



The Relationship Between Municipal Management and Sustainable Tourism in Urban Protected Areas: A Quantitative Study



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Abstract: This study investigates the relationship between municipal management and sustainable tourism in an urban protected area, specifically the Los Pantanos de Villa Wildlife Refuge in Lima, Peru. The research adopts a quantitative, correlational, non-experimental, cross-sectional design, focusing on a sample of 67 employees from the Municipal Authority. A probabilistic sampling technique was employed to select the sample from a population of 80 workers. Data were collected through two separate questionnaires, each tailored to measure one of the key variables, with responses recorded on a Likert scale ranging from 1 to 5. The study area, Los Pantanos de Villa, is an urban protected area situated in a densely populated region where challenges such as pollution, waste management, and urban sprawl exert significant pressure on environmental sustainability. Findings revealed that 88.06% of respondents assessed municipal management in the protected area as "good," while 76.12% rated sustainable tourism positively. Statistical analysis revealed a Pearson correlation coefficient of 0.590, with a p-value of 0.000, indicating a significant positive correlation between effective municipal management and the promotion of sustainable tourism. These results emphasize the crucial role of municipal governance in enhancing both environmental stewardship and sustainable tourism development within urban protected areas. Effective management practices can contribute to balancing the dual objectives of ecological conservation and urban development, thereby fostering a sustainable tourism model in highly urbanised contexts. This study underscores the importance of governance frameworks in mitigating urban pressures and advancing sustainability in Natural Protected Area (NPA).

Keywords: Municipal governance; Sustainable tourism; Environmental management; Urban protected areas; Los Pantanos de Villa; Lima; Peru; Urban sustainability

1. Introduction

In efforts to understand sustainable development in urban protected areas, a key question arises: What is the relationship between municipal management and sustainable tourism in Los Pantanos de Villa Wildlife Refuge? This question drives the present study, which seeks to explore how local governance decisions can influence environmental conservation and responsible tourism development.

According to the United Nations World Tourism Organization (2023), tourist arrivals and departures across the Americas reached 156 million in 2022, representing a 91.2% increase from 2021, a year that was severely impacted by the COVID-19 pandemic. However, only 14% of these arrivals occurred in South America, compared to 65% in North America, revealing a significant regional disparity. This gap highlights the potential for revitalising the tourism sector in South America through sustainable tourism. The results obtained in this region can offer valuable lessons for international contexts, especially in regions facing similar governance and sustainable development challenges, allowing for greater replicability of the strategies implemented (Trišić et al., 2023).

Nonetheless, the promotion of sustainable tourism poses significant challenges for municipal authorities. As

noted by the United Nations World Tourism Organization (1999), limited financial and technical resources constrain the capacity of municipalities to effectively implement sustainable practices. Addressing these limitations requires coordinated efforts between the public and private sectors to integrate environmental, economic, and social indicators into policy development and strategic planning (Machado et al., 2018).

In Peru, the development of sustainable tourism is in a phase of transition. Although there are no specific laws regulating this practice, authorities have begun to introduce general regulations intended to encourage more responsible and sustainable tourism. The growing involvement of non-governmental organizations (NGOs) is a crucial factor in this context, as these institutions often have a more direct and specialized approach to the protection of natural areas and the promotion of sustainable practices, complementing governmental efforts. However, the lack of specific legislation may limit the effectiveness of these initiatives. Previous studies have shown a limited focus on the relationship between municipal governance and sustainable tourism, particularly in urban contexts and protected areas, leaving a gap that this research seeks to fill through an in-depth analysis of the situation in Los Pantanos de Villa (Calderón-Vargas et al., 2021; Wahyuningsih et al., 2024). Moreover, research suggests that visitors are willing to pay additional fees to support the conservation and management of NPA, offering a potential funding mechanism for sustainable initiatives (Roberts et al., 2017).

Los Pantanos de Villa Wildlife Refuge in Lima serves as a pertinent example of the complexities associated with sustainable tourism management. Losno-Prado & Iannacone (2023) have documented limited municipal involvement in addressing critical environmental and social issues, such as inadequate waste management, land clearing, and the adverse effects of vehicular and pedestrian traffic, which have contributed to the degradation of the Laguna Mayor. This protected wetland, located in southern Lima, is one of 76 conservation areas in Peru and provides habitat for over 50 species of flora and numerous migratory birds. Despite its ecological significance, the refuge faces serious environmental threats, including pollution from solid and construction waste. Torres-Delgado & Palomeque (2014) further emphasized that inadequate stakeholder engagement has exacerbated these challenges.

Given this context, the overall objective of this study is to examine the role of municipal management in the promotion of sustainable tourism in Los Pantanos de Villa. Through this analysis, it is hoped to provide a significant contribution to the theory and practice of sustainable tourism in urban protected areas.

The literature on municipal management and sustainable tourism offers interconnected theoretical perspectives and empirical findings that highlight their complex relationship. According to Fattakhova et al. (2015), municipal management is a dynamic process involving the planning and administration of public policies and services in a municipality, with the goal of promoting sustainability and improving quality of life and public well-being. Similarly, Bana E. Costa (1988) noted that municipal management is a complex field that requires careful analysis and evaluation methods, considering multiple criteria to assist in decision-making.

Alarcón et al. (2020) argued that achieving balance in municipal management is assessed through key dimensions such as strategic, economic, operational, and social. Likewise, Soltani et al. (2015) highlighted the importance of applying multi-criteria decision-making methods to municipal solid waste management, emphasizing the roles of strategic, operational, and social dimensions. They stressed the need to consider various stakeholders in implementing solutions, as well as the importance of citizen participation and local authorities in the management process. Almeida (2019), on the other hand, outlined key aspects of municipal management through four dimensions: the strategic dimension focuses on local indicators related to risks, mobility, and waste, aligned with SDG target 11; the operational dimension, illustrated by a case in Niteroi, shows the government's emphasis on essential services; the social aspect underscores the need for securing financial resources and investing in education to build sustainable cities; and the economic dimension highlights the importance of increasing social participation and improving development in vulnerable communities.

Regarding the strategic dimension, Rodić & Wilson (2017) stated that it facilitates the optimization of public administration by measuring performance, identifying areas for improvement, and guiding decision-making. However, Cepiku et al. (2016) pointed out that challenges such as austerity measures and high operating costs must be addressed to ensure long-term sustainability, necessitating strategies that maximize resources, foster innovation, and promote citizen participation.

Moreover, Réus & Andion (2018) noted that strategies focused on sustainable development should encompass sociocultural, economic, environmental, and political-institutional aspects. In addition, Barro-Chale et al. (2023) stated that these strategies imply that policy design must involve community engagement, financial viability assessment, minimizing environmental impacts, and aligning with legal and regulatory frameworks.

Herrera-Uchalin et al. (2023) emphasized that solid waste management poses a significant challenge in municipal management, requiring a comprehensive and coordinated approach. The lack of citizen participation and low awareness of waste mitigation hinder the success of initiatives. Furthermore, limited financial and logistical resources restrict municipal capacities, while a lack of coordination between sectors and the absence of a management plan aligned with public policies highlight the need for a more collaborative approach. Tellez (2014) affirmed that strategic planning at the local level should also involve the design of monitoring and evaluation systems that incorporate various indicators to facilitate decision-making and comprehensively assess results, thus promoting continuous organizational learning and accountability.

Muñoz Barriga (2017) observed that climate change, environmental pollution, and high tourist demand in NPA pose significant threats that may exceed carrying capacity, raising concerns about policies and emphasizing the need for more sustainable approaches. Similarly, Canteiro et al. (2018) noted that the expansion of tourism and extractive activities poses substantial risks to biodiversity and the conservation of these unique ecosystems.

To address these challenges, Leka et al. (2022) demonstrated that local municipalities in coastal areas have opted to measure and monitor tourism capacity and environmental conditions using sustainable development systems. These systems, which focus on both ecological and human-made dimensions, have proven beneficial for ensuring tourism sustainability. Additionally, Xiao et al. (2022) developed an index evaluation system to monitor sustainable development in a natural area, integrating a coupling and coordination model. This approach reveals significant differences between areas, allowing efforts to be directed towards those most in need and offering valuable information for promoting long-term sustainable tourism in protected spaces.

Ristić et al. (2019) found that within the strategic plans of local governments, key indicators have been identified to determine whether current tourism activities are being developed sustainably, enabling the establishment of future actions.

The economic dimension in the context of protected areas is closely linked to municipal management, as local decisions and policies can significantly influence how employment opportunities develop in these areas. Cheng et al. (2023) argued that to maximize the benefits of sustainable growth, local authorities must implement institutional mechanisms that ensure the jobs created are accessible and beneficial to the local community, thus achieving an inclusive and sustainable economy. Furthermore, Masud et al. (2017) emphasized that providing access to essential resources allows public institutions to promote the preservation of natural and cultural heritage while generating economic opportunities for residents. This approach not only boosts social welfare but also encourages sustainable development and economic growth.

Tourism is one of the most important economic activities worldwide, making its long-term sustainability crucial. Mir Frutos et al. (2022) argued that by focusing on natural resources such as beekeeping, fishing, and nature tourism, municipal leaders can improve the economic management of these activities in a sustainable and responsible manner. Conversely, Pereyra Gonzales et al. (2021) noted that for tourism to function as a socioeconomic driver, it is essential to implement effective plans, develop trained human resources, establish good sustainable practices, and encourage the participation of all stakeholders, including the state and the community.

As pointed out by Wang (2020), the operational dimension emphasizes the efficiency and transparency of operations within public and private entities, promoting organizational development, and achieving relevant objectives through effective communication among managers to facilitate decision-making. In NPA, the social dimension is addressed through community programs that meet local needs and encourage participation in environmental conservation and sustainable tourism initiatives (Benedetto et al., 2016). Increasing tourism awareness among community members enhances the perceived value of natural resources, while continuous communication between residents and management entities is essential for finding solutions to ensure site preservation (Ciocănea et al., 2016).

Sustainable tourism aims to minimize the negative impacts of tourism on local communities, stakeholders, and the environment (Buongiorno & Intini, 2021). The successful implementation of sustainable tourism initiatives depends on the active involvement of industry stakeholders and the support of local authorities, who must identify and mitigate potential threats to destinations (Kapera, 2018). However, inadequate governance can hinder sustainable tourism in protected areas, such as Los Pantanos de Villa, underscoring the need for strategic decision-making to improve quality of life, facilitate local negotiations, and set clear sustainability goals (D'Arco et al., 2021). Indicators for assessing sustainable tourism development include adherence to environmental regulations, capacity management, social participation in cultural activities, and the recognition of local traditions, all of which influence the acceptance of sustainable practices within the community (Lee & Hsieh, 2016). Moreover, successful sustainable tourism depends on creating employment opportunities, promoting social projects, and increasing government awareness, which collectively contribute to the positive impact on the local economy and environmental conservation (Mathew & Sreejesh, 2017).

The literature also underscores the significance of the social dimension in sustainable tourism, particularly in natural areas where community well-being is prioritized. Evaluating levels of satisfaction, monitoring sociocultural impacts, and ensuring access to essential resources are critical components in this context (Hanafiah et al., 2016; Millan-Anaya et al., 2024). Effective municipal management can strengthen these aspects by incorporating them into sustainability policies that not only protect the environment and support economic development but also enhance quality of life and community engagement.

To achieve these objectives, it is vital for tourism destination managers, including both public and private sectors, to inform the community and encourage its participation in decision-making processes. This inclusive approach supports tourism growth and guides the development of marketing strategies tailored to the destination (Datiko, 2024; Gamarra-Ramirez et al., 2024; Obradović et al., 2021).

On the other hand, the economic dimension of sustainable tourism is crucial for assessing the viability of resources generated, such as employment opportunities and the competitiveness of the destination (Rivera, 2017).

Tourism development aims to achieve not only economic growth but also poverty reduction and human development, promoting active community involvement in social and productive activities. However, the expansion of tourism can lead to environmental consequences, including increased energy consumption and CO₂ emissions due to infrastructure development, making the implementation of conservation policies essential to mitigate these effects and promote sustainable growth (Ali et al., 2021). In this context, the environmental dimension focuses on managing the impacts of tourism on natural resources, including proper solid waste disposal, as improper waste management can severely damage the environment (Maldonado-Oré & Custodio, 2020). Therefore, public intervention in sustainable management is imperative, as it enables the establishment of clear policies and strategies for waste management and the promotion of environmental education to ensure a balanced approach that integrates economic development with environmental protection (Rodrigues et al., 2018).

The scientific literature provides several studies on municipal management and sustainable tourism. Vieira et al. (2016) examined the correlation between economic dependency, municipal tourism management, perceptions of tourism impacts, and sustainable tourism development in Lamego, Portugal. Using a quantitative methodology, they concluded that municipal tourism management was linked to both positive and negative tourism impacts, as well as residents' support for sustainable tourism development. Positive perceptions of tourism impacts were associated with support for sustainable development, while economic dependency showed no significant relationship with the other variables.

Similarly, Mihalic et al. (2016) demonstrated that governance is essential for sustainable tourism in the municipality of Bled, Slovenia, employing quantitative methods to conclude that the political dimension, shaped by certain governance qualities, was related to sustainable tourism development. The study also highlighted the absence of a comprehensive policy framework on sustainability. Draçi & Demi (2023) analyzed residents' perceptions in Saranda and Ksamil, Albania, using a correlational method to explore the relationship between environmental attitudes and support for sustainable tourism development strategies. They found that governance and sustainable tourism development significantly influenced residents' behaviors, shaping their environmental attitudes and community support for sustainable tourism initiatives.

Bahamonde-Rodríguez et al. (2022) conducted a correlational study on tourism and sustainability across three NPAs in Andalusia, Spain. The authors found that the economic dimension dominated tourism sustainability in the region, while there was a lack of awareness regarding global environmental changes, and sustainable tourism governance faced limitations due to competitive relationships. Swamy & Lagesh (2023) examined the correlation between governance and international inbound tourism in the United States through a quantitative approach, demonstrating a significant correlation between effective governance and international tourism inflows. Their findings suggest that effective governance enhances the competitiveness of sustainable local tourism. In contrast, Ivars-Baidal et al. (2021), while relating cities and destinations to sustainable tourism in Spain and employing a mixed-methods approach, concluded that some regions in Spain, despite adopting sustainability discourse, still need to strengthen public governance and reorient policies and projects.

Rodrigues et al. (2022) analyzed sustainability actions in the city of Teresina, Brazil, using a descriptive-exploratory methodology, and found that the economic dimension of sustainable tourism significantly impacted municipal management, emerging as a key priority in resource and program planning. In turn, social factors are crucial for sustainable tourism, which led Đurkin Badurina & Soldić Frleta (2021) to analyze the relationship between residents' tourism dependency and local tourism governance in the destinations of Vir and Ližnjan, Croatia. Using a quantitative methodology, they observed that non-tourism-related residents expressed dissatisfaction with municipal governance, while those in tourism-focused destinations showed moderate levels of satisfaction. Regarding the environmental factor, Rodrigue et al. (2013) explored the relationship between governance and environmental performance in a corporate setting, using a mixed-methods approach. They conclude that there was no significant relationship between governance mechanisms and environmental development, except in the case of pollution prevention, where a link was found.

In line with previous national studies, Ezcurra-Zavaleta et al. (2023) identified the influence of governance on tourism competitiveness across 172 countries, using a descriptive-correlational methodology. It was demonstrated that municipal governance significantly impacted tourism competitiveness, with government effectiveness, regulatory quality, and the rule of law being identified as key governance elements. Additionally, Riofrio-Carbajal et al. (2023) assessed how tourists from Lima, Peru, perceive sustainability and their needs when visiting the Paracas National Reserve. Using a quantitative approach, they emphasized the importance of environmental factors in sustainable tourism management and tourists' awareness of the value of biodiversity and the environment of the protected area. However, sustainable tourism management in a NPA presents challenges; a study conducted in the Bosque de Pomac Historic Sanctuary used a qualitative methodology to evaluate tourism management, revealing strengths in governance, conservation, and visitor experience, but also weaknesses in cultural identity, inclusion, and equity (Chavez et al., 2022).

Calderón-Vargas et al. (2021) evaluated Peruvian legislation on sustainable tourism, relating it to renewable energy policies across four major museums in northern Peru, using a quantitative method. The study highlighted the lack of specific regulations on tourism sustainability but noted that governmental and non-governmental efforts

had led to the creation of regulations to promote sustainable tourism. Additionally, Inga & Vega (2020) assessed the level of community perception and trust in municipal management in the district of Chachapoyas, located in the Amazonas region. Using a descriptive-correlational approach, they concluded that low levels of trust in municipal management were due to perceived deficiencies in service provision. Similarly, Ylatoma (2018) evaluated tourism management in the Zaña district of Chiclayo through a mixed-methods approach, identifying inefficiencies in tourism management and proposing a new integrated and participatory tourism management model for the municipality that involves social actors and highlights the resources and services to be offered.

The research is theoretically justified by the need for collaborative municipal management to improve economic, social, physical, and cultural conditions (Sistema de Monitoreo de la Administración Pública Municipal, 2016). Moreover, it is important to evaluate interventions through a monitoring system, promoting citizen participation in strategies and planning (Pourbahador & Brinkhuijsen, 2023). In the realm of sustainable tourism, the UNWTO seeks to balance economic, social, and environmental dimensions (United Nations, 2015). Additionally, a fair distribution of power among tourism stakeholders, resources, and interests is necessary for formulating and implementing effective tourism policies (Nunkoo, 2017). This study seeks to provide valuable insights into municipal management and sustainable tourism in the protected area, serving as a reference for future research. Ultimately, it is expected to reveal the correlation between municipal management and sustainable tourism in the NPA, leading to conclusions and recommendations that will promote sustainable development and benefit tourism activities in the area.

The initial assumptions that motivated the study are:

- H1: The relationship between municipal management and sustainable tourism in Los Pantanos de Villa Wildlife Refuge is direct and significant.
- H2: The relationship between municipal management and the economic dimension of sustainable tourism in Los Pantanos de Villa Wildlife Refuge is direct and significant.
- H3: The relationship between municipal management and the environmental dimension of sustainable tourism in Los Pantanos de Villa Wildlife Refuge is direct and significant.
- H4: The relationship between municipal management and the social dimension of sustainable tourism in Los Pantanos de Villa Wildlife Refuge is direct and significant.

2. Methodology

The study followed the guidelines of Hernández et al. (2014) presenting a quantitative approach, as numerical measurements and statistical analysis were used for data collection, with a basic purpose. Additionally, it has a correlational scope, as the aim was to determine the existence of a relationship between variables within a specific environment and population. Therefore, the design is non-experimental-transactional and cross-sectional, since the study variables were not manipulated, and only their relationship and impact were analyzed during the corresponding period.

2.1 Population and Instrument Development

The study population included 80 workers from various areas of the Municipal Authority of Pantanos de Villa - PROHVILLA, who are responsible for the integral management of the area. The study included administrative, inspection, public works, ecotourism, and legal personnel, among others. Using the finite population formula, with a 95% confidence level and a 5% margin of error, a sample of 67 workers from the NPA was determined. The NPA under study is the only one located within the city of Lima, the capital of Peru, and serves as an important wildlife refuge in a densely populated urban area.

The data collection technique applied was a survey, and the instrument consisted of two questionnaires with a total of 26 questions, evaluated using a Likert scale from 1 to 5 to measure the level of agreement or disagreement. The questionnaires were administered both virtually via Google Forms and in printed format.

The 26 closed-ended questions were divided into 12 on municipal management and 14 on sustainable tourism (Table 1). Respondents indicated the frequency of their experiences using five key items: never (1), mostly not (2), sometimes (3), mostly yes (4), and always (5).

2.2 Reliability and Data Analysis

The questionnaires were adapted from the study conducted by Huarcaya (2019) and validated through expert review and the Cronbach's Alpha test. In this study, the internal consistency of the adapted questionnaires was verified, resulting in a coefficient of 0.851 for the municipal management variable and 0.855 for the sustainable tourism variable, indicating a high level of reliability. Additionally, visitor statistics from Los Pantanos de Villa Wildlife Refuge were used to provide context for the analysis of sustainable tourism.

For data analysis, Pearson's Hypothesis Test was applied to determine the level of correlation between the

variables, using SPSS (Statistical Package for Social Sciences) version 25. Additionally, the Kolmogorov-Smirnov normality test was conducted, confirming the normal distribution of the variables and their correlation with Pearson's coefficient.

Regarding ethical aspects, the anonymity of the respondents was preserved, and confidential data were omitted to ensure validity and reliability. The sources consulted included scientific articles from well-known databases and journals, as well as official websites of organizations related to the research topic.

Table 1. List of questions from the virtual and printed survey

Variable	Questions
Municipal Management	1. Is sustainable tourism being managed adequately?
	2. Has there been an improvement in the tourist destination due to interventions by other public or private institutions?
	3. Is Los Pantanos de Villa Wildlife Refuge a competitive tourist destination?
	4. Has the Municipal Authority adequately allocated the budget for implementing projects that contribute to sustainable tourism?
	5. Do you perceive that financial resources are properly managed to achieve the objectives that improve tourism?
	6. Does PROHVILLA provide solutions to any economic needs that contribute to the improvement of tourism services?
	7. Do the workers of the Municipal Authority coordinate and communicate effectively for the development of their activities?
	8. Is the staff continuously trained and motivated to fulfill their assigned functions and goals?
	9. Is sustainable tourism at Los Pantanos de Villa Wildlife Refuge supervised and monitored to ensure its proper functioning?
	10. Is the local population encouraged to participate in tourism activities within the Protected Natural Area?
	11. Does the local population collaborate in research programs and projects at Los Pantanos de Villa?
	12. Are residents of neighboring urban areas made aware of the importance of tourism for their environment?
Sustainable Tourism	13. Is accessible public-use infrastructure being developed within the natural area?
	14. Have tourism activities generated income that contributes to the improvement of the destination?
	15. Does the number of tourists and/or visitors entering the destination increase each year?
	16. Are the benefits generated by tourism, such as local employment generation, visitor satisfaction with tourism activities, and environmental well-being, being used responsibly?
	17. Do tourists and/or visitors engage in activities complementary to the visit to generate a positive impact on the natural area?
	18. Are conservation and preservation activities of natural resources carried out collectively?
	19. Is the distribution of solid and liquid waste managed efficiently?
	20. Are there training sessions or workshops for the proper management of solid and liquid resources?
	21. Do both the local population and staff in the area receive continuous environmental education?
	22. Is the area's tourism carrying capacity controlled, meaning that the influx of tourists managed to avoid endangering the integrity of the natural area?
	23. Has the local employment rate increased due to programs or campaigns?
	24. Is there a high level of satisfaction among the local population regarding tourism development in the protected area?
	25. Do they promote the exchange of experiences between the community and tourists?
	26. Does the local population efficiently contribute to sustainable development in Pantanos de Villa?

3. Results

3.1 Descriptive Analysis

The results corresponding to the study's dimensions and variables are detailed below.

3.1.1 Municipal management variable

Figure 1 shows the performance of the Municipal Management variable. According to the results, none of the respondents rated municipal management as poor, while 11.94% classified it as fair, and 88.06% perceived it as good. This suggests that municipal management activities, such as continuous staff training, appropriate budget allocation for sustainable tourism projects, and encouraging local population participation in tourism activities within the NPA, were key strengths. Therefore, it can be inferred that municipal management in the protected area is perceived and implemented optimally.

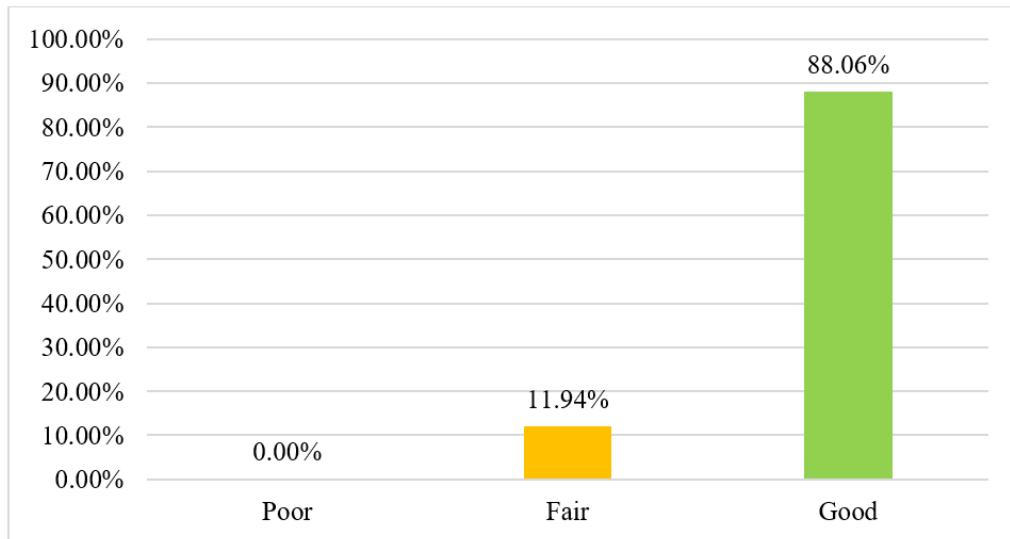


Figure 1. Municipal management variable classified by performance level

Figure 2 presents the evaluation of each dimension of the Municipal Management variable. It shows that 77.61% of respondents in the strategic dimension, 74.63% in the economic dimension, 79.10% in the operational dimension, and 68.66% in the social dimension rated these dimensions as good. This suggests that activities such as interventions by other public or private institutions, the management of financial resources to achieve tourism objectives, the supervision and control of sustainable tourism in the NPA, and the participation of the population in research programs and projects in the area had a satisfactory influence on these dimensions.

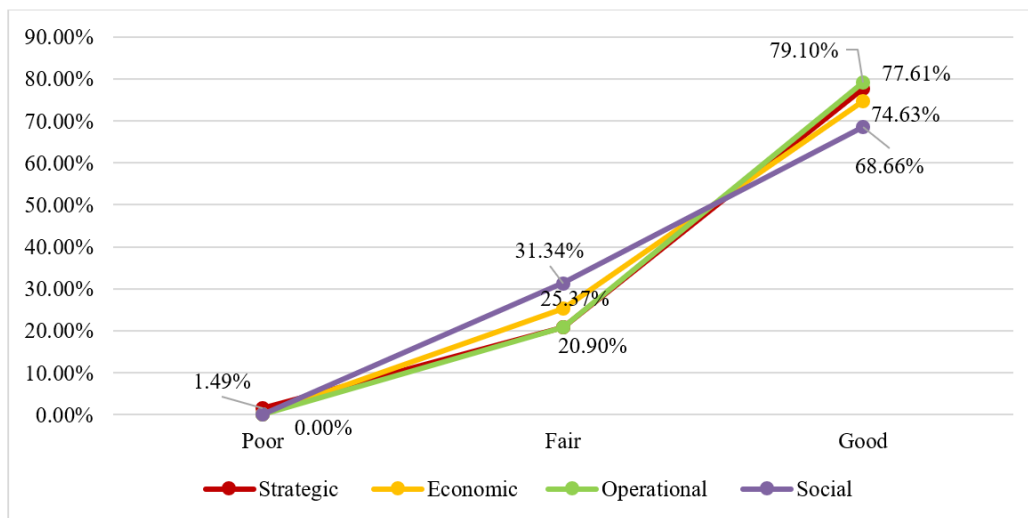


Figure 2. Dimensions of the municipal management variable

3.1.2 Sustainable tourism variable

Figure 3 shows that none of the respondents considered sustainable tourism to be at a poor level. However, 23.88% perceived it as fair, while 76.12% rated it as good. This indicates that the majority of respondents were satisfied with the development of sustainable tourism in the NPA, highlighting aspects such as the conservation of natural resources, the management of solid and liquid waste, and environmental education. Therefore, it was inferred that the sustainable tourism variable in the area is being developed in a good manner.

Visitor statistics from Los Pantanos de Villa Wildlife Refuge indicate that between October 2023 and September 2024, the site received a total of 53,182 visitors, including 1,129 international tourists and 52,053 domestic visitors. Additionally, the number of visitors increased by 34.6% in January 2024 compared to the same month of the previous year (Ministry of Foreign Trade & Tourism, 2024). These figures underscore the growing importance of sustainable tourism initiatives and highlight the need for effective municipal management to balance tourism growth with environmental conservation.

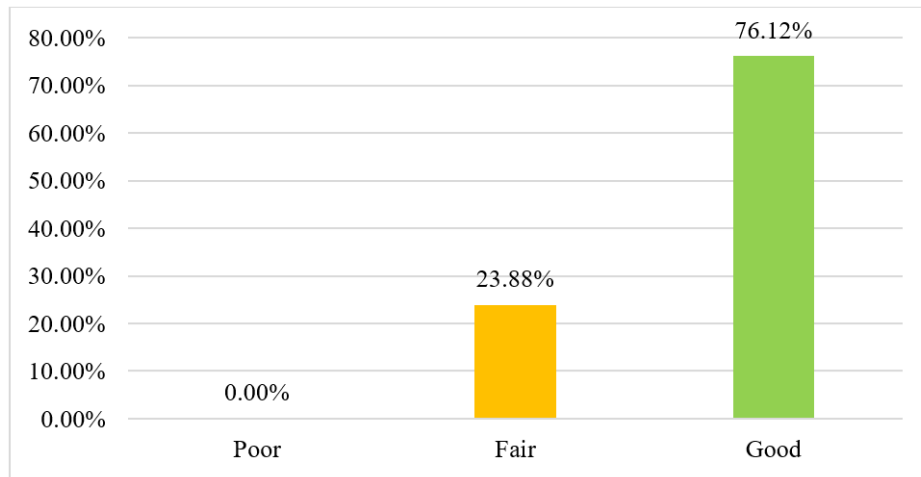


Figure 3. Sustainable tourism variable classified by performance levels

Figure 4 presents the results for each dimension of the Sustainable Tourism variable. A total of 91.04% of respondents in the economic dimension considered it to be developed at a good level, as did 73.13% of the respondents in the environmental dimension. In contrast, 55.22% of respondents indicated that the social dimension was developed at a fair level. This suggests that the development of accessible infrastructure for public use within the natural area and activities for the collective conservation and preservation of natural resources had a satisfactory influence on the economic and environmental dimensions. However, factors such as the contribution of the local population to sustainable development in the NPA and the exchange of experiences between the community and tourists were perceived as having a fair impact on the social dimension.

The lower rating of the social dimension compared to other dimensions highlights the need for targeted strategies that increase social benefits and community engagement. Improving environmental awareness and social participation could enhance sustainable development efforts in the protected area.

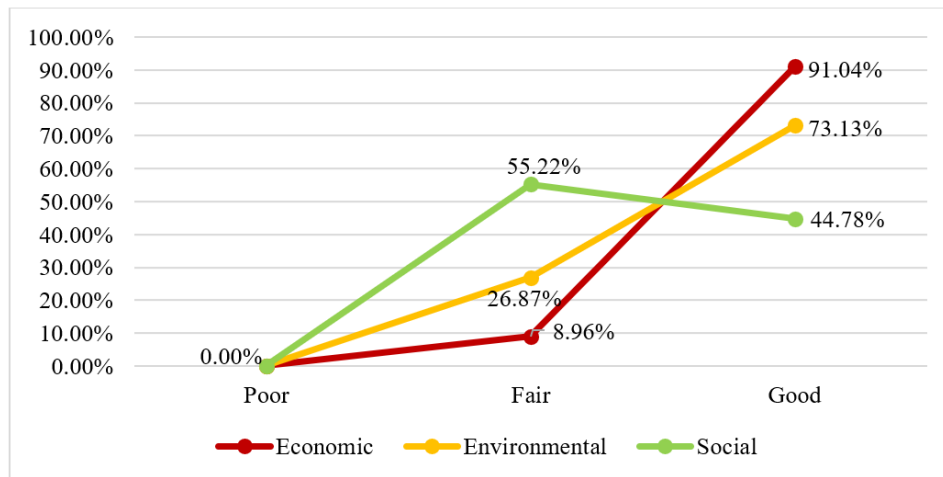


Figure 4. Dimensions of the sustainable tourism variable

The results from Figure 4 show that the economic dimension of sustainable tourism was rated positively by 91.04% of respondents, while the environmental dimension was rated positively by 73.13%. In contrast, only 55.22% of respondents rated the social dimension positively. This lower rating indicates potential deficiencies in community involvement and social programs. To address these challenges, initiatives that promote active collaboration between local stakeholders and municipal authorities should be strengthened.

3.2 Correlational Analysis

3.2.1 Municipal management and sustainable tourism

- H1: Municipal Management and Sustainable Tourism have a direct and significant relationship.

- H0: Municipal Management and Sustainable Tourism do not have a direct and significant relationship.

Table 2 presents the test for Hypothesis 1, where a direct and significant relationship was found between Municipal Management and Sustainable Tourism in Los Pantanos de Villa Wildlife Refuge. With a significance level of 0.000 (less than 0.05), the null hypothesis was rejected, and the alternative hypothesis was accepted. The Pearson correlation coefficient of 0.590 indicates a moderate positive correlation. This implies that while municipal management has a statistically significant influence on sustainable tourism, its impact is moderate. In terms of strategic planning, this suggests that operational and social dimensions need to be reinforced to enhance sustainability outcomes. Additionally, the Pearson correlation coefficient was 0.590, indicating a moderate positive correlation between the variables.

Table 2. Pearson correlation test for Hypothesis 1

Variable	Correlation Statistic	Municipal Management
Sustainable Tourism	Pearson Correlation	0.590
	Sig. (two-tailed)	0.000
	N	67

3.2.2 Municipal management and the economic dimension of sustainable tourism

Table 3 presents the test of Hypothesis 2, where a direct and significant relationship was found between Municipal Management and the Economic Dimension of Sustainable Tourism in the studied area. With a significance level of 0.001, the null hypothesis was rejected, and the alternative hypothesis was accepted. The Pearson correlation coefficient was 0.390, indicating a weak positive correlation.

Table 3. Pearson correlation test for Hypotheses 2, 3, and 4

Dimensions	Correlation Statistic	Municipal Management
Economic Dimension	Pearson Correlation	0.390
	Sig. (two-tailed)	0.001
	N	67
Environmental Dimension	Pearson Correlation	0.583
	Sig. (two-tailed)	0.000
	N	67
Social Dimension	Pearson Correlation	0.433
	Sig. (two-tailed)	0.000
	N	67

3.2.3 Municipal management and the environmental dimension of sustainable tourism

Hypothesis 3 proposes that there is a direct and significant relationship between Municipal Management and the Environmental Dimension of Sustainable Tourism in Los Pantanos de Villa Wildlife Refuge. The results, with a significance level of 0.000, led to the rejection of the null hypothesis and the acceptance of the alternative hypothesis. In addition, the Pearson correlation coefficient was calculated to be 0.583, indicating a moderate positive correlation (Table 3).

3.2.4 Municipal management and the social dimension of sustainable tourism

According to Table 3, Hypothesis 4 suggests a direct and significant relationship between Municipal Management and the Social Dimension of Sustainable Tourism in Los Pantanos de Villa Wildlife Refuge. With a significance level of 0.000, the null hypothesis was rejected in favor of the alternative hypothesis. Furthermore, a Pearson correlation coefficient of 0.433 was obtained, indicating a weak positive correlation.

4. Discussion

The primary objective of this study was to establish the relationship between municipal management and sustainable tourism in the Los Pantanos de Villa Wildlife Refuge. To better understand these results, it is essential to compare them with previous research on municipal governance and its effects on sustainable tourism. This approach enables the identification of similarities, differences, and contextual factors that influence these relationships, contributing to a clearer understanding of their implications.

The results of this study showed a moderate and significant correlation between municipal management and sustainable tourism, with a Pearson correlation coefficient of 0.590. While this indicates a positive influence of municipal management, it also suggests that its impact is not absolute, and specific areas such as the social dimension require greater attention. These findings align with the study by Vieira et al. (2016), who also found a significant influence of municipal management on sustainable tourism initiatives in Portugal. However, in that

context, community perception was more favourable than what was observed in our study. This difference may be due to varying socioeconomic and cultural conditions between the two countries, as well as differences in citizen participation in governance processes.

Similarly, Mihalic et al. (2016) conducted a study in Bled, Slovenia, highlighting the importance of the political environment in sustainable tourism governance. Our results also emphasise the relevance of strategic and planning factors, such as the adequate allocation of financial resources and institutional coordination, elements that Mihalic et al. (2016) also identified as critical to the success of sustainability initiatives. However, unlike our findings, their study did not report marked differences between the economic, environmental, and social dimensions, which could be attributed to the more advanced integration of policies in their context.

Regarding the relationship between governance and environmental development, Rodrigue et al. (2013) concluded that governance mechanisms did not have a significant impact on environmental development in corporate settings, except in pollution prevention. In contrast, our results demonstrate that effective municipal management can contribute to the conservation of natural resources in protected areas, highlighting the importance of local governance focused on sustainability. This discrepancy may be explained by the differing study focuses, as Rodrigue et al. (2013) examined private organisations, while our research analyses a public setting with specific environmental protection policies.

Drači & Demi (2023) explored community perceptions of sustainable tourism in Albania and found that collaboration between the community and local authorities was a key factor in the success of sustainable policies. Similarly, our results indicate that lower evaluations of the social dimension are linked to a lack of programs promoting active community participation. This suggests that implementing more inclusive strategies could improve the perception of social benefits in sustainable tourism.

Moreover, research by Ezcurra-Zavaleta et al. (2023) demonstrated that municipal governance significantly impacts tourism competitiveness, emphasising factors such as government effectiveness and regulatory quality. In the context of Los Pantanos de Villa, these factors were also highlighted by respondents, who positively assessed interventions related to budget allocation and municipal staff training.

Another relevant study is that of Riofrio-Carbajal et al. (2023), which analysed tourists' perceptions of sustainability in the Paracas National Reserve, Peru. Although their research focused on visitor expectations, the findings underline the importance of environmental indicators, such as waste management, which was also identified in our study as crucial for ecosystem conservation.

The results of this study suggest that it is necessary to strengthen social and environmental strategies by increasing community participation and fostering more effective collaboration among local stakeholders. Municipal authorities could develop detailed plans focused on infrastructure improvements, equitable resource allocation, and marketing strategies aimed at attracting tourists while protecting natural resources. Such measures could improve both social perception and the long-term sustainability of tourism initiatives. The contextual differences observed between our study and previous research highlight the importance of adapting sustainable tourism policies to regional and cultural specificities. For example, in contexts where social perception is low, it is essential to promote awareness campaigns and environmental education to enhance community engagement.

Future research could explore how cultural, economic, and political variables influence the perception and outcomes of sustainable tourism. Additionally, further analysis of specific indicators, such as tourism carrying capacity and the quality of environmental services, could provide a more comprehensive approach to sustainability in urban protected areas.

These findings expand upon previous research by providing empirical evidence of the role of municipal management in an urban protected environment. Theoretically, this study offers unique insights into the interconnected economic, environmental, and social dimensions of sustainable tourism within urban protected areas, helping to fill a research gap in this field. Practically, it highlights the importance of municipal authorities implementing targeted strategies, such as improving infrastructure, ensuring equitable resource distribution, and creating marketing plans to attract tourists while preserving the natural environment. These findings provide a robust basis for public policy aimed at promoting balanced and sustainable development.

The study has limitations that need to be considered. Firstly, the sample size of 67 respondents may affect the representativeness of the results and thus limit their generalizability to other protected areas with different characteristics. Also, the cross-sectional design used restricts the possibility of establishing causal relationships between variables, which prevents the analysis of changes or dynamics over time. Another important limitation is the reliance on data obtained through surveys based on Likert-type scales, which could introduce a perception bias and affect the accuracy of conclusions about the effectiveness of municipal management. This may influence the interpretation of sustainable tourism dimensions, especially in contexts where subjective perception varies considerably. To mitigate these limitations, it is suggested that future studies complement survey data with objective measures such as environmental performance indicators, visitor statistics and financial data. This would provide a more comprehensive understanding, reducing potential bias and improving the validity and generalizability of findings.

5. Conclusions

The findings of this study demonstrate a statistically significant and moderately positive correlation (Pearson = 0.590) between municipal management and sustainable tourism in the Los Pantanos de Villa Wildlife Refuge. This result underscores the crucial role of effective municipal governance in fostering tourism that adheres to sustainability principles. The data revealed that while the economic dimension received a positive perception from 91.04% of respondents and the environmental dimension from 73.13%, the social dimension was rated lower (55.22%). These ratings were based on factors such as budget allocation, employment generation, resource conservation, and levels of community engagement, respectively.

This study fills a gap in the literature by providing empirical evidence on the interconnected economic, environmental, and social dimensions of sustainable tourism within an urban protected area. The findings suggest that municipal authorities could implement detailed development plans focused on improving infrastructure, equitable resource allocation, and targeted marketing strategies to attract tourists while preserving natural resources. These recommendations align with the need for balanced governance strategies to ensure long-term sustainability.

However, the study presents certain limitations, including the small sample size, cross-sectional design, and reliance on survey data, which may introduce perception bias. Future research could address these limitations by using longitudinal or comparative studies across different regions or incorporating qualitative data to gain deeper insights into stakeholder perspectives.

These findings have broader implications for sustainable tourism and governance in NPA globally. They provide a foundation for the development of public policies aimed at integrating environmental conservation with sustainable economic growth and community participation, making them relevant beyond the specific case of Los Pantanos de Villa.

Author Contributions

Conceptualization, F.D.M.-S. and C.B.G.-M.; methodology, F.C.-B.; validation, M.J.R.-C. and M.Á.R.-P.; formal analysis, F.C.-B.; investigation, M.Á.R.-P.; data curation, M.J.R.-C.; writing—original draft preparation, F.D.M.-S.; writing—review and editing, F.C.-B.; visualization, C.B.G.-M.; supervision, M.Á.R.-P.; project administration, M.J.R.-C. All authors have read and agreed to the published version of the manuscript.

Data Availability

The data used to support the research findings are available from the corresponding author upon request.

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Conflicts of Interest

The authors declare no conflict of interest.

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