

Original Article

Analysis of the Development of Wanadesa Bamboe Forest Tourism as Ecotourism

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Bamboe Wanadesa, one of the natural tourist attractions with an ecotourism nuance in Balikpapan City, offers bamboo as the main attraction of this tourist attraction. The increasing number of visitors increases every year, making tourism experience rapid development, both in tourism aspects and ecotourism principles. The research objective is to analyze the development of bamboo forest tourism in Bamboe Wanadesa as ecotourism in Balikpapan City. The research population is all stakeholders involved in tourism development and the sample used is sixty visitors, managers, head of RT 26, and head of KPHL Balikpapan City. The sampling technique uses purposive sampling. Data analysis techniques use qualitative analysis to analyze the data that has been collected. The results of the research show that the development of Bamboe Wanadesa forest tourism is good, this is the result of visitors' assessment of tourism aspects such as attractiveness at 78.5% in the good category, facilities and infrastructure at 76.2% in the good category, tourist accessibility at 63.3% in the good category, and tourist accommodation was 56.5% in the quite good category. The implementation of ecotourism in the Bamboe Wanadesa forest tourism is implemented according to ecotourism principles which focus on environmental preservation/sustainability, education, improving the community's economy, and community participation. For future researchers, it is suggested that this research be used as a reference in the future and also develop tourist accommodation so that this tourism will be better in the future, by applying the concept of ecotourism it is also necessary to develop good tourism.

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INTRODUCTION

Balikpapan City is one of the largest cities in East Kalimantan which is famous for its natural beauty. In recent years, the tourism sector has become one of the economic sectors that is increasingly developing in this city. According to (Priandini et al., 2023) in his research, it explains that with its extraordinary natural wealth, Balikpapan City offers various types of tourism, including marine tourism, nature tourism, artificial tourism, religious tourism, culinary tourism and historical tourism. Tourism is one of the development sectors currently being developed by the government, because tourism is considered to have a very important role in Indonesia's development, especially as a sector that generates regional and state income Silaban et al (2018) and (Herlianti, 2022).

According to (Zulfa, 2021), ecotourism is a type of tourist travel that focuses on environmental conservation and preserving the life and welfare of local residents. Ecotourism is starting to become popular with many tourists, this is related to the tourist's mentality or thought that traveling is not only for fun but as additional insight in terms of ethnology and education (Murianto, 2021). Ecotourism is a tourism sector that can benefit from various aspects if ecotourism is managed well, but on the other hand, if ecotourism is not managed well and correctly it will cause new problems and have a negative impact on society (Putri et al., 2022).

According to (Lazuardina & Amalia G., 2023) in their research, they explain the impact of tourism on the economic aspects of local communities, namely the impact on community income, the impact on employment opportunities, the impact on the distribution of benefits or profits, the impact on community ownership and control (economy), the impact on general development such as infrastructure development and human resource development and the impact on government revenues through tourism taxes, levies and other sources of income originating from the tourism sector. According to (Kusumaningrum et al., 2023), his research states that the principles of ecotourism must comply with environmental preservation, educational facilities, improving the community's economy, and community participation.

Sustainable development of ecotourism, it is important to understand visitors' perceptions and satisfaction regarding its uniqueness and potential, so that tourism can be developed as an ecotourism area which is then expected to not only bring benefits from the

economic sector but also create prosperity for the surrounding community (Pradini et al., 2023). Visitor satisfaction is an emotional behavior towards services that results from comparing what is expected with what is received. Visitor satisfaction is one of the key factors in creating a sustainable ecotourism area (Saputra, 2017). Good service to visitors will make it a media for ecotourism promotion or an entry point for cultural development (Rahmanita et al, 2022)

The object of this research is the Bamboe Wanadesa forest tourist attraction, which will be opened to the public in 2021 and is located in Balikpapan City. The history of Bamboe Wanadesa begins with the desire of local residents who are members of the Forest Farmers Group (KTH) to turn the bamboo forest into an attractive tourist spot for visitors and local residents. This tour has beautiful views because of the tall and lush bamboo trees. At this location there are many tourist facilities, including suspension bridges that connect certain areas with other areas, children's play areas and rest areas. Wanadesa Bamboe forest tourism is often used as a location for various events such as camping, meetings, or other outdoor events.

Bamboe Wanadesa forest tourism is also included in tourist villages, where villages develop their natural, cultural or local wisdom tourism potential to attract tourists. A tourist village is defined as a tourist activity that occurs because of the authenticity and uniqueness of its natural and cultural potential, where this potential is packaged and managed by local communities and provides benefits for their lives (Prakoso, 2022). Tourism Villages aim to create long-lasting good impacts such as increasing community economic income, preserving local culture and traditions, and protecting the surrounding environment (Pribadi et al., 2021).

The beginning of the formation of the Bamboe Wanadesa forest tourism was through the Forest Farmers Group (KTH), then from this KTH formed the Social Forestry Unit Group (KUPS), from this group the start of establishing the Bamboe Wanadesa forest tourism. This tourist attraction was only opened to the general public in 2021, starting from the desire of local residents who are members of the Forest Farmers Group (KTH) to turn the protected forest into an attractive tourist spot. During the Covid-19 pandemic, local residents started building bamboo forest tourism. in the Sungai Manggar Protected Forest area in 2020.

Bamboo is a plant that has many uses, from the roots, stems, to the leaves that can be used in everyday life (Ginting, 2019). Bamboo has very promising potential to be utilized properly because it is easy to grow and develop and has many benefits (Wilson, 2022). Bamboo trees have many different benefits for certain areas, especially as a livelihood for people who use bamboo as crafts and have economic benefits (Andayani et al., 2017). Furthermore, from Sunardi (2014) bamboo has the potential to be used as a home industry and other crafts. Wanadesa Bamboo Forest Tourism has 10 types of bamboo in the tour, including Petung bamboo, Ulung bamboo, Ampel bamboo, Apus bamboo, Javanese bamboo, Yellow bamboo, Black bamboo, Chinese Petung bamboo, local Ampel bamboo, Jakarta bamboo

Information on visits to the Wanadesa Bamboe Forest tourist attraction each year has a positive trend in the number of visitors who come to tour. The community has started to have enthusiasm for this tourism, it can be seen that the number of visitors is increasing every year and continues to increase in large numbers, so it can be concluded that this tourist attraction has good development and has experienced a rapid increase in the number of visitors, this proves that the community especially in the city of Balikpapan, they are starting to become interested in the Bamboe Wanadesa forest tourist attraction.

Table 1. Number of Visitors to the Wanadesa Bamboe Forest Tourism

| Year | Visitors |
|------|----------|
| 2021 | 4.067 |
| 2022 | 22.867 |
| 2023 | 29.291 |
| 2024 | 31.142 |

Source: Tourism Management, 2025

This research will focus on tourism development in the Bamboe Wanadesa bamboo forest. Bamboo from Sofian et al (2017) is currently considered to have economic value and as a character of contemporary, modern, and sophisticated architecture. Guo (2019) stated that bamboo forest ecotourism has broad market prospects and strong development momentum. Sumarmi (2015) and Sumarmi et al (2022) concluded that bamboo forests are a potential that can be developed through local wisdom-based ecotourism. Tourism development is important to study to face future innovations in tourist attractions, adaptation and community welfare, the

challenges of the 21st century, namely economic globalization Novy (2018), Santos et al (2020), Polukhina et al (2021). The aspect of tourism development in the Bamboe Wanadesa bamboo forest is one of the research gaps that needs to be studied, because it plays an important role in determining the success of a tourist destination. The novelty of this study compared to previous studies lies in the annual visitor data which shows an increasing trend and is one of the main focuses of this study. The purpose of this study is to analyze the development of bamboo forest tourism in Bamboe Wanadesa as an ecotourism destination in Balikpapan City. This ecotourism is part of global issue research such as sustainable development Samal (2023) and Xaba (2024). Ecotourism development is seen as a solution to overcome environmental and socio-economic problems in the Chrismansyah area (2022)

METHOD

Research Location

The location of this research is located on Jalan Giri Rejo, RT 26, Karang Joang Village, North Balikpapan District, Balikpapan City, East Kalimantan Province. The city of Balikpapan is located at 116.5° - 117.0° East Longitude and between 1.0° - 1.5° South Latitude. A map of the research location can be seen in Figure 2 below.

Research Procedures

The procedural stages in this research begin with tourist observations to find out the conditions and things to be researched in the Bamboe Wanadesa forest tourism, then collect data in the field in accordance with the research objectives, and finally formulate the results of the field research and discuss the results of the research.

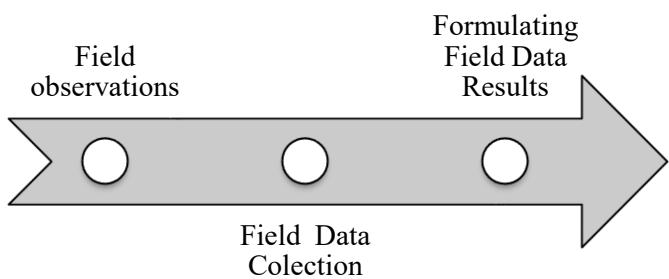


Figure 1. Research Flow

Source: Personal Data, 2025

Research Approach

This research uses qualitative research methods to focus on in-depth understanding of the phenomenon being researched. In this case, qualitative research can help in understanding the potential and problems related to the development of bamboo tourism in Bamboe Wanadesa, as well as help in analyzing appropriate development related to ecotourism in the area. The sample in this research was selected using a purposive sampling technique, namely the selection of samples was carried out with a specific aim, namely to obtain the information needed in the research so that the data obtained is accurate, relevant and representative.

Data Collection Instrument

The population in this research are all stakeholders or parties involved in the development of Bamboe Wanadesa tourism, namely the Department of Technical Implementation Unit (UPTD) of the Protected Forest Management Unit (KPHL), the Bamboe Wanadesa tourism manager, the Head of RT 26 in the Bamboe Wanadesa area and tourists visiting Bamboe Wanadesa. The data collection techniques used are primary data (observation, interviews, questionnaires, documentation) and secondary data.

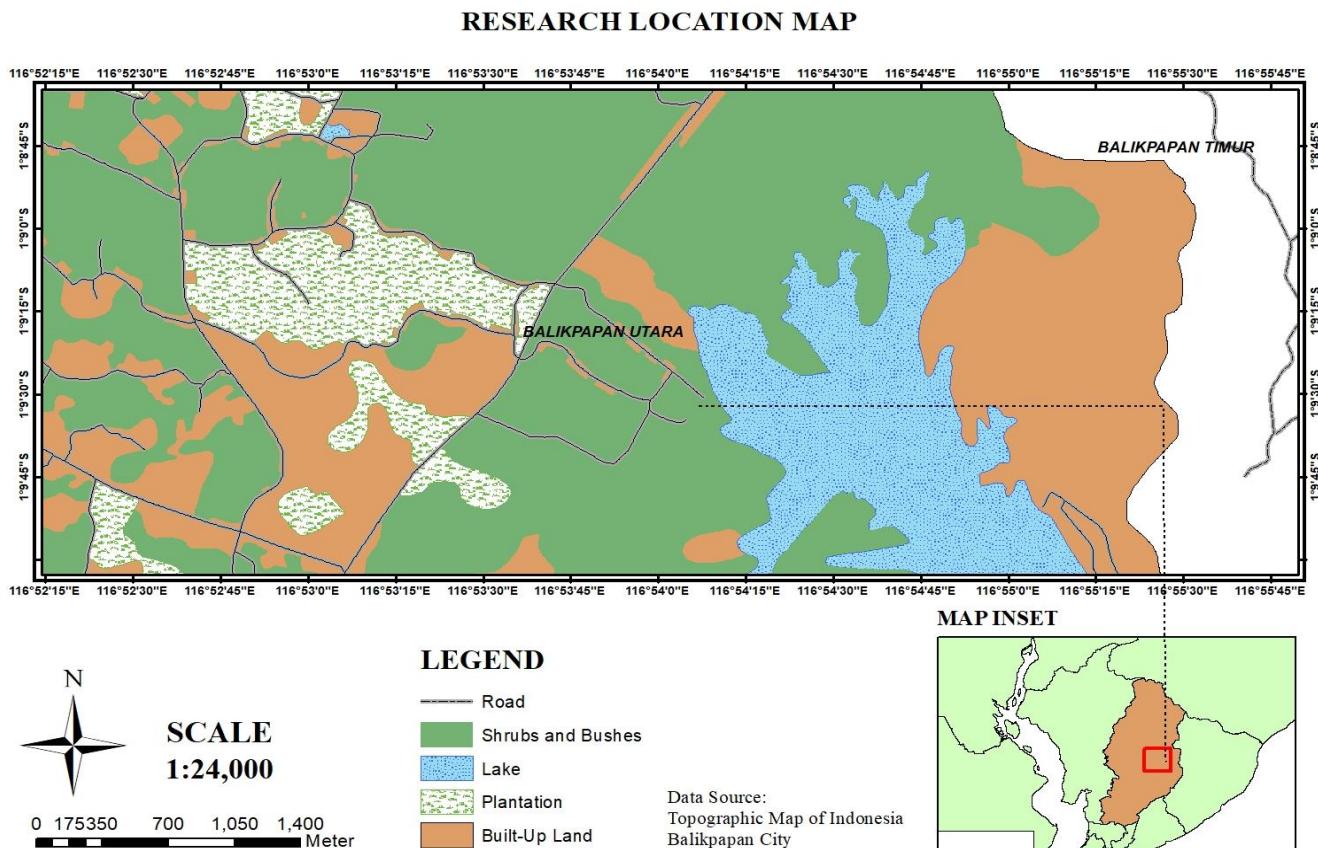


Figure 2. Map of research locations

Source: Personal Data. 2025

Data analysis

The data analysis technique used in this research is using Miles and Huberman analysis and using a Likert Scale (Sugiyono, 2020). Activities in data analysis, namely: data reduction, data display, and conclusion drawing/verification. And carry out calculations on the Likert scale as follows:

T \times Pn (1)

T = Total number of respondents who voted

Pn = Choice of Likert score numbers

Interval formula (I) = 100 / total score (Likert)

$$= 100 / 5 = 20$$

Table 2. Interpretation of Scores Based on Intervals

| Interval presentase | Criteria |
|---------------------|-----------------------------|
| 0% - 19,99% | Strongly (Disagree/Poor) |
| 20% - 39,99% | Disagree/Not Good |
| 40% – 59,99% | Fair/Neutral |
| 60% - 79,99 % | Agree/Good/Like |
| 80% - 100% | Strongly (Agree/Good) |

Source: Sugiyono, 2020

RESULTS AND DISCUSSION

Tourism development is an effort to promote the attractiveness of a tourist attraction so that it develops in accordance with the vision and mission. Tourism development cannot be separated from the direction of the development of Indonesian National Culture. In other words, it is in the national situation that the basis of tourism development policy lies. (Darmatasia et al., 2020). The tourism industry has a multilayer effect that greatly influences economic growth in supporting community welfare (Laipi et al., 2020). Opening up employment opportunities, increasing business opportunities for the community, increasing community economic income and state income, especially for local governments where tourism is developed, are very beneficial in economic development and community welfare in Indonesia (Luh & Dewa, 2021). Lestari (2019) also argues regarding this where the most important industrial development is increasing employment opportunities for residents who are of working age to earn money to meet their needs.

Aspects of Wanadesa Bamboe Forest Tourism Development

The tourism development aspect involves various interrelated elements to create destinations that are attractive, sustainable and able to meet tourist needs. In relation to tourism, development means improving components related to tourism, with the aim of ensuring that more tourists come, stay longer, spend more money and that tourist satisfaction can be fulfilled optimally and the destination environment can be maintained. Through good and environmentally friendly management, tourist destinations can develop sustainably, and if managed properly, tourism will bring great benefits, both to visitors, local communities and the region as a whole. This tourism development includes various aspects that are important and need to be considered, the aspects of developing

Bamboe Wanadesa forest tourism are as follows:

- Tourist Attractions.** Attractions are important in tourism which are a source of attraction that attracts tourists to visit and enjoy a tour (Priambudi et al., 2021). Meanwhile, the tourist attraction of the Wanadesa Bamboo Forest has various other attractions, such as photo spots, fishing spots, and also going around the Manggar Reservoir using boats provided at the tour. In addition, visitors can also rent a place to camp at this tour. According to the information on the tourist sign, there are 10 types of bamboo in this tourist attraction, including Petung bamboo, Ulung bamboo, Ampel bamboo, Apus bamboo, Javanese bamboo, Yellow bamboo, Black bamboo, Chinese Petung bamboo, local Ampel bamboo, Jakarta bamboo. diversity of tourism potential This Bamboo tourism forest is in line with Li (2025) that bamboo forests have environmentally friendly properties, including natural degradation. In addition, bamboo offers various ecological benefits
- Tourism facilities and infrastructure.** Facilities or infrastructure are all the main and basic facilities that allow tourism facilities to survive and develop in order to provide services to tourists (Utama, 2016). The facilities available at the Wanadesa Bamboo Forest tourist attraction include toilets that can be used for free, a prayer room for worship, a gazebo to rest when tired but there is a gazebo rental fee, a stage that can be rented for large-scale events or activities, and a canteen that provides snacks and drinks. The description of these facilities is shown in Figures 2 and 3. The existence of these tourism facilities is strongly supported by research by Azizah and Riwu (2024) to increase tourist satisfaction, adequate facilities are needed starting from the main facilities, supporting facilities and also complementary facilities and must be supported by quality services.
- Tourist accessibility.** Accessibility is a factor that supports the ease of tourists to reach the village, such as road signs, modes of transportation that tourists can use to reach various village tourist attractions, and good road conditions to the village (Hadiwijoyo, 2018). Bamboe Wanadesa forest tourism has fairly good accessibility conditions and is easily accessible to visitors, but there are several points on the road that are still slightly damaged so you need to be careful when crossing the road. The location of the tourist attraction which is far from the city is one of the reasons why this tourist attraction

is suitable to visit when you are tired of the city atmosphere. Tourist signs can still be seen clearly by visitors, so visitors are not confused or lost when going to the tourist attraction. Thus, accessibility must be a pillar of public strategy and a possible way to improve smart destinations through accessibility as a pillar of the model, and to achieve this goal, the internet is the key (Buhalis et al., 2023; Sizan et al., 2022).

d) Tourist Accommodation. Accommodation or lodging is a place to stay or rest with facilities (Sirait, 2015). The availability of accommodation, especially around the Wanadesa Bamboe Forest tourist attraction, is still very limited, because the tourism management does not have accommodation that is managed directly, but there is accommodation such as villas that are managed privately by the local community. This aspect is one that needs to be considered in Bamboe Wanadesa forest tourism



Figure 2. Aspects of Wanadesa Bamboe Forest Tourism

Source: Research Results, 2025

This is also reinforced by the results of a questionnaire given to 60 tourist visitors regarding visitor satisfaction with the Bamboe Wanadesa forest tourism regarding the following tourism aspects:

Table 3. Results of Visitor Questionnaires on Tourism

| No | Tourism aspects | Scores | (%) |
|----|-------------------------------|--------|--------------------|
| 1 | Tourist Attractions | 942 | 78,5 (Good) |
| 2 | Facilities and infrastructure | 915 | 76,2 (Good) |
| 3 | Tourism Accessibility | 760 | 63,3 (Good) |
| 4 | Tourist Accommodation | 509 | 56,5 (Pretty Good) |

Source: Research Data Processing Results, 2025

Based on the table shows the questionnaire value stated well in the aspects of tourist attractions, facilities and infrastructure, accessibility, and accommodation. The level of satisfaction of the visitor (tourist) questionnaire shows satisfaction that is based on good values. The meaning of this criterion is that there are (visitors) tourists who are satisfied with the aspect of tourist attractions. Tourist attractions in Wanadesa Bamboe are also followed by community participation in this case visitors. This is in line with Aprilia et al (2022) where visitor involvement in museum activities is a significant factor in creating visitor perceptions of the authenticity of the museum. This museum object can be aligned with other tourist objects including the research subject, namely Wanadesa Bamboe.

Application of Wanadesa Bamboe Forest Tourism as Ecotourism

Ecotourism is tourism that is integrated with the concept of conservation, focuses on the local economy, and also functions to support the growth of appreciation for the culture that lives in the community (Nurul et al., 2021). Ecotourism analysis in Bamboe Wanadesa forest tourism is carried out so that the tourism becomes good ecotourism, which meets ecotourism standards, and offers significant opportunities to combine interesting nature tourism experiences with responsibility for nature and local culture. According to Ismayanti et al (2014), this analysis can identify alternative policies and strategies for developing the BBIH Pekalongan Agrotourism Area. Furthermore, in this study, through careful development

and active community participation, Bamboe Wanadesa forest tourism not only focuses on economic aspects, but also on preserving ecosystems and strengthening the identity of the surrounding community. The following is an analysis of ecotourism in Bamboe Wanadesa forest tourism:

- Environmental sustainability. The principle of environmental carrying capacity is considered where the level of visits and tourist activities at an ecotourism destination are managed according to acceptable limits both in terms of nature and by using environmentally friendly technology (Handayani et al., 2022). Bamboe Wanadesa forest tourism implements good management efforts related to environmental sustainability or preservation, such as not clearing too much land and also managing waste in environmentally friendly tourism. In addition, Bamboe Wanadesa forest tourism also makes efforts to always plant bamboo so that the ecosystem in the tourism area can run well. The sustainability of this ecotourism can be seen in figures 2 and 3 in the article Environmental tourism and education. The principle of tourism education considers 2 main aspects, namely the educational aspect in the form of conveying knowledge to visitors, and the tourism aspect, namely the comfort and safety of visitors (Romala et al., 2020). This aspect is important because according to Budiman (2020) In the field of education, tourism can function as a learning activity carried out by someone while visiting a tourist attraction location. Bamboe Wanadesa forest tourism applies the concept of environmental tourism and education, such as providing opportunities for schools to learn while traveling or outbound classes as in Figure 3. Counseling is also provided to tourism managers and the community by the government or private parties, regarding tourism management, marketing, and funding. and the community by the government or private parties, regarding tourism management, marketing, and funding. Increasing the economy of local communities. Community-based ecotourism can create new jobs for the community and improve community welfare (Manahampi et al., 2015). The existence of the Bamboe Wanadesa forest tourism has had a significant positive impact on the development of MSMEs around the tourism area. Since the formation of this tourist attraction, many local
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residents have taken advantage of the opportunity by opening various types of businesses, one of which is food kiosks around residential areas. These MSMEs not only increase the income of local communities, but also enrich the tourist experience with authentic local products and services, such as processed bamboo leaf tea and bamboo-flavored chips.

d) Community participation in tourism. Starting from ecotourism planning to ecotourism implementation, the community can take part and participate in it (Andriyani et al., 2017). Community participation in supporting tourism is very good and very enthusiastic in its implementation. The community makes a great contribution in advancing and developing tourism, such as carrying out mutual cooperation activities in tourist attractions and around them, and also processing waste from tourist attractions and utilizing it to generate profits for the community. This principle proves that with community participation in tourism management, it can also provide benefits for tourism itself and the community involved. This principle is supported by Rahmawati (2024) where community participation ends in environmental awareness and has educational value.

Overall, the development of Bamboe Wanadesa forest tourism as ecotourism is interconnected and supports each other. Tourism development that focuses

on sustainability and empowering local communities not only creates satisfying experiences for tourists, but also preserves the environment and provides long-term benefits for all parties involved. This is in line with research (Suta & Mahagangga, 2018) that tourism development that is planned and managed in a sustainable manner based on the community will be able to contribute to the receipt of Regional Original Income (PAD) and create employment opportunities.

The success of ecotourism depends on wise management, development of environmentally friendly infrastructure, and active community participation in destination management. This is in accordance with (Habibie, 2021) which states that optimal ecotourism development really requires planning, utilization, control, institutional linkage and community empowerment by taking into account economic, social and ecological principles and involving stakeholders in managing ecotourism potential. The success of Bamboe Wanadesa forest tourism as ecotourism can be seen from how this destination is able to integrate nature conservation, community empowerment, and local economic development, as well as supporting a sustainable approach, this tourism not only provides an interesting tourist experience, but also supports nature conservation and increasing welfare public. Wise management and involvement of various parties, as well as commitment to ecotourism principles, are key factors in ensuring the sustainability and success of this tourism development.



Figure 3. Implementation of Ecotourism in Wanadesa Bamboe Forest Tourism

Source: Research Results, 2025

Visitor satisfaction with tourism development is closely related to the extent to which destination managers are able to create an experience that is enjoyable, safe, comfortable, and in line with their needs and expectations. Improving facilities, services, activities and sustainability are the main keys to ensuring visitors feel satisfied and are interested in visiting again. Because the key to the success of a tourist attraction is the loyalty and satisfaction of the visitors themselves so that it can attract tourists who have already come to come back and attract more tourists to come again, this is in line with the statement (Salakory et al., 2020) which says that Tourist behavior such as attractions, length of stay, spending money and willingness to repeat visits is a positive response as an actualization of a sense of satisfaction with the tourism products offered at a tourist destination.

CONCLUSION

Based on the results of research, Bamboe Wanadesa forest tourism has the main attraction in the beauty of bamboo and supports the concept of ecotourism that is environmentally friendly and based on nature conservation, with the implementation of Bamboe Wanadesa forest tourism also in accordance with ecotourism principles such as planting and caring for bamboo and maintaining it. The development of tourism focused on sustainability and the empowerment of local communities not only creates a satisfying experience for tourists but also preserves the environment and provides long-term benefits for all parties involved. Cleanliness in the tourist environment and its surroundings tourism that is suitable as an outing class for students, the existence of SMEs around the tourist area which helps the economic life of the surrounding community, and people who actively participate in managing and maintaining tourism and proper tourism development can make this tourism one of the attractive tourist destinations in Balikpapan City, especially as ecotourism. Ecotourism provides various significant benefits, both in environmental, educational, social and economic terms.

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Conflict of interest The authors have no competing interests to declare that are relevant to the content of this article.

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