

Participatory Management in Mangrove Ecotourism: A Strategy to Support the Green Economy in Maros Regency

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ABSTRACT

The present study focused on participatory management in mangrove ecotourism management in Ampekale Village, Maros Regency, through the role of local communities. The objective of this study was to analyze the role of local communities in mangrove ecotourism management with a view to supporting the green economy in Maros Regency. This research is of a descriptive qualitative nature and employs AHP (Analytical Hierarchy Process) data analysis techniques. The findings of this study suggest that the criteria of education derived from visitors, awareness and education are pivotal to participatory management in mangrove ecotourism management. Another criterion to be considered is economic empowerment, which is also the primary means by which these objectives may be achieved. The criteria above are derived from the following: income from ecotourism, employment opportunities, and local businesses. It is anticipated that the integration of the community in training, collaboration, and promotion in management will facilitate the sustainable development of mangrove ecotourism, thereby ensuring the provision of benefits to both local communities and the environment. This approach is expected to contribute to the realization of a green economy in Maros Regency. This study also contributes to the development of local government policies and offers best practice recommendations for the participatory management of mangrove ecotourism in supporting a green economy framework.

INTRODUCTION

Mangrove ecotourism has emerged as a strategic approach to sustainable development in coastal regions. Mangrove areas fulfil a number of ecological functions, including the role of a carbon sink, as well as acting as an abrasion barrier and providing a habitat for marine biodiversity. In addition to these functions, mangrove areas have the

potential to serve as a nature-based tourism destination that is environmentally friendly. The management of this potential necessitates an approach that is not only technical and ecological but also social and participatory, thereby ensuring that the benefits are widely felt and sustainable (**Spalding *et al.*, 2020; Lehtikoinen *et al.*, 2025; Zakari *et al.*, 2025**).

The role of participatory management is of significant importance, as it is an approach that involves various stakeholders, especially local communities, in the entire process of decision-making, implementation, monitoring, and evaluation of development programs. This approach emphasizes dialogue, transparency, and collaboration as the fundamental pillars of resource management (**Giampiccoli & Saayman, 2018; Garcia *et al.*, 2025**). In the context of ecotourism, the practice of participatory management has been demonstrated to enhance conservation effectiveness, fortify local capacity, and foster social and economic sustainability (**Fitriana *et al.*, 2023; Arevalo *et al.*, 2025**). In accordance with this, the green economy has become an increasingly relevant development framework. The concept of a green economy is predicated on the premise of economic growth that is low-carbon, socially inclusive, and efficient in its use of natural resources (**UNEP, 2022; Zaenab *et al.*, 2025**). The development of ecotourism in mangrove areas, when undertaken with the involvement of local communities, is consistent with the principles of the green economy. This is because it encourages the sustainable use of natural resources, creates employment opportunities in environmentally sustainable industries, and strengthens the social and ecological resilience of coastal communities (**Gorgens *et al.*, 2021; Tiwari *et al.*, 2024**). Participatory management represents a governance model that prioritizes the direct engagement of local stakeholders in decision-making, thereby enabling more inclusive and adaptable approaches to managing natural resources. Integrated with the green economy paradigm defined by low-carbon growth, efficient use of resources, and social inclusivity (**UNEP, 2022**) participatory ecotourism initiatives help to create synergies between ecological sustainability and economic progress. A notable example can be seen in Malaysia's Matang Mangrove Forest Reserve, where community-led ecotourism has effectively aligned conservation efforts with the generation of local income (**Chan & Ma, 2016**). Likewise, in Thailand's Trang Province, participatory mangrove ecotourism has illustrated how local knowledge and active involvement can advance both ecosystem rehabilitation and the economic well-being of communities (**Ishikawa *et al.*, 2020**).

The concept of a green economy in local contexts, such as Maros, should be regarded as more than a mere economic strategy. It has the potential to catalyze ecological justice and enhance the quality of life for the community (**Palmer & Chuamuangphan, 2018**). When local communities are involved as key actors rather than merely beneficiaries, the transformation to a green economy can be more equitable, adaptive and sustainable (**Eshun & Tichaawa, 2020; Daris *et al.*, 2023**). This study must be conducted in order to examine the manner in which participatory management practices can be effectively integrated into the development of mangrove ecotourism in

the Maros Regency. This approach not only contributes to environmental conservation but also facilitates the transition to a green economy at the local level through the active involvement of communities as agents of change.

MATERIALS AND METHODS

1. Date and study area

This research was conducted for four months, from September to December 2024, in Ampekale Village, Bontoa District, Maros Regency, Indonesia. The map of this research location can be seen in Fig. (1).

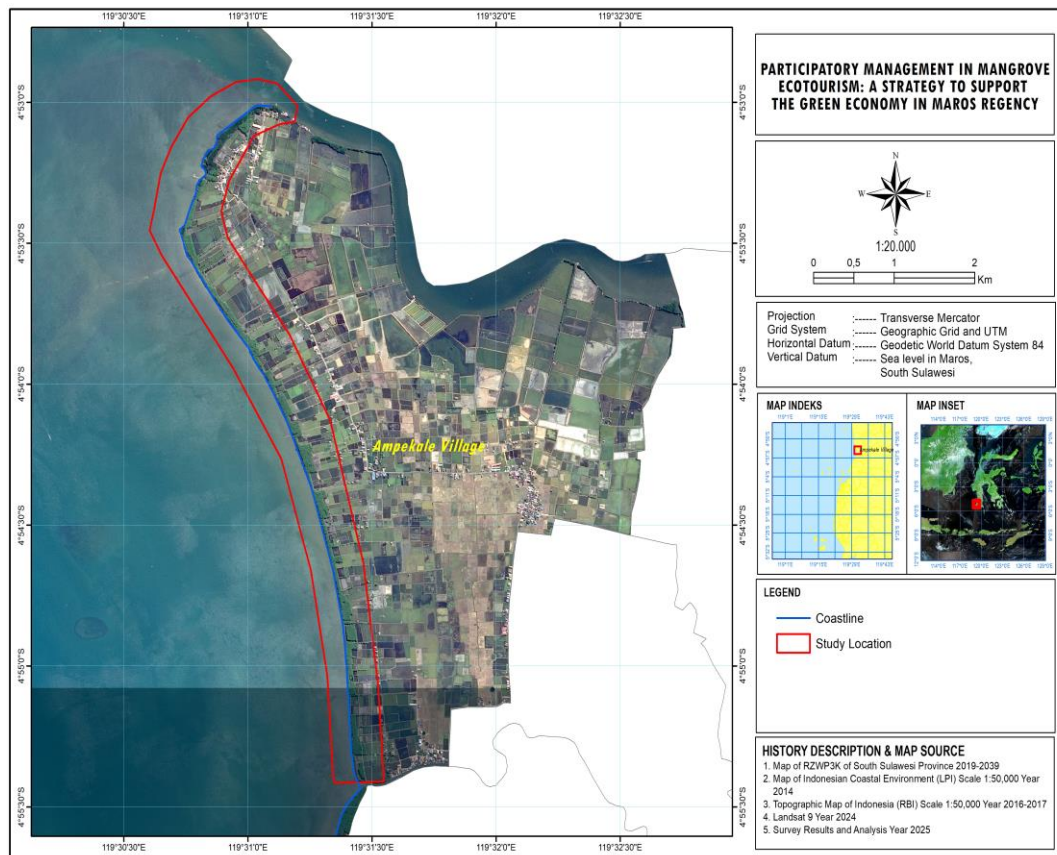


Fig. 1. Map of research location

2. Tools and materials

The instruments employed in this research, along with their respective applications, can be found in Table (1).

Table 1. Research tools and materials

No.	Tool	Utility
1	Questionnaire	To collect primary data from local communities regarding their perceptions, roles, and involvement in ecotourism management.
2	Voice Recorder	Used during in-depth interviews to record information without losing details of the conversation.
3	Camera	To document the condition of the mangrove area, community activities, and existing ecotourism facilities.
4	Laptop	To process data, write reports, and analyze research results.
6	Location Map	Assist in mapping mangrove areas and ecotourism activity zones for spatial analysis.
7	GPS	To determine the coordinates and location of mangrove areas and essential points of ecotourism activities.

3. Data source

Primary data are information obtained directly from the primary source *in situ* through direct interaction with respondents or research objects. This study's primary data were collected from the local community of Ampekale Village, ecotourism managers, the village government, and related agencies (Maros Regency Fisheries Service, Tourism Service, and Environmental Service). Primary data were obtained through interviews and field observations with various stakeholders, including members of the local community, ecotourism operators, village authorities, and representatives from relevant government agencies (Fisheries, Tourism, and Environmental Departments of Maros Regency). This information was essential for understanding stakeholder roles, perspectives, and levels of participation in managing mangrove ecotourism. The resulting insights directly contributed to achieving the research goal of examining local community engagement in participatory ecotourism management to advance green economy initiatives.

Secondary data are defined as information obtained from sources or documents that have previously been available and not directly from researchers. The following documents are official village records: The following documentation is available for perusal: the RPJMDes, the village profile, the village regulations on ecotourism, and activity reports. The data pertaining to population, socioeconomic status, education, and livelihood were sourced from the BPS or the village office. The following publications may be of relevance to the study of ecotourism and community empowerment: scientific journals, books and research reports. Local government documentation: The following plans have been formulated for the district: development plans, environmental policies, and plans for the development of tourism. Secondary data served to enrich the primary data by offering contextual insights related to institutions and policies. Key documents,

including the RPJMDes, village profiles, ecotourism regulations, and local development plans, were analyzed to comprehend the institutional structure and planning environment influencing ecotourism management. In addition, statistical data sourced from BPS and various publications provided valuable information on demographic, social, and economic conditions, which are critical for evaluating both the viability and potential impacts of ecotourism development.

4. Data collection technique

In-depth interviews were conducted to explore the views, experiences and roles of the community in the development of mangrove ecotourism. Field observations were conducted to directly observe ecotourism activities, community involvement, and the physical condition of the mangrove area. A series of interviews were conducted using questionnaires, the objective of which was to obtain quantitative data on perceptions, participation levels, and community expectations for ecotourism development.

5. Data analysis

Data analysis can be defined as the process of working with data, organizing it, sorting it into something that can be managed, synthesizing it, looking for and finding patterns, determining what is essential and what has been learned, and deciding what can be communicated to others. The following steps were utilized to ascertain community participation through its role in mangrove ecotourism management in Ampekale Village, Bontoa District, Maros Regency. Qualitative descriptive analysis was employed.

1. Data reduction

Following the collection of primary and secondary data, the subsequent steps involve the sorting of data, the creation of themes, the categorization of data according to their respective fields, the elimination of superfluous data, the arrangement of data in a coherent manner, and the production of a summary within the designated analysis unit. The reduction of data will engender a more lucid representation, thereby facilitating the conduct of further data collection and the facilitation of searches if required. At this stage, the process of focusing and abstracting raw data into meaningful information is underway.

2. Data presentation

In this form of analysis, data are presented in narratives. Researchers then describe the results of the data findings in sentence descriptions and sequential and systematic relationships between categories.

3. Summarizing data

The evidence obtained at this stage is consistent with the data collected during the fieldwork, thereby ensuring the accuracy and factuality of the findings. The following study analyzed the management strategies for developing mangrove ecotourism. The analysis depended on local community participation, and the role of the local community in Ampekale Village, Bontoa District, Maros Regency was examined.

The Analytical Hierarchy Process (AHP) was used to support the analysis. Thomas L. Saaty developed the AHP, which is one method that can be used in decision-making by taking into account factors of perception, preference, experience and intuition. AHP integrates personal judgments and values into a coherent framework. This method constitutes a framework for effective decision-making, whereby problems are simplified and the decision-making process accelerated by dividing the problem into constituent parts, arranging these parts or variables in a hierarchical structure, assigning numerical values to subjective considerations regarding the importance of each variable, and synthesizing these various considerations to determine which variables have the highest priority and to act in a manner that influences the outcome of the situation (Saaty, 2008).

Recent research has demonstrated the effective use of AHP in managing natural resources and ecotourism through community-based approaches, for example in ranking ecotourism sites within protected areas and formulating sustainable ecotourism strategies in coastal zones (Rahman *et al.*, 2023). The AHP method facilitates decision-making by breaking down complex issues into a structured hierarchy of criteria and alternatives, assigning weighted values to indicate their relative significance, and integrating these assessments to inform strategic choices.

The AHP is predicated on a series of axioms, including Reciprocal Comparison, Homogeneity, Dependence, and Expectation. This methodological framework underscores the assessment of expectations and preferences in decision-making processes. Assessments can be characterized as both quantitative and qualitative data (Ali *et al.*, 2020). The AHP method has been demonstrated to facilitate the development of objective and measurable strategy recommendations, with these recommendations being based on the real priorities of the community and stakeholders. This approach is particularly well-suited to community-based management and decision-making processes, including those employed in the context of mangrove ecotourism development.

RESULTS AND DISCUSSION

Local communities have been shown to play a critical role in the successful development of ecotourism, especially in areas that have natural and cultural wealth, such as the mangrove areas of Ampekale Village, Maros Regency. Community involvement understood not only as an object but also as a subject or primary actor in ecotourism activities, is instrumental in achieving a balance between environmental sustainability and social welfare. Consequently, the role of local communities is not merely a supplementary component in the realm of ecotourism; rather, it constitutes the primary underlying factor that determines the long-term success of an area based on ecological and cultural tourism.

1. Determination of criteria sub-criteria, and alternatives

The decision support system, which was employed to determine the role of local communities through their participation in mangrove ecotourism management, was included in the criteria factors for determining the requirements for supporting goals, including:

1. Local community involvement
2. Natural resource management
3. Infrastructure and accessibility
4. Education
5. Economic empowerment

An evaluation was conducted on each destination, utilizing the AHP model to assess the criteria factors and intensity of each criterion. This process enabled the determination of a total value for each destination. Accordingly, the requirements factors and intensities for each criterion were arranged in a hierarchical structure, facilitating their description in accordance with Fig. (2).

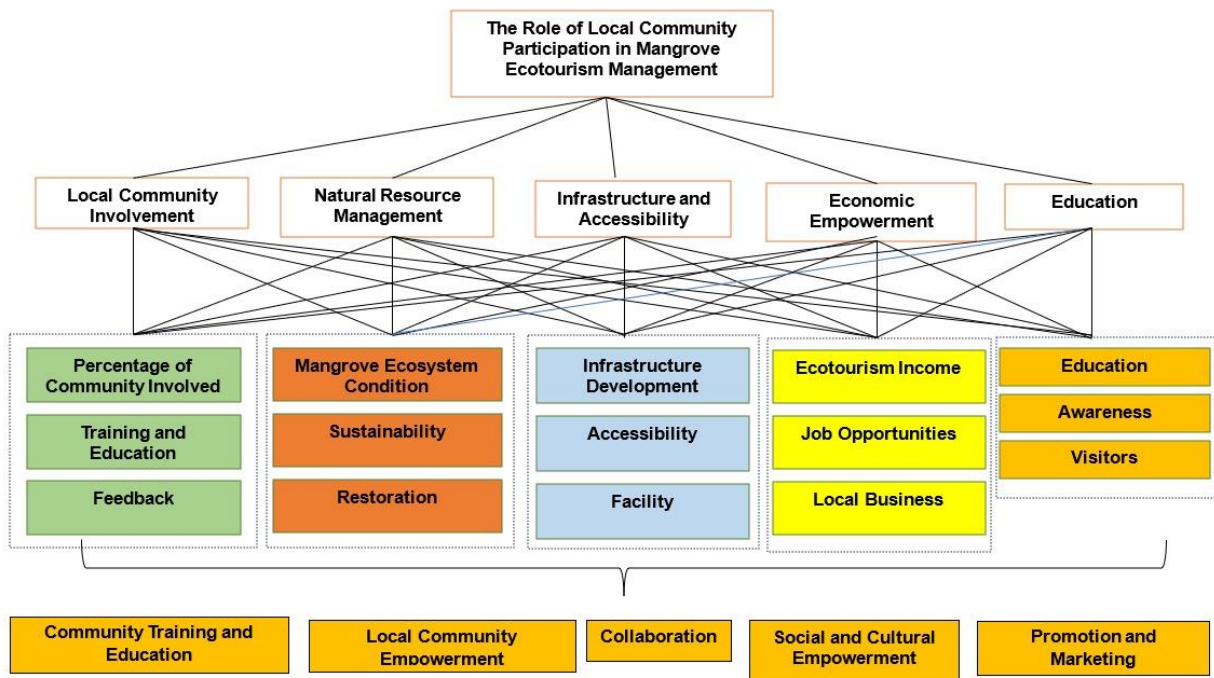


Fig. 2. Research hierarchy structure

As demonstrated by the AHP analysis in Fig. (2), the primary objective of this research was the role of local community participation in mangrove ecotourism management. Criterion 1, on the other hand, outlines the requirements that are instrumental in achieving these goals, including community involvement, natural resource management, infrastructure and accessibility, economic empowerment, and

education. Each criterion was accompanied by a set of sub-criteria, which are intricately interwoven within the third structure. These sub-criteria were methodically organized in relation to each alternative, thereby ensuring a comprehensive and systematic approach to evaluation. The extant alternatives derived from this research were as follows: training and education, local community empowerment, collaboration, social and cultural empowerment, and promotion and marketing.

Following the application of the Analytical Hierarchy Process to the diagram, the sub-criteria of several criteria were determined based on the five alternative improvements outlined in this section:

1. *Training and education*

The development of training and educational programmes was further enhanced to cultivate the mindset, knowledge, and willingness of the community in every useful activity. The programme's success was predicated on the cooperation and active engagement of village institutions in the development of impactful community empowerment initiatives.

2. *Local community empowerment*

Empowering local communities in the development of ecotourism is of significant importance, given its potential for a sustainable positive impact on economic, social, and environmental fronts.

3. *Collaboration*

Collaboration in the development of ecotourism is of critical importance in ensuring the success and sustainability of ecotourism initiatives. This collaboration can involve various parties, including local communities, government, the private sector, academia, and non-governmental organizations. This collaboration is required between the government and the private sector in order to provide support for ecotourism.

4. *Social and cultural empowerment*

The human resources possessed by the village are currently inadequate in terms of education level and knowledge, as well as the spirit of natural resource management and creativity in job creation. It is the considered opinion of researchers that improvements are required in two key areas. Firstly, there is a necessity to provide training and information in order to cultivate a spirit of environmental concern. Promotion and marketing are instrumental in facilitating the effective execution of the village programme, which is guided by its overarching vision and mission to cultivate exceptional human capital.

5. *Promotion and marketing*

Digital marketing is demonstrated to increase the visibility of destinations through a variety of platforms, including social media, tourism websites and travel apps. Consequently, ecotourism can be more widely recognized by tourists from different parts of the world.

Based on the AHP analysis, each criterion was weighted according to stakeholder input, revealing priority areas for action. The five top-ranked strategies—Training and Education, Local Community Empowerment, Collaboration, Social and Cultural Empowerment, and Promotion and Marketing were identified as key drivers for sustainable ecotourism. In particular, training programs are vital for building local capacity and environmental stewardship (Khalid *et al.*, 2021), while digital marketing plays an increasingly critical role in attracting visitors through platforms such as social media and travel apps (Tavitiyaman *et al.*, 2021).

2. Criteria comparison

This paper sets out the findings of a study that compared natural resource management criteria, infrastructure and accessibility, economic empowerment, and education to ascertain the role of local communities in the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency. The study was based on the results of the AHP assessment (Fig. 3).

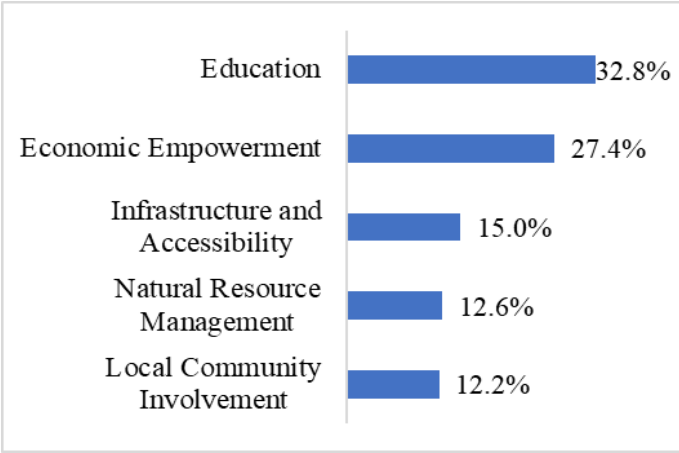


Fig. 3. Research hierarchy structure

The results of the assessment, as illustrated in Fig. (3), demonstrate that the criteria for local community involvement in mangrove ecotourism development in Ampekale Village, Bontoa District, Maros Regency, achieve a percentage value of 12.2% and that the natural resource management criteria achieve a percentage value of 12. The data indicates that the role of the community in the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, is education, with a percentage of 32.8%. The remaining percentages are as follows: infrastructure and accessibility criteria (6%), economic empowerment (27.4%), and 15.0% for each of the requirements.

Economic empowerment (27.4%) was also rated highly, suggesting that the community sees tangible economic benefits as a critical driver of their continued participation and support for mangrove ecotourism initiatives. Enhancing income-generating opportunities through ecotourism can strengthen community ownership and long-term commitment. The criteria of natural resource management (12%) and local

community involvement (12.2%) emphasize the importance of integrating local knowledge and stewardship in maintaining mangrove ecosystems. Meanwhile, infrastructure and accessibility (6%) received a lower relative weight, possibly because the community prioritizes human capacity and economic benefits over physical infrastructure at this stage.

The role of local communities in management to support mangrove ecotourism development

An assessment was conducted of the role of local communities in the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency. This assessment involved elements of village officials and local communities. The findings of the study demonstrate that the role of local communities in the development of mangrove ecotourism is contingent on several factors. These include the percentage of people involved, the provision of training and education, the collection of feedback, the condition of the mangrove ecosystem, sustainability and restoration efforts, the development of infrastructure, accessibility, facilities, the generation of ecotourism income, employment opportunities, local businesses, education, awareness and visitors. The percentage of people involved, training and education, feedback, mangrove ecosystem conditions, sustainability, restoration, infrastructure development, accessibility, facilities, ecotourism income, employment opportunities, local businesses, education, awareness and visitors are used as objectives to assess the role of local communities in the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency.

This evaluation aimed to identify key factors influencing community participation in sustainable ecotourism, using interviews, surveys, and participatory discussions with village leaders and residents. It focused on community involvement, training, feedback mechanisms, ecosystem health, sustainability efforts, infrastructure, accessibility, facilities, economic benefits, job creation, local business growth, education, and visitor engagement. The assessment of the role of local communities in the development of mangrove ecotourism is conducted through interviews and a questionnaire. The results of the evaluation of the role of local communities in the development of mangrove ecotourism are as follows:

The role of local community involvement in mangrove ecotourism development

The role of local communities in ecotourism development in Ampekale Village, Bontoa District, Maros Regency is considered, with a focus on the sub-criteria of the percentage of people involved, training and education, and feedback (Fig. 4).

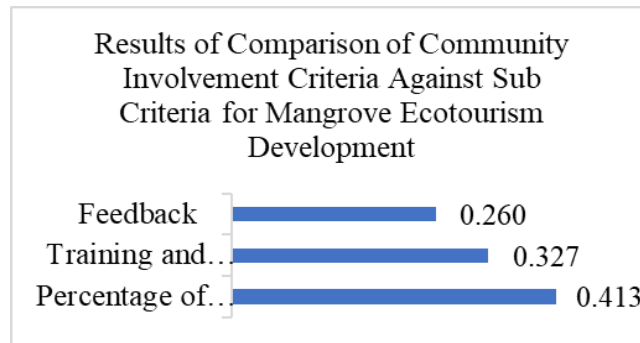


Fig. 4. Comparison results of community involvement criteria against mangrove ecotourism development sub-criteria

The results of the assessment of local community involvement (Fig. 4) indicate that the sub-criteria of mangrove ecotourism development in Ampekale Village, Bontoa District, Maros Regency, utilize the following sub-criteria: percentage of people involved (value: 0.413); training and education sub-criteria (value: 0.327); and feedback (value: 0.260). The results of the AHP analysis demonstrate that the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, is of significant importance to the local community, with a value of 0.327.

The role of natural resource management in mangrove ecotourism development

The role of local communities in the development of ecotourism in Ampekale Village, Bontoa District, Maros Regency is illustrated in Fig. (5). This development is associated with the aim of strengthening natural resource management using the sub-criteria of mangrove ecosystem conditions, sustainability, and restoration.

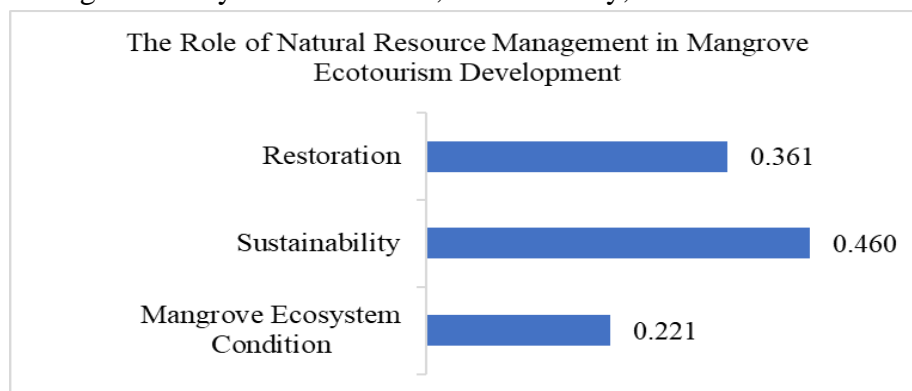


Fig. 5. Comparison results of natural resource management criteria against mangrove ecotourism development sub-criteria

The results of the assessment of natural resource management (Fig. 5) demonstrate that the sub-criteria for mangrove ecotourism development in Ampekale Village, Bontoa District, Maros Regency, are as follows: mangrove ecosystem conditions (0.221), sustainability (0.460), and restoration (0.316). The results of the AHP analysis

demonstrate that the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, is sustainable, with a value of 0.460. The AHP analysis shows that among the sub-criteria for natural resource management, sustainability (0.460) received the highest weight, followed by restoration (0.316) and mangrove ecosystem conditions (0.221). The high weight assigned to sustainability reflects the stakeholders' strong awareness of the need to maintain the ecological integrity of the mangrove ecosystem over the long term.

The role of infrastructure and accessibility in mangrove ecotourism development

The role of local communities in infrastructure and accessibility in the development of ecotourism in Ampekale Village, Bontoa District, Maros Regency is illustrated in Fig. (6). This development is associated with the aim of strengthening natural resource management using the sub-criteria of infrastructure development, accessibility, and facilities.

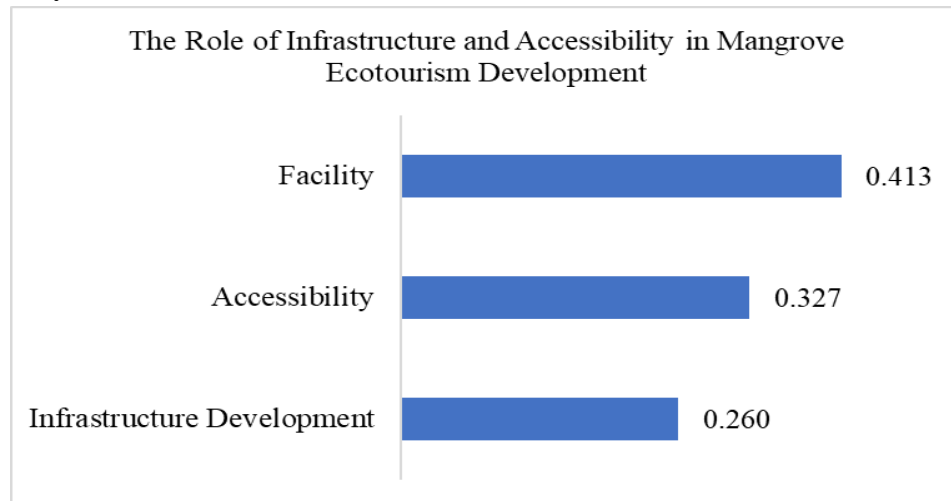


Fig. 6. Comparison results of natural resource management criteria against mangrove ecotourism development sub-criteria

The findings of the infrastructure and accessibility evaluation (Fig. 6) indicate that the sub-criteria for the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency are infrastructure development (0.260), accessibility sub-criteria (0.327), and facilities (0.413). The results of the AHP analysis demonstrate that the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, is a facility of considerable value, with a value of 0.413.

The role of economic empowerment in mangrove ecotourism development

The role of local communities in the economic empowerment of ecotourism development in Ampekale Village, Bontoa District, Maros Regency, is illustrated in Fig. (7). This development is associated with the aim of strengthening economic

empowerment using the sub-criteria of ecotourism income development, employment opportunities and local businesses.

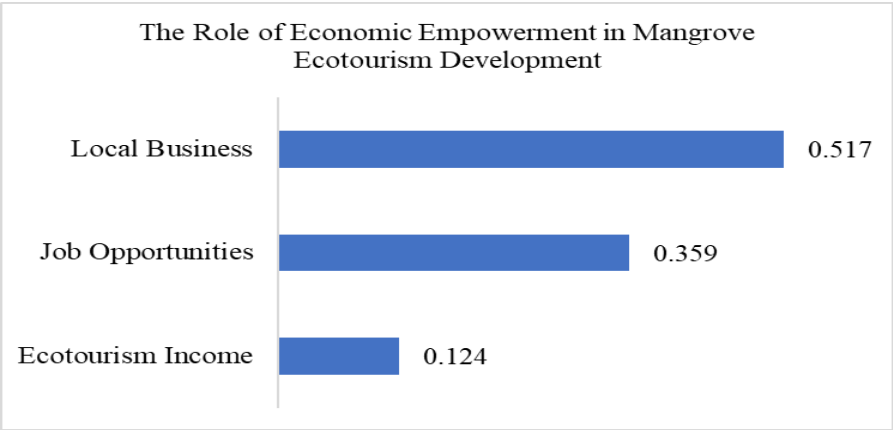


Fig. 7. Comparison results of natural resource management criteria against mangrove ecotourism development sub-criteria

The results of the economic empowerment assessment (Fig. 7) show the sub-criteria for mangrove ecotourism development in Ampekale Village, Bontoa District, Maros Regency using sub-criteria - ecotourism income with a value of 0.124, sub-criteria of employment opportunities with a value of 0.359, and local businesses with a value of 0.517. From the results of the AHP analysis, it can be concluded that the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, is a local business with a value of 0.517.

The role of education in mangrove ecotourism development

The role of local communities in the development of ecotourism in Ampekale Village, Bontoa District, Maros Regency is illustrated in Fig. (8). This development is associated with the aim of strengthening education using the sub-criteria of education, awareness, and visitors.

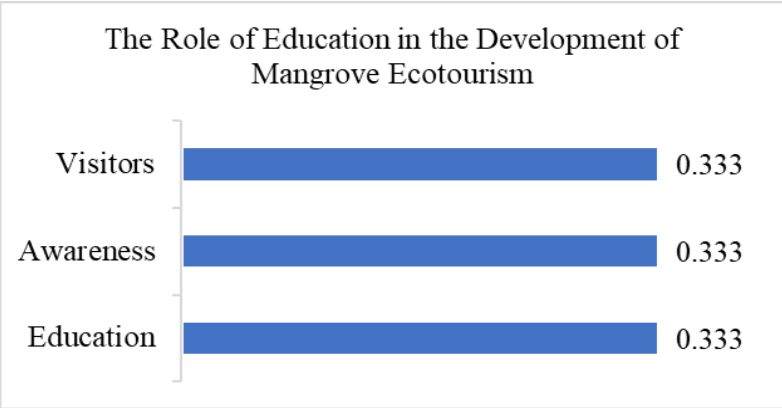


Fig. 8. Comparison results of education criteria against mangrove ecotourism development sub-criteria

The results of the education assessment (Fig. 8) demonstrate that the sub-criteria for mangrove ecotourism development in Ampekale Village, Bontoa District, Maros Regency are education (value of 0.333), awareness (value of 0.333), and visitors (value of 0.333). The results of the AHP analysis demonstrate that the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency is influenced by all sub-criteria, with each sub-criteria exhibiting a significant impact (value of 0.333).

Alternative mangrove ecotourism development

This paper sets out a number of possible alternatives for the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency. These alternatives are compared and contrasted using a range of criteria and sub-criteria, and the paper concludes with a discussion of how best to develop mangrove ecotourism, with particular reference to community training and education, local economic empowerment, collaboration, social and cultural empowerment, and promotion and marketing. As demonstrated in Fig. (9), the results obtained provide a clear indication of the findings.

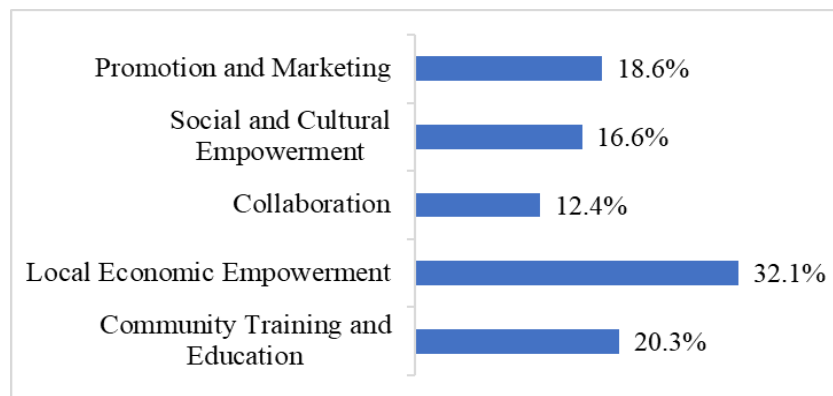


Fig. 9. Results of mangrove ecotourism development alternatives

As demonstrated in Fig. (9), the findings of an alternative mangrove ecotourism development in Ampekale Village, Bontoa District, Maros Regency, were determined by evaluating the following alternatives: strengthening mangrove ecotourism development using community training and education (20.3%), local economic empowerment (32.1%), collaboration (12.4%), social and cultural empowerment (16.6%), and promotion and marketing (18.6%). The alternative employed in the development of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, is local economic empowerment, with a value of 32.1%. The AHP analysis results indicate that local economic empowerment (32.1%) emerged as the highest-ranked alternative in developing mangrove ecotourism in Ampekale Village. This reflects the community's strong expectation that ecotourism development should generate tangible economic benefits—such as income, jobs, and support for local businesses.

Mangrove ecotourism development strategy based on the role of local communities

The results of the Analytical Hierarchy Process (AHP) analysis indicate the most appropriate alternatives for community training and education, local economic empowerment, collaboration, social and cultural empowerment, and promotion and marketing. The findings of this AHP research are utilized as a foundation for the formulation of mangrove ecotourism development strategies in Ampekale Village, Bontoa District, Maros Regency. The determination of mangrove ecotourism development strategies is outlined in Table (2).

Table 2. Management strategies in mangrove ecotourism development based on the participation of local community roles

No	Development Alternative	Development Strategy	Activities
1	Community Training and Education (20.3%)	<ol style="list-style-type: none"> 1. Increase access to technology-based education. 2. Provide visionary training with ecotourism. 	<ol style="list-style-type: none"> 1. Create a learning centre equipped with technological devices. 2. Teach participants about the principles of sustainable ecotourism, which includes environmentally friendly natural resource management.
2	Local Economic Empowerment (32.1%)	<ol style="list-style-type: none"> 1. Training and business development workshops. 2. Access to capital 	<ol style="list-style-type: none"> 1. Training and facilitation of local product development. 2. Investor search to support capital (government, NGO or other sources).
3	Collaboration (12.4%)	<ol style="list-style-type: none"> 1. Collaboration between the private sector, government and communities. 2. Infrastructure development to support development. 	<ol style="list-style-type: none"> 1. Explore each sector to conduct MoUs in the interest of ecotourism.
4	Social and Cultural Empowerment (16.6%)	<ol style="list-style-type: none"> 1. Strengthening the culture and culture that we have. 2. Increased socialization of local wisdom and 	<ol style="list-style-type: none"> 1. Exhibition 2. Cultural performance

		community crafts.	
5	Promotion and Marketing (18.61%)	<ol style="list-style-type: none"> 1. Strengthening the use of social media as a marketing promotion tool. 2. The implementation of cultural and environmental activities plays a vital role in the promotion of ecotourism. 	1. Social media design training to help strengthen the promotion and publication of ecotourism activities.

CONCLUSION

This study explored the participatory management of mangrove ecotourism in Ampekale Village, Bontoa District, Maros Regency, focusing on the role of local communities in shaping sustainable ecotourism development. The findings demonstrate that community participation—particularly in areas such as training and education, economic empowerment, natural resource management, infrastructure development, and promotion—plays a critical role in ensuring the long-term success of mangrove ecotourism. Key recommended strategies include: (1) enhancing access to training and technology-based learning to improve community capacity; (2) promoting local economic empowerment through business development and access to capital; (3) fostering collaboration between government, private sector, and community stakeholders; (4) strengthening cultural identity and local wisdom through social and cultural empowerment; and (5) leveraging digital marketing and cultural-environmental activities to expand ecotourism outreach. The results contribute to the growing body of literature on community-based ecotourism by providing empirical evidence from a mangrove ecosystem context in Indonesia, highlighting how participatory management enhances both ecological sustainability and local livelihoods.

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