Strategy for Developing Seribu Goa Ecotourism in Banuarea Village: A 4A Assessment and Community Participation

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Abstract *: Seribu Goa Ecotourism in Banuarea Village, Humbang Hasundutan Regency, is a karst destination whose development is held back by access, facilities, institutions, and limited community decision power. This study assesses the feasibility of attractions, amenities, and accessibility, describes ancillary services, identifies the level of community participation on Arnstein's ladder, and formulates a development strategy. A descriptive qualitative design used observation, interviews with 10 informants, documentation, and SWOT assessment sheets completed by 20 participants. The ADO-ODTWA guideline gives an overall feasibility index of 73.48%: attractions 80.56%, amenities 70.00%, and accessibility 62.50%, the only component not yet feasible. Ancillary services have an institutional base but lack capacity, funding, and partnerships. Participation reaches the partnership rung, while strategic authority stays with government. The SWOT position (-0.22; 0.03) falls in quadrant II, which favours a weakness-opportunity strategy: better access, amenities, digital promotion, an area map, Pokdarwis capacity, and wider partnerships. The strategy aims at quality and conservation, not visitor growth.*

Keywords *: ecotourism; 4A; community participation; SWOT; Seribu Goa; Humbang Hasundutan*

Abstrak : Ekowisata Seribu Goa di Desa Banuarea, Kabupaten Humbang Hasundutan, adalah destinasi karst yang terkendala aksesibilitas, amenitas, kelembagaan, dan terbatasnya kewenangan masyarakat. Penelitian ini menilai kelayakan attractions, amenities, dan accessibility, mendeskripsikan ancillary, mengidentifikasi partisipasi masyarakat menurut tangga Arnstein, dan merumuskan strategi pengembangan. Data kualitatif deskriptif berasal dari observasi, wawancara dengan 10 informan, dokumentasi, dan lembar penilaian SWOT yang diisi 20 partisipan. Berdasarkan ADO-ODTWA, indeks kelayakan keseluruhan sebesar 73,48%: daya tarik 80,56%, amenitas 70,00%, dan aksesibilitas 62,50%, satu-satunya komponen yang belum layak. Ancillary telah memiliki dasar kelembagaan, tetapi lemah dalam kapasitas, pendanaan, dan kemitraan. Partisipasi masyarakat berada pada tingkat kemitraan, sedangkan kewenangan strategis masih pada pemerintah. Posisi SWOT (-0,22; 0,03) berada di Kuadran II sehingga strategi Weakness-Opportunity (WO) dipilih: perbaikan akses, amenitas, promosi digital, peta kawasan, kapasitas Pokdarwis, dan kemitraan.

Kata Kunci : ekowisata; 4A; partisipasi masyarakat; SWOT; Seribu Goa

INTRODUCTION

Indonesian tourism policy no longer rests on visitor counts alone. Law Number 10 of 2009 requires tourism development to be planned, integrated, sustainable, and responsible (Republik

Indonesia, 2009). Under this approach, a destination is judged by the quality of the visitor experience, the care taken of the environment, and the benefit that reaches local people. These criteria weigh more in ecotourism, where the natural setting is both the product and the asset at risk.

Seribu Goa (Thousand Caves) lies in Banuarea Village, Pakkat District, Humbang Hasundutan Regency, within the Lake Toba area of North Sumatra. The site is a karst landscape of natural caves, an underground river, waterfalls, rock formations, and forested hills. A member of the local tourism awareness group (*Kelompok Sadar Wisata*, Pokdarwis) reported that the area holds thousands of caves, of which only some have been studied and can be visited, among them Dolok Pinapan, Rahar Niapi, Saba Gotting, Air Terjun Si Joi, Liang Godang, Liang Torus, and Lobu Ginjang. Five of them lie close together and receive most visitors. Caves react to human activity, so opening all of them would not suit the site. Some can stay closed for reasons of safety, conservation, research, and ecosystem protection.

Recorded visits rose from 1,506 in 2020 to 3,411 in 2023 and fell to 1,202 in 2025 (Table 1). We do not read these counts as a measure of success or failure. In ecotourism, visitor numbers should match the carrying capacity of the area, and a quality-tourism view puts experience, safety, environmental protection, and fair local benefit first. The question for Seribu Goa is therefore how the destination is governed.

Table 1. Visits to Seribu Goa, 2020–2025

Year	Domestic	Foreign	Total
2020	1,500	6	1,506
2021	2,000	14	2,014
2022	3,000	9	3,009
2023	3,400	11	3,411
2024	3,100	3	3,103
2025	1,200	2	1,202

Source: Banuarea Village Office, Pakkat District, 2026.

A preliminary survey found problems in four areas. The road from the sub-district centre runs about 14 km, and about 7 km of it is broken and potholed. Footpaths from the parking area to some caves are rocky or clay and turn slippery in rain. Basic facilities such as toilets, water points, an information point, and waste bins were limited. The Pokdarwis has a founding decree, but members are unevenly active, tasks are not fully assigned, and programmes run inconsistently, so local involvement has not yet become organised collective action.

The 4A framework gives a structured way to read these conditions. Cooper et al. (2008) argue that a destination needs adequate attractions, amenities, accessibility, and ancillary services, the last being the institutional support that organises the destination. For natural attractions, the ADO-ODTWA guideline of the Directorate General of Forest Protection and Nature Conservation (2003) provides scored criteria that classify an area by its feasibility for development.

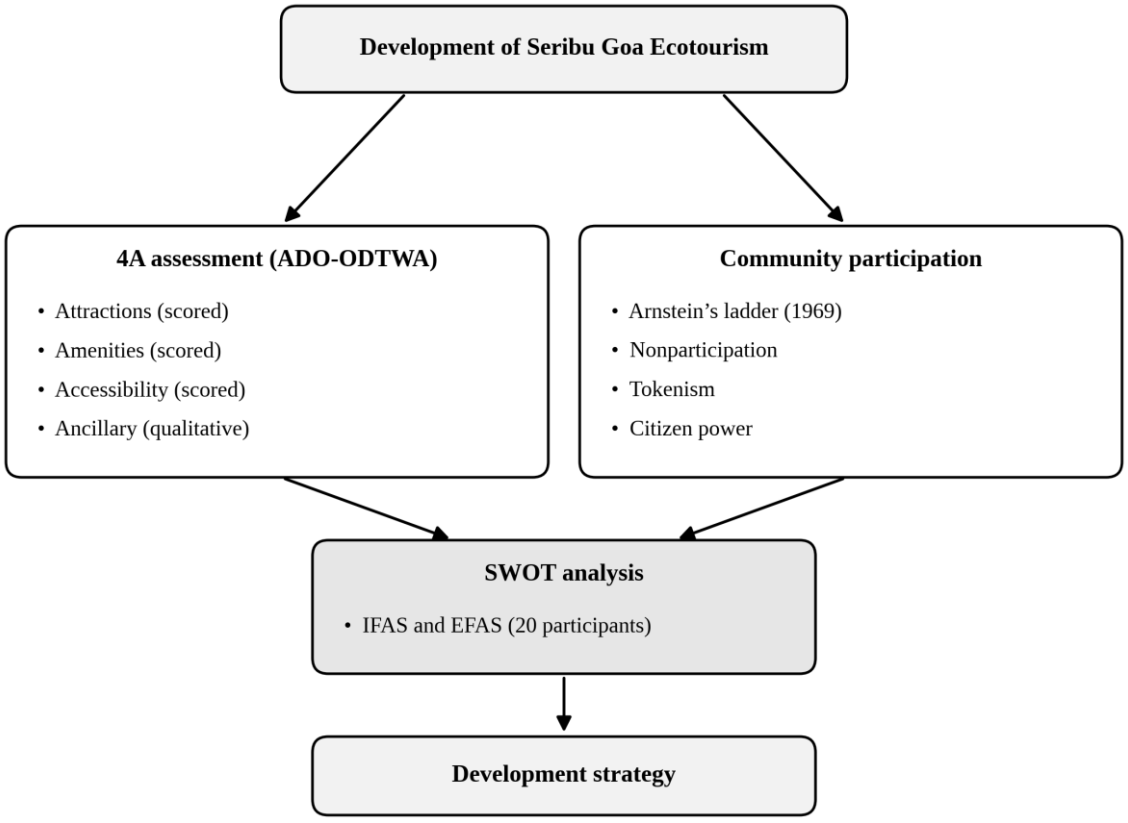
Studies of Indonesian ecotourism usually pair SWOT with qualitative description. Sirojuddin et al. (2024) found that self-help solidarity and multi-party partnerships supported a mangrove destination in Pati, while weak human resource management and uncertain land status held it back. Faruq et al. (2024) placed Baduy ecotourism in quadrant I of a SWOT diagram and proposed growth strategies. Maak et al. (2022) identified stakeholder involvement as a strength of Fatumnasi and a shortage of guides as its main weakness. Alhamdi et al. (2024) mapped attractions, amenities,

and accessibility at a camping ground in Gunung Ciremai National Park and recommended digital promotion. Muflihati et al. (2024) proposed an aggressive strategy for Riam Batu Timah, a site limited by poor infrastructure and weak management. In these studies SWOT lists factors and derives strategies. Few studies in Humbang Hasundutan combine the 4A components, community participation, and internal and external conditions in one analysis, and research on Seribu Goa itself is scarce.

Participation theory supplies the missing piece. Arnstein (1969) ranks participation by the power citizens hold over decisions, on eight rungs grouped into nonparticipation (manipulation, therapy), tokenism (informing, consultation, placation), and citizen power (partnership, delegated power, citizen control). Cohen and Uphoff (1977) describe participation in decision-making, implementation, benefits, and evaluation. Zuska and Zulkifli (2026) add that community-based destination management depends on community-based institutions as well as on participation. The ladder lets us ask whether residents hold a say in managing Seribu Goa, and not only whether they take part.

This study has three aims: (1) to assess the condition and feasibility of attractions, amenities, and accessibility against the ADO-ODTWA guideline, and the condition of ancillary services; (2) to identify the level of community participation on Arnstein's ladder; and (3) to analyse internal and external conditions and formulate a development strategy through SWOT analysis. Figure 1 shows how the parts connect. The contribution is analytical. We read physical readiness, governance, and community decision power together, and we frame the resulting strategy around quality and conservation instead of visitor growth.

Figure 1. Analytical framework of the study



Source: Authors' elaboration, 2026.

RESEARCH METHOD

This study used a descriptive qualitative design (Creswell, 2014). A descriptive design suits the aim of depicting current conditions at Seribu Goa without testing hypotheses. Scores in the SWOT analysis served only to weight the importance of each factor. They did not form a stand-alone quantitative study, so the design is not a mixed-methods one.

The study was set in Banuarea Village, Pakkat District, Humbang Hasundutan Regency, North Sumatra, chosen purposively because Seribu Goa is a karst ecotourism site with caves, rivers, and forested hills. The village covers 3,072 hectares, which is 8.05% of the 38,168 hectares of Pakkat District, according to regency statistics. Regency civil registration data for 2026 record 598 residents, and 251 of them work as farmers or plantation workers. Fieldwork followed the 2025/2026 academic schedule of the master's programme.

We chose informants purposively by their knowledge of and role in managing Seribu Goa (Sugiyono, 2017). Ten informants took part in interviews: the village head and the head of the district tourism agency as key informants; two Pokdarwis members as main informants; and three residents and three visitors as additional informants. A separate group of 20 participants scored internal and external factors for the SWOT matrices: three village officials, the head of the tourism agency, five Pokdarwis members, four residents, two stall owners, and five visitors. Interviewees supplied depth, and scorers supplied weights and ratings.

Data collection combined semi-structured interviews, observation, documentation, and a SWOT assessment sheet. Interviews followed a guide but let informants add experience and opinion. Observation used moderate participation (Spradley, 1980): we joined field activities while keeping the position of observer, and recorded the physical condition of the area, interactions among residents, Pokdarwis, government, and visitors, and local economic activity. Documents included the village profile, development planning documents, visit records, photographs, and Pokdarwis archives. Interviews were conducted in Indonesian, and we translated the quotations reported here.

Attractions, amenities, and accessibility were scored with the ADO-ODTWA guideline (Direktorat Jenderal Perlindungan Hutan dan Konservasi Alam [PHKA], 2003), modified with values for each criterion. The score of a criterion is calculated as in Equation 1, where S is the criterion score, N the sum of element values, and B the weight. The weights are 6 for attractions, 3 for amenities, and 5 for accessibility. The feasibility index compares the score obtained with the maximum score (Equation 2).

$$S = N \times B \tag{1}$$

Source: Adapted from the ADO-ODTWA guideline (Direktorat Jenderal PHKA, 2003).

$$\text{Feasibility index} = \frac{\text{Criterion score}}{\text{Total criterion score}} \times 100\% \tag{2}$$

Source: Adapted from the ADO-ODTWA guideline (Direktorat Jenderal PHKA, 2003).

We classed an index above 66.6% as feasible for development, 33.3% to 66.6% as not yet feasible, and below 33.3% as not feasible. Ancillary services were analysed qualitatively through three indicators: the role of government, the Pokdarwis, and partnerships. Participation was classified against the eight rungs of Arnstein's ladder using interview and observation evidence. For SWOT we built internal (IFAS) and external (EFAS) factor matrices (Rangkuti, 2008). The X

coordinate is the total strength score minus the total weakness score, the Y coordinate is the total opportunity score minus the total threat score, and the pair places the destination in a quadrant.

Qualitative data followed the interactive model of data reduction, data display, and conclusion drawing (Miles & Huberman, 1994). We checked conclusions by triangulating observation, interviews, documents, and SWOT sheets. Informants are identified by role, and no personal names are reported.

RESULTS AND DISCUSSION

Feasibility of Attractions, Amenities, and Accessibility

Table 2 gives the ADO-ODTWA results. The three scored components reach a combined index of 73.48% (1,455 of 1,980 points), which places Seribu Goa in the feasible class. The result is uneven. Attractions (80.56%) and amenities (70.00%) are feasible, and accessibility (62.50%) falls in the not-yet-feasible class.

Table 2. Feasibility of Seribu Goa by ADO-ODTWA component

Component	Weight	Score	Maximum score	Index (%)	Class
Attractions	6	870	1,080	80.56	Feasible
Amenities (facilities and infrastructure)	3	210	300	70.00	Feasible
Accessibility	5	375	600	62.50	Not yet feasible
Overall		**1,455**	**1,980**	**73.48**	**Feasible**

Source: Authors' assessment using the ADO-ODTWA guideline (Direktorat Jenderal PHKA, 2003), 2026.

Attractions. Attractions scored 870 of 1,080 points. Six elements each carry weight 6: uniqueness of natural resources (value 20), number of prominent resources (25), tourism activities (30), cleanliness of the location (20), safety of the area (25), and comfort (25). The cave complex has stalactites, stalagmites, and limestone pillars, bat colonies, natural water sources, and dense forest. Visitors can go caving, trek, view the landscape, photograph nature, observe flora and fauna, join environmental education, and do research. The village head described the main asset: "Seribu Goa has a uniqueness that no other area around Humbang Hasundutan has. The caves in this area are still natural, have not changed much, and each has a different character" (village head, interview, 2026). A visitor pointed to the same features: "What interests me most is the stalactites and stalagmites inside the cave, which are still natural. We also saw many bats, and we learned about plants around the site that can be used as vegetables" (visitor, interview, 2026). The site is clean and quiet because forest separates it from settlement and industry, although waste facilities and visitor awareness still need work.

The index describes potential, and it does not show that the attractions are managed to a conservation standard. Not all caves have been mapped or studied, and some lack safe routes or interpretive information. Under a quality-tourism approach the value of the attraction lies in selection: the most durable use opens a few well-prepared caves and keeps the others closed.

Amenities. Amenities scored 210 of 300 points. Supporting facilities (weight 3) received a value of 20, or 60 points, and infrastructure received 50, or 150 points. Observation recorded three toilets, one waste bin, one parking area, two stalls, one tourist information centre, one prayer room, one place of worship for non-Muslim visitors, one information board, 13 helmets, 13 pairs of boots,

and four flashlights for caving. Infrastructure comprised a road passable by vehicles, an electricity network, and mobile signal. A village official judged the facilities helpful but short: "The facilities we have now already help visitors, such as toilets, parking, places of worship, and equipment for entering the cave. But the numbers are still limited, especially when visitors are many. Sometimes there is no water in the toilets, and it does not run every day" (village official, interview, 2026). Another official stressed maintenance as well as construction, and said the village works with the Pokdarwis to keep existing facilities in use. The 70% index therefore supports upgrading and maintaining what exists before building new facilities.

Accessibility. Accessibility scored 375 of 600 points (Table 2). Road condition (value 15, poor), distance from Doloksanggul town (about 45 km, value 15), and road type (earth road, value 15) each pulled the score down, while travel time of about two hours earned 30. Much of the route is narrow, stony, uneven, and muddy in the rainy season. The head of the district tourism agency named the road as the main constraint: "The road to Seribu Goa is still the main obstacle. In 2024 we received support through the physical special allocation fund (DAK Fisik) of the national budget to build part of the access to the area. The construction could not be completed because of limited funds and the end of the fiscal year" (head of tourism agency, interview, 2026). A landslide in November 2025 damaged several road sections again. Holloway and Humphreys (2019) list the quality of roads and public transport among the conditions that make a destination reachable, and Seribu Goa meets neither at present.

The pattern, strong attractions with weaker access, is not unique to Seribu Goa. Alhamdi et al. (2024) found strong waterfalls but uneven, stony roads and few signs at Ciremai, and Muflihati et al. (2024) found natural beauty but poor access and limited promotion at Riam Batu Timah. At Seribu Goa the gap is large enough to limit the other components, because spending on attractions and facilities pays off only if visitors can arrive safely. Cooper et al. (2008) hold that a destination needs all four components in adequate form, and the scores show how one weak component limits the rest.

Ancillary services. We read ancillary services through the village government, the Pokdarwis, and partnerships. The village government supports development by facilitating communal work, coordinating the Pokdarwis, drafting a development master plan, proposing road and other infrastructure to the regency, and arranging tourism training with the tourism agency. Its support is limited by the lack of a budget dedicated to the destination. The Pokdarwis has a structure of chair, secretary, treasurer, and members, and it runs communal clean-ups, accompanies tourists, promotes the site on social media, and looks after facilities. Its chair named the constraints: "The programmes we have run include communal clean-ups of the area, accompanying tourists, promotion through social media, and looking after the facilities. The obstacles we face are limited operating funds, few tourism facilities, and too little training for members" (Pokdarwis chair, interview, 2026). Some members are inactive or no longer live in the regency, and coordination runs through a WhatsApp group or around specific events. There are no routine meetings and no periodic programme evaluation.

Partnerships exist with the tourism agency, which provides guidance, promotion, and field visits, and with several universities that carry out research and community service. They remain thin. The Pokdarwis chair said, "There is cooperation with the tourism agency in the form of guidance and promotion, and several universities have conducted research. But so far there is no continuing cooperation with the private sector" (Pokdarwis chair, interview, 2026). No comprehensive development proposal has been prepared, which limits access to funding and promotion. Zuska and Zulkifli (2026) argue that community destinations succeed through community-based institutions as well as participation, and the Seribu Goa case shows the same

dependence: the institutional base exists, but capacity, coordination, and funding are not yet at the level that the destination needs. Sirojuddin et al. (2024) likewise named weak human resource management as a weakness and recommended collaboration among the Pokdarwis, local government, and other stakeholders.

Community Participation on Arnstein's Ladder

Table 3 sets the evidence against each rung. Residents are not manipulated or treated as therapy recipients, because the village government and the Pokdarwis gathered their aspirations from the start of programme preparation and discussed proposals jointly. Information flows through village meetings, Pokdarwis meetings, and WhatsApp groups, so the process goes beyond informing. Residents also give opinions on facilities, cleanliness, access, and promotion, and the proposals are discussed, so it goes beyond consultation as well. One resident described the process: "The government is quite open. We were given the chance to raise proposals at the village meeting, and the proposals were discussed together. Not everything can be carried out straight away because the budget has to be considered, but the community's opinion is still taken into account" (resident, interview, 2026).

Table 3. Evidence on each rung of Arnstein's ladder at Seribu Goa

Rung (group)	Evidence	Finding
Manipulation (nonparticipation)	Residents were involved through the village government and Pokdarwis from the start of programme preparation.	Not found
Therapy (nonparticipation)	Residents raised proposals that were discussed jointly, beyond attending socialisation.	Not found
Informing (tokenism)	Plans reach residents through village meetings, Pokdarwis meetings, and WhatsApp groups.	Exceeded
Consultation (tokenism)	Residents give opinions on facilities, cleanliness, access, and promotion; proposals are discussed.	Exceeded
Placation (tokenism)	Proposals are weighed in decisions, but budget and priorities limit which are carried out.	Exceeded
Partnership (citizen power)	Village government handles administration and tourism revenue; Pokdarwis handles ticket collection, visitor services, cleanliness, and supervision; residents donated land and repaired the road after the landslide.	Reached
Delegated power (citizen power)	Tariffs, ticket management, infrastructure, budget use, and outside cooperation stay with the regional and village governments.	Not reached
Citizen control (citizen power)	Residents lack full authority over planning, management, decisions, and evaluation.	Not reached

Source: Authors' analysis of interview and observation data, 2026.

The evidence that separates partnership from placation is shared responsibility. The head of the tourism agency said, "The government does not work alone. The area is managed together with the community through the Pokdarwis. The government gives guidance, training, and mentoring, while the community runs operations in the field" (head of tourism agency, interview, 2026). The village head gave an example of community contribution: "A concrete example of community

participation is that some residents donated part of their land to support the development of the Seribu Goa area. The donation was voluntary and by agreement, because people hope Seribu Goa will grow and bring benefits to the village" (village head, interview, 2026). After the November landslide, a Pokdarwis member reported, "we worked together to fill part of the damaged road with stones so that it could be passed" (Pokdarwis member, interview, 2026). Residents work as guides, homestay managers, small-business owners, parking attendants, and cleaners, and a visitor noticed it: "I see that the community is quite active. Some are tour guides, some manage parking, run stalls, keep the area clean, and give information to visitors" (visitor, interview, 2026).

Delegated power is not reached. The head of the tourism agency said, "Not fully yet. The community already runs operational activities through the Pokdarwis, but policies such as setting tariffs, ticket management, infrastructure development, budget use, and cooperation with outside parties are still the authority of the regional government together with the village government" (head of tourism agency, interview, 2026). Observation matched this account. The relationship is one of shared power through deliberation and coordination, and it does not delegate authority to residents. This fits Arnstein's (1969) partnership rung, where responsibility is shared, with the limit that the final say on money, tariffs, and external deals still rests with government. In terms of Cohen and Uphoff (1977), residents take part in decisions, implementation, and benefits. Evaluation looks weakest, since the Pokdarwis has no routine evaluation, a point the recommendations address.

SWOT Analysis and Development Strategy

Table 4 gives the IFAS and EFAS matrices built from the scores of the 20 participants. The strongest internal factor is the natural, well-preserved environment (0.80), followed by adventure and educational potential (0.78) and community support (0.76). The strongest weakness is road access (0.79), followed by limited facilities and weak promotion (0.77 each). Among external factors, promotion through social media and rising interest in nature tourism lead the opportunities (0.82 each), with community small businesses at 0.80. Landslide risk, unpredictable weather, and limited development budget are the largest threats (0.83 each).

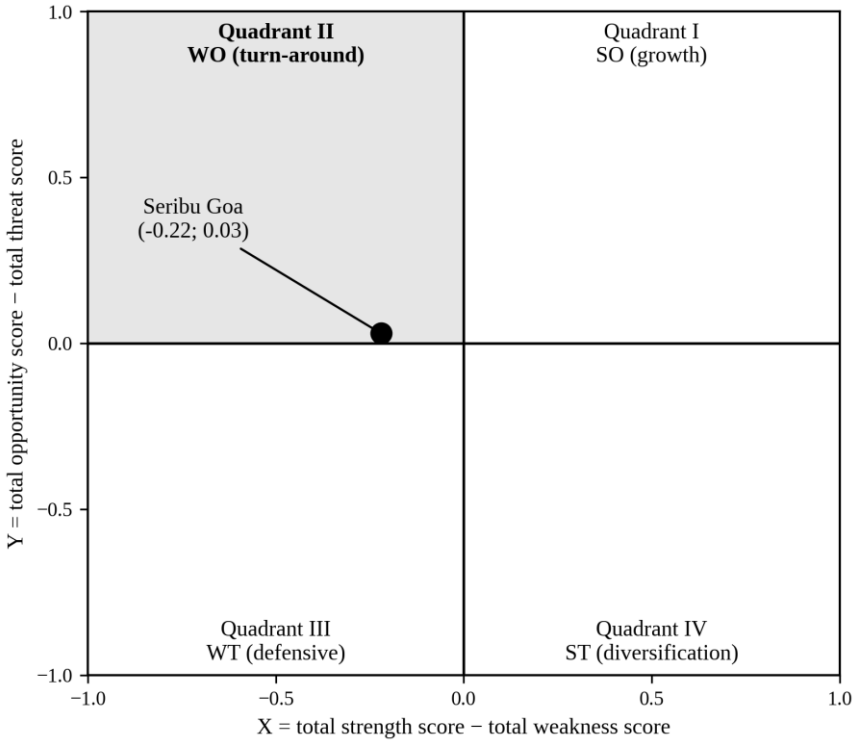
Table 4. IFAS and EFAS matrices for Seribu Goa

Factor	Weight	Rating	Score
Strengths			
Uniqueness of the natural setting	0.19	3.40	0.64
Adventure and educational tourism potential	0.21	3.75	0.78
Natural, well-preserved environment	0.21	3.80	0.80
Community support for tourism development	0.21	3.70	0.76
Potential to become a leading destination	0.19	3.35	0.62
Total strengths	**1.00**		**3.61**
Weaknesses			
Road access not yet optimal	0.20	3.90	0.79
Limited facilities and infrastructure	0.20	3.85	0.77
Promotion not yet maximal	0.20	3.85	0.77
No area map and limited tourist information	0.20	3.80	0.75
Limited budget	0.20	3.75	0.73
Total weaknesses	**1.00**		**3.83**
Opportunities			
Government support for tourism development	0.19	3.60	0.67
Promotion through social media	0.21	4.00	0.82
Growing interest in nature tourism	0.21	4.00	0.82
Development of community small businesses	0.20	3.95	0.80
Opportunities for cooperation with various parties	0.20	3.85	0.76
Total opportunities	**1.00**		**3.89**
Threats			
Landslide risk in the tourism area	0.21	4.00	0.83
Competition with other destinations	0.19	3.60	0.67
Environmental damage caused by visitors	0.19	3.65	0.69
Unpredictable weather	0.21	4.00	0.83
Limited development budget	0.21	4.00	0.83
Total threats	**1.00**		**3.86**

Source: Authors' calculation from SWOT assessment sheets (n = 20), 2026.

Total strength (3.61) falls below total weakness (3.83), so X = -0.22. Total opportunity (3.89) exceeds total threat (3.86), so Y = 0.03. The pair (-0.22; 0.03) places Seribu Goa in quadrant II (Figure 2), the weakness-opportunity or turn-around position, in which external opportunities exist but internal weaknesses block their use. The margins are small. Weaknesses exceed strengths by 0.22, and opportunities exceed threats by 0.03, so we read the quadrant as an ordering of priorities, with weakness-opportunity actions first, and not as a sharp classification.

Figure 2. SWOT quadrant position of Seribu Goa



Source: Authors' calculation from Table 4, 2026.

Table 5 lists the strategy matrix. The weakness-opportunity actions answer the weaknesses in Table 4 with the opportunities in the same table: repairing road access with government support, adding amenities, strengthening digital promotion on social media, preparing an area map, and training the Pokdarwis, together with cooperation among government, universities, small businesses, and the private sector for financing. Road works need to account for landslide risk, through surface improvement, drainage, slope reinforcement, and routine maintenance, and the village and the community can help monitor road conditions and report damage. The strategy is aimed at quality and not at visitor growth, so several actions limit use: conservation procedures, visitor rules, supervision of the area, safety equipment, and environmental education.

Table 5. Strategy matrix for Seribu Goa

Strategy group	Actions
SO (strengths and opportunities)	Develop tour packages; digital promotion; develop small businesses; cooperate with government; position Seribu Goa as a leading destination.
WO (weaknesses and opportunities), priority	Improve road access; add amenities; strengthen digital promotion; prepare an area map; train the Pokdarwis; use government support.
ST (strengths and threats)	Conservation procedures; safety equipment; environmental education; area supervision; destination differentiation.
WT (weaknesses and threats)	Management procedures; disaster mitigation; supervision; visitor rules; budget efficiency.

Source: Authors' SWOT analysis, 2026.

The result differs from several earlier cases. Faruq et al. (2024) located Baduy ecotourism in quadrant I with dominant strengths, and Muflihati et al. (2024) recommended an aggressive strategy for Riam Batu Timah. Seribu Goa has comparable natural assets, but its weaknesses currently outweigh its strengths, so the first task is repair and not expansion. Digital promotion appears in both Seribu Goa and Ciremai (Alhamdi et al., 2024), and at Seribu Goa it is both a weakness (0.77) and an opportunity (0.82), which makes it a low-cost action to start with.

Implications

Theoretically, reading the 4A components together with Arnstein's ladder shows that feasibility is uneven and that community decision power can lag behind community effort: residents carry operations, while strategic authority stays with government. Practically, the findings give the regency and the village an order of priorities: road access first, then basic facilities, then Pokdarwis capacity and partnerships. Training for guiding, destination management, digital promotion, and cleanliness would strengthen the Pokdarwis, and residents can earn from guiding, homestays, food, equipment rental, local transport, and small-business products. For policy, the road needs continuing financing across budget years, so that works do not stop at a fiscal-year boundary, and government can act more as facilitator, through policy, budget, infrastructure, training, and mentoring, while residents run daily operations.

CONCLUSION AND RECOMMENDATIONS

Seribu Goa is feasible for development, with an overall ADO-ODTWA index of 73.48%, but the components are uneven. Attractions (80.56%) and amenities (70.00%) are feasible, and accessibility (62.50%) is not yet feasible. Ancillary services rest on the village government, the Pokdarwis, and partnerships with the tourism agency and universities, and they are limited by budget, coordination, training, and the absence of continuing private partnerships. Community participation stands at the partnership rung of Arnstein's ladder: residents and government share roles, while tariffs, revenue, infrastructure, budget, and outside cooperation remain with government. The SWOT position (-0.22; 0.03) falls in quadrant II, so a weakness-opportunity strategy applies: better access, more amenities, stronger digital promotion, an area map, Pokdarwis training, and wider cooperation, all within a quality and conservation frame.

We offer four recommendations. First, the regency and village governments should give priority to road improvement, transport, signage, and basic facilities (toilets, a place of worship, parking, an information centre, and safety equipment), and should support ancillary services through destination management rules, funding, Pokdarwis guidance, and partnerships. Second, the village government and the Pokdarwis should hold deliberation consistently, assign roles clearly, report management openly, build the capacity of managers, include residents in programme evaluation, and develop tour packages and cooperation with academics and the private sector. Third, residents and small-business owners should take part in every stage of development and build products around homestays, guiding, local food, equipment rental, and crafts, while protecting the environment. Fourth, later researchers could use AHP, QSPM, or carrying-capacity analysis, compare several ecotourism destinations, apply mixed methods to estimate economic, social, and environmental effects, and add visitor satisfaction, service quality, and digital marketing.

The study has limits. It covers one destination, so the results do not extend to ecotourism sites with different resources, social settings, or governance. The descriptive qualitative design with SWOT scoring does not measure how strongly each factor affects success, and the data depend on the perceptions and knowledge of informants and scorers at one time, which allows subjectivity. The short fieldwork period cannot show change over time in visits, facilities, or participation. The

study did not examine economic feasibility, detailed environmental impact, visitor behaviour, digital marketing, or a full evaluation of tourism policy.

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REFERENCES

Alhamdi, N., Insy, M. S. A., Kencanawati, R., & Khiyaroh, Y. (2024). Strategi pengembangan ekowisata Bumi Perkemahan Ipukan Taman Nasional Gunung Ciremai. *Journal of Indonesian Tourism, Hospitality and Recreation, 7*(1), 33–46.

Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners, 35*(4), 216–224.

Cohen, J. M., & Uphoff, N. T. (1977). *Rural development participation: Concepts and measures for project design, implementation and evaluation*. Cornell University.

Cooper, C., Fletcher, J., Fyall, A., Gilbert, D., & Wanhill, S. (2008). *Tourism: Principles and practice* (4th ed.). Pearson Education.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.

Direktorat Jenderal Perlindungan Hutan dan Konservasi Alam. (2003). *Pedoman analisis daerah operasi objek dan daya tarik wisata alam (ADO-ODTWA)*.

Faruq, A. R., Falah, M. D., & Nugraha, N. S. (2024). Strategi pengembangan ekowisata Suku Baduy terhadap kesejahteraan masyarakat Suku Baduy. *Jurnal Ilmiah Pariwisata, 29*(1), 1–15.

Holloway, J. C., & Humphreys, C. (2019). *The business of tourism*. Sage Publications.

Maak, C. S., Fahmi, M. I., Herachwati, N., & Agustina, T. S. (2022). Strategi pengembangan ekowisata terhadap ekonomi lokal pada Desa Wisata Fatumnasi. *Jurnal Kepariwisataan Indonesia, 17*(2), 97–110.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Sage Publications.

Muflihati, Paulina, & Rifanjani, S. (2024). Strategi pengembangan ekowisata Riam Batu Timah di Dusun Madi Kabupaten Bengkayang. *Jurnal Hutan Lestari, 12*(2), 235–248.

Rangkuti, F. (2008). *Analisis SWOT: Teknik membedah kasus bisnis*. PT Gramedia Pustaka Utama.

Republik Indonesia. (2009). *Undang-Undang Nomor 10 Tahun 2009 tentang Kepariwisataan*.

Sirojuddin, W., Suharsono, & Alimudin, K. (2024). Strategi pengembangan ekowisata mangrove pesisir pantai di Desa Kertomulyo, Kecamatan Trangkil, Kabupaten Pati. *Journal of Tourism and Economic, 7*(1), 1–15.

Spradley, J. P. (1980). *Participant observation*. Holt, Rinehart and Winston.

Sugiyono. (2017). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Zuska, F., & Zulkifli, Z. (2026). Developing community-based waste management for public spaces in coastal tourism villages: Establishing institutions with local champions. *International Journal of Tourism Anthropology, 10*(5), 1–22.