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Sustainable Tourism Development Strategies for Gerdarsi Beach, Moa Island, Southwest Maluku Regency: A SWOT Analysis-Based Approach

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Abstract

Gerdarsi Beach holds great appeal and presents an opportunity for development. The challenges faced by this destination include a lack of facilities, limited human resources for management and development, and a lack of government involvement and promotion. These are the challenges currently facing Gerdarsi Beach. The aim of this study is to formulate a sustainable tourism development strategy for Gerdarsi Beach using SWOT analysis. The method employed is a quantitative descriptive approach. Data were collected through observation, questionnaires and documentation from 40 respondents (20 local residents and 20 tourists). Data analysis included IFAS and EFAS to determine the strategic position. The SWOT analysis revealed that the strengths lie in the appeal of natural resources, the main weaknesses are the limitations in facilities and promotion, the key opportunities are government involvement in human resource development, and the main threats are competition from neighbouring destinations. The results of the analysis fall within Quadrant II (improvement/turnaround) with coordinates of -0.13 and +0.28 on the y-axis, indicating that weaknesses are more dominant than strengths, whilst opportunities are more dominant than threats. The primary recommendation of this research is to develop basic facilities to support attraction-based tourism activities at the Gerdarsi Beach tourist destination, by involving the local community of Nyama Hamlet, the local government (tourism department) and investors as the key stakeholders.

Keywords: development strategy; sustainable; tourism; Gerdarsi Beach; Moa Island

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INTRODUCTION

Background

Globally, sustainable tourism has become a top priority in the development of tourist destinations, in line with growing awareness across the entire spectrum from planning and development through to management, with a single objective: economic growth balanced with the conservation of tourist destinations and sociocultural heritage. The United Nations World Tourism Organisation (UNWTO, 2023) reports that global tourism in 2023 had recovered to around 87–90 per cent of pre-pandemic levels, with 975 million international trips between January and September, and a full recovery projected for 2024. Adnyani et al. (2025) also emphasise that sustainable tourism development makes a direct contribution to the achievement of the Sustainable Development Goals (SDGs), which remain focused on efforts to tackle poverty, create jobs, and protect the natural environment.

Globally, the tourism sector has shown a significant recovery following the COVID-19 pandemic, as evidenced by the approximately 1.3 billion international tourist arrivals recorded in 2023 (UNWTO, 2024). This growth in tourism is beginning to encourage developing countries to utilise their available natural resources as an opportunity to develop nature-based tourism more effectively and sustainably. In the development of tourist destination areas, an analysis of tourism carrying capacity is required to monitor tourism activities so that the management of these areas remains effective, appropriate and sustainable without causing negative impacts on the destination's environment (Kayapa et al., 2026.

Indonesia is a country blessed with abundant natural resources, and one of its key assets is its unspoilt natural beauty, which can be developed into tourist destinations. However, in developing these resources, a sustainable and effective approach is required to ensure that the utilisation of natural resources is not mismanaged (Mahmudin et al., 2024). In 2023, Indonesia ranked 22nd out of 119 countries in the 2024 Travel and Tourism Development Index (TTDI) published by the World Economic Forum (WEF, 2024). Based on this data, Indonesia has significant opportunities to utilise its natural resources as a tourist destination. Parmawati (2020) also states that a diverse range of approaches to managing tourist destinations is key to increasing tourist visits. One island that possesses potential and natural attractions that remain pristine and untouched is Moa Island, in Southwest Maluku Regency.

Moa is both an island and a sub-district in the Regency of Southwest Maluku, which boasts abundant natural resources and unique characteristics, including customs, language and religion. The island offers distinctive natural resources with considerable potential for tourism development. Parmawati (2019) emphasises that tourism development must prioritise the quality of existing natural resources as the foundation for boosting the local economy. Therefore, prioritising natural resources can attract visitors to return for tourism activities, particularly to enjoy the natural beauty, learn about the local culture, and explore the diverse local products in the region. Moa Subdistrict includes villages such as Klis, Moain, Tounwawan, Werwaru, Patti and Kaiwatu (Moa Regency BPS, 2020). Much of this natural potential remains largely untapped and has not yet been utilised by the various stakeholders involved in tourism development.

On the journey to Gerdarsi Beach, visitors can immediately take in the breathtaking natural beauty, the unspoilt white shoreline and the deep blue sea. Gerdarsi Beach is also widely known as Nyama Beach. This tourist area is often used by locals for various activities, such as horse racing, football, swimming in the sea and enjoying the vast expanse of soft white sand. However, transport options remain very limited, meaning many tourists are

less inclined to visit Gerdarsi Beach. Beyond transport constraints, facilities and clean water in this tourist area are also very limited, making it difficult for most tourists to find toilets, rubbish bins, local food or drinks, none of which are currently available within the tourist area. Consequently, the lack of facilities diminishes the quality of the tourist experience, and visitors may be less inclined to return to this destination (Yu, 2024).

Essentially, the core principles of tourism destination development must be applied in a sustainable manner. Consequently, the findings of Parmawati's (2019) analysis emphasise that tourism destination development in this context focuses not only on the environment, but also on existing facilities, meeting the needs of visitors and natural resource management, while ensuring the sustainability of environmental quality as part of a green economy. Development requires a structured and systematic planning framework, as well as the participation of all stakeholders, to ensure that development proceeds according to agreed development priorities. Munizar (2025) also emphasises that the development stages must be integrated, covering several aspects, namely infrastructure, attractions and management, to maximise benefits for the local community.

In the development process, particularly for tourism destinations, there are several interrelated factors: attractions, accessibility, amenities and ancillary services, commonly known as the 4A framework, which must fulfil all four components (Sarasvathi and Sholeh, 2026). Pai et al. (2026) also emphasise that whilst developing a tourist destination is certainly the right step, this must take into account the potential of natural resources, improvements to infrastructure and transport networks, and, more importantly, the involvement of all stakeholders and the local community.

Pradnyani et al. (2026) analysed Blue Lagoon Beach in Bali as a snorkelling destination with unique attractions using the 4A framework. Their study revealed strong underwater attractions (depths of 2.5–3 metres, suitable for beginners), comprehensive facilities (29 accommodation options, 5 restaurants, 3 bars and 6 diving centres), and easy accessibility (approximately 1 hour 20 minutes from Ngurah Rai Airport via Padangbai Harbour). However, the study emphasised that visitor management, environmental interpretation and conservation-sensitive governance are crucial for sustainability.

One of the most relevant principles for the Gerdarsi Beach tourist area is the 4A readiness framework, along with an emphasis on visitor management and environmental interpretation. This highlights the need for Gerdarsi to ensure the availability of basic facilities and safety measures before promoting mass tourism. Differences in context: The Blue Lagoon is an established destination with comprehensive facilities and easy access, whilst Gerdarsi Beach is a remote island destination facing transport constraints, minimal basic facilities (toilets, rubbish bins, clean water), a lack of promotion, and limited documented support from the regency government. Therefore, findings from the Blue Lagoon cannot be directly applied to Gerdarsi. Strategies for the Gerdarsi Beach tourist area must prioritise basic infrastructure and community empowerment before pursuing comprehensive operational readiness as seen at the Blue Lagoon. This comparison forms the basis for the specific internal and external factors used in the SWOT analysis.

However, the current conditions of the Gerdarsi Beach tourist area differ significantly from those of the Blue Lagoon tourist area. While Blue Lagoon has 29 accommodation options, five restaurants and good road access, Gerdarsi Beach faces transport constraints, a lack of basic facilities (toilets, rubbish bins, clean water), insufficient promotion and limited documented support from the regency government. These differing conditions indicate

that the findings from Blue Lagoon cannot be directly applied to Gerdarsi Beach. Therefore, this study utilises a SWOT analysis to identify internal factors (strengths and weaknesses) and external factors (opportunities and threats) specific to Gerdarsi Beach. A comparison with Blue Lagoon provides insights into the importance of operational readiness and visitor management, although these must still be adapted to the local context of Gerdarsi Beach.

Manaha et al. (2021) investigated the perceptions and participation of the livestock-farming community in Nyama Hamlet regarding the development of Gerdarsi Beach as a tourist attraction. The results of their analysis show that 55 per cent of local livestock farmers in Nyama Hamlet strongly support the use of livestock as a tourist attraction, in the form of maintaining the beauty of the location (45 per cent), contributing ideas (25 per cent), ensuring safety (15 per cent), and artistic expression (15 per cent). However, this study focused solely on the perceptions and participation of livestock farmers, without analysing comprehensive strategies for sustainable tourism development in the Gerdarsi Beach tourist area.

Consequently, this study offers a novel approach through a SWOT analysis involving two groups of respondents in the same survey: the local community (residents) and tourists (visitors). There were 20 people from each group, making a total of 40 respondents. This exploratory approach incorporates both groups' perspectives on the internal factors (strengths and weaknesses) and external factors (opportunities and threats) at Gerdarsi Beach.

The constraints reported by Manaha et al. (2021) remain relevant to the conditions observed at Gerdarsi Beach. These conditions are reflected in the lack of basic facilities (no toilets, rubbish bins or clean water), limited transport access, sub-optimal promotion and limited documented support from the regency government. The unanswered management question is: what kind of development strategy is appropriate to address the limitations in facilities and increase tourist visits to Gerdarsi Beach in a sustainable manner? This study addresses this question through a SWOT analysis and the formulation of sustainability-based strategies.

Research Objectives

The objective of this study is to formulate a tourism development strategy for the Gerdarsi Beach tourist area on Moa Island, Southwest Maluku Regency. Based on this objective, the research questions and focus of analysis in this study are: (1) What is the condition of the basic facilities supporting tourism activities in the Gerdarsi Beach tourist area? (2) What is the capacity of local human resources in developing the Gerdarsi Beach tourist area? (3) To what extent is the local government involved in implementing the development of the Gerdarsi Beach tourist area? (4) What is the appropriate development strategy to improve the economic well-being of the local community in Nyama Hamlet, prioritising basic facilities and the tourist area to support tourism activities? (5) What forms of promotion or marketing are being carried out in relation to the attractions of the Gerdarsi Beach tourist area?

LITERATURE REVIEW

Concepts of Tourism Development

The development of tourist areas requires appropriate, effective, and sustainable techniques that optimise the attractions and available natural resources, with the aim of attracting visitors to engage in tourism activities (Thompson, 2026). Indeed, Law No. 10 of 2009 on Tourism also emphasises that the objective of developing tourist destinations is to improve the welfare of local communities, as part of the aim to preserve culture and the natural environment, and to effectively promote Indonesia as a country with thousands of natural assets ready for development (Republic of Indonesia, 2009).

This initiative is a key focus in development, particularly in the context of sustainable tourism. This definition was first established by the World Tourism Organisation (WTO) and the United Nations Environment Programme (UNEP), which globally define sustainable tourism as tourism that consistently takes into account the economic, social and environmental impacts in tourist areas, whilst meeting and enhancing the quality of life for all visitors, both now and in the future. Generally speaking, sustainable tourism encompasses three key concepts: environmental sustainability, economic sustainability, and socio-cultural sustainability (Parmawati et al., 2022).

Sustainability in tourism development within a tourist destination emphasises the efficient and effective use of resources to protect biodiversity, reduce pollution for the comfort of visitors, and preserve local culture in a globalised era that is gradually eroding it. Pai et al. (2026) also emphasise that cultural sustainability centres on the preservation of values considered sacred, which serve as symbols of community empowerment, as well as maintaining social harmony amongst local communities. Meanwhile, Parmawati et al. (2018) emphasise that sustainable tourism aims to increase income, create jobs (thereby reducing unemployment), and ensure that the economic and tourism benefits are shared fairly without causing conflict.

In remote and isolated areas such as the Gerdarsi Beach tourist area in Nyama Hamlet, Moa Island, Southwest Maluku Regency, the implementation of sustainable tourism development remains an issue that has not yet been studied in specific and detailed terms. The principal challenges faced by the Gerdarsi Beach tourist area are a lack of public facilities and accommodation, inadequate promotion and marketing of Gerdarsi Beach as a tourist destination, limitations in human resources for training in the tourism sector; a shortage of managers to oversee the tourist area; insufficient government involvement in developing the tourist destination; and low levels of awareness amongst tourists and the local community of Nyama Hamlet regarding environmental management, particularly within the tourist area. Therefore, a development strategy based on ecotourism is required. Furthermore, ecotourism focuses on sustainable tourism whilst conserving natural resources, protecting the environment, and empowering local communities (Parmawati, Imaniyah, et al., 2018).

Consequently, this approach is employed with the aim of harnessing the tourism potential (attractions) within a tourist area to ensure more effective and optimal development, without causing any negative impacts on the tourist area or economic decline amongst the local community.

Basic Facilities to Support Tourism Activities

In the development of tourist areas, facilities play a key role in determining the quality of the visitor experience. Basic facilities are defined as the facilities and infrastructure that are always available within a tourist area to meet visitors' needs whilst they are carrying out their activities. According to Sugiama et al. (2024), basic facilities that are always available within a tourist area include sanitation facilities such as litter bins and toilets, access to clean water, rest areas for tourists after carrying out tourist activities, car parks, and the availability of food and drink, all of which are essential facilities. Without the facilities mentioned above, the visitor experience may deteriorate, and visitors will face various difficulties due to limited access, which may reduce their interest in returning (making repeat visits).

The results of an analysis conducted by Tang et al. (2026) confirm that spatial planning and design interventions in rural tourism significantly influence visitor satisfaction and their willingness to return. Their research reveals that the overall layout, spatial configuration and the availability of adequate facilities directly influence

the visitor experience. Generally speaking, when tourists encounter a well-planned destination equipped with adequate infrastructure (such as public toilets, clean water and rest areas), their satisfaction increases, making them more likely to return. Conversely, visitors are reluctant to revisit destinations that lack these basic facilities, as this detracts from their overall experience.

Furthermore, Sidiq et al. (2026) evaluated tourist satisfaction with tourism infrastructure in Magelang and found that public facilities (2.64/C) and tourism facilities (2.67/C) received low satisfaction scores, indicating an urgent need for infrastructure improvements. In line with the requirements for public facilities available in tourist areas, Gerdarsi Beach has minimal facilities, particularly the lack of public toilets, access to clean water and rubbish bins. These conditions mean that visitors often bring their own supplies from home and choose to return home earlier than originally planned.

In the context of sustainable tourism, the provision of basic facilities must also prioritise environmental aspects, such as toilets that are continuously monitored by management to ensure their cleanliness, waste management using the reduce-reuse-recycle (3R) system, and an abundant supply of clean water to support tourist activities for visitors who require it at any time (Kuswanto et al., 2026). Thus, the provision of supporting facilities not only increases visitor numbers but also enhances quality and comfort, serving as a foundation for environmental management at tourist destinations.

Human Resources (HR) in Sustainable Tourism Management

In the development of tourist destinations, human resources play a crucial role in the successful management of destination areas. Without sound and competent knowledge and skills, as well as a commitment to preserving the environment (tourist areas), the existing potential cannot be managed optimally. The results of an analysis by Parmawati et al. (2017) indicate that HR in the tourism sector requires the involvement of every individual such as in the management of destination areas, stakeholders in the tourism industry (hotel owners, villa owners, homestay operators and campsite managers) as well as active participation from the government in designing tourism development strategies based on existing potential. The quality of human resources is determined by the methods used to manage, preserve and promote a destination.

However, in remote areas, particularly in Nyama Hamlet within the Gerdarsi Beach tourist area, limited access to education in the field of tourism remains an issue to this day. Findings from an analysis by Elshaer & Marzouk (2019) confirm that a lack of training and education in the tourism sector has led to inadequate destination development, with sustainable practices rarely being implemented. Therefore, there must be opportunities to enhance the local community's understanding and skills (through education) in managing the potential and appeal of existing natural resources in a responsible and sustainable manner.

The Role of Local Government in Tourism Development

Local governments play a vital role in the development of tourist destinations, not only as guides or experts in identifying appropriate development strategies, but also as funders throughout the development process. Under Law No. 23 of 2014 on Regional Government (2014), tourism development falls within the remit of local governments to formulate appropriate strategies for the development of tourist destinations. Nuh et al. (2024) also emphasise that the government's involvement in regulating, planning and formulating strategies for sustainable development includes the provision of basic infrastructure, services to enhance visitor experience, and promotional efforts.

Furthermore, Mertha et al. (2025) also emphasise that the success of destination development depends heavily on alignment between government programmes and the aspirations of the local community, rather than merely viewing government involvement as a source of funding. Within a genuinely collaborative framework, the government acts as a facilitator and regulator, providing infrastructure, setting policies and ensuring quality standards, whilst the local community determines development priorities based on their actual needs. This collaboration ensures that the community's interests are represented through participatory planning and ongoing dialogue, which fosters trust and a shared sense of responsibility for improving the overall quality of the destination.

However, in the context of the UNESCO Batur Global Geopark, the situation differs from that of the Gerdarsi Beach tourist area. The Batur Geopark is a well-established and internationally recognised tourist area, whilst Gerdarsi Beach is situated in eastern Indonesia (a remote region) which is difficult for tourists to reach, with infrastructure and facilities that remain very limited, a limited level of promotion (partly because of limited internet connectivity), and low levels of government involvement. Consequently, if the management of the Geopark is to be implemented in the Gerdarsi Beach tourist area, it must be carried out in accordance with existing conditions, prioritising the provision of basic infrastructure and the empowerment of local communities before transitioning to a comprehensive framework such as that already in place in the Geopark.

With regard to tourism development, local governments have a responsibility to ensure sustainable economic growth whilst safeguarding the environment. Maulida et al. (2023) also state that local governments have the authority to act as facilitators, motivators and regulators in the provision of basic infrastructure such as clean water, accessible roads, electricity and sanitation facilities, including the provision of rubbish bins. As facilitators, local authorities can formulate sustainable policies and regulations for the development of tourist areas, taking into account the potential and appeal of the available natural resources for managing these destinations.

Tourist destinations such as Gerdarsi Beach, situated in a remote area, are a key focus, where local government involvement in tourism development remains minimal. The results of an analysis by Manaha et al. (2021) indicate that, at present, no planning programmeme has been implemented for the development of the Gerdarsi Beach tourist area, covering aspects such as basic infrastructure, human resource training, and promotional efforts. The potential and attractions within the Gerdarsi Beach tourist area have not yet been fully developed, meaning that the local community in Nyama Hamlet has not yet reaped the economic benefits of the Gerdarsi Beach tourist destination.

Promotion and Marketing of Tourist Destinations

Promotion and marketing are key strategies for highlighting a destination's potential and appeal once development is complete. Promotion is carried out to introduce the destination to prospective visitors with the aim of encouraging tourist visits amongst both local and international travellers. Without promotion, the appeal and potential of a tourist destination will remain unknown to travellers. This concept is in line with the findings (Juanna et al., 2024), which state that promotion or marketing is a process carried out by utilising available technology to meet visitors' needs, which are fulfilled by destination managers through the offering and exchange of tourism products of value.

Given the current reality, promotion is an effective strategy for increasing visitor numbers. The results of an analysis by Sari and Wibowo (2023) confirm that the number of visitors prior to the promotion

was 1,520 visits, and following the promotion, this figure rose to 1,812 tourist visits. Consequently, promotion or marketing (the promotional mix) is one of the tools used to increase visitor numbers and is the most effective way of raising awareness and interest in visiting (intention to visit).

In today's digital age, promotion via social media, banners, leaflets and billboards has shifted to online marketing platforms through collaborations with travel agencies and various content creators to highlight a destination's potential and appeal. Research by Rukmana (2025) confirms that social media platforms, particularly TikTok and Instagram, have the strongest influence on travel decisions amongst Millennials and Generation Z. The study revealed that the availability and appeal of tourism facilities also correlate positively with the travel preferences of these younger generations. In addition to the rapid surge in visitor numbers, destination managers and the government have successfully collaborated with various platforms such as Traveloka, Agoda and Booking.com to reach a wider audience across multiple destinations.

METHOD

Type of Research

This study employs a quantitative descriptive approach. The method used is SWOT analysis, supported by the IFAS (Internal Factor Analysis Summary) and EFAS (External Factor Analysis Summary) matrices, to process the numerical data obtained from the questionnaire.

Research Location and Period

This research was conducted from July to August 2025. The study took place in the Gerdarsi Beach tourist area, Nyama Hamlet, Moa Island, Southwest Maluku Regency. This location was selected on the basis of its natural resources and natural attractions, which have the potential to be developed into a tourist area (Lelawatty et al., 2025).

Population and Sample

The population for this study comprises all individuals, both within and outside the Gerdarsi Beach tourist area, who are involved in sustainable tourism development, including the local community of Nyama Hamlet, the local government, business operators, and various stakeholders involved in tourism development at Gerdarsi Beach. The study sample consisted of 20 local residents of Nyama Village and 20 tourists during their visits.

The sampling method used in this study was purposive sampling based on specific eligibility criteria. The inclusion criteria for members of the local community in Nyama Hamlet were based on age (18–60 years), being visitors to the Gerdarsi Beach tourist area, and having sufficient knowledge of local tourism conditions. Data collection was carried out directly at the Gerdarsi Beach tourist area during the study period from July to August 2025.

A sample size of 20 respondents from each group was determined based on practical feasibility and the exploratory scope of the study during fieldwork to ensure balanced participation between the local community of Nyama Hamlet (the hosts) and visitors (tourists). It should be noted that, given the limited sample size and the local nature of the study, the findings of this research should be interpreted as an exploratory assessment of the Gerdarsi Beach tourist area, rather than as conclusions that can be generalised to all tourist destinations.

Data Collection Methods

Data collection was carried out using three methods: questionnaires, observation and documentation. Questionnaires were distributed to 20 tourists and 20 local residents of Nyama Hamlet during their visit (tourist activity) to the Gerdarsi Beach tourist area. The questionnaire contained a total of 20 statements covering the four components of SWOT analysis: strengths (5 statements), weaknesses (5 statements),

opportunities (5 statements) and threats (5 statements), all of which were tailored to the realities of the Gerdarsi Beach tourist area. A Likert scale ranging from 1 to 4 was used, with the following definitions: 1 = strongly agree (SS), 2 = agree (S), 3 = disagree (TS), and 4 = strongly disagree (STS).

In addition to the involvement of 40 respondents (20 local residents of Nyama hamlet and 20 visitors), this study obtained supplementary data in the form of informal conversations and brief interviews with the head of Nyama hamlet and his staff to gather further information regarding the development and management of the Gerdarsi Beach tourist area. Verbal consent was obtained from each participant prior to the discussions taking place. The information obtained was not analysed statistically but was recorded in the field and used qualitatively to support the findings from the questionnaire data. These participants were distinct from the 40 respondents who took part in the questionnaire.

To ensure consistency in the strategic analysis, reverse coding was applied to each negative statement (weaknesses and threats), meaning that higher scores consistently reflect more favourable conditions for the area. The weighting assessment procedure for each IFAS and EFAS matrix followed the standard calculation framework, whereby each respondent's average score was multiplied by the predetermined weighting to obtain the final score. A transparent procedure was applied to all statement items prior to calculating the strategic coordinates. For further details regarding the questionnaire, please refer to Table 1.

Table 1. SWOT Analysis Questionnaire

Item	Type of Statement	Scale			
		1	2	3	4
	Strength (S)				
S1	The tourist area at Gerdarsi Beach is large enough to accommodate many visitors				
S2	The environmental and spatial capacity of Gerdarsi Beach has been scientifically assessed to support sustainable development				
S3	Visitors can enjoy a variety of activities such as swimming, boating, picnicking, and fishing				
S4	Gerdarsi Beach offers appealing natural attractions				
S5	Local handicrafts from Nyama Village are available for sale to visitors				
Total Strength Score					
	Weaknesses (W)				
W1	Inadequate infrastructure and public facilities				
W2	Lack of promotion and marketing regarding Gerdarsi Beach as a tourist destination				
W3	Limited access to tourism-sector skills and training				
W4	Limited destination management capacity at Gerdarsi Beach				
W5	Limited documented regency-level government involvement in development to date				
Total Weakness Score					
	Opportunities (O)				
O1	Opportunities for collaboration between tourism authorities, investors and the local community				
O2	Increased interest and active participation of the local community in tourism development				
O3	Growing interest in educational and conservation-based tourism				

Item	Type of Statement	Scale			
		1	2	3	4
O4	The uniqueness and distinctive features of the Gerdarsi Beach natural tourist attraction compared to other destinations				
O5	Advances in digital media and promotional trends to attract tourists				
Total Opportunity Score					
	Threats (T)				
T1	Environmental damage caused by uncontrolled visitor numbers				
T2	Lack of awareness amongst the local community and tourists regarding the management of the tourist area				
T3	Inappropriate tourism development leading to negative consequences				
T4	Occasional conflicts between the local community and tourists				
T5	Competition from other destinations poses a threat to Gerdarsi Beach				
Total Threat Score					

Source: Author's analysis (2025)

The analysis included an assessment of conditions at Gerdarsi Beach, including basic facilities (roads, clean water, public toilets), the cleanliness of the destination area, and visitor activities. Observations were carried out from July to August 2025. Documentation was carried out during the research to collect secondary data through photographs, videos, location maps and various documents from the local government (Tourism Office) relating to sustainable development strategies at Gerdarsi Beach, Nyama Hamlet, Moa Island, Southwest Maluku Regency.

Data Analysis

In this study, the scope of the management system distinguishes between internal and external factors. Internal factors (strengths and weaknesses) refer to the conditions, assets and shortcomings that are directly present in the Gerdarsi Beach area and can be controlled by the management (for example, facilities and human resources). External factors (opportunities and threats) refer to external conditions beyond the direct control of destination management (government policy, opportunities for collaboration, digital trends and competition).

Data analysis was carried out by identifying internal and external factors. Internal factors consist of two components: strengths (S) and weaknesses (W). External factors consist of two components: opportunities (O) and threats (T). Each factor is weighted based on its priority score. These priority scores are then compiled into the IFAS (Internal Factor Analysis Summary) and the EFAS (External Factor Analysis Summary). Once the IFAS and EFAS analyses are complete, strategies are developed based on the S-O, W-O, S-T and W-T frameworks.

The IFAS and EFAS calculation procedures are carried out through the following steps:

1. Combined Responses: Responses from 20 local residents and 20 tourists (a total of 40 respondents) are combined by calculating the average score for each statement. This approach was used to give equal numerical weight to the perspectives of the local community and tourists, thereby producing a proportional assessment of internal and external factors within the destination area.
2. Ranking: The ranking is derived directly from the respondents' average scores (ranging from 1 to 4), which represent the respondents' level of agreement regarding the conditions at Gerdarsi Beach tourist area.
3. Standardised Weights: The weight for each factor is calculated based on its assessed importance. The formula used is:

$$Weight = \frac{Average\ Item\ Score}{Total\ Category\ Score}$$

4. Priority Score: The final score for each factor is calculated by multiplying the standardised weight by the rating:

$$Score = Weight \times Rating$$

IFAS Matrix

The IFAS (Internal Factor Analysis Summary) matrix refers to a component of SWOT analysis used to evaluate the strengths and weaknesses of a specific region, particularly within a tourist destination. The table for the IFAS Matrix (Summary of Internal Strategic Factors Analysis) covers the following:

Table 2. IFAS (Internal Strategic Factor Analysis)

Strategic Factor	Weight	Rank	Score
Strengths (S)			
Total Weight			
Weaknesses (W)			
Total Weight			
IFAS score = total strength score − total weakness score			

Source: Muharto (2020)

The IFAS and EFAS coordinates are determined from the total weighted scores. The formula for the X-coordinate (IFAS) is defined as the total weighted score for strengths (S) minus the total weighted score for weaknesses (W). Meanwhile, the Y-coordinate (EFAS) is determined by the total weighted score for opportunities (O) minus the total weighted score for threats (T). The mathematical formulae used are:

$$X = \Sigma\ (S) - \Sigma(W)$$
$$Y = \Sigma\ (O) - \Sigma\ (T)$$

Here, Σ denotes summation, and each weighted score is calculated as weight × rating.

EFAS Matrix

The EFAS matrix (external strategic factor analysis) is a tool used in SWOT analysis to evaluate external factors such as opportunities and threats. This matrix helps to organise these factors and serves as a tool for prioritising them in order to determine their level of importance within the EFAS (External Strategic Factor Analysis). The EFAS table is attached as Table 3 below:

Table 3. EFAS (External Strategic Factor Analysis)

Strategic Factor	Weight	Rank	Score
Opportunities (O)			
Total Weight			
Threats (T)			
Total Weight			
EFAS score = total opportunity score − total threat score			

Source: Muharto (2020)

Grand Strategy Matrix

The grand strategy matrix is used to analyse the strategies implemented by an organisation or manager in formulating strategy based on the results of an evaluation of internal and external factors. The grand strategy matrix can help determine how to utilise the strengths of an organisation or group to overcome weaknesses and capitalise on existing opportunities in order to mitigate threats within a specific environment. The horizontal axis of this matrix is IFAS (strengths and weaknesses), whilst the vertical axis is EFAS (opportunities and threats). The horizontal axis of the Grand Strategy Matrix, as shown in Figure 1, is as follows:

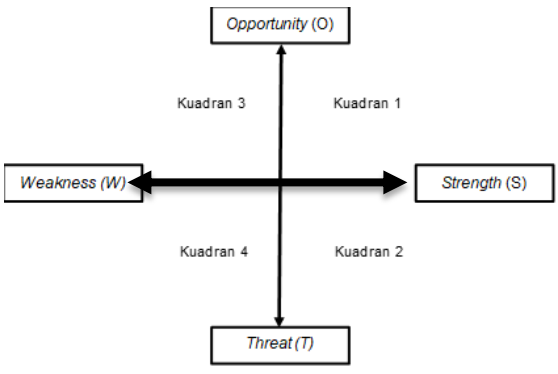


Figure 1. Grand Strategy Matrix
(Source: Rangkuti, 2017; Erwin, 2013)

The horizontal axis of the IFAS (Internal Factor Analysis Summary) is a framework for evaluating and summarising the internal factors of a tourist destination, including strengths (positive aspects) and weaknesses (negative aspects).

1. Horizontal Axis of the IFAS (Internal Factor Analysis Summary)

The horizontal axis of the IFAS serves as a framework for evaluating and summarising the internal factors of a region, both in terms of strengths (positive aspects) and weaknesses (negative aspects)

a) Strengths:
All the resources and attractions of a tourist area possess greater advantages and potential and can be utilised for development.

b) Weaknesses:
Weaknesses and limitations in human resources affect the destination area's ability to achieve performance targets in development and contribute to underdevelopment due to limitations in human resources (HR).

2. Vertical Axis of the EFAS (External Factor Analysis Summary)

The EFAS matrix is used to assess and summarise factors beyond the control of a tourist area. EFAS comprises two factors: opportunities and threats.

c) Opportunities:
Opportunities can be utilised to develop human resources, improve

inadequate facilities, provide training and education, and analyse tourism trends in order to compete with other destinations and achieve the set objectives.

d) Threats
Climate change, global tourism trends, conflict and profitability are threats that affect tourist areas. There are several threats that can have a negative impact on a tourist destination, such as the emergence of new, more popular tourism trends, constantly changing visitor preferences, and a lack of implementation of sustainable practices within the destination area.

Based on the Grand Strategy Matrix framework outlined by Rangkuti (2017) and Erwin (2013), the explanation for each quadrant is set out as follows:

a) Quadrant 1 (Strengths + Opportunities) = Aggressive strategy:
Leveraging the potential of Gerdarsi Beach's natural resources and attractions as opportunities for sustainable development.
b) Quadrant 2 (Weaknesses + Opportunities) = Turnaround strategy:
Minimising existing weaknesses in the tourist area and utilising available opportunities to pursue sustainable development in the tourist destination.
c) Quadrant 3 (Weaknesses + Threats) = Defensive strategy:
Minimising weaknesses and reducing exposure to external threats through preventative actions.
d) Quadrant 4 (Strengths + Threats) = Diversification strategy:
Utilising all available resources (natural attractions and potential) to minimise various threats, such as damage to the destination area and the shift of visitors to other destinations due to tourism trends.

In the development of a tourism area, it is important to formulate appropriate strategies or measures to mitigate potential future threats, based on the potential or attractions of the tourism area in question. There are various perspectives based on theories of tourism development strategy; one of these is that of Bellato et al. (2023), who emphasise that any framework used in the development of a destination area must take into account ecosystem health, the well-being of local communities (without conflict), and a transformative experience for every visitor (enhancing visitor quality).

Parmawati and Hardyansah (2022) also emphasise the need for tools or techniques used in tourism development that are specifically tailored to the interests of individual visitors as supporting factors. Therefore, Table 4 is used to match internal factors (strengths–weaknesses) with external factors (opportunities–threats), which are then correlated to form S-O, S-T, W-O, and W-T. For more specific details of the SWOT matrix, see Table 4 below:

Table 4. SWOT Matrix

Internal Factors		**External Factors**
	Strengths (S)	Weaknesses (W)
Opportunities (O)	S-O	W-O
Threats (T)	S-T	W-T

(Source: Erwin, 2013)

Based on Table 4, the SWOT matrix yields the following strategic combinations: S-O, W-O, S-T and W-T. These four strategies provide a framework for developing a sustainable tourism area at Gerdarsi Beach without detracting from the destination's appeal and the potential of its natural resources.

RESULTS AND DISCUSSION

Current status of the Gerdarsi Beach Tourist Destination

Gerdarsi Beach is situated in Nyama Village, Moa Island, Southwest Maluku Regency (MBD), at approximately the coordinates 128°0′44.26″ E (East Longitude) and 8°15′22.58″ S (South Latitude). Its natural attractions include such as stretches of white sand along the coastline, blue waters teeming with marine life, and animals such as horses, goats, buffalo and cattle. A more detailed illustration of the natural features of the Gerdarsi Beach tourist area is shown in Figure 2.



Figure 2. Existing Conditions of Gerdarsi Beach Tourism (Source: Author's documentation, 2025)

Based on this analysis, basic facilities such as public toilets, rubbish bins, fast-food stalls and clean water are currently unavailable in the destination area, making it difficult for visitors to freshen up after taking part in tourist activities. There are also no fast-food restaurants, so visitors usually bring their own packed lunches from home. The lack of basic facilities often causes visitors to leave the destination area earlier than planned. The findings of an analysis carried out by Nuh et al. (2024) confirm that a lack of basic facilities in tourist areas often results in low levels of interest amongst tourists in taking part in tourist activities.

Based on in-depth discussions with visitors during the visit, the level of promotion and marketing for the Gerdarsi Beach tourist area remains low (it has not yet been implemented to its full potential). Whilst promotion via YouTube, Instagram, Facebook and TikTok has indeed taken place, collaboration with travel agencies and content creators remains limited. Consequently, the potential and appeal of the Gerdarsi Beach tourist area are still not widely recognised amongst tourists, both domestic and international.

Human resources, particularly amongst the local community of Nyama Hamlet, remain limited when it comes to the development and management of sustainable tourist destinations. Skills training in the field of tourism such as training in management (environmental awareness), homestay management, waste management and tour guiding has not yet been provided to the local community. The natural potential and attractions of Gerdarsi Beach have not been fully utilised due to a lack of effective management. The findings of an analysis carried out by Syahputra et al. (2025) also confirm that the development, management and promotion of tourism depend on the quality of human resources.

Although in-depth discussions have taken place with village officials (the village head and his staff), the local government (the Southwest Maluku Regency Tourism Office) has yet to become involved in the development of Gerdarsi Beach as a tourist destination. At present, there are no documented policies or funding programmes specifically aimed at developing this tourist area. The government has also not yet provided basic infrastructure, such as public transport and sanitation facilities. Hadi et al. (2025) suggest that the lack of involvement by the local government in the development of the destination area means that its natural potential and tourist attractions cannot be utilised to the full.

Respondent Profile by Gender

A total of 40 respondents took part in this study, comprising 20 tourists and 20 residents of Nyama Hamlet who were visiting the Gerdarsi Beach tourist area. Among the tourists surveyed, there were 6 men (30 per cent) and 14 women (70 per cent) aged between 18 and 60. The majority of tourists (80 per cent) are first-time visitors who enjoy various activities such as swimming and taking photographs of the sights at Gerdarsi Beach, whilst 20 per cent of them have visited Gerdarsi Beach before for activities such as picnics.

The long stretch of fine white sand and the blue sea add to the uniqueness of this beach, so that the majority (70 per cent) of visitors usually make the most of the sea as a natural attraction for various activities such as swimming. In addition, the savannah that dominates this area is utilised by tourists for specific events, such as local cultural festivals, camping trips, pre-wedding photo shoots, the creation of promotional content, art exhibitions and music festivals. Consequently, this tourist area can be enjoyed by visitors of all ages and genders for a variety of activities. The distribution of respondents by gender is shown in Table 5 below:

Table 5. Distribution of Respondents by Gender

Gender	Local Community	Percentage	Tourists	Percentage
Female	11	55%	14	70%
Male	9	45%	6	30%
Total	20	100%	20	100%

Source: Author's analysis (2025)

Table 5 shows that women constitute the largest group within the sample of the local community in Nyama Hamlet, accounting for 55 per cent (11 people), whilst men account for 45 per cent (9 people). Similarly, female tourists made up the majority of the sample, accounting for 70 per cent (14 people), whilst male tourists accounted for only 30 per cent (6 people). This proportion is consistent with research carried out by Parmawati et al. (2019), which showed that tourism activities are often dominated by women (54 per cent). However, it should be noted that these proportions reflect only the selected sample and do not represent the gender composition of all visitors.

Characteristics of Respondents by Age

Respondents' age was recorded as part of their demographic profile. In this analysis, a distinction was made between 20 local residents of Nyama Hamlet and 20 visitors during their visit to the Gerdarsi Beach tourist area. The data are presented in Table 6.

Table 6. Characteristics of Respondents by Age

Age	Local Community	Percentage	Tourists	Percentage
18-30	10	50%	10	50%
31-40	4	20%	5	25%
41-50	4	20%	5	25%
51-60	2	10%	0	0%
Total	20	100%	20	100%

Source: Author's analysis (2025)

The results of the analysis show that both the local community of Nyama Hamlet and tourists are predominantly aged between 18 and 30. In each group of

20 respondents, 10 people (50 per cent) fell into this age category. This finding is consistent with the analysis carried out by Marques et al. (2025), which revealed that millennials and Generation Z often engage in tourism activities with specific objectives, such as seeking education and new experiences, as well as strengthening social ties.

The largest age group amongst the respondents was 18–30 years, accounting for 50 per cent of each group. Respondents in this age group generally adapt more easily to change. The high level of participation amongst this younger age group had a positive impact, enabling the respondents to fully understand the questionnaire they were given. Although this age group represents the largest segment of the sample, these findings do not establish that the majority of all visitors to Gerdarsi Beach fall into this age category.

Characteristics of Respondents by Level of Education

The level of education amongst the local community in Nyama Hamlet remains relatively low. According to the analysis, some members of the local community in Nyama Hamlet are secondary school leavers. The data indicates that the respondents' educational background is predominantly at secondary level; consequently, the distribution of educational attainment is taken into account in the development strategy for the Gerdarsi Beach tourist area. Further details regarding the characteristics of respondents by level of education are set out in Table 7.

Table 7. Characteristics of Respondents by Educational Level

Education Level	Local Community	Percentage	Tourists	Percentage
SD	7	35%	6	30%
SMP	0	0%	2	10%
SMA	7	35%	9	45%
D3	0	0%	1	5%
S1	6	30%	2	10%
Total	20	100%	20	100%

Source: Author's analysis (2025)

Based on the results of the questionnaire distributed to each respondent during the study, the number of primary school (SD) and upper secondary school (SMA) graduates was the same, namely 7 people (35 per cent). Meanwhile, 6 people (30 per cent) from the local community hold a bachelor's degree. In the selected resident sample, 70 per cent were primary-school or upper-secondary-school graduates.

Among the tourists (visitors), high school graduates constituted the largest group, at 45 per cent (9 people). They were followed by primary school graduates (6 people, 30 per cent), lower secondary school graduates (2 people, 10 per cent), bachelor's degree holders (2 people, 10 per cent), and holders of a three-year diploma (D3) (1 person, 5 per cent). These findings indicate that the educational backgrounds of the respondents vary between the two groups.

Among the local community in Nyama Hamlet, the largest proportion consists of primary school (SD) and upper secondary school (SMA) graduates, each accounting for 35 per cent. Meanwhile, amongst tourists, upper secondary school (SMA) graduates make up the largest group, accounting for 45 per cent.

These findings indicate that the tourism development strategy for Gerdarsi Beach needs to be carefully tailored to the educational level of the local community,

particularly with regard to education (training) and capacity building. The results of the analysis carried out by Ozdemir et al. (2023) confirm that a shortage of human resources in the tourism sector often hinders the planned development process.

SWOT Analysis

A SWOT analysis has been carried out at Gerdarsi Beach to identify internal factors (strengths and weaknesses) and external factors (opportunities and threats). Gerdarsi Beach's strengths as a tourist destination include its white sandy beaches, blue waters, biodiversity and the savannah landscape that stretches across the entire destination area. Weaknesses include a lack of basic facilities (clean water, public toilets, litter bins, restaurants) and limited promotional efforts.

The potential of the Gerdarsi Beach tourist area is recognised by the national legal framework (Law No. 10 of 2009 on Tourism) and by post-pandemic economic growth. However, the government's commitment to providing funding, documented programmes and agreements regarding the development of the Gerdarsi Beach tourist area has not yet been fulfilled. These factors will be analysed using the IFAS and EFAS matrices to identify effective and sustainable strategies for developing the Gerdarsi Beach tourist area, with the aim of boosting the economy of the local community in Nyama Hamlet.

Internal Factor Analysis Summary (IFAS): Weights and Scores

Based on the results of questionnaires collected from the local community of Nyama Hamlet and visitors (tourists) during a visit to the Gerdarsi Beach tourist area, internal factors (strengths and weaknesses) have been weighted and scored on the basis of the questionnaires distributed. A summary of the internal factors within the strategic analysis framework (IFAS) is presented in Table 8.

Table 8. Internal Factor Analysis Summary (IFAS): Matrix Weights, Rating, and Scores

Internal factor				
Item	**Internal Strengths**	**Weight**	**Rating**	**Score**
S1	The tourist area at Gerdarsi Beach is large enough to accommodate many visitors	0.080	2	0.16
S2	The environmental and spatial capacity of Gerdarsi Beach has been scientifically assessed to support sustainable development	0.070	1	0.07
S3	Visitors can enjoy a variety of activities such as swimming, boating, picnicking, and fishing	0.075	2	0.15
S4	Gerdarsi Beach offers appealing natural attractions	0.075	2	0.15
S5	Local handicrafts from Nyama Village are available for sale to visitors	0.110	1	0.11
Total Strength (S)		**0.410**		**0.64**
Item	**Internal Weaknesses**	**Weight**	**Rating**	**Score**
W1	Inadequate infrastructure and public facilities	0.100	1	0.10

W2	Lack of promotion and marketing regarding Gerdarsi Beach as a tourist destination	0.080	2	0.16
W3	Limited access to tourism-sector skills and training	0.100	2	0.20
W4	Limited destination management capacity at Gerdarsi Beach	0.170	1	0.17
W5	Limited documented regency-level government involvement in development to date	0.140	1	0.14
Total Weaknesses		**0.590**		**0.77**
IFAS Score = 0.64 – 0.77 = −0.13				

Source: Author's analysis (2025)

Applying the IFAS approach described by Muharto (2020), the total score for strengths is 0.64, whilst the total score for weaknesses is 0.77, resulting in a total IFAS score of –0.13. The IFAS results indicate that weaknesses outweigh strengths as a basis for development in the Gerdarsi Beach tourist area. Among the strength indicators, item S1 received the highest weighted score (0.16). This item reflects respondents' perceptions that Gerdarsi Beach has sufficient space to accommodate visitors.

Although this IFAS item reflects respondents' perceptions of the size of the area within the Gerdarsi Beach tourist area, these perceptions are supported by the results of previous calculations (Kayapa et al., 2026 regarding the assessment of physical carrying capacity (PCC), which indicate that, with a total area of 14,530,971 m², the Gerdarsi Beach tourist area is physically capable of accommodating 2,966,860 visitors per day. These findings are further reinforced by the diversity of activities available under items S3 and S4, which scored 0.15. These results are consistent with the findings of Goran et al. (2019), who emphasise that government strategies for development planning particularly in tourist areas based on existing attractions (tourist activities) present an opportunity to foster a sustainable economy.

The most significant weakness was identified in item W3, with a score of 0.20, namely the limited opportunities for tourism-related training among local residents. These results indicate that the local community in Nyama Hamlet still has very limited opportunities to learn about tourism, particularly in relation to sustainable development and management, an issue that must be addressed urgently through a range of mutually supportive methods and techniques. Other weaknesses include item W4, which has a score of 0.17 and relates to a lack of management staff, and W2, with a score of 0.16, which relates to promotion and marketing. These findings are consistent with the views of Deb et al. (2024), who emphasise that a lack of marketing and promotion is one of the issues affecting visitors' interest in participating in tourism activities (untapped natural potential).

Overall, the total IFAS Matrix score is −0.13, indicating that internal weaknesses present a challenge in the development of Gerdarsi Beach as a tourist destination. Therefore, appropriate, effective and sustainable strategies, methods and techniques are required, focusing on addressing weaknesses, such as human resources (HR) training. Mawardi and Cahyadi (2024) also emphasise that weaknesses, such as a lack of understanding regarding the development of tourism destination areas, must be addressed promptly so as not to hinder the achievement of development objectives in tourism areas. It is also

necessary for the managing bodies to promote these destination areas through available communication channels.

With regard to promotion, Sokhimano et al. (2025) emphasise that, in a tourist destination, if promotion is not carried out via various digital platforms, that destination will fall behind and its attractions will remain unknown to visitors. Furthermore, infrastructure and facilities must be continuously developed whilst maintaining the appeal of the Gerdarsi Beach tourist area.

External Factor Analysis Summary (EFAS): Weights and Scores

Based on the results of a questionnaire administered to local residents in Nyama Hamlet and to visitors during their tourist activities at Gerdarsi Beach, external factors (opportunities and threats) were weighted according to their level of importance, as assessed from the perspective of local residents and tourists. Specifically, these external factors are presented in Table 9, together with their weights, ratings and scores.

Table 9. External Factor Analysis Summary (EFAS): Matrix Weights, Rating, and Scores

Item	External Opportunities	Weight	Rating	Score
O1	Opportunities for collaboration between tourism authorities, investors, and the local community	0.095	2	0.19
O2	Increased interest and active participation of the local community in tourism development	0.150	1	0.15
O3	Rising demand and trends in education and environmental conservation based tourism	0.160	1	0.16
O4	The uniqueness and distinctive features of the Gerdarsi Beach natural tourist attraction compared to other destinations	0.090	1	0.09
O5	Advances in digital media and promotional trends to attract tourists	0.100	2	0.20
Total Opportunity		**0.595**		**0.79**
Item	**External Threats**	**Weight**	**Rating**	**Score**
T1	Environmental damage caused by uncontrolled visitor numbers	0.090	1	0.09
T2	Lack of awareness amongst the local community and tourists regarding the management of the tourist area	0.120	1	0.12
T3	Inappropriate tourism development leading to negative consequences	0.140	1	0.14
T4	Occasional conflicts between the local community and tourists	0.060	1	0.06
T5	Competition from other destinations poses a threat to Gerdarsi Beach	0.100	1	0.10
Total Threats		**0.510**		**0.51**
EFAS Score = 0.79 – 0.51 = +0.28				

Source: Author's analysis (2025)

Based on the results of the External Factor Analysis Summary (EFAS), an opportunity score of 0.79 and a threat score of 0.51 were obtained, resulting in a positive total score of +0.28 for external factors. These results indicate that the Gerdarsi Beach tourist area has the potential for sustainable tourism development. The highest score for the opportunities category was found in item O5 (0.20), which relates to digital promotion and promotional trends aimed at attracting tourists.

These results indicate that opportunities to promote tourist areas based on their natural potential and attractions can enhance their competitiveness compared with other destinations. The opportunity identified in point O1, with a score of 0.19, also highlights the potential for collaboration between tourism authorities, investors, the local community and the local government in planning the development of the Gerdarsi Beach tourist area.

The findings of this analysis are consistent with the research carried out by Hardiyono et al. (2026), which emphasises that cooperation amongst stakeholders (the community, the government and investors) is key to the successful development of a tourist area without detracting from its natural potential and appeal. Conversely, the threat with the highest score on item T3 (0.14) was the statement regarding inappropriate tourism development, which has negative consequences for both the tourist destination and the local community in Nyama Hamlet. The findings of the analysis carried out by Widawski et al. (2023) emphasise that, in tourism development, failure to adopt a sustainability-based approach may result in environmental damage, a decline in the quality of tourism, and the risk of losing competitiveness.

IFAS and EFAS Matrices

The IFAS (Internal Factor Analysis Summary) matrix is a technique commonly used to identify and evaluate conditions within a tourist area by assigning ratings, weights, and scores to internal factors (strengths and weaknesses). Consequently, these scores are crucial for determining the strategic positioning of the tourist area. The IFAS matrix identifies strengths and weaknesses of the Gerdarsi Beach tourism area, particularly those that make a significant contribution or act as barriers to achieving the established development strategy.

The EFAS matrix (External Factor Analysis Summary) is used to identify opportunities and threats originating from outside the Gerdarsi Beach tourism area. Thus, it has a significant impact on development and competition with other destinations, particularly regarding economic growth and the sustainability of local communities (Parmawati et al., 2021). Consequently, the IFAS and EFAS matrices, with their respective weights of internal and external factors, serve as a framework for plotting coordinates on the X and Y axes based on the calculation results. More specifically, the results of the strengths, weaknesses, opportunities, and threats scores will be presented in Table 10 and directly combined with the strategy matrix, which will be presented in Figure 3.

Table 10. Coordinates of the Gerdarsi Beach Tourism Development Strategy

Internal Factors	X Coordinate	External Factors	Y Coordinate
S = 0.64	-0.13	O = 0.79	+0.28
W = 0.77		T = 0.51	

Source: Author's analysis (2025)

The resulting strategic position for Gerdarsi Beach is illustrated in Figure 3.

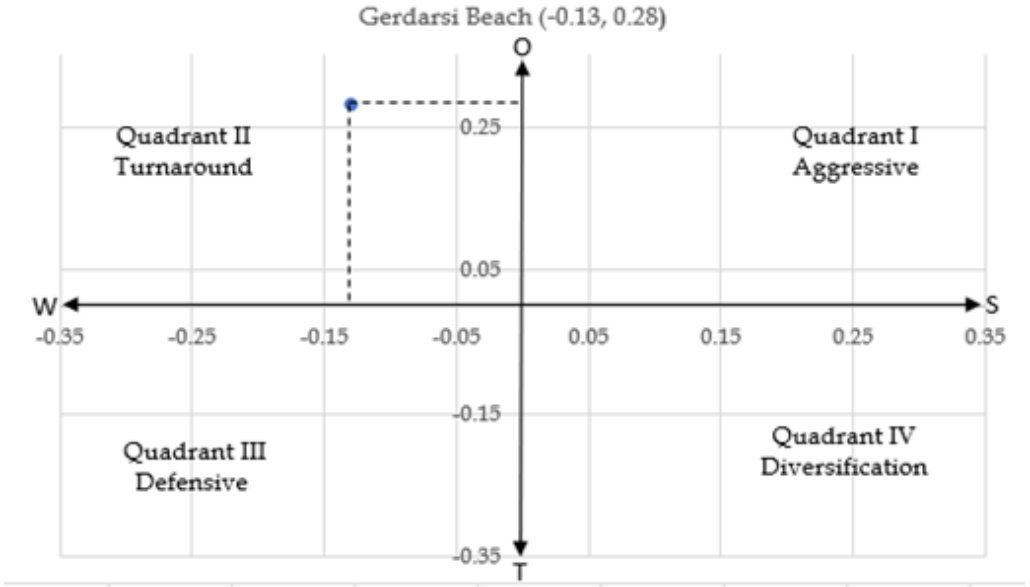


Figure 3. Grand Strategy Matrix of Gerdarsi Beach (Source: Author's analysis, 2025)

Based on the results of the IFAS and EFAS matrices, the reported coordinate values were −0.13 on the x-axis, indicating that weaknesses are more dominant, and +0.28 on the y-axis, indicating that opportunities are more dominant. This position falls within Quadrant II, where the Gerdarsi Beach tourism area has been placed in order to minimise weaknesses whilst capitalising on existing opportunities to achieve sustainable tourism development at Gerdarsi Beach. Based on the findings for each quadrant, the next step is to formulate an integrated development strategy as the top priority.

Table 11. Combined Strategies of the Grand Strategy Matrix Quadrants

Quadrant	Analysis	Strategy	Concrete Action
I	Visitors can enjoy activities such as snorkeling, boating, camping, and picnicking while on their trip	Aggressive	Promoting recreational activities such as swimming, boating, picnicking, and camping as the main attractions
II	The lack of human resources (HR) to learn how to develop and manage the Gerdarsi Beach tourist destination in a sustainable manner	Turnaround	Providing opportunities for training in the development and management of the Gerdarsi Beach tourist area
III	Development of basic infrastructure to enhance the visitor experience through collaboration with the tourism office, investors, and the local community as key stakeholders in the	Defensive	Proposed actions for developing the Gerdarsi Beach tourism area include allocating the local government budget to provide 5 public restrooms, 15 trash bins, and 10 clean water facilities. The proposed action plan also

Quadrant	Analysis	Strategy	Concrete Action
	management of the Gerdarsi Beach tourist destination		includes forming a 10-person management team with a shift system and conducting staff training at least twice a month. Once development is complete, the local community of Nyama Hamlet will be responsible for managing the area.
IV	Competition with other destinations	Diversification	Creating a unique tourism experience, distinctive branding, and collaboration among various stakeholders by leveraging the attractions of Gerdarsi Beach

Source: Author's analysis (2025)

Based on the action-oriented strategy outlined in the quadrant, the development of the tourism area should be attraction-based. Development efforts must be tailored to the attractions of the Gerdarsi Beach tourism destination without causing any negative impacts. Training for human resources (HR) in the tourism sector is also essential to keep pace with tourism trends and the interests of different visitor groups.

Furthermore, quality is a key factor in destination management to ensure that tourists feel safe, at ease, and comfortable when visiting tourist areas (Dewi et al., 2026). The findings of Gherdan et al. (2025) confirm that training in tourism area management must also be prioritised to facilitate more effective and sustainable tourism development. This concept is a key point and can be utilised in the development of the Gerdarsi Beach tourism area. For this purpose, an appropriate strategy is needed; therefore, a SWOT matrix is used to formulate a sustainable tourism development strategy for Gerdarsi Beach.

Gerdarsi Beach Tourism Development Strategy

Based on a combination of internal factors (strengths and weaknesses) and external factors (opportunities and threats), four development strategies have been formulated for the Gerdarsi Beach tourism area. The S-O (strengths-opportunities) strategy aims to maximise existing potential and attractions as opportunities for development. The W-O (weaknesses-opportunities) strategy focuses on minimising existing weaknesses by capitalising on available opportunities.

Meanwhile, the S-T (strengths-threats) strategy involves leveraging attractions and potential to address threats, such as shifting tourism trends. Finally, the W-T (weaknesses-threats) strategy seeks to reduce internal weaknesses to avoid potential threats. More specific details regarding the strategies formulated for the development of the Gerdarsi Beach tourism area are provided in Table 12.

Table 12. SWOT Strategy Matrix for Gerdarsi Beach Tourism Development

	Strength (S)	**Weakness (W)**
	The tourist area at Gerdarsi Beach is large enough to accommodate many visitors	Inadequate infrastructure and public facilities
	The environmental and spatial capacity of Gerdarsi Beach has been scientifically assessed to support sustainable development	Lack of promotion and marketing regarding Gerdarsi Beach as a tourist destination
	Visitors can enjoy a variety of activities such as swimming, boating, picnicking, and fishing	Limited access to tourism-sector skills and training
	Gerdarsi Beach offers appealing natural attractions	Limited destination management capacity at Gerdarsi Beach
	Local handicrafts from Nyama Village are available for sale to visitors	Limited documented regency-level government involvement in development to date
Opportunity (O)	**S-O**	**W-O**
Opportunities for collaboration between tourism authorities, investors and the local community	Developing areas used by tourists during their visits while taking environmental impacts into account	Forming collaborative groups for the development of basic infrastructure. The government provides funding, and the community carries out the work
Increased interest and active participation of the local community in tourism development	A 90% local participation target is proposed as an aspirational benchmark, subject to validation of workforce availability and stakeholder agreement. While current tourism skills are limited, this will be addressed through the proposed training programmes. This proposed target would require stakeholder agreement to ensure that the local community of Nyama Hamlet remains the primary beneficiary, thereby minimising potential conflicts within the tourism area.	Developing community-based promotional programmes as a way to attract tourists
Growing interest in educational and conservation-based tourism	Educate visitors on proper waste disposal and maintaining the cleanliness of the destination before they engage in tourist activities	Implementing a learning model based on the sustainable development and management of Gerdarsi Beach as a tourist destination

The uniqueness and distinctive features of the Gerdarsi Beach natural tourist attraction compared to other destinations	Implementing a maximum daily quota of 300 visitors based on carrying-capacity data (Kayapa et al., 2026. An adaptive monitoring system will reduce the quota by 50 visitors (300 to 250, then 200) in subsequent periods if monitored environmental indicators deteriorate.	Establishing a tourism awareness group based on zoning, implemented in Nyama Hamlet as a quota system and a closed-loop tourism route
Advances in digital media and promotional trends to attract tourists	Promoting local products as icons through various media or digital platforms as a symbol of their appeal	Preparing a proposal regarding the attractions and natural potential within the Gerdarsi Beach tourist area, addressed to the local government
Threats (T)	**S-T**	**W-T**
Environmental damage caused by uncontrolled visitor numbers	Leveraging the destination's vast area to create zones for tourist activities	Implementing a policy for setting daily visitor quotas based on the carrying capacity and capacity of the destination area
Lack of awareness amongst the local community and tourists regarding the management of the tourist area	Monitoring visitor activity; if visitors violate the established rules, they will be subject to penalties	Campaigns highlighting a destination's main attractions and conservation efforts as a key component of promotional efforts
Inappropriate tourism development leading to negative consequences	Implementing a controlled visitor activity zoning system with a primary focus on daily visitor numbers	Involving tourism-sector personnel at every stage of development, rather than focusing solely on management
Occasional conflicts between the local community and tourists	Establishing guidelines as a code of conduct for visitors before engaging in tourist activities	Establishing a security post to manage conflicts, operated by the local community of Nyama Hamlet
Competition from other destinations poses a threat to Gerdarsi Beach	Positioning local products as exclusive offerings and developing authentic storytelling strategies rooted in cultural heritage	Building a brand based on a collective of tourism villages that partner with other destinations, rather than competing with them

Source: Author's analysis (2025)

The SWOT strategy matrix is presented in Table 12. The S-O strategy focuses on optimising potential and appeal through local products and collaboration with the Regency Tourism Office and investors to increase the income of the local community in Nyama Hamlet through tourism revenue. The W-O strategy prioritises addressing key weaknesses, such as limitations in basic facilities and human resources, particularly regarding promotion and marketing. These weaknesses can be overcome by leveraging existing opportunities, such as support from the government and the Tourism Office, as key stakeholders in the development of a sustainable Gerdarsi Beach tourism destination.

To ensure that the priorities of the SWOT matrix can be implemented in accordance with the established plan, several

strategies have been formulated based on priority by considering urgency, cost, feasibility, and benefits for the local community of Nyama Hamlet. The top priority is focused on basic infrastructure and human resource (HR) capacity building, as both are the primary focus for the Gerdarsi Beach tourism area. Details of the implementers, responsible institutions, timing, and success indicators are outlined in the matrix below.

Table 13. Action Plan Matrix (Prioritised Strategies)

SWOT Pair	Priority	Responsible Institution	Timing	Success Indicator
W1 + O1	High	Tourism Office and investors	Months 1–6	Facilities built and operational
W3 + O2	High	Tourism Office and University	Months 1–3	Number of personnel trained
S1 + T1	Medium	Destination Management	Ongoing	Visitor counts and environmental monitoring
W2 + O5	Medium	Local community and youth groups	Months 3–12	Social media engagement

Source: Author's analysis (2025)

The implications for the action plan from the SWOT strategy matrix are based on the prioritised sequence. The W1 + O1 strategy prioritises the construction of basic facilities (restrooms and rubbish bins) funded by the Tourism Office during the first six months. The W3 + O2 strategy focuses on capacity building through sustainability-based management training during the first three months. Meanwhile, S1 + T1 involves implementing a daily visitor quota while considering the existing conditions of the tourism area (periodic monitoring). Finally, W2 + O5 is the launch of a digital marketing campaign by local youth, starting in month 3 through month 12, with the aim of maximising destination promotion.

Meanwhile, the S-T strategy focuses on limiting the number of visitors and developing local products as a means of maintaining competitiveness against other destinations. The W-T strategy focuses on minimising the weaknesses and threats at Gerdarsi Beach by organising educational or training programmes that involve various stakeholders (the community and the government). Overall, these four strategies are proposed as a strategic roadmap to develop the Gerdarsi Beach tourism area in a sustainable manner.

CONCLUSION

Based on the results of the SWOT analysis, the IFAS and EFAS matrices position the Gerdarsi Beach tourism area in Quadrant II (Turnaround), with an X-axis value of -0.13 and a Y-axis value of +0.28. These findings indicate that the priority for the Gerdarsi Beach tourism area is to minimise existing weaknesses in order to capitalise on opportunities for sustainable development, without diminishing the potential and attractiveness of the destination.

The recommended actions are to leverage natural attractions and local products (S-O), improve basic facilities and tourism skills through collaboration (W-O), use environmental zoning and visitor management to address external threats (S-T), and reduce infrastructure and management weaknesses that may intensify environmental pressure or diminish competitiveness (W-T).

However, it should be noted that these are proposed strategic recommendations, not evidence that the proposed

programmes have been implemented. Therefore, these findings do not yet demonstrate actual increases in economic growth or achieved sustainability in the Gerdarsi Beach tourism area. Furthermore, due to the limited sample of only 40 respondents (20 local residents of Nyama Hamlet and 20 tourists), the results of this study should be interpreted as an exploratory assessment of the Gerdarsi Beach tourism area, rather than a conclusion that can be generalised to other tourism areas.

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AI USE STATEMENT

The authors reported using DeepSeek to help interpret reviewers' comments during manuscript revision. ChatGPT (OpenAI) was subsequently used for language editing, proofreading, and correction of typographical errors. The tools were not used to collect data, perform the SWOT calculations, or generate the research findings. The author remains responsible for verifying the content, methodology, references, and conclusions.

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