

# Unlocking The Potential of Coban Cangu as a Nature Tourism Destination In Mojokerto Regency

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## ABSTRACT

This research aims to unlock the potential of Coban Cangu, a waterfall attraction, as one of the nature tourism destinations in Mojokerto Regency, Indonesia. The main objective of the study is This study aims to evaluate tourist attractions and provide recommendations for improving underdeveloped aspects to enhance the competitiveness of Coban Cangu as a leading tourist destination in East Java. Located in Pacet Village, Coban Cangu is known for its crystal clear waterfall, and beautiful scenery, easily accessible, and within the vicinity of other attractions. The study employed a mixed-method approach and gathered data through questionnaire surveys, field observations, and a literature review. Survey data was drawn from 40 visitors and a tourism manager in the study area using a random sampling technique. The ADO-ODTWA guidelines, provided by the Indonesian Department of Forestry, were used to evaluate the tourism potential of the study area. The findings reveal that Coban Cangu achieved an index of 73.7%, indicating the area is highly suitable for future tourism development. The key strengths of the area include its natural charm, diverse tourism activities, sufficient tourism accommodations, and accessibility. However, the site also faces challenges such as inadequate water supply, suboptimal cleanliness, and poor management practices that hinder its full potential. The site's cleanliness is affected by limited waste management facilities and visitor behavior, while water supply remains insufficient and poorly managed. The research emphasizes the importance of improving infrastructure and facilities, optimizing management practices, and implementing sustainable tourism strategies. In addition, enhancing the promotion and integrating other attractions or services are recommended to boost its competitiveness. In conclusion, the study highlights Coban Cangu's potential as significant and vital towards regional economic growth and tourism development, while advocating for sustainable practices to preserve its environmental and cultural value.

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## 1. Introduction

Nature tourism is one of the sectors that play an essential role in supporting the local and national economy. Tourist attractions play an important role in the tourism industry (Ramadhani, 2022). Tourism is expected in many places to be an essential factor for supporting community growth of the community (Altab et al., 2020). In Indonesia, this sector is uniquely attractive because of the diversity of unique and attractive natural landscapes. Tourism activities can stimulate the growth of local tourism, thereby increasing the progress of a region (Sumarmi et al., 2020). The tourism sector has had a massive impact on a country's economic growth. Ultimately, if tourism develops, the financial and labor industries can contribute to increasing foreign exchange for the government and regions (Priono, 2011). Various aspects or elements of nature have the potential to become valuable resources if humans can use them to satisfy their needs (Pitana & Diarta, 2009).

One of the main attractions in nature tourism is the presence of waterfalls, which not only offers visual beauty but also educational and recreational potential for visitors. Waterfalls are type of natural resource in the form of topography (landforms), which is a unique attraction owing to the differences in the topography of the earth's surface in each region (Fennel, 1999). Indonesia, which has considerable biodiversity, has many opportunities for natural tourism (Yuniarti et al., 2018). Waterfalls are favorite destinations that can increase regional income, provide jobs, and promote ecosystem sustainability. One waterfall that has great potential, but has not been fully maximized, is Coban Cangu, which is located in the Pacet area, Mojokerto Regency.

Coban Cangu is known to have a unique attraction in the form of beautiful waterfall views, fairly good accessibility, and a natural atmosphere rarely found in other destinations. Coban Cangu, located in the nature tourism area of Mojokerto Regency, has an excellent opportunity to increase the prestige of regional tourism. The development of tourism can influence an increase in the regional economy (Wibowo et al., 2017). The high number of Tourist Objects and Attractions (ODTW) will improve welfare and efforts to maintain nature itself (Asmin, 2018). However, like other natural tourist destinations, management and marketing strategies are the main challenges in maintaining tourist attractions while maintaining the sustainability of its ecosystem. Therefore, it is essential to conduct a strategic study of the potential challenges Coban Cangu faces so that this destination can be optimally developed.

In developing tourist destinations such as Coban Cangu, a data-based approach is needed to evaluate the potential of tourist attractions and how their management can support sustainable tourism development. One approach that can be used is the ADO-ODTWA method (Analysis of Natural Tourist Objects and Attraction Operation Areas). This method evaluates attractions, determines development priorities, and optimizes tourist destination management based on qualitative and quantitative data.

The ADO-ODTWA method has been widely used to analyze nature tourist destinations with various characteristics, ranging from facility management to marketing strategies based on market needs. ODTWA is an aspect of facilities or activities that attract tourists (Kusudianto, 1996). In the context of Coban Cangu, this method is expected to provide strategic recommendations that not only focus on increasing the number of tourist visits but also on environmental sustainability and economic benefits for the surrounding community. The problems encountered in the Coban Cangu area concern supporting infrastructure, such as parking and cleaning facilities, which are inadequate, and the lack of adequate promotion makes this destination less well-known to domestic and international tourists. In addition, there is potential for tourist attractions that have not been maximized, for example, in terms of developing additional attractions or attractive tour packages. This condition can threaten the sustainability of tourist attractions owing to unstable tourist visits (Lestari et al., 2023). In addition, there is a threat to environmental sustainability owing to the lack of visitor awareness of the importance of maintaining the ecosystem. Globally, millions of people travel to experience natural attractions, which threatens and damages (Deng & Bauer, 2002). Natural resources that are under pressure are vulnerable to environmental damage therefore, relevant interventions or strategies are needed to sustainably protect and manage the natural conditions of tourist attractions sustainably (Butt et al., 2018).

This study focuses on analyzing the potential for tourist attractions in Coban Cangu, the development of supporting facilities and infrastructure, and marketing strategies that can increase the competitiveness of this destination. The discussion is carried out through a multidimensional approach that measures quantitative aspects of secondary data in the form of physical and socioeconomic conditions of the Coban Cangu area and qualitative elements in the form of assessments from visitors and local tourism managers.

Previous research has shown that the ADO-ODTWA method can be used in the context of managing natural tourist destinations. For example, identification elements of tourist attraction in the Gunung Pandan natural bathing area in Aceh Tamiang Regency using this approach. Another study showed that the ADO-ODTWA method was effective in assessing the potential of marine island tourism destinations on Maratua Island, the Berau Regency, and East Kalimantan (Setyasih, 2021). Additionally, many researchers abroad have conducted assessments of similar shapes to determine and evaluate natural and cultural tourism destinations. Environmental-based assessments of tourism objects have been widely conducted in various countries. An ecosystem assessment in the coastal tourist area of Jiaozhou Bay, China, was conducted to measure the impact of the ecosystem on tourism activities. (Shengrui et al., 2024). There is also an assessment of tourism resilience based on the socio-ecological tourism system in the Xinjiang desert region, of China (Wang et al., 2024), and a case study of community-based indigenous tourism identification from the Khokana Newars Culture of Nepal (Shrestha et al., 2025).

Several studies have been conducted at the Coban Cangu tourist attraction, including a market analysis for promotion and development (Murtiningrum & Fitriyah, 2024), resource utilization strategies (Dwi Kristanti & Usrotin Choiriyah, 2022), tourist growth factors (Gustin & Koswara, 2018), and pro-environmental tourism in Padusan Village (Insani, N., et al. 2024). However, no comprehensive assessment of Coban Cangu has been conducted yet. This creates a research gap that needs to be filled with a more specific study of the potential and challenges of this tourist destination. In this process, cooperation between all related parties and empowerment of existing human resources are needed to improve existing infrastructure and access (Badarab et al., 2017).

This study analyzes the potential and development strategy of Coban Cangu tourism in Mojokerto Regency using the ADO-ODTWA method. This method evaluates tourist attractions, infrastructure development needs, and the optimization of sustainability-based management. Coban Cangu, with its

beautiful waterfalls and natural beauty, has excellent potential, but faces challenges in managing facilities, accessibility, and promotion. This study identifies the main elements of attraction, evaluates development constraints, and provides strategic recommendations to support sustainable tourism management. During the research, the authors affirm that they have no affiliations or involvement with any organization or entity that would have a financial interest in the subject matter or materials discussed in this manuscript.

The main objective of this study is to evaluate tourist attractions and provide recommendations for improving the underdeveloped aspects to enhance the competitiveness of Coban Canggu as a leading tourist destination in East Java. To develop nature tourism attractions, it is necessary to formulate the right strategy for the sustainability of existing biodiversity (Pramono et al., 2022). The results are expected to guide the government and tourism managers in optimally developing Coban Canggu while maintaining the natural beauty and sustainability of its environment. With this analysis, Coban Canggu can become a more competitive and, sustainable tourism destination a positive impact on the local community.

## 2. Method

This research was conducted at the Coban Canggu Waterfall Natural Tourism Object, located in Pacet Village, Pacet District, Mojokerto Regency, East Java. Pacet Village is located at an altitude of 590 m and covers an area of 3.32 km, which is approximately 6.11% of the total area of the Pacet District (Figure 1). The Coban Canggu Waterfall Object is still included in the Padusan hot water tourism forest area, Pacet District. The research activities were conducted between May and October 2024.

The materials and tools used in this study were the ADO-ODTWA Guidelines from the Director General of PHKA in 2003, a questionnaire for visitors and tourism managers, stationery, cameras, Global Positioning System (GPS), administrative maps, SHP DEMNAS, laptop devices, and software such as ArcGIS and Microsoft Office.

This study combined qualitative and quantitative descriptive methods through field surveys (Anjani et al., 2024). Data recapitulation was performed through field observations and secondary data. In direct observational research of Coban Canggu, the source population was taken, which was limited only to the Coban Canggu tourist area. The data collection was carried out using a random sampling technique, with questionnaires, with 40 visitors and one respondent from the Coban Canggu management. Field surveys are essential to verify the actual conditions of the field and to analyze respondents' opinions through questionnaires. A Likert scale was used to assess the questions given to the tourists and managers, as shown in Table 1.

**Table 1.** Likert Scale of tourist and research subjects in Coban Canggu

Score	Assessment
1	Strongly Disagree
2	Disagree
3	Agree
4	Strongly Agree

Source: (Sugiyono, 2016)

Secondary data were also obtained from the Department of Culture, Youth, Sports and Tourism (Disbudporapar) of Mojokerto Regency, the BPS of Mojokerto Regency and East Java, Digital Elevation Model (DEM) base maps from the Geospatial Information Agency (BIG), and related journal literature studies, including a literature review. Data collection from secondary data was conducted by gathering remote sensing data on slope gradients, local socio-economic statistical data, regional carrying capacity, and previous research references.

The research analysis process used a scoring and weighting method based on the ADO-ODTWA (Analysis of Operational Areas of Nature Tourism Objects and Attractions) guidelines designed by the Directorate General of Forest Protection and Nature Conservation of the Ministry of Forestry (PHKA) in 2003. The analysis process is crucial for research processing activities (Sun et al., 2020). This analysis from the Ministry of Forestry of the Republic of Indonesia was used to assess and recapitulate the priority scale of the qualitative and quantitative elements of a natural tourism object (Setyasih, 2021).

Scoring was used to analyze the condition of the tourist object and the priority scale for further development. Aspects assessed based on the ADO-ODTWA Guidelines include land tourism attractions, market potential, level of relationship/accessibility, conditions of the area surroundings, management and services, climate, accommodation, visitor facilities and infrastructure, availability of clean water, relationships with surrounding tourist objects, security, area support capacity, visitor regulations, marketing and market

share. Nine aspects were considered in the study, 9 (Nine) aspects were taken which were considered to have a more significant influence. According to (Scott et al., 2008), such as tourist attractions, aim to sell value to visitors, service facilities from tourist attraction managers to visitors, accommodation that provides comfort, accessibility to tourist locations, and other factors to support the needs and safety of visitors. The ADO ODTWA indicators and variables used are shown in Table 2.

**Table 2.** Variable of ADO ODTWA Research Procedure

<b>Indicator</b>	<b>Variable</b>
Attractiveness	Natural beauty, Uniqueness, Variety of resources, Integrity of natural resources, Sensitivity of natural resources, Cleanliness, Safety, Types of tourism activities
Accessibility	Road conditions and distance from provincial capital, Travel time from provincial capital, International airport proximity, Frequency of public transport
Conditions Around the Area	Spatial planning compliance, Unemployment rate, Livelihood of residents, Visitor movement area, Education level, Soil fertility, Community response, Natural resource potential
Accommodation	Number of rooms available
Management and Services	Management execution and planning, Language skills, Visitor service quality
Facilities and Infrastructure	Availability of restaurants, sanitary facilities, souvenir shops, worship places, Road conditions, Parking areas, Electricity networks
Water Supply	Volume, Distance from source to site, Ease of water delivery, Water portability
Market Share	Visitor origin, Education level, Occupation
Safety	Visitor safety, Fire hazards, Illegal logging, Illegal land use

**Source:** Direktorat Jenderal Perlindungan Hutan dan Konservasi Alam, (2003)

The calculation of the ADO-ODTWA method itself uses the equation:

$$S = N \times B$$

Description:

S = Criteria Value

N = Total value of criteria elements

B = Weight of quality of criteria value

After tabulating the data according to the parameters and weights based on the 2003 PHKA Directorate Guidelines, the final results of the value recapitulation are obtained, which describe the ADO-ODTWA value classification standards with the specified criteria. The index standards that were set based on the ADO-ODTWA guidelines are listed in Table 3:

**Table 3.** Eligibility Range

<b>No</b>	<b>Percentage (%)</b>	<b>Description</b>
1	>66,6%	Feasible for Development
2	33,3 – 66,6 %	Not yet feasible for Development
3	<33,3%	Not feasible for Development

**Source:** Direktorat Jenderal Perlindungan Hutan dan Konservasi Alam, (2003).

The results of this study will be considered in the further development of natural tourism.

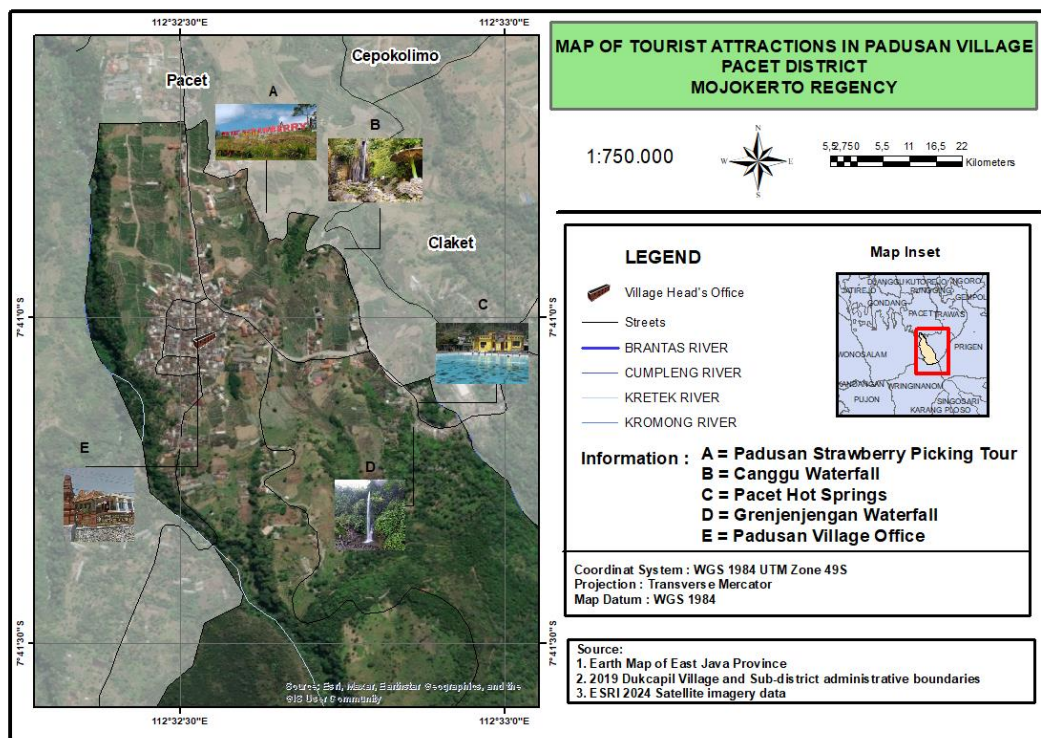


Figure 1. Research location map of Coban Canggu Area

### 3. Results and Discussion

The research areas Pacet Village, Pacet District, and Mojokerto Regency. Pacet Village is one of the villages in the highlands at the foot of Mount Welirang, which is astronomically located at  $-7^{\circ} 68' 18''$  South Latitude and  $112^{\circ} 54' 66''$  east. Pacet Village borders Sajen Village in the west, Claket Village, Cempokolimo, the forest area in the east, Petak Village in the north, Mount Welirang forest area in the south. Pacet District has 20 villages. This waterfall remains in the Padusan Hot Spring Tourism Forest Area, which is a natural hot spring tourism complex. The height of the waterfall reached 80 m.

The population of Pacet Village in 2024 is 6,665 people, and it is the village with the largest population in the Pacet District. The distance from the Pacet District Office is only approximately 2 km, and Petak Village is located north of Pacet Village. The population density was approximately 2007.53, with a sex ratio of 102. The average income sector of the population consists of farmers.

The tourism potential in Pacet Village, which is part of the Pacet District, is already well-known and has become a prima donna tourist attraction in Mojokerto Regency and, in general, East Java Province. The existence of natural and artificial tourist attractions and culture makes this area a tourist destination and a location that actively contributes to the original regional income (PAD) of the tourism sector in Mojokerto Regency.

#### 3.1 Attraction

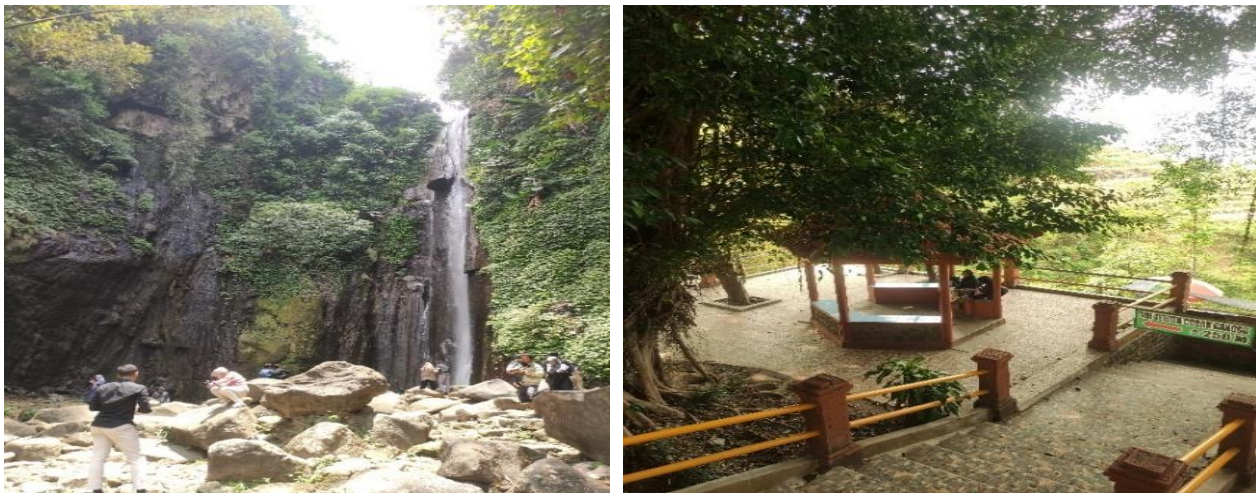
One of the initial aspects of the ADO-ODTWA is the attraction of tourist attraction. Tourist attractions are the main component that attracts tourists (Suwena, 2010). Tourist attractions are also a form of facility and activity that attracts tourists (Marpaung, 2002). This indicator plays a crucial role in supporting the operation of tourism businesses, as they serve as key destinations for travelers. The absence of attractions in a tourist destination will certainly not be able to provide services to tourists (Spillane, 1991).

**Table 4.** Assessment of Coban Cangu Tourism Attraction Components

No.	Element/Sub-element	Description	Weight	Value	Score Total
1	Natural Beauty	Outlook, variety, harmony object environment	6	30	180
2	Resource Uniqueness Nature	Waterfall, flora and fauna	6	15	90
3	The many types of Natural Resources that Stand out	Rocks, flora and fauna, water, natural phenomena	6	30	180
4	Resource Integrity Nature	Rocks, flora and fauna, ecosystems, environmental conditions	6	30	180
5	Resource Sensitivity Nature	Rocks, flora fauna, erosion, ecosystem	6	30	180
6	Site cleanliness (Unaffected of)	Vehicles, settlements, animals bully, industry	6	15	90
7	Regional Security	Dangerous sites, nuisance animals, fires, social disturbances, illegal logging	6	20	120
8	Type of Nature Tourism Activity	Education, Tracking	6	30	180
<b>Total Score Attractiveness</b>				<b>200</b>	<b>1200</b>

**Source:** Results of Research Data Processing (2024)

Coban Cangu scored 1,200 out of a maximum of 1,440 with a potential index of 83.3%. This figure indicates a strong tourist attraction, especially in terms of natural beauty, uniqueness of resources, and the variety of natural tourism activities. Figure 2 shows the current condition of Coban Cangu natural tourism.



**Figure 2.** The waterfall landscape of Coban Cangu and the facilities of the waterfall location

**Source:** Research Documentation, 2024

According to (Insani, N. et al., 2024), the low level of natural disaster risk, especially in Padusan Village where Coban Cangu is located, is due to the community empowerment and agroforestry strategies in collaboration with the local government and related parties. Aspects such as scenic beauty, integrity of natural resources, and ecosystems had the highest scores. The uniqueness of tourist attractions is related to the high score of tourist attractions, comparison, research from (Kurniawati et al., 2022) Shows a comparison of the appeal between several tourist attractions in Mojokerto Regency, such as Sendi Adventure, Akar Seribu, and Ranu Manduro. The uniqueness of the Akar Seribu tourist attraction makes it score high. This is because the natural conditions of Coban Cangu are maintained even though the land has been used in the form of agricultural fields and plantations around it. However, in terms of location cleanliness and security,

improvements are still required to support the overall appeal. Cleanliness at the Coban Cunggu tourist attraction is not well maintained because of the large number of visitors, lack of trash bins in the waterfall valley, and lack of management intervention. The quality of Coban Cunggu as a tourist attraction can affect the interest and repetition of a tourist to come back (Brahmanto et al., 2017).

### 3.2 Accessibility

Accessibility is an essential aspect in supporting the affordability of development and the development of a tourist attraction. Accessibility ensures the flow of goods distribution and the ease with which people obtain the benefits of a tourist attraction (Gillovic & McIntosh, 2020). Tourist attractions are the endpoints of tourism activities that should meet the requirements of adequate accessibility. In addition, tourist attractions must pay attention to the quality of their environment (Kasim et al., 2022). Available access provides convenience and effectiveness for visiting tourist attractions (Sidqi et al., 2022). The accessibility aspect of Coban Cunggu was 700 of 900 (77.7%).

**Table 5.** Coban Cunggu Accessibility Component Assessment

No.	Element/Sub-element	Description	Weight	Value	Total Score
1	Road Condition and Distance from Provincial Capital	Fair (<75 Km)	5	60	300
2	Travel time from the capital city Province	1-2 Hours	5	30	150
3	Air Gate International	Denpasar (301-450 Km)	5	20	100
4	Frequency of Public Vehicles (Fruit/day)	>50	5	30	150
<b>Total Score Attractiveness</b>				<b>140</b>	<b>700</b>

Source: Results of Research Data Processing (2024)



**Figure 3.** Condition of the road entering the Padusan Pacet Tourism Area  
Source: Research Documentation, 2024

Easy and fast accessibility affect the good score. The location of an object and travel time are important factors tourists visit (Ginting et al., 2013). As a comparison, accessibility assessment in the Tanjung Ngalo area, West Sulawesi, which is not long from the capital city of Mamuju and has access to the local airport, correlates with the high accessibility element (Ritabulan et al., 2024). The accessibility of Coban Cunggu is quite good. Figure 3 shows the access road to the natural tourist area, which is well-guarded. The proximity of distance and travel time from the provincial capital is the main advantage. The distance from the capital of Mojokerto Regency to the location of the tourist attraction in Pacet Village is approximately 58 minutes by car and about 1 h 43 minutes from the provincial capital of Surabaya, the airport center, and other main transportation facilities. The existing road to Pacet District is also generally in good condition. This condition is appropriate because the ease of access from the existing airport attracts visitors (Saut & song, 2022). The popularity of the Pacet District as a natural tourist destination and hot spring attracts many visitors every year, with the cumulative number of visitors in 2023 to Coban Cunggu being 19,675 tourists. A large number of

tourists automatically increases the frequency of public transportation, which shows that access to this location is considered good.

### 3.3 Conditions Around the Area

**Table 6.** Component Assessment of Conditions Surrounding the Coban Canggung Area

No.	Element/Sub-element	Description	Weight	Value	Total Score
1	Regional Spatial Object	Existing and appropriate	5	30	150
2	Unemployment Rate	<5%	5	15	75
3	Livelihood Residents	Farmer/fisherman	5	20	100
4	Visitor Movement Space (a)	<30 ha	5	10	50
5	Education	Most graduated from high school Upwards	5	30	150
6	Soil Fertility Level	Fertile	5	20	100
7	Community Response	Support	5	25	125
8	Natural Resources	Highly Potential	5	10	50
<b>Total Score Attractiveness</b>				<b>160</b>	<b>800</b>

Source: Results of Research Data Processing (2024)

The surrounding conditions of the Coban Canggung natural tourist attraction area were 800 out of 1200 with a potential index of 66.66% (Table 6). Coban Canggung, which is located between Padusan and Pacet Villages which are included in the Pacet District, Mojokerto Regency, is a plantation/secondary crop area in the highlands. The community mostly works as farmers, livestock breeders, and tourism business actors who support tourist activities, such as lodging/villa businesses. Based on data from the Central Statistics Agency (BPS) of Mojokerto Regency for 2024, Mojokerto Regency has an unemployment rate of 3.87% (<5%) (BPS Mojokerto, 2024). Meanwhile, the majority of education levels were high school graduates (SMA): at 37.07%. In the social field, active involvement of the younger generation is an important component of comprehensive development (Azmi et al., 2024). In addition, fostering youth participation is very important because it ensures the protection of human rights, improvement of efficient and high-quality public services, and realization of the benefits of social progress (Head, B. W, 2011). The results of distributing questionnaires to visitors to Coban Canggung were similar. Padusan Village in the Pacet District itself is a prime tourist location in the highlands of the Mojokerto Regency. The formation of a good market ecosystem has made the surrounding community support tourism activities one of which is Coban Canggung. Good acceptance of the local community resulted in a high score. Openness and support from the local community can make the management of tourist areas successful (Purwanto et al., 2014). In the end, the involvement of the community in protecting the environment indicates the success of nature conservation (McKinnon et al., 1990).

### 3.4 Accommodation

**Table 7.** Coban Canggung Accommodation Component Assessment

No.	Element/Sub-element	Description	Weight	Value	Score Total
1	Number of Rooms	>100	3	30	90
<b>Total Score Attractiveness</b>				<b>30</b>	<b>90</b>

Source: Results of Research Data Processing (2024)

The Coban Canggung accommodation shows optimal results, with a maximum score of 90 out of 90 (Table 7). This indicates the availability of adequate accommodation facilities to support tourism. Based on data from the BPS Mojokerto Regency in 2024 and 2023, in Pacet District, there are five hotels with 189 rooms and 193 beds. In addition, the number of villas or lodgings is spread across many areas of the Pacet and Padusan Villages located around Coban Canggung, which are managed by the surrounding community. The existence of adequate and representative accommodation enables the accommodation assessment index to be fulfilled



automatically. Research by (Ritabulan et al., 2023) Explains that the existence of accommodations such as homestays, inns, and hotels affects the high and low potential of tourist attraction accommodation. The aspect of accommodation as a place to rest and stop for tourists is crucial, so the community needs to be involved in it (Budiani et al., 2018). Adequate room capacity is the main advantage in accommodating the needs of tourists, both individuals and groups. Even though it has reached its maximum value, further development can still be done, for example, by increasing the variety of facilities or providing thematic accommodation to attract more visitors.

### 3.5 Management and Services

**Table 8.** Assessment of Management and Service Components of Coban Canggu

No.	Element/Sub-element	Description	Weight	Value	Score Total
1	Management	Implementation, object planning	4	20	80
2	Language Skills	Local Language, Indonesian	4	15	60
3	Visitor Services	Friendliness, readiness, communication	4	25	100
<b>Total Score Attractiveness</b>				<b>60</b>	<b>240</b>

**Source:** Results of Research Data Processing (2024)

Management and services play functional roles in the management and existence of sustainable tourist attractions. The aspect of service to visitors is the main factor in the satisfaction of visitors who come to visit (Saptaria & Astuti, 2020). Visitor satisfaction can be achieved if efforts and strategies are made to meet visitors' needs and comfort (Fennell, 2002). The management and service of the Coban Canggu tourist attraction scored 240 out of 360 (66.6%). In management and services, active cooperation is required between various parties. Based on (Anjani et al., 2024), active collaboration between the local government and community supports the operation of tourism object management. Services to visitors, such as friendliness and communication, showed promising results; however, foreign language skills were still limited. Conservation managers of existing natural tourist attractions are expected to promote their characteristics and uniqueness to the community without forgetting the prerequisites for natural areas to remain protected (Sekartjakrarini, 2009). Improving foreign language skills can be a strategic step toward increasing competitiveness. In addition the improvement of interactive information in the future is a very important step toward improving the relationship between tourists and managers. Clear and credible information technology describes the quality of a tourism destination (Winowatan et al., 2024).

### 3.6 Facilities and Infrastructure

**Table 9.** Component Assessment of Coban Canggu facilities and infrastructure

No.	Element/Sub Elements	Description	Weight	Value	Score Total
1	Means	Restaurant, restrooms, toilets, Souvenir stalls, prayer room, etc.	3	30	90
2	Infrastructure	Road, parking lot, power grid	3	25	75
<b>Total Score Attractiveness</b>				<b>55</b>	<b>165</b>

**Source:** Results of Research Data Processing (2024)

The facilities and infrastructure aspects recorded a score of 165 out of a maximum value of 180, with a potential index of 91.6% (Table 9). Basic facilities, such as food stalls, souvenir kiosks, public toilets, and places of worship are available to meet the needs of visitors. Food and beverage kiosks provide light to heavy meals that are sold, especially on weekends. There is a parking area with a parking rate of IDR 2,000 for motorbikes and IDR 5,000 for cars. The parking lot was built next to the entrance in a tiered manner using steel frames. Infrastructure, such as roads, parking areas, and electricity networks, also support tourism activities, although there is room for improvement.



**Figure 4.** Facilities and vendor stands at the waterfall location  
**Source:** Research Documentation, 2024

The existence of adequate support facilities and infrastructure makes the infrastructure and facilities score high. Based on research by Duby (2022), the existence of supporting facilities around Semongkat Natural Tourism Park indicates that tourist attractions are adequate to support tourist attraction activities (For et al., 2022). Facilities and infrastructure are essential parts of a tourist attraction. Infrastructure plays a strategic role in the sustainability and continuity of tourism (Gedecho & Guangul, 2017). Well-developed infrastructure and effective transportation system contribute to a smooth tourism experience (Xu et al., 2023). Improving the quality of road access, more efficient parking management, and the electricity network in strategic areas can be the development steps to improve the quality of tourism services in Coban Cangu.

### 3.7 Availability of Clean Water

**Table 10.** Component Assessment of Clean Water Availability of Coban Cangu

No.	Element/Sub-element	Description	Weight	Value	Score Total
1	Volume	Pretty much	6	25	150
2	Clean Water Location Distance to Object	>4 km	6	15	90
3	Whether or not water can be delivered to the object	Easy	6	25	150
4	Consumability	Not worth it	6	5	30
<b>Total Score Attractiveness</b>				<b>70</b>	<b>420</b>

**Source:** Results of Research Data Processing (2024)

The availability of clean water is one aspect that requires more attention, with a score of 420 out of 900 (46.6%) (Tbale 10). Clean water is an essential factor for managing an object and its services (Cole & Browne, 2015). Clean water is required or various activities. To support tourists' needs for various activities is essential, based on ecotourism research in the Tanjung Rappa, West Halmahera Regency (Ismail et al., 2023). At the Coban Cangu tourist attraction, clean water is channeled to the toilets located above the entrance and the waterfall valley, which are also in poor condition and have received little attention from management. Figure 5 shows the conditions of toilet facilities that distribute clean water in need of improvement.



**Figure 5.** Facilities of toilets at the waterfall location  
**Source:** Research Documentation, 2024

There is also no clean drinking water available throughout the Coban Canggung facility area. Clean water is channeled more than 4 km from a water source located at the foot of the mountain around the Padusan Tourism Forest. The distance of the water source and the suitability of consumption are the main obstacles that influence this assessment; therefore, improving clean water infrastructure must be a development priority.

### 3.8 Market Share

**Table 11.** Coban Canggung market share component assessment

No.	Element/Sub-element	Description	Weight	Value	Score Total
1	Visitor Origin	Wisnus (outside the district)	3	25	75
2	Education Level	Senior High School	3	25	75
3	Livelihood	Self-employed	3	30	90
<b>Total Score Attractiveness</b>				<b>80</b>	<b>240</b>

**Source:** Results of Research Data Processing (2024)

The Coban Canggung market share component has a score of 240 out of 270, with a potential index of 88.8% (Table 11). This reflects a reasonably high attraction for tourists, especially local tourists from outside Mojokerto Regency. The value of marketing and tourism promotion is due to the development of the local government. According to (Murtiningrum & Fitriyah, 2024), the promotion and marketing carried out by the Mojokerto Regency Government through the Mojokerto Regency Culture, Youth, Sports, and Tourism Office has implemented five strategies in the form of indicators, namely advertising, sales promotion, public relations and publicity, personal sales, and direct marketing, to increase the prestige of existing tourist attractions. In 2022 and 2023, the number of visitors to Coban Canggung increased. In 2022, there were 11,797 visitors, and in 2023, the number increased to 19,675 visitors. Relaxation and the decline in the spread of COVID-19 had a positive impact on the increase in the number of visits to Coban Canggung. The visitor profile mainly consists of those with high school education and a background as entrepreneurs, which shows the potential for further development through promotions targeting this market segment.

Currently, the local government's promotion activities for Coban Canggung are still doing the same thing; only adjustments have been made based on government policies and the end of the Covid 19 restriction period. Additionally, market diversification strategies can be considered to attract tourists with more diverse profiles, including foreign tourists. Tourism management can function as an information provider and promoter of the existing tourism potential (Saepudin et al., 2019). Promotion is undoubtedly carried out to increase the prestige or popularity of tourist attractions in the broader community (Andhika, 2019).

### 3.9 Security

**Table 12.** Coban Canggung safety component assessment

No.	Element/Sub-element	Description	Weight	Value	Score Total
1	Visitor Safety	No nuisance animals or dangerous sites. public order disturbances, free trust (disruptive)	5	30	150
2	Fire (based on cause)	Nature	5	15	75
3	Illegal logging (for necessity)	On your own	5	15	75
4	Illegal encroachment (land use)	Sedentary field	5	30	150
<b>Skor Total Daya Tarik</b>				<b>90</b>	<b>450</b>

**Source:** Results of Research Data Processing (2024)

The security of the Coban Canggung area was 450 of a maximum value of 600, with a potential index of 75% (Table 12). Visitor safety factors, such as minimal disturbances from wild animals and dangerous sites, are strong points. However, several aspects, such as the threat of natural fires and illegal logging activities, remain significant concerns. Figure 6 shows one of the boards warning visitors to the Canggung Waterfall about the danger of flooding and protecting the natural environment.



**Figure 6.** Danger warning board at the waterfall location  
**Source:** Research Documentation, 2024

The creation of security and conduciveness of tourist attractions are crucial. The fulfillment of security elements will support the maintenance of the tourist attraction market and the continuity of visitor entry. (Susana et al., 2020). The risk of accidents and fires can threaten tourists who visit a tourist attraction (Suharto, 2016). Human error is the biggest cause of fires, which results in damage to the ecology and also human life (Hasna et al., 2023). The Coban Cangu tourist attraction is flanked by agricultural and plantation lands in the form of rice fields and banana plants. Increasing population growth can encourage people around an object to encroach on the surrounding forest and convert land into agricultural land (Budiman et al., 2018). Landslide factors also have quite a threatening potential, considering the steepness of the waterfall formation and the slope, which is classified as very steep (> 45%). To improve security, more intensive supervision of potential hazards is needed, as well as education of the local community regarding the importance of maintaining environmental stability and security of the tourist area. Good security factors can make tourists feel safe and comfortable visiting a destination (Syahadat, 2005). The presence of communities involved in managing natural resources can also minimize the impact and vulnerability to natural disasters or threats (Findayani et al., 2024).

Based on the evaluation results which is displayed in Table 13., the Coban Cangu tourist attraction received a total score of 4,380 of 5,940, with a value index of 73.7%. This figure places this tourist attraction in the category of worthy of development (>66.6%). Future development should focus on increasing the promotion of international tourists, managing clean water sources, and optimizing support facilities to strengthen the competitiveness of Coban Cangu as a major tourist destination.

**Table 13.** Recapitulation of ADO Value of ODTWA Coban Cangu

No.	Assessment Criteria	Maximum Value Potential ODTWA	ODTWA Potential Value	Potential Value Index (%)
1	Attraction of Tourism Objects	1440	1200	83,3
2	Accessibility	900	700	77,7
3	Conditions Surrounding the Area	1200	800	66,6
4	Accommodation	90	90	100
5	Service Management	360	240	66,6
6	Infrastructure Facilities	180	165	91,6
7	Clean water availability	900	420	46,6
8	Market Share	270	240	88,8
9	Security	600	450	75
<b>Total</b>		<b>5.940</b>	<b>4.380</b>	<b>73,7%</b>
<b>The scoring results show that Coban Cangu has a feasible value to be developed (73.7%) because it is in the class &gt;66.6%.</b>				

**Source:** Results of Research Data Processing (2024)

Research conducted in Coban Cangu on the study of natural tourist attractions in the form of waterfalls is expected to contribute to the development of natural tourist attractions in the context of the environment, tourists, and management. This research is expected to be an example of a comprehensive physically and socially research application in terms of spatial tourism. However, there is still much room for improvement in future research, in terms of theory, analytics, and research scope.

#### 4. Conclusion

This study aimed to evaluate the potential of Coban Cangu as a natural tourism destination in the Mojokerto Regency using the ADO-ODTWA method. The research assessed various aspects, such as attraction, accessibility, accommodation, infrastructure, management, market share, clean water availability, and security. The findings revealed that Coban Cangu achieved a feasibility index of 73.7%, classifying it as highly suitable for development. The key strengths include its natural beauty, diverse tourism activities, good accessibility, and sufficient accommodation, whereas the main challenges include inadequate clean water supply, suboptimal cleanliness, and weak management practices.

These findings have important implications for regional tourism development. Strengthening infrastructure, improving waste management, and enhancing promotional strategies can significantly boost the competitiveness of Cangu. Optimizing management practices and ensuring environmental sustainability are crucial for maintaining long-term tourism viability. The study also highlights the need for collaboration between local authorities, tourism managers, and the community to enhance visitor experiences while preserving the site's ecological and cultural values.

Future research, should conduct a more in-depth analysis of visitor preferences and behavior to design tailored tourism packages. Additionally, exploring sustainable water management solutions and evaluating the economic impact of tourism on local communities can provide valuable insights for further development. Strengthening digital marketing strategies and incorporating eco-friendly tourism initiatives would also be beneficial for making Coban Cangu a leading natural tourism destination in East Java.

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