital promotion, waste management, and community participation. Following initial data collection, we facilitated FGDs involving tourism managers, community representatives, and local government officials. This discussion aimed to identify key challenges, assess local potential, develop collaborative solutions, and foster a shared commitment to sustainable ecotourism development. The FGDs also strengthened communication and coordination among stakeholders. Subsequently, we organized participatory training sessions on sustainable ecotourism management, which addressed destination management, digital tourism promotion, visitor services, environmental management, and strategies to increase community participation in tourism development. The training was designed to enhance participants' practical knowledge and skills and to promote collaborative management of tourism resources.

Alongside the training, we provide mentoring and technical assistance to help participants apply the knowledge and skills they gain. The training and mentoring activities were conducted over four sessions, each lasting approximately two hours. These sessions incorporated presentations, interactive discussions, group work, case studies, and practical problem-solving exercises to facilitate active participation and knowledge exchange among stakeholders.

Program evaluation and follow-up planning, through participant group discussions and reflection sessions, comprised the final phase of the community service initiative. The evaluation identified priority follow-up actions for sustainable tourism development and assessed participant participation and the relevance of activities. Future goals include bolstering stakeholder cooperation, expanding digital promotion, improving destination management, and promoting the long-term sustainability of Kalibiru ecotourism in light of these findings.

Result

Field findings were obtained through direct observation of various important aspects of Kalibiru tourism management and conditions. The findings are classified into several main categories, ranging from accessibility and tourist attractions to community participation and the local economy. This presentation not only shows the actual conditions on the ground but also provides an initial overview of opportunities and challenges that can be addressed through community service programs based on empowerment and multi-stakeholder collaboration.

Accessibility and Infrastructure

Direct observation showed that access to Kalibiru remains constrained by narrow, winding, and step roads, making travel difficult, particularly for four-wheeled vehicles (Figure 2). These findings were discussed during the FGD and became one of the priority issues addressed through the community service program.



Figure 2. Condition of the uphill road

Tourist Attractions

Kalibiru has strong ecotourism potential due to its panoramic views, the flying ox attraction, trekking routes, and viewpoints (Figure 3). However, several trekking trails and viewing platforms were found to be poorly maintained, reducing visitor comfort and safety. These findings highlighted the need for destination revitalization and improved visitor management.



Figure 3. Flying Fox Tourist Attraction

Community Participation

Focus Group Discussion involving tourism managers, community representatives, and local government identified that community participation was still concentrated in operational activities. In contrast, involvement in tourism planning, destination promotion, and product development remained limited. The findings informed the design of the subsequent training and mentoring activities (Figure 4). It is crucial to involve the community in the decision-making process regarding ecotourism development. This involvement can be achieved through discussion forums or community- and stakeholder-focused training. This study also conducted focus group discussions and training involving relevant parties, in this case, the Kalibiru tourism management (Figures 4a and 4b).



Figure 4. (a) FGDs with Kalibiru tourism managers; (b) Assistance in sustainable tourism management

Visitor Facilities

Observation results indicated that approximately half of the visitor facilities were in poor condition (Figure 5). Participants agreed that improving these facilities was essential to enhance visitor satisfaction and destination competitiveness.

Implementation of Community Service Activities

The community service program was implemented from May to December 2025 and involved 40 participants, including tourism managers, community members, and representatives of local government institutions. The activities consisted of FGDs, four participatory training sessions (2 hours per session), and three mentoring sessions on sustainable tourism management, digital promotion, visitor services, and collaborative destination planning. One of the mentoring activities held on September 21st involved speakers from the Ministry of Villages and Development of Disadvantaged Regions (Kemendes PDT), with the theme "Assistance in strengthening human resource capacity in local potential-based tourism management" (Figure 6). This activity is expected to improve the understanding and skills of the local Kalibiru community in the principles of ecotourism and environmental conservation through mentoring activities, to encourage their active participation in realizing responsible and sustainable tourism.



Figure 6. Assistance in strengthening human resource capacity in local potential-based tourism management

Outcomes of Capacity Building

The evaluation of training and mentoring activities demonstrated an enhanced understanding of sustainable ecotourism management among participants, as evidenced by pre- and post-training comparisons (Table 1). This advancement was further supported by competency-based mentoring for tour guides (Figure 7). Twenty tour operators participated in the professional tour guide competency certification examination, and all (100%) passed. Post-program evaluation revealed that 88.5% of participants expressed satisfaction with the mentoring activities, particularly appreciating the practical learning methodology, collaborative dialogues, and technical support provided by the service team. In the final reflection session, participants collectively identified priority follow-up actions, such as revitalizing tourism facilities, enhancing digital promotion, improving waste management, and increasing community involvement in destination planning.

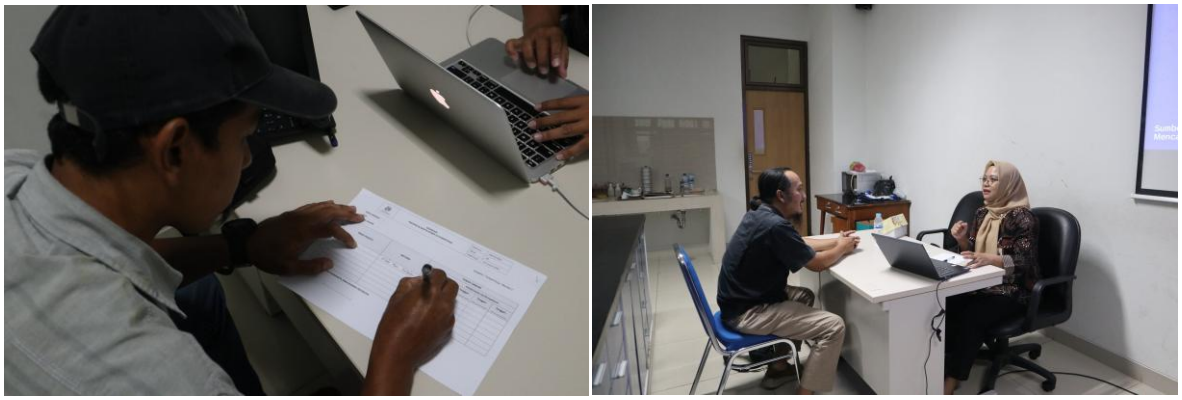


Figure 7. Tour guide competency certification examination

Table 1. Pre-test and Post-test Results

Maximum	Average Pre-test	Average Post-test
Sustainable tourism principles	65.4	89.5
Visitors service	61.2	88.7
Digital promotion	60	87.3
Environmental management	56.7	88.5
Average Score	60.82	88.50

Discussion

Accessibility and Infrastructure

Although road signs are adequate, the previously implemented one-way street system needs to be re-evaluated. This is crucial for reducing congestion and improving visitor comfort. Other supporting infrastructure, such as parking and public facilities, is also a concern. Limited and disorganized parking can cause chaos at the entrance. Inconvenient accessibility can discourage tourists from returning to a location. Therefore, improvements to road infrastructure and better management of parking areas are needed to enhance the visitor experience (Syahvira et al., 2024). The field observations of limited accessibility served as the basis for discussing infrastructure improvements during the FGDs. Through the mentoring sessions, participants identified road access, parking management, and visitor circulation as priority issues requiring collaboration between tourism managers and local government. Thus, the community service program not only identified infrastructure problems but also facilitated stakeholder consensus on practical improvement strategies.

Furthermore, accessibility development must also consider environmental sustainability. The use of environmentally friendly vehicles, such as bicycles or electric cars, can be integrated to reduce environmental impacts (Makarova et al., 2017). Training programs for local communities to operate environmentally friendly vehicles could be an effective solution.

From a policy perspective, local governments need to collaborate with the private sector to improve infrastructure. Investment in infrastructure will not only improve accessibility but can also boost the local economy by increasing the number of tourists. Good infrastructure investment can increase regional income (Yoshino et al., 2019). Thus, improving accessibility and infrastructure in Kalibiru is a crucial step toward sustainable ecotourism development. This will not only attract more tourists but also provide economic benefits to the local community.

Tourist Attraction

Developing new attractions should also be considered. For example, developing educational tourism programs about local flora and fauna could attract a wider audience. Educational tourism can increase environmental awareness and provide a more immersive experience for visitors (Cook et al., 2024). The importance of promoting existing attractions cannot be overstated. Although Kalibiru has great potential, many people remain unaware of its existence. More aggressive promotion on social media and other digital platforms can increase Kalibiru's visibility. Several studies have shown that using social media can significantly increase visitor numbers (Khairunnisa & Atmayanti, 2024; Merlin & Rambulangi, 2022). Therefore, the development of Kalibiru's tourist attractions must be carried out sustainably, with attention to maintenance, innovation, and effective promotion. This will help Kalibiru remain relevant and attractive to tourists in the future.

Local Community Participation

Local community participation in the development of Kalibiru ecotourism is crucial for sustainability. Currently, local people are involved as ticket officers, ride operators, photographers, and accommodation providers. However, their involvement remains limited to operational aspects and has not yet extended to marketing and local product development. Community involvement in tourism marketing can increase their income (Pratidina et al., 2023). The study results show that communities involved in decision-making are more likely to support and implement existing

programs. Increasing local community participation in Kalibiru ecotourism development and assisting with tourism management are crucial steps towards achieving sustainability. Their involvement will not only provide economic benefits but also strengthen local cultural identity.

Visitor Facilities and Security

Tourism facilities have an important role in visitor satisfaction (Kusumawardhani, 2022; Rustan et al., 2024). Therefore, efforts to improve visitor facilities need to be ongoing. Local governments and tourism operators must work together to maintain and repair facilities. Furthermore, cleanliness is also essential to ensure a pleasant and safe tourist experience. This will not only increase visitor satisfaction but also contribute to the sustainability of ecotourism in the area.

Effectiveness of Capacity Building Activities

The implementation of participatory training and mentoring contributed positively to strengthening the capacity of tourism stakeholders in Kalibiru. The average evaluation score increased from 60.82 in the pre-test to 88.50 in the post-test, indicating that participants developed a significantly better understanding of sustainable ecotourism management, visitor services, digital promotion, and environmental management. These results suggest that the participatory learning approach, which integrates lectures, discussions, case studies, and mentoring, effectively enhances knowledge of sustainable tourism (Sitorus et al., n.d.).

Additional evidence of improved participant competency is provided by professional tour guide competency certification. Twenty tour operators participated in the certification exam after completing the mentoring program, and all participants successfully passed the competency assessment. This outcome indicates that ongoing mentoring enhances both theoretical knowledge and the practical competencies required for professional tourism services. Previous studies have also found that capacity-building programs improve service quality, professional confidence, and destination competitiveness (Miswanto et al., 2026; Situmorang et al., 2025).

Post-program evaluation results indicated that 88.5% of participants were satisfied with the training and mentoring activities. Participants especially valued the practical learning approach, collaborative discussions, and technical guidance provided during the program. High levels of participant satisfaction suggest that participatory mentoring can enhance stakeholder engagement and commitment to sustainable tourism management (Esteves et al., 2025; Saharuna, 2025).

Implications for Sustainable Community-Based Tourism

This community service program has strengthened collaboration between tourism managers, local communities, academics, and local government institutions. FGD has led to stakeholder collaboration to jointly identify priority issues and formulate follow-up actions, including revitalizing tourism facilities, enhancing digital promotion strategies, increasing the capacity of tourism managers, and expanding community participation in tourism planning.

These results demonstrate that community empowerment is not achieved through short-term training alone, but rather through a collaborative process that builds local institutional capacity for sustainable destination management. Previous studies have demonstrated that collaboration between all parties, tourism managers, communities, academics, and government, is a key factor in achieving resilient and sustainable community-based tourism destinations (Azwar et al., 2023; Phabiano & Sumarwan, 2024).

Conclusion

The community service program successfully strengthened the capacity of tourism managers, community members, and local government stakeholders in supporting sustainable ecotourism management at Kalibiru. Through FGDs, four training sessions, and three mentoring sessions, participants enhanced their knowledge and practical competencies in sustainable tourism management, digital promotion, visitor services, and collaborative destination planning. This improvement was demonstrated by the increase in the average evaluation score from 60.82 in the pre-test to 88.50 in the post-test, the successful completion of the professional tour guide competency certification by 20 participants (100%), and the positive evaluation of the program, with 88.5% of participants expressing satisfaction with the mentoring activities.

This community service program also strengthened collaboration among tourism managers, local communities, academics, and local governments to identify priority actions to increase tourism visits to Kalibiru. Agreed-upon actions included revitalizing tourism facilities, strengthening digital promotion, increasing the capacity of tourism managers, and ensuring long-term, sustainable community-based management of Kalibiru ecotourism. The results of this community service program demonstrated that participatory capacity building and ongoing mentoring are effective strategies for enhancing stakeholder competency, strengthening collaborative governance, and supporting sustainable ecotourism destination management. The participatory empowerment model developed through this program can serve as a practical reference for strengthening community-based ecotourism management in other rural tourism destinations facing similar sustainability challenges.

Acknowledgements

The author would like to thank the Directorate of Research and Community Service of Yogyakarta State University (UNY) for facilitating this community service activity through a Community Service grant with contract number T/358/UN34.9/PT.01.03/2025. Thanks are also extended to the Mandiri Community Forest Farmers Group, the Kalibiru Tourism Management, and the students who assisted with field data collection and documentation.

Conflicts of Interest

The authors declare no conflict of interest.

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