

Prioritizing Interventions in Community Tourism Centers Through Multi-criteria Analysis: The Case of Santa Elena, Ecuador

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Abstract

In Ecuador, community-based tourism promotes a sustainable alternative for local development by integrating heritage conservation with income generation for local residents. In the province of Santa Elena, Community Tourism Centers (CTCs) have adopted this approach, leveraging innovation as they face challenges in service quality. These issues require identifying and prioritizing interventions in the most critical areas to improve service delivery. Using a Multicriteria Analysis (MCA) through the Analytic Hierarchy Process (AHP), this study evaluates key factors of image, safety, functionality, and hygiene that influence service quality. The findings reveal heterogeneous conditions in the centers, with recurring technical and operational deficiencies. The CTCs were classified according to the level of intervention required, establishing a technical basis for tailored development roadmaps to promote sustainable, high-quality community-based tourism.

Keywords

Tourism, Community tourism centers, Multicriteria analysis, Innovation, Tourism services

1. Introduction

Ecuador stands out as a pioneer in the development of this tourism typology, recognizing its role as a driver of economic revitalization, cultural renewal, and environmental regeneration within territorial contexts that choose to adopt this activity. Its impact extends beyond economic benefits, influencing household livelihoods and lifestyle patterns [1]. More than a collection of tourism services, community tourism supports ancestral knowledge, local customs, and community-driven management models [2].

Despite its promise, critical questions persist regarding the organizational models and progress of these initiatives [3]. The Plurinational Federation of Community Tourism of Ecuador (FEPTCE) has played a pivotal role in coordinating efforts across regions, bolstered by the Ministry of Tourism's regulatory framework formalized in 2010 through the Community Tourism Center (CTC) designation 2010 [4]. CTCs represent a participatory tourism model grounded in the constitutional recognition of local nationalities and communities [5].

This certification enables state recognition and positions communities as stakeholders vis-à-vis private tourism providers. Services such as accommodation, gastronomy, and guided experiences have resulted in over 231 registered ventures [6]. Nevertheless, many of these initiatives have halted

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operations due to emigration and insufficient self-management capacities, though the sector continues to be relevant for foreign exchange generation [7].

Studies have shown that CTCs struggle to meet both internal and external demands, particularly during the early stages of destination development [8]. This is further compounded by limited managerial knowledge about available resources, benefits of tourism, and the importance of strategic planning [9]. Still, as highlighted by [10], community tourism holds potential for fostering innovation through new products, participatory models, and quality ventures.

The sustainable development of localities must be grounded in their ability to meet current needs without compromising future generations [11]. Consequently, the growth of tourism and its associated demands require a parallel commitment to quality. In response, [12] advocate for the implementation of strategic methodologies aimed at enhancing both quality and sustainability in tourism products. These strategies emphasize the evaluation and diagnosis of services offered by providers—interventions that become necessary when destination quality is at stake [13].

Emerging tourism trends present both opportunities and challenges for small destinations. To remain competitive, these communities must deliver offerings that combine originality, authenticity, and service excellence [14]. Community Tourism Centers (CTCs) appear aligned with these new market dynamics. However, they operate under significant limitations related to access to financial resources, infrastructure, and capacity-building [15]. As [14] observes, many rural communities lack tourism training, service experience, and market awareness. In this context, service quality hinges upon effective management, with four essential factors requiring constant attention: Image, Functionality, Hygiene, and Safety.

Given these realities, MCA (Multi-Criteria Analysis) emerges as the most suitable methodology for assessing service quality. It facilitates the comparison of alternatives and informs decision-making regarding appropriate interventions [16, 17]. Because MCE combines qualitative and quantitative criteria—often conflicting—its effective use requires the active involvement of multiple stakeholders [18, 19].

Although MCE is infrequently applied in tourism research [20], it is well-established in environmental and social studies [16]. Importantly, it offers mechanisms to address conflict while promoting participatory decision-making that accounts for both intrinsic and extrinsic tourism-related factors [21]. This holistic approach enhances both the qualitative and quantitative evaluation of tourism challenges and facilitates planning at various levels [9, 22].

Accordingly, this study adopts a prioritization framework for categorizing interventions in CTCs. This serves as an operational guide for structuring strategic decisions in pursuit of service quality enhancement. The research applies Multi-criteria Analysis to prioritize resource allocation, improve service delivery, and promote the sustainable development of tourism communities in Santa Elena, addressing a clear methodological gap through the integration of multiple dimensions of tourism development.

2. Materials and Methods

2.1. Study area

The study was conducted in four Community Tourism Centers (CTCs): Dos Mangas, Valdivia, San Pedro, and Sacachún—located within the Manglaralto and Julio Moreno parishes of Santa Elena Province, Ecuador (Figure 1). These centers exhibit contextual similarities in their tourism dynamics.

Dos Mangas began organizing tourism initiatives in the early 2000s with support from non-governmental organizations and the Ministries of Environment and Tourism [23]. Officially recognized as a CTC in 2015, it has since participated in various state-led tourism programs. Valdivia, on the other hand, appeals to culturally motivated visitors through attractions such as its museum, aquarium, artisanal fishing, ceramic crafts, gastronomic traditions, and festivals [24].

San Pedro, situated at kilometer 41 of the Spondylus Route, specializes in adventure tourism and is governed by its communal council [25]. Meanwhile, Sacachún—50 km from Santa Elena and 87 km

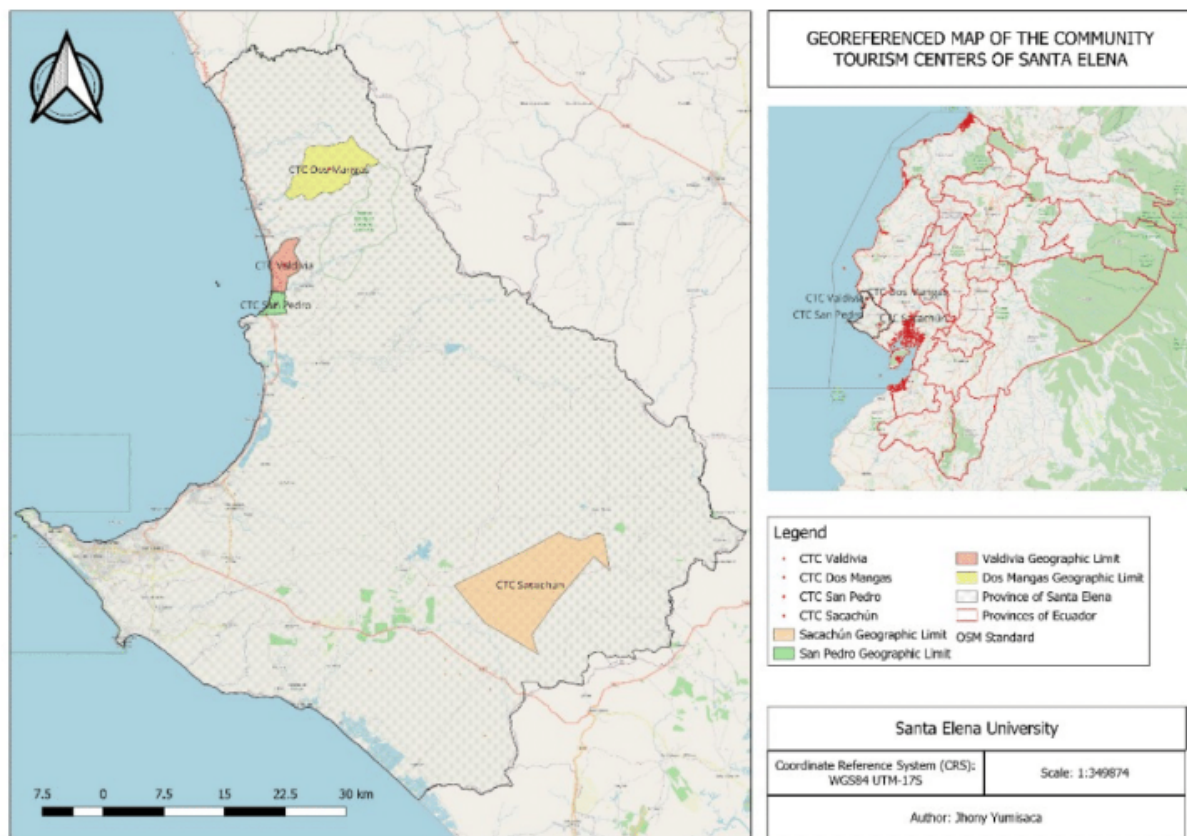


Figure 1: CTC georeferencing map – Santa Elena.

from Guayaquil—is set in a territory rich in archaeological heritage and vernacular architecture. The center preserves traditional knowledge, largely maintained by older adults who safeguard local memory and customs.

This research employed a quantitative and evaluative approach within a descriptive-explanatory framework, aimed at diagnosing, ranking, and prioritizing interventions in CTCs through the use of a Multi-Criteria Analysis (MCA). The study focused on four centers—Dos Mangas, Sacachún, San Pedro, and Valdivia—selected for their tourism potential and diverse operational conditions.

The first stage involved diagnosing technical and operational conditions based on the verification matrix proposed by [14]. This matrix evaluates five service aspects: food, lodging, sports, guidance, and transportation. These aspects were assessed through four cross-cutting quality dimensions—functionality, hygiene, image, and safety—alongside 26 specific evaluation variables (e.g., architecture, furniture, service quality, equipment, health, cleanliness, accident prevention, among others). A total of 942 records were analyzed and classified by center, aspect, factor, and variable. This enabled the identification of affectation patterns and critical service gaps. Frequency and percentage analyses were conducted to detect the most vulnerable components and to establish a Center-Specific Impact Map.

In the second stage, a Multicriteria Analysis model based on the Analytic Hierarchy Process (AHP) was developed to prioritize interventions. AHP facilitated the hierarchical structuring of service components and the allocation of relative weights according to their contribution to tourism service quality. The model comprised four levels: (1) the general objective—intervention prioritization; (2) five core tourism aspects; (3) four cross-cutting quality factors; and (4) the 26 specific variables defined in the diagnostic phase. The third stage consisted of applying the MCA model to the diagnostic data to calculate a Total Score per CTC using weighted averages.

3. Materials and Methods

3.1. Technical and Operational Diagnosis of Community Tourism Centers

This section presents the evaluation levels recorded in the data matrix for each center. In this classification made it possible to identify those centers with the most significant service gaps, as well as those demonstrating greater robustness. Now, the data scale is presented as follows: Level 1 = Low; Level 2 = Medium; Level 3 = High.

Table 1
Quality level.

CCT	1 Low	2 Medium	3High	Total
Dos Mangas	74	81	45	200
Sacachún	10	62	42	114
San Pedro	73	183	204	460
Valdivia	48	64	56	168
Total	205	390	347	942

This section provides a detailed breakdown of each Community Tourism Center (CTC) based on the evaluation levels recorded in the data matrix.

- Level 1 (LOW) reflects a critical condition in basic operational capacity that directly impacts the tourist experience.
- Level 2 (MEDIUM) reflects a “Functional but Improvable Condition”—one that enables basic operations while offering substantial opportunities to enhance quality, sustainability, and efficiency.
- Level 3 (HIGH) indicates an optimal condition, characterized by adequate infrastructure, efficient service delivery, a positive public image, and full compliance with technical guidelines.

3.2. Multicriteria analysis (MCA)

A classification system based on two evaluation axes was proposed to assess the status of Community Tourism Centers (CTCs). This score is measured on a scale from 1 (Low) to 3 (High).

Average Urgency (AU): A semi-quantitative indicator reflecting the temporal priority for intervention, categorized as either High Urgency or Low Urgency.

The interplay between these two axes enables the categorization of each CTC within a four-tier scale, incorporating both performance and intervention timeliness. This multi-dimensional approach enhances the analytical depth of the evaluation, supporting data-driven decision-making and tailored policy responses.

Table 2
Classification Criteria.

Total Score	Average Urgency	Final Classification
From 2.50 to 3.00	≤ 1.50	1 Immediate Intervention
From 2.00 to 2.49	Any value	2 High Priority
From 1.5 to 1.99	Any value	3 Medium Priority
<1.5	Any value	4 Low Priority

Once the Total Score and Urgency have been determined, the AMC model is applied through a structured four-step approach:

1. **Identification of evaluation criteria:** The technical, operational and social criteria were extracted from the evaluation matrix of each Community Tourism Center (CTC), grouped into factors such as:
 - Image (architecture, furniture, decoration).
 - Safety (accident prevention, signage).
 - Attention and service (customer service, staff presentation).
 - Physical environments and maintenance.
2. **Calculation of the total score (TS):** The information was consolidated in a decision matrix, and the weighted average of the evaluations per CTC was calculated, using the numerical scale (1 = low, 2 = medium, 3 = high).
3. **Determination of average urgency (AU)** The temporal dimension was analyzed using indicators of urgency or immediacy (presence of risks, user dissatisfaction, interruption of services).
4. **Priority classification:** By cross-referencing the TS and AU axes, each CTC was categorized into one of four priority levels to guide strategic decisions:
 - Immediate Intervention: The CTC has high standards but needs urgent attention to avoid collapse.
 - High Priority: Good technical performance and requires priority improvements to sustain quality.
 - Medium Priority: Mixed conditions, requires planned intervention and monitoring.
 - Low Priority: Low technical level, but no urgent factors; can be addressed in the long term.

Table 3

Final classification by CCT.

Classification	Dos Mangas	Sacachún	San Pedro	Valdivia	Total
2 High Priority	-	114	460	168	742
3 Medium Priority	200	-	-	-	200
Total	200	114	460	168	942

Analysis of the AMC model results (see Table 3) reveals that approximately 80% of observations fall under the High Priority category. This highlights a widespread need for structural upgrades across the Santa Elena CTCs. Notably, the absence of cases in the Immediate Intervention and Low Priority categories indicates that no center is facing imminent collapse, nor does any currently exhibit sustained excellence.

3.3. Service dimensions

Below is a comprehensive analysis of the thematic distribution table by CTC, with emphasis on the classification of priorities according to the service dimensions evaluated (food, lodging, guidance, transportation, and sports).

Food service is the most affected area in all CTCs, accounting for more than half of the records (55.2%), revealing weaknesses in infrastructure, service quality, and sanitary conditions. The Dos Mangas CTC is the only one classified as Medium Priority, but it has impacts in all basic areas, making it a priority for structural attention. The San Pedro CTC, despite its High Priority classification, presents shortcomings in five areas simultaneously, making it the CTC with the greatest dispersion of problems. Sacachún and Valdivia CTCs require targeted interventions, primarily in food and tourist mobility.

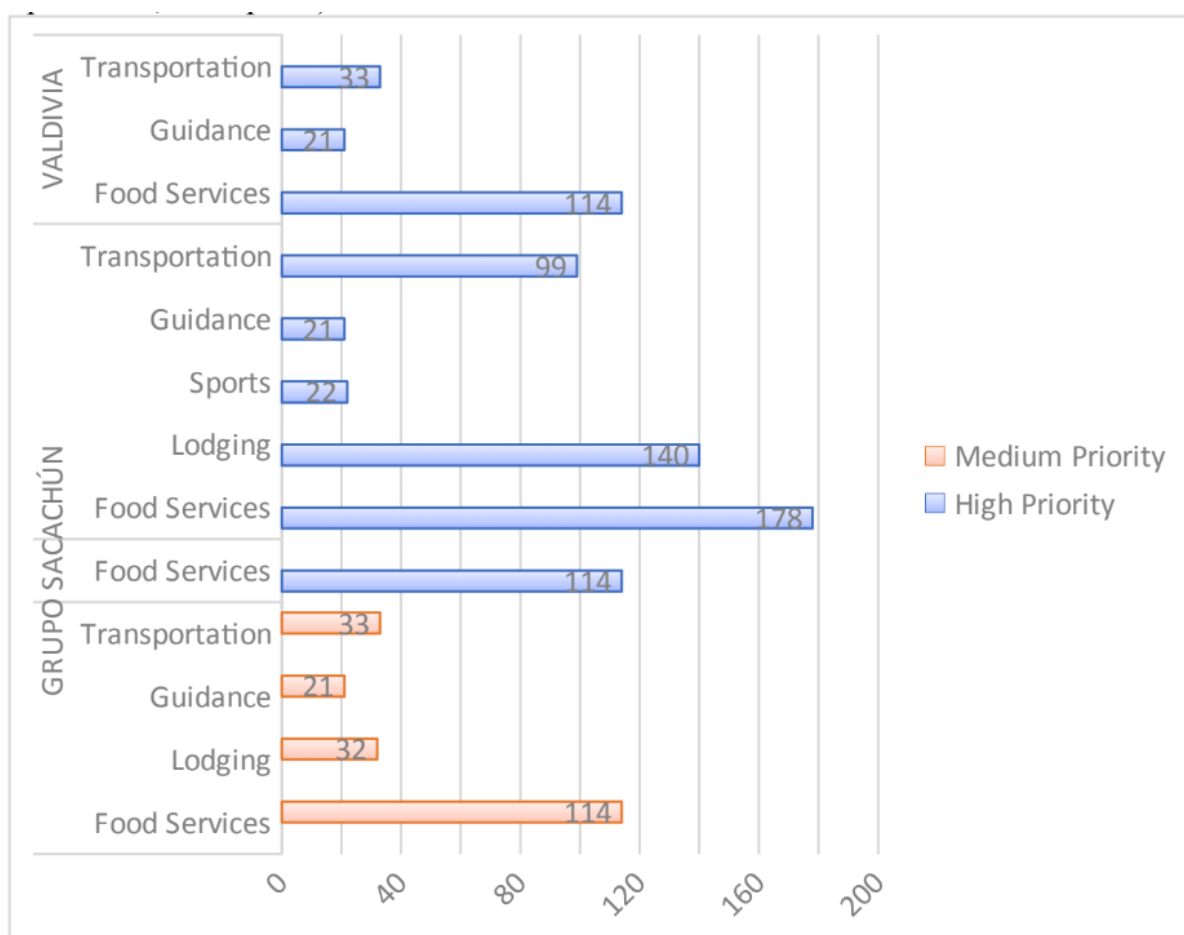


Figure 2: Service dimensions.

3.4. Service factors

The observations are then classified by CTC according to four key cross-cutting factors for the evaluation of quality and conditions: Functionality, Hygiene, Image, and Safety.

Based on the illustration, it is determined that Functionality and Hygiene are the components with the greatest number of gaps, together representing nearly 60% of the problems identified. This finding highlights the urgent need to strengthen physical, operational, and sanitary conditions as the first line of intervention to guarantee a quality tourism service. Although image and safety have a lower quantitative impact, they should not be underestimated, as they are key elements in the perception of quality and in generating visitor trust, directly influencing the destination's competitiveness and its ability to attract tourism on a sustained basis. Strategically, it is highlighted that:

- Within the multidimensional approach, all CTCs present impacts on more than one axis, which requires comprehensive, non-sectoral intervention plans.
- Functionality and Hygiene as priority axes represent structural problems (water, sanitation, kitchens, bathrooms, services).
- Although less frequently considered, Image and Security are important, and they directly impact the sustainability of community tourism.
- The San Pedro and Valdivia CTCs should be prioritized for immediate intervention on several fronts, given the magnitude of the observations.

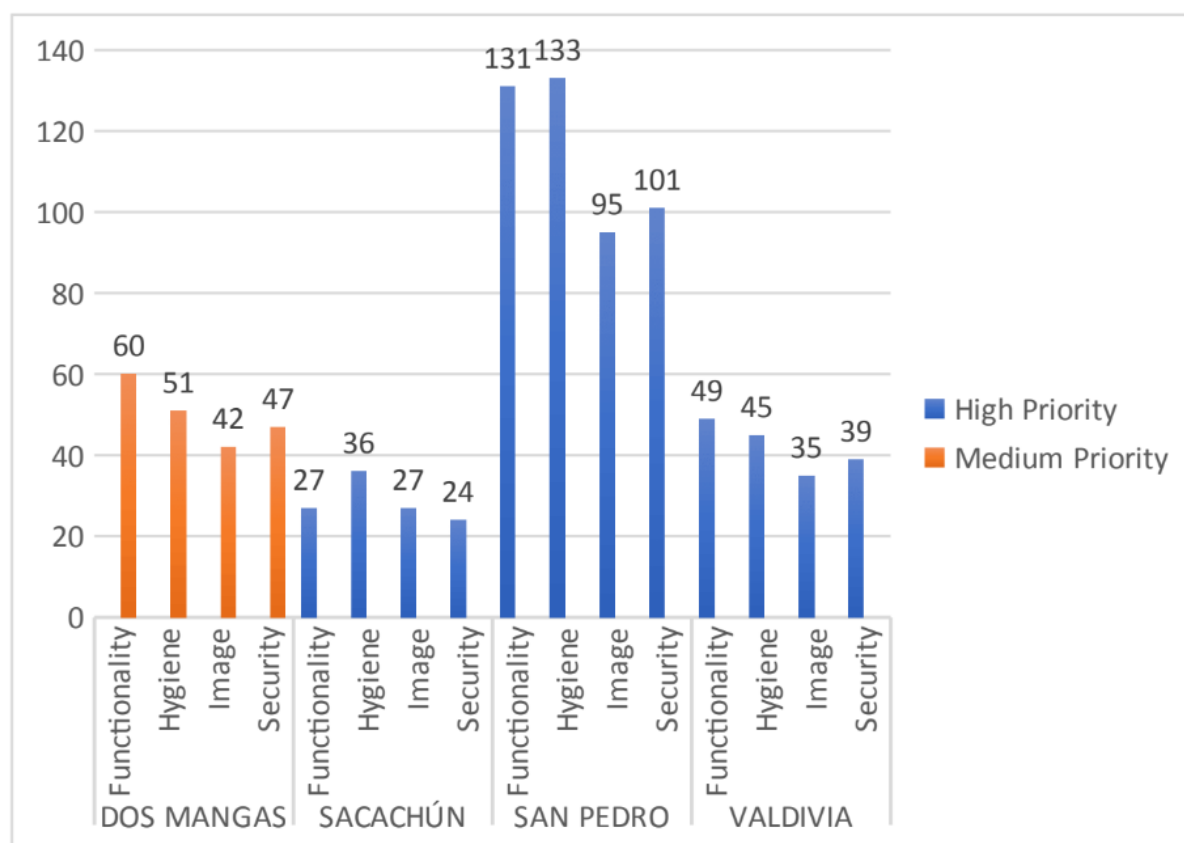


Figure 3: Service factors.

3.5. Service variables

This section breaks down the data by CTC and specific assessment categories, allowing for precise identification of which variables most impact the operation and quality of tourism services.

A cross-sectional analysis of the categories assessed across the four Community Tourism Centers reveals a common pattern of structural and operational weaknesses. Health and cleanliness are evident as recurring problems, with deficiencies identified in basic hygiene conditions, safe food handling, and access to adequate sanitation services, compromising the health of the tourism environment. Finally, the equipment and furnishings show signs of deterioration, directly affecting service functionality and the quality of the visitor experience.

4. Conclusion

The diagnostic evaluation revealed a marked heterogeneity in the conditions of Santa Elena's Community Tourism Centers (CTCs), alongside a consistent pattern of technical and operational deficiencies that significantly impact the quality of tourism services. These findings highlight the urgent need for coordinated efforts to improve the overall quality of community tourism services throughout the region.

The multicriteria analysis guided strategic actions by prioritizing critical variables through a social, economic, and environmental lens. The model's foundation, combining Total Score (TS) and Average Urgency (AU) provided a structured diagnostic framework and a clear basis for intervention. By integrating elements such as infrastructure, risk levels, visitor perception, and sanitary conditions, the methodology effectively processed mixed data types into practical, decision-oriented insights.

The resulting MCA model proved to be a robust, adaptable, and replicable tool for application in other regions with similar territorial contexts. Upon application, the model identified the intervention priorities for the Community Tourism Centers (CTCs): San Pedro, Sacachún, and Valdivia were classified



Figure 4: Service variables.

as high-priority, while Dos Mangas was placed in the medium-priority category, although its conditions require ongoing monitoring.

Declaration on Generative AI

The authors did not use GenAI during the preparation of this work. The authors reviewed and edited the content as necessary and assume full responsibility for the content of the publication.

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