

Revitalizing the Arboretum Tourist Park: Transformative skills education for sustainable community development in Bumi Harapan

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ABSTRACT

ARTICLE INFO:

Received: 2024-09-25
Revised: 2024-10-15
Accepted: 2024-11-12
Published: 2024-11-30

Keywords:

Revitalization,
Sustainable
community,
Transformative skills

Bumi Harapan village is located in West Toili District, Banggai Regency, Central Sulawesi Province possessing strategic nature potential. Responding to the potential, the Village Government has built an education-based tourist destination along the riverside called the Arboretum Tourist Park. Yet, this project met significant obstacles so it has not optimally developed as the Village Government planned before. To solve the problems, the community service team through the Community Partnership Empowerment program revitalized the Arboretum Tourist Park by integrating transformational skills education to develop a more sustainable community in Bumi Harapan village. In this community service project, the team implemented an Asset-Based Community Development (ABCD) approach. It focuses on community empowerment in managing existing assets, which is the Arboretum Tourist Park. The results of the project indicated an enhancement in the quality of the Arboretum Tourist Park which attracted more visits of local tourists. Besides, educating the Village-Owned Enterprises, the Wana Sari team with transformative skills has provided them with essential knowledge and skills to realize more effective management of the Arboretum Tourist Park. This community service program has contributed not only to the quality enhancement of the Arboretum Tourist Park but also to a progressive strengthening of community participation in managing sustainable tourism.

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How to cite: Nurlaela, N., Saadjad, D. Y., & Puspapatriwi, D. (2024). Revitalizing Arboretum Tourist Park: Transformative skills education for sustainable community development in Bumi Harapan. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, 9(4), 886-901. <https://doi.org/10.26905/abdimas.v9i4.14328>

1. INTRODUCTION

Bumi Harapan Village, located in West Toili District, Banggai Regency, Central Sulawesi Province faces several challenges in developing sustainable tourism such as limited infrastructure, low public awareness about the importance of environmental conservation, and minimal training in tourism management. These challenges have the potential to hinder the village from becoming an attractive and sustainable tourist destination. Nevertheless, the village is endowed with rich natural resources including the Arboretum Tourist Park and the presence of tree with high economic value, such as teak tree, kassod tree, mahogany tree, manohara tree, kahumama/ burflower tree, nyantu tree, ebony tree, silk tree, gmelina tree, etc. this village has great opportunities to develop ecological, education and cultural-based tourism.

The village area of 440 sq km with rivers and fertile forests serves a strategically vital center for the management of natural resources (Dinas Kependudukan dan Pencatatan Sipil Pemerintah Kabupaten Banggai, 2021). Thus, with a strategic approach the village has the potential to enhance local economy, generate employment opportunities, and improve the community's quality of life, all while ensuring the sustainable management of natural resources and preserving local cultural values. The steps to develop educational-based tourist destinations that have been initiated by the Village Government can be in line with the sustainable development goals (SDGs) at the regional and national levels, strengthen regional competitiveness, and support the improvement of community welfare.

This challenge shows the importance of proper management and sustainability at every stage of tourism destination development. This is in accordance with the research results of the proposing team which found that the approach to using tourism areas in an area must be adjusted to the potential of available resources (Puspapratwi et al., 2023). Therefore, the Village Government established one of the significant tourist destinations called 'Taman Wisata Arboretum' or Arboretum Park. In Latin, Arboretum is originated from two words Arbor which means tree and Retum which means place (Sinampu et al., 2019). Arboretum refers to park or garden with a number of collected trees planted in particular areas and emulating the real habitat or area of biodiversity conservation (Limenta, 2021). Besides for conservation, the other role of arboretum is to restore and mitigate the climate change around the region (Imbiri, 2019). Therefore, the Arboretum Tourist Park built by the Village Government of Bumi Harapan focuses on planting Indonesian endemic trees as edutourism center.

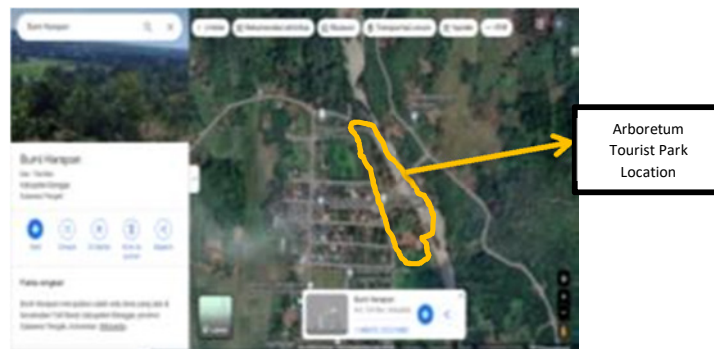


Figure 1. The map of Bumi Harapan Village and Arboretum Park location

In the process of establishment, the Arboretum Tourist Park project planned by the Village Government met significant obstacles. From the beginning of 2023 to the present, there are only few trees successfully planted in the area. In addition, as one of the tourist destination, the Arboretum Tourist Park showed abandoned and poorly maintained. On the other hand, the Village Government really waited for the Arboretum Tourist Park being a leading tourist destination for public in West Toili District, and even in Banggai Regency.

As the proposing team observed and interviewed the Head of Bumi Harapan Village, it revealed that of the Village Government aspires to have Arboretum Park as primary tourist attraction owned by the village since there is no other education based tourism yet, specifically those that provides knowledge about Indonesian endemic trees, in Banggai Regency. In Arboretum Park, the Village Government planned to cultivate a wide range of Indonesian endemic trees provided with the labels of names in Latin (scientific), Indonesian, locals, and English. In addition, each type of trees will be attached barcode providing complete information related to the trees. Besides, the Village Government also intended

to supply tree saplings in the tourist spot. The objectives of this movement are to offer knowledge, competence, and experience to the visitors dealing with the endemic tree types and the correct planting techniques. Thus, the Village Government recommended this Arboretum Park not only to general public but also to high school and university students who require experiential learning in nature as well as the researchers who need to study the endemic trees. In other words, the existence of the Arboretum Tourist Park presents both beauty of nature and enlightening. Moreover, the Village Government targeted this Arboretum Park as one of the sources of village income.

The Arboretum Tourist Park, in fact, was not optimally developed as the Village Government planned before due to lack of skills of the Wana Sari BUMDES (Village-Owned Enterprises) members who being in charge in the tourism management. Commonly, it is the responsibility of the government to manage natural attractions including preserving biodiversity and the ecosystems (Napolion et al., 2015). For these reasons, a community service project was organized to revitalize the underdeveloped Arboretum Park in Bumi Harapan village. As a result, the Arboretum Tourist Park can achieve its optimal advancement.

Revitalization activities are carried out to provide solutions to the challenges faced by the Arboretum Tourist Park. The first challenge, the limited tree planting is the main problem, where only a few endemic trees have been successfully planted at the tourist location. In addition, the park also experiences a lack of adequate maintenance, with facilities such as damaged gazebos and neglected paths, reducing the tourist appeal of the park. The limited human resources trained in park management is also a major challenge, because the management is less than optimal, both in terms of the quality of tourism services and biodiversity conservation. Supporting infrastructure such as road access, information boards, and other supporting facilities are also still limited, making it difficult for visitors to enjoy the park comfortably. However, the revitalization of the Arboretum Tourist Park only belongs to minimum attempt. It needs follow up actions from the Village Government, the Wana Sari BUMDES (Village-Owned Enterprises) team, and local community to maintain, preserve, and develop the tourist park potentials. In this context, transformative skills are being the essential key for the Village Government and the Wana Sari BUMDES team to manage and take optimum advantages of the upgraded park. Transformative skills in this case refer to one's competence in transforming self characters, situation, and also environment through positive and significant ways (Hardika et al., 2020). Besides, these skills also enable a person to possess critical and innovative thinking and to interact effectively in different context, including in the Arboretum Tourist Park management.

2. METHODS

This community service program implemented the Asset Based Community Development (ABCD) approach to support the partner in dealing with community issues. Asset Based Community Development (ABCD) is an approach commonly applied in community service through observation of the potentials and identification of assets owned by the village and community in order to develop the village (Afandi et al., 2022). This approach is applied by exploring the potential and resources that already exist in the community, both in the form of individual skills, local traditions, and existing natural resources. This approach emphasizes empowering the community to recognize and utilize the assets in their environment, so that they can develop this potential for the common welfare. In the context of the Arboretum Tourist Park, for example, the community is invited to identify the strengths they have, such as local knowledge about plants and ecosystems, which are then used as the basis for managing and developing the park sustainably. With this approach, the community not only plays a role as a beneficiary, but also as the main driver in the process of developing and managing tourist destinations.

Then, transformative skills education is applied with a focus on community empowerment through increasing practical skills that can drive positive changes in their lives. The skills provided are not only based on technical aspects, but are also designed to change the perspective and mindset of the community, so that they are able to adapt to existing social and economic challenges. For example, the community is trained to manage the Arboretum Tourist Park professionally, from planting endemic trees to maintaining tourism facilities, all of which can improve their skills in the field of conservation and tourism management.

In this community service program, the Wana Sari BUMDES (Village-Owned Enterprises) team as the Arboretum Tourist Park management became the subject who directly involved in the activities. This community project was conducted for 8 months consisting of the following steps.

Socialization

The proposing team socialized the community service program to the partner as the initial stages. In this socialization, the partner was provided with clear information related to the program including the objectives, stages, and schedules. The socialization needs to conduct in order to make sure the Wana Sari BUMDES (Village-Owned Enterprises) team as the partner understand the the community service program being implemented. Thus, the partner will be encouraged to participate in every activity as expected by the proposing team. At the end, the goals of community service program can be realized, the advancement of the Arboretum Tourist Park in Bumi Harapan Village and the upgraded transformative skills of the Wana Sari BUMDES team for optimum and sustainable management of the Arboretum Tourist Park. It also purpose to explain to the community about their involvement and contribution in the revitalization process and also in transformation skills activities.

Revitalization

The training and assistance program consisted of two main activities. The first is revitalizing the Arboretum Tourist Park which conducted collaboratively by the community service team consisting of lecturers and university students along with the BUMDES (Village-Owned Enterprises) team, Village officials, and the locals.

Table 1. Revitalization Agenda

Meeting	Agenda	Role of the community
Meeting 1	<ul style="list-style-type: none"> - Arranging the Arboretum Tourist Park in order to enhance the aestheticity, cleanliness, and natural beauty. - Planting decorative plants - Removing wild grass in the tourist spot 	
Meeting 2	Creating instagrammable photo spots	
Meeting 3	Upgrading and renovating the facilities of the Arboretum Tourist Park (painting the board names and gazebos)	BUMDES Wana Sari, village official, and Bumi Harapan society are participated and contributed in revitalization.
Meeting 4	Procuring endemic trees as being planned by the Village Government and the Wana Sari BUMDES team	
Meeting 5	Planting the endemic trees provided by the community service team and partner	
Meeting 6	Preparing the labels/name tags (in Latin, Indonesian, English, and locals) for every tree	
Meeting 7	Labelling the name tags of any trees living on the spots	

Provision of Transformative Skill

The next activity involved training the Wana Sari BUMDES team in transformative skills. The agenda included technical assistance focused on tourism management. This event featured the proposing team (lecturers) and a tourism practitioner as speakers. Subsequently, the community service team organized technical assistance sessions on forestry management and Arboretum conservation. A forestry instructor was invited to provide in-depth education about the ecosystem within the Arboretum Tourist Park. Additionally, the community service team facilitated technical assistance for creating tree labels using barcodes and implementing QR code technology.

Table 2. The agenda of transformative skills based – education

Meeting	Agenda	Role of the Community
Meeting 1	Technical Assistance on Tourism Management	The community is given training on managing tourist destinations, including tourism maintenance, digital marketing strategies, visitor services, and sustainable natural resource management. This training is conducted through workshops and training sessions using discussion and case study methods.
Meeting 2	Technical Assistance on Forestry Management and Arboretum Conservation	The community is trained to care for endemic trees and maintain the sustainability of the ecosystem in the park. This training is mostly conducted through practical activities in the field, where participants are directly involved in the process of caring for and maintaining the park.
Meeting 3	Technical Assistance on Creating Tree Labels through Barcode Display	In order to introduce technology to the community, this training teaches how to create barcodes that can be attached to endemic trees. Each barcode contains information about the type of tree and its ecological benefits, which can be accessed by visitors through digital devices. This training is provided through digital training sessions and hands-on practice.

Technology Enhancement

In order to achieve more effectiveness, this program was being optimized through a technology installation. Integrating technology and innovation in this community service program was represented by the use of technology in creating barcodes (QR code).

Evaluation

The next activity involved training the Wana Sari BUMDES team in transformative skills. The agenda included technical assistance focused on tourism management, with the proposing team (lecturers) and a tourism practitioner serving as speakers. Following this, the community service team conducted technical assistance sessions on forestry management and Arboretum conservation. A forestry instructor was invited to deliver in-depth education on the ecosystem of the Arboretum Tourist Park. Additionally, the team provided technical assistance in creating tree labels using barcodes and implementing QR code technology for better accessibility.

Program Sustainability

In this phase, the partner – the Wana Sari BUMDES team was being informed about the sustainability of this community program. In order to realize the Arboretum Tourist Park as a leading

tourist destination in Bumi Harapan village, they were enlightened with skills as follows: consistently maintaining and monitoring the facilities and endemic trees to preserve the quality, developing more eco-friendly new attractions such as educational camping, extra photo spots, and go green events; strengthening partnership with all parties such as regional government, NGOs, educational institution, and private sectors to support the sustainability of the program and the development of the Arboretum Tourist Park; also creating digital promotion and marketing of the Arboretum Tourist Park.

3. RESULTS AND DISCUSSION

Results

In an attempt to improve and support sustainable development of the tourist attraction in Bumi Harapan village, the community service team had run the program with full dedication. The results of the community service showed significant results, namely the development of the superior destination of Bumi Harapan Village through the Revitalization of the Arboretum Tourist Park, from 50% to 87%. In addition, there was an increase in the skills of BUMDES Wana Sari members from 40% to 90% in managing the Arboretum Tourist Park optimally and sustainably through transformative skills. These results were obtained from the indicators of the achievement of the implementation of the community service program which can be seen in the following link <https://drive.google.com/file/d/1GPtyzLWhjclwYrpyEAWI8BCuLbjglz6q/view?usp=sharing> .

In the community service program, there were 10 participants from the Wanasari BUMDes members, 10 participants from the village government, and 10 members of the community. The first agenda was socializing the community service program to the partner and followed up by revitalization processes. Next, we organized technical meeting and it was continued by technology enhancement and intensive assistance. The final phase included evaluation to assess the successful of the program and the strategies of sustainability in order to ensure the continuation and long-term impacts of this initiative. The following are detailed explanation of each phase being implemented.

Socialization

The socialization agenda was conducted by the community service team to the partner with the purpose of introducing and explaining the processes of the program as well as gathering supports, active participation, and cooperation from all parties in order to achieve success and sustainability of the program. The socialization was held in the hall of the Arboretum Tourist Park in Bumi Harapan village and attended by the village officials, the village facilitator, the BUMDES (Village-Owned Enterprises) team, the PKK (Family Empowerment and Welfare) team, the Karang Taruna (local youth association), and general public. This event was officially opened by The Subdistrict Head of West Toili along with The Head of Bumi Harapan Village and The Dean of Teacher Training and Education Faculty of Tompotika Luwuk University.

In socialization program, the community service team presented the upcoming agenda in revitalization processes. The processes consisted of rearranging the Arboretum Tourist Park to enhance the aestheticity, cleanliness, and natural beauty as well as creating new photo spots to attract more visitors. Besides, the community service team planned to procure and plant endemic trees as schemed by the Village Government. Every tree will be complemented by labels in the form of barcodes which providing information and data of the tree species using Latin, Indonesian, English and locals. The barcodes will also be displayed in the existing trees in the tourist park. Afterwards, the community service team also explained about the follow up agenda after revitalization, technical assistance on tourism management, forest management and Arboretum conservation, and other technical assistance on creating tree labels in the form of barcodes.



Figure 2. The socialization on community service program

Revitalization

In the revitalization, the village community plays an active role in decision-making and provides views that contribute significantly to the direction of the revitalization of the Arboretum Tourist Park. In the discussion forum and socialization held, they conveyed various innovative ideas, such as the design of interesting photo spots to increase the appeal of the tourism park. In addition, the community also contributed by choosing the right paint color for the signboard to make it more aesthetic and informative. Not only that, they also determined the types of endemic trees that were not yet in the park, but had great potential to be planted as part of the preservation of biodiversity. This involvement shows that the community is not only a beneficiary, but also the main driving force in creating a tourism park that is in accordance with local needs and characteristics.

Rearranging the Arboretum Tourist Park in order to enhance the aestheticism, cleanliness, and natural beauty

This is an essential phase to boost the visual appeal of the tourist park as well as creating comfortable atmosphere for the visitors. Not only the aestheticity, the program also advanced the functionality of the tourist park as education and recreation center. The rearrangement of the tourist park was conducted through the collaborative work between the community service team (lecturers and university students), the BUMDES (the Village-Owned Enterprises) team, the village officials, the Karang Taruna (local youths), and the people of Bumi Harapan.



Figure 3. Planting decorative flowers

Planting decorative flowers around the board name of the Arboretum Tourist Park

The next phase in the tourist park rearrangement program was planting decorative plants around the board name of the Arboretum Tourist Park. In this activity, the local people participated actively

by providing the ornamental plants and followed up by planting those flowers together. This activity realized both the eye-catching display of the board name and the strong solidarity of the community in order to preserve and maintain the tourist park.

Constructing more instagrammable photo spots

One of things required improvement was instagrammable and aesthetic photo spots as suggested by previous studies which indicated positive correlation between photo spots and the number of visitors (Heriana et al., 2024). Thus, in order to attract more visitors, the next phase was setting up more instagrammable photo spots in every strategic position of the tourist park. The process was started by selecting the right location by considering the natural background such as trees, garden, gazebo, and river. To determine the location, the team also asked recommendation from forestry instructor in the attempt to maximize the Arboretum Tourist Park beauty of nature without disrupting the ecosystem.



Figure 4. Instagrammable photo spots in The Arboretum Tourist Park

In this project, the community service team collaborated with the BUMDES team and people of Bumi Harapan village to set up a photo spot imitating wings of the bird near the river, an artistic photo frame, ornamental wreaths in gazebo, colorful hammocks in trees, bright bench beside tree, and vibrant wind wheel in order to beautify the tourist park.

Removing wild grass and collecting trash

The rearrangement of the Arboretum Tourist Park included several steps. The first move was removing wild grass and collecting trash around the tourist park. This cleaning up initiative was joined by the community service team along with the public. All participants worked together to remove the grass either manually by hands or with grass removal machine.



Figure 5. The cleaning up processes in the Arboretum Tourist Park

Enhancing and restoring the quality of facilities

After planting some decorative flowers, the next phase was enhancing and restoring the quality of facilities including board name and gazebo. The community service team consisting of lecturers and students worked along with the BUMDES team and general public to repaint the board name and gazebos in the tourism park.



Figure 6. Repainting bordname and gazebos

The procurement of endemic trees as planned by the Village Government and the Wana Sari BUMDES team

Procuring the endemic trees in the Arboretum Tourist Park was initiated by planning processes including identifying the species of each tree. The community service team, the village officials, and the BUMDES team worked together to identify the species of existing trees around the tourist park, and determined what species of tree would be planted in the tourist park by considering the characteristics of the soil.

From the identification process, it revealed twelve endemic trees were existing in the tourist park consisting of Teak tree, Kassod tree, mahogany tree, Kahumama/ Burflower tree, Nyantu tree, Ebony tree, Silk tree, Gmelina tree, Rainbow Eucalyptus tree, Benuang tree, Red Jabon tree, and Acacia tree. After discovering the species of the trees to be planted, the next phase was procuring the tree saplings from one of the trusted company in Banggai Regency called CV Banggai Agrotech Mandiri. This stage is essential to ensure the tree saplings ordered precisely matching the plantation plan.



Figure 7. Procuring the tree saplings by CV Banggai Agrotech Mandiri

Planting endemic trees in the Arboretum Tourist Park

Planting endemic trees plantation began with preparing the sites. In this activity, the community service team along with the BUMDES and the people of Bumi Harapan village enthusiastically planted

the trees. The planting process was carried out under the supervision of the Head of Forest Management Unit of Toili-Baturube Area and the forest instructor who had contributed to guidance and support in order to ensure the success in planting and maintenance of the newly planted trees.



Figure 8. Planting endemic trees in the location of Arboretum Park

Preparing the labels/name tags

The process of preparing the labels/name tag for every endemic tree included several crucial phases. The labels were designed to provide detailed information of the trees consisting of the scientific classification of the species, the tree name in Latin, Indonesian, English, and local language as well as the complete information related to the characteristics of the tree. The label design should be made clearly and durable, for this reason, the team used acrylic material so it will last longer in any weather. Every label was enhanced with modern display, the barcode, created through an application called QR Code Generator & QR Maker. To beautify the information display, the team utilized a design maker application called Canva, making sure every detail look appealing and professional.



Figure 9. The tree label in the form of acrylic barcode and detailed information of tree designed by using Canva

Labeling the name tags of the existing trees in the tourist park

The next phase in the revitalization processes was labeling the existing trees in the tourist park. The trees in the Arboretum Tourist Park should be labelled permanently to provide significant information which accessible to all the visitors including researchers (Fransiskus & Søren, 2014). The barcode labels were set up by tying them to the trees to ensure the labels steady and safe for the trees. In the process of setting up the labels, the community service team along with the BUMDES, the village officials, and the people of Bumi Harapan village under the supervision of the forest instructor to guarantee that the procedure was implemented properly so that the trees kept safe. By displaying the barcodes, the visitors of the Arboretum Tourist Park can easily access the information related to the existing trees only by scanning the barcode through their smartphones.



Figure 10. Labelling the trees

Providing transformative skills

The technical assistance included in the integrated transformative skills provided to the BUMDES (Village-Owned Enterprises) team as the management of Arboretum Park. This program aimed at improving their competence to manage the tourist park more professionally and sustainably. Through the technical assistance, the BUMDES team acquired new technical knowledge as well as encouragement to develop innovation in tourism management, environmental sustainability, and the use of digital technology like barcode. The program was expected to strengthen the role of the BUMDES in creating competitive, eco-friendly, and attractive park for more potential visitor. There were three technical assistance being implemented as an attempt to provide transformative skills for the BUMDES team as the management of the Arboretum Tourist Park as follows.

Tourism Management

The technical assistance on tourism management was directly delivered by the Head of Banggai Tourism Office. This technical assistance provided deep insights about strategy to effectively and sustainably manage a tourist destination. The lectures included many crucial aspects on tourism management such as developing tourism products based on local potentials and operational management of tourist destination.

Through extensive experiences, the Head of Banggai Tourism Office emphasized the significance of community involvement in managing tourist destination. In this case, the BUMDES (Village-Owned Enterprises) team was encouraged to contribute actively in creating more competitive tourist destination. On this occasion, the Head of Banggai Tourism Office also established the POKDARWIS (tourism-aware group) for the Arboretum Tourist Park.



Figure 11. Technical assistance on tourism management

The Forest Management and Arboretum Conservation

The next technical assistance in providing transformative skills agenda was dealing with forest management and arboretum conservation. The speaker on this occasion was the Head of Forest Management Unit of Toili-Baturube. The current technical assistance focused on how to preserve the forest ecosystem and arboretum conservation integratedly.

The participants of technical assistance were deeply enlightened about the importance of preserving biodiversity, the techniques of endemic trees conservation, and the management of forest ecosystem in order to keep it balanced. Besides, this technical assistance also highlighted the worth of maintaining the tourist park environment so it remains green and eco-friendly. The participants were also trained to observe and care for the existing trees. Through this technical assistance, the BUMDES as the participants was expected to be able to implement the management of more sustainable environment.



Figure 12. Technical assistance on arboretum conservation

Creating Barcodes

On this occasion, the participants were being introduced to a technology called barcode to be used in providing further information about trees in the Arboretum. The participants were trained how to create barcodes by utilizing QR Code Generator & QR Maker application and how to input more information about the species of the trees in the barcode. Besides, the participants also learned how to design the information display through Canva application in order to have more informative and attractive tree labels. With these competences, the participants were expected to be able to use modern technology so the information of trees in the Arboretum Tourist Park can be easily accessed by the visitors.



Figure 13. Technical assistance on creating barcodes

Program Evaluation and Sustainability

Arboretum Tourist Park revitalization project is designed to ensure long-term benefits by integrating various sustainability mechanisms. First, the project includes the creation of a tourism park maintenance plan that includes a routine maintenance schedule for facilities, such as repainting signboards, repairing gazebos, and cleaning paths. This plan is designed to involve the local community, both through regular work groups and individual responsibilities assigned on a rotating basis. Second, economic sustainability is realized through encouragement of local entrepreneurship. The project provides training to the community in managing business opportunities around the tourism park, such as opening food stalls, renting out picnic equipment, or leading educational tours about the arboretum's biodiversity. By utilizing local resources, the community can earn additional income while supporting the sustainability of the tourism park. Third, strengthening the partnership with all parties such as local government, NGOs, education institution, and private sectors is also vital to support the sustainability of the program and the Arboretum Tourist Park development as well. Through careful evaluation and well-organized strategy of sustainability, this revitalization program was expected to be the representative of an innovative and sustainable natural park.

Technology and Innovation Enhancement

The product of technology and innovation being implemented in this community service program was the use of digital tools in creating barcodes (QR code). The barcode labelling in the Arboretum Tourist Park was an innovation which integrated hard technology and soft technology in order to create educative and interactive experiences for the visitors. As for hard technology, a barcode label was printed in more durable acrylic materials and set up in a tree by using specific rope that is safe for the tree bark. The use of acrylic guaranteed the label can last longer in any weathers, dry or wet, so the barcode kept being visible and resistant to damage.

For the soft technology, the barcode in the label was created through an application called QR Code Generator & QR Maker which connected every code with detailed information of the trees. Besides, the information visual was designed through Canva application to provide data and information in more appealing and obvious display which can be easily understood by the visitors. To access the information of the trees, the visitors can download the QR Code Reader application first. Next, through this technology enhancement, the visitor can access more comprehensive information of each tree in the Arboretum Tourist Park only by scanning the barcode via smartphone. Delivering information through digital media can support other people to understand the information better (Falimu et al., 2023).



Figure 14. Detailed information of trees scanned through Barcode (QR Code)

The appropriate technology submitted to the partner of community service program was an application of barcode maker called QR Code Generator & QR Maker in a premium version as well as barcode prints on acrylic boards for existing and upcoming trees in the Arboretum Tourist Park

Discussion

In the context of tourism, revitalization can include improving facilities, better management, and developing local potential that can increase tourist visits. Revitalization does not only focus on physical aspects or infrastructure, but also involves improving the quality of management, community involvement, and environmental sustainability. Meanwhile, transformative skills education in the context of tourism refers to training programs that equip local communities with the skills needed to manage and develop the tourism sector sustainably. These skills include tourism destination management, customer service, tourism marketing, and the ability to manage natural and cultural resources responsibly. Then, ABCD (Asset-Based Community Development) approach in tourism invites communities to see and utilize the wealth they have, such as natural beauty, culture and local traditions, as key assets in developing tourism destinations. In the context of tourism, the ABCD approach can help create more authentic destinations, managed by communities in a sustainable manner and with their well-being in mind. By combining them, the development of a sustainable Arboretum Tourist Park in Bumi Harapan village can be realized.

The result of the community service program clearly demonstrates its significant impact on the development of Arboretum Tourist Park. Throughout the revitalization process, some strategic steps were implemented to enhance the role of the Arboretum Tourist Park as a center for sustainable nature conservation, education, and recreation.

First, the physical revitalization of the park included rearranging the aestheticity and infrastructures, in this case, the park had been restored. The restoration included enhancing the facilities such as gazebo, boardname, and instagrammable photo spots and planting endemic trees. The agenda of planting trees was essential as it was aligned with the principle of Arboretum as educational tourist attraction. As supported by the results of previous community service program in Tanjung Tiram Beach, labelling every species of trees will help the visitors to learn, specifically for the high school students and university students as well ([Jamili et al., 2023](#)).

The technology enhancement like labelling every endemic tree with barcodes was a significant innovation that will enrich the visitors' experiences on interactive information through digital access. This technology enabled the visitors to directly obtain education and insights related to local vegetation only by scanning the barcodes through their smartphones. It was agree with the research conducted by [Kurniawan et al. \(2023\)](#) who suggested that Arboretum can represent as an educative tourist attraction which also functions to preserve the plants in the ex-situ form.

Furthermore, the community service team also educated the partner, the Wana Sari BUMDES (Village-Owned Enterprises) team as the management of the Arboretum Tourist Park with transformative skills. The technical assistance emphasized on tourism management, environment management, arboretum conservation, and the utilization of technology such as barcode and digital platform. On this occasion, the BUMDES team had been provided with new skills to effectively manage the park, thus they can independently develop more sustainable tourism.

This program has successfully increased the tourists' visits in that tourist park as well as enlightened the community about the significance of the environmental preservation. These results showed agreement with the other community service program focusing on nature based tourism. Specifically the previous community service program organized in Laguna beach, South Sulawesi which presented the development of tourist destination with local community empowerment to manage their natural resources as tourist attraction while preserving the sustainability ([SAS et al., 2023](#)). Also, the community service program conducted in Kolaka beach through the collaborative work between the community service team and local community affected the increasing of tourists' enthusiasm ([Mutmainah et al., 2023](#)).

These three community service program demonstrated similarities, applying community and education based approach as the key of successful program. Both programs also highlighted the significance of active involvement of the local community in managing the tourist destination either in land or in sea. Integrating technology in tourism management is also essential to strengthen the competitiveness of local tourist destination in the midst of various global challenges. Therefore, the result of this community service program does not only contribute to ecosystem preservation, but also boost the economic growth and community independence through sustainable tourism sector.

4. CONCLUSION AND RECOMMENDATIONS

The conclusion of this community service program shows a significant positive impact on the development of the Arboretum Tourist Park as a tourism destination that supports nature conservation and environmental education. However, there are still challenges that must be faced to ensure sustainability and further development, such as improving park management skills, facility maintenance, and more effective promotion. The lesson that can be learned from this program is the importance of community involvement in every stage of development, from planning to implementation. Actively involved communities can provide innovative ideas and solutions that are more appropriate to local conditions. This success shows great potential in the development of community-based tourism that prioritizes sustainability. To expand similar projects to other villages, it is recommended to adopt an approach that involves transformative skills training, human resource capacity building, and stronger partnerships with external parties. In addition, it is important to ensure that each village has a clear maintenance plan and encourage the development of local tourism businesses to create sustainable long-term impacts.

In order to develop the Arboretum Tourist Park in the future, here are several suggestions proposed by the community service team. First, the tourist park should be developed sustainably and evaluated regularly to keep up with recent trends and visitors' expectations. Besides, the development needs collaboration with all stakeholders such as local government, NGOs, educational institutions, and private sectors. In addition, the marketing strategy must be upgraded to extend the exposures.

ACKNOWLEDGEMENTS

We expressed our high appreciation to all sides who had contributed on this community service program, primarily to the Ministry of Education, Culture, Research, and Technology for the funding support, the Tourism Office of Banggai Regency, the Forest Management Unit of Toili-Baturube Area, Tompotika Luwuk University, the Institute for Research and Community Service of Tompotika Luwuk University, the Government of Bumi Harapan Village, the Wana Sari BUMDES (Village-Owned Enterprises), the community service team, and public who had participated actively in this program.

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