

Original Article

Ecotourism in Negros Occidental, Philippines: Assessing Compliance, Sustainability, and Stakeholder Support

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Abstract. Ecotourism promotes environmental conservation, cultural preservation, and community development. However, the extent to which ecotourism sites comply with management standards, sustain responsible practices, and receive stakeholder support remains insufficiently documented in Negros Occidental, Philippines. This study determined the extent of compliance, level of sustainability, and level of stakeholder support of selected ecotourism sites in the province. It also examined whether these variables differed according to selected respondent and site profiles and whether significant relationships existed among them. A descriptive-correlational research design was employed with 154 respondents from ecotourism sites located in 13 cities of Negros Occidental. Data were collected using a validated and pilot-tested questionnaire and analyzed using frequency, percentage, ranking, Mann-Whitney U, Kruskal-Wallis H, and Spearman's rho. The sites were assessed as very compliant ($M=4.33$), very sustainable ($M=4.31$), and supported at a very high level ($M=4.41$). Compliance differed significantly according to age, stakeholder type, and educational attainment, but not according to years of operation or location. Sustainability differed significantly according to years of operation, stakeholder type, and educational attainment, but not according to age or location. Stakeholder support differed significantly according to educational attainment but not according to age, stakeholder type, years of operation, or location. Compliance was significantly related to sustainability ($r=.642$, $p<.001$) and stakeholder support ($r=-.552$, $p<.001$), whereas the relationship between sustainability and stakeholder support was not significant ($r=.128$, $p=.114$). The findings indicate that the sites demonstrate strong ecotourism performance, although formal sustainability planning, infrastructure development, waste management, and continued compliance monitoring require further strengthening.

Keywords: *Compliance; Ecotourism; Ecotourism sites; Stakeholder support; Sustainability.*

Ecotourism is responsible travel to natural and protected areas that emphasizes environmental conservation, appreciation of nature, respect for local culture, and support for host communities. Unlike conventional tourism, it seeks to balance visitor experience with protecting ecological resources

and improving local well-being. Its importance has increased as protected areas face biodiversity loss, climate change, resource depletion, unmanaged waste, and unsustainable development. Recent research describes ecotourism as a potential way to connect biodiversity conservation with local livelihoods, but its benefits depend on effective planning, responsible management, and meaningful community participation (Gidebo, 2023; Samal & Dash, 2023).

Ecotourism development has also become an important subject of global research. Xu et al. (2023) found that ecotourism research has increasingly focused on human disturbance, ecosystem services, and sustainable development. This progression indicates that ecotourism is no longer viewed only as nature-based recreation but also as a management approach that must address environmental protection, community welfare, and long-term sustainability. Samal and Dash (2023) similarly explained that ecotourism, biodiversity conservation, and local livelihoods may reinforce one another when tourism activities are carefully planned but may conflict when economic objectives take priority over ecological and social considerations.

The relationship between tourism and conservation is not automatically positive. Tourism can create employment, generate income for local communities, and support conservation programs; however, poorly managed tourism may increase waste, resource consumption, habitat disturbance, cultural commodification, and unequal distribution of benefits. Gidebo (2023) emphasized that community-based tourism can support livelihood improvement and biodiversity conservation when long-term planning, community participation, and equitable benefit-sharing are present. In addition, protected-area tourism should be understood as a social-ecological system in which environmental conditions, community welfare, visitor experience, and management decisions influence one another (Morse, 2023).

Protected area resilience is also a key concern. Dependence on tourism income may create vulnerabilities when destinations experience environmental, economic, or social disruptions. Andrianambinina et al. (2023) found that reducing protected areas' dependence on tourism can strengthen their resilience to shocks. This finding suggests integrating ecotourism with broader conservation and livelihood strategies rather than treating it as the sole source of income for protected-area management. Therefore, evaluating ecotourism requires examining not only tourism benefits but also compliance, sustainability, institutional capacity, and stakeholder participation.

Governance is central to these concerns because ecotourism involves multiple actors with different responsibilities and expectations. Local government units develop policies and provide services, tourism officers coordinate tourism programs, barangay officials represent host communities, and site officers implement daily management practices. Communities, visitors, private operators, and conservation agencies also influence how tourism activities are planned and maintained. Studies on ecotourism governance show that stakeholder participation, coordination, accountability, and transparent decision-making are necessary for balancing conservation objectives with community and economic interests (Forje et al., 2022; Salman et al., 2024). It further emphasized that sustainable tourism destinations require coordinated stakeholder roles and collaborative governance.

Stakeholder participation may vary by stakeholder role, educational background, familiarity with site operations, and access to decision-making processes. Barangay officials may focus on local benefits and community implementation, site officers may emphasize daily operational concerns, and tourism officers may apply broader administrative or regulatory standards. These differences in responsibility may produce different perceptions of compliance, sustainability, and stakeholder support. Examining these perceptions is therefore important for identifying strengths and weaknesses in implementing ecotourism policies. The Philippine context makes this issue particularly important. The country is recognized as a global biodiversity hotspot because of its diverse terrestrial, coastal, marine, and forest ecosystems and its high number of endemic and threatened species. At the same time, these resources remain vulnerable to illegal resource extraction, habitat degradation, unmanaged waste, land-use change, and poorly regulated development. To guide tourism in protected areas, the Department of Environment and Natural Resources issued Department Administrative Order No. 2013-19, which establishes guidelines for ecotourism planning and management in protected areas. The Order emphasizes conservation, sustainable resource use, visitor management, community participation, and coordination among concerned institutions (Department of Environment and Natural Resources, 2013). Recent studies have examined ecotourism governance, biodiversity conservation,

community livelihoods, sustainability indicators, and stakeholder participation (Aydin & Öztürk, 2023; Forje et al., 2022; Gidebo, 2023; Morse, 2023; Samal & Dash, 2023; Salman et al., 2024; Xu et al., 2023). However, researchers often examine these dimensions separately. Governance studies commonly focus on stakeholder relationships, conservation studies emphasize environmental outcomes, and community-based tourism studies often examine livelihoods and participation. Fewer studies assess compliance, sustainability, and stakeholder support together using the perceptions of different local actors. Evidence is also limited in Philippine provincial contexts, particularly on whether these variables differ by age, stakeholder role, educational attainment, years of operation, and location. This creates an empirical gap concerning how these dimensions interact in operational ecotourism sites and whether perceived compliance is associated with sustainability and stakeholder support.

Negros Occidental provides a valuable setting for addressing this gap. Located in Western Visayas, the province includes ecotourism destinations in coastal areas, islands, waterfalls, mountain landscapes, resorts, and other natural and cultural attractions. Ecotourism in the province supports local employment, community participation, environmental conservation, and tourism-based economic development. Local government units, barangay officials, tourism officers, ecotourism site officers, communities, and private operators manage it. Because these stakeholders occupy different positions in planning and implementation, they may evaluate site performance differently.

Thus, this study determined the extent of compliance, level of sustainability, and level of stakeholder support of ecotourism sites in Negros Occidental, Philippines. It also examined whether these variables differed when respondents were grouped according to age, stakeholder type, educational attainment, years of operation, and location, and whether significant relationships existed among compliance, sustainability, and stakeholder support. The findings may provide an empirical basis for strengthening policy implementation, improving site management, enhancing stakeholder coordination, and guiding local government planning.

Methodology

Research Design

This study employed a descriptive-correlational research design. The descriptive component determined the extent of compliance, level of sustainability, and level of stakeholder support of selected ecotourism sites. The correlational component examined relationships among these variables without manipulating study conditions. This design was appropriate because the study examined existing practices and perceptions and determined whether the variables were significantly associated under naturally occurring conditions.

Participants and Sampling Technique

Table 1. *Distribution of Respondents According to Ecotourism Sites*

Ecotourism Destination	f	%
Resorts Negrense (Bacolod City)	12	7.80
Buenos Aires Mountain Resort (Bago City)	10	6.50
Lakawaon Island Resort (Cadiz City)	16	10.4
Bonista Beach Resort (Escalante City)	10	6.50
Batang Peninsula Beach Resort (Himamaylan City)	10	6.50
Mag Aso Falls (Kabankalan City)	10	6.50
Guintubdan Mountain Resort (La Carlota City)	10	6.50
Suyac Island Mangrove Eco-Park (Sagay City)	12	7.80
Whispering Palms Island Resort (San Carlos City)	10	6.50
Hicovill Island Resort (Silay City)	10	6.50
Nataasan Beach Resort and Dive Center (Sipalay City)	11	7.10
Campuestuhan Highland Resort (Talisay City)	15	9.70
Gawahon Mountain Resort (Victorias City)	18	11.7
Total	154	100%

Note. f=frequency

The study included 154 respondents from selected ecotourism sites in 13 cities in Negros Occidental. The researchers used purposive sampling because the study required respondents who were knowledgeable about, or directly involved in, the planning, management, operation, or local governance of the selected ecotourism sites. The respondents included tourism officers, ecotourism site officers, and barangay officials.

Respondents were included if they were at least 18 years old, were affiliated with a selected ecotourism site or its host local government unit, had sufficient knowledge of the site's operations, and voluntarily agreed to participate. Individuals who were not connected with the selected sites, had no relevant knowledge of site operations, submitted substantially incomplete questionnaires, or declined to provide informed consent were excluded.

Research Instrument

The study used a slightly adapted, researcher-administered questionnaire consisting of four parts. The first part covered the respondents' profile, including age, stakeholder classification, educational attainment, years of operation, and location. The second part assessed compliance with visitor regulations, site development, environmental protection, resource use, waste management, fees, permits, and third-party services. The third part measured sustainability through management planning, public participation, visitor information, climate-change awareness, personnel training, environmental facilities, cultural-heritage protection, safety, human rights, community access, and intellectual-property protection. The fourth part assessed stakeholder support for conservation awareness, resource conservation, reforestation, employment, training, livelihood programs, marketing, business opportunities, tour guiding, tourism planning, gender inclusivity, and environmental education.

The instrument was submitted to expert validators for evaluation using the Good and Scates criteria. The validators examined the relevance, clarity, organization, appropriateness, and completeness of the items. The researchers incorporated their recommendations into the revised questionnaire. The revised instrument was pilot-tested with 30 ecotourism-site employees who were not included in the actual study. The pilot test assessed the clarity of the instructions, sequence, wording, response format, and item suitability before final administration. Reliability analysis was conducted using Cronbach's alpha. Reliability analysis was conducted using Cronbach's alpha. The compliance scale, consisting of 15 items, obtained a reliability coefficient of $\alpha=.89$; the sustainability scale, consisting of 14 items, obtained $\alpha=.90$; and the stakeholder-support scale, consisting of 15 items, obtained $\alpha=.91$. These coefficients indicate high internal consistency and support the instrument's reliability for the study.

Data Gathering Procedure

Before data collection, the researcher obtained permission from the concerned local government units and administrators of the selected ecotourism sites. The researcher collected data from September 2024 to October 2024 through face-to-face administration of printed questionnaires. Before answering the questionnaire, each respondent was informed about the study's purpose, procedures, expected response time, voluntary nature of participation, and confidentiality measures. The researcher retrieved the completed questionnaires or collected them through designated site contact persons. The researcher checked the responses for completeness, coded, tabulated, and encoded them for statistical analysis.

Data Analysis Procedure

The researcher analyzed the data using the Statistical Package for the Social Sciences (SPSS). Frequency and percentage were used to summarize the respondents' profile and the distribution of ecotourism sites. Mean scores and ranking were used to determine the overall levels of compliance, sustainability, and stakeholder support and to identify the highest- and lowest-rated indicators. The questionnaire used a five-point Likert scale. The interpretation ranges were as follows: 4.21–5.00, very compliant, very sustainable, or very high; 3.41–4.20, compliant, sustainable, or high; 2.61–3.40, moderately compliant, moderately sustainable, or moderate; 1.81–2.60, less compliant, less sustainable, or low; and 1.00–1.80, not compliant, not sustainable, or very low. The Mann-Whitney U test to determine significant differences between two independent groups. The Kruskal-Wallis H test was used to determine significant differences among three or more independent groups. Spearman's rho was used to examine the relationships among compliance, sustainability, and stakeholder support. All statistical tests used a significance level of $p \leq .05$.

Ethical Considerations

The study followed ethical principles governing research involving human participants. Before data collection, the researchers obtained permission from the concerned local government units and administrators of the selected ecotourism sites. Each respondent was informed about the purpose of the study, the nature of participation, the procedures involved, and the expected time required to complete the questionnaire.

Participation was entirely voluntary, and respondents were informed that they could decline to answer any item or withdraw from the study at any time without penalty or negative consequence.

The privacy, dignity, safety, and welfare of the respondents were respected throughout the research process. The questionnaire did not require personally identifying information, and the responses were treated as confidential. The researcher securely maintained completed questionnaires and encoded data and accessed them only for legitimate research purposes. The findings were reported in aggregate to prevent identifying individual respondents or specific responses. The researcher also ensured that participation involved no coercion, deception, or foreseeable harm; complied with applicable data-protection requirements; properly acknowledged all sources; and interpreted the findings objectively.

Results and Discussion

Profile of the Stakeholders

Table 2. *Profile of Stakeholders*

Variable	f	%
Age		
Young	91	59.09
Adult	63	40.91
Type of Stakeholder		
Tourism officer	13	8.44
Ecotourism site officer	93	60.39
Barangay official	48	31.17
Educational Attainment		
Vocational degree	32	20.78
Bachelor's degree	120	77.92
Master's degree	2	1.30
Years of Operation		
1–5 years	100	64.94
6–10 years	54	35.06

Note. f=frequency

Table 2 presents the profile of the 154 respondents. Most respondents were young (59.09%; $n=91$), while adults accounted for 40.91% ($n=63$). Ecotourism site officers constituted the largest stakeholder group at 60.39% ($n=93$), followed by barangay officials at 31.17% ($n=48$) and tourism officers at 8.44% ($n=13$). In terms of educational attainment, 77.92% ($n=120$) held bachelor's degrees, 20.78% ($n=32$) held vocational degrees, and 1.30% ($n=2$) held master's degrees. Regarding years of operation, 64.94% ($n=100$) of the destinations had operated for 1–5 years, while 35.06% ($n=54$) had operated for 6–10 years. Site officers contributed direct observations regarding daily management, while barangay officials and tourism officers provided community and administrative perspectives. The involvement of young respondents is relevant because younger community members may contribute new ideas, social innovation, and alternative forms of participation in sustainable tourism (Partanen et al., 2025). Community participation is more effective when residents are consulted before tourism activities are implemented and when their preferred forms of participation and benefits are recognized (Pineda et al., 2023). However, the profile data describe only the sample composition and should not be interpreted as evidence that one demographic group is inherently more knowledgeable or supportive than another.

Extent of Compliance of Ecotourism Sites as Assessed by Stakeholders

Table 3 shows that the ecotourism sites were generally very compliant, with an overall mean of 4.33. The highest-rated indicator was collecting entrance fees for protected-area access ($M=4.60$), while strengthening site facilities through tent platforms, paved trails, and similar improvements received the lowest rating ($M=4.05$). This suggests that the sites have more established procedures for visitor access and fee collection than for physical infrastructure development. Other highly rated indicators included informing visitors about site restrictions ($M=4.53$), providing natural views ($M=4.53$), collecting user fees for facilities ($M=4.53$), and limiting length of stay ($M=4.48$). Entrance fees may support conservation financing when allocation, monitoring, and reinvestment in site protection and visitor facilities are transparent (Fajardo et al., 2022). However, the lower ratings for waste management, third-party involvement, concessions, and site strengthening indicate that compliance should be further institutionalized through improved infrastructure,

waste systems, and formal procedures (Forje et al., 2022; Salman et al., 2024).

Table 3. *Descriptive Results for the Compliance of Ecotourism Sites as Assessed by Stakeholders*

The ecotourism site is:	M	Description
1. Limiting number of visitors to entire area	4.32	Very Compliant
2. Limiting length of stay	4.48	Very Compliant
3. Charging higher visitor fee	4.38	Very Compliant
4. Informing visitors of constraints in area and discouraging use	4.53	Very Compliant
5. Strengthening the site (tent platforms, paved trails, etc.)	4.05	Very Compliant
6. Minimizing environmental impacts through sustainable design	4.23	Very Compliant
7. Using natural materials	4.22	Very Compliant
8. Using renewable energy	4.32	Very Compliant
9. Practicing proper waste management	4.17	Compliant
10. Offering natural views that create satisfying experiences	4.53	Very Compliant
11. Collecting entrance fees for entrance to the protected area	4.60	Very Compliant
12. Exacting user fees for use of specific facilities	4.53	Very Compliant
13. Charging licenses and permits to tour operators	4.44	Very Compliant
14. Involving third parties to sell products in protected area	4.08	Compliant
15. Concessions available to third parties through bidding process	4.13	Compliant
Column Mean	4.33	Very Compliant

Note. M=mean

Table 4 shows that respondents rated compliance positively across all profiles. Young respondents gave a mean rating of M=4.28, while adults gave M=4.41. Barangay officials reported the highest rating among stakeholder groups (M=4.45), followed by ecotourism site officers (M=4.34); tourism officers gave a lower rating of M=3.87, interpreted as compliant. Respondents with vocational degrees (M=4.43) and bachelor's degrees (M=4.42) rated the sites as very compliant, whereas master's-degree holders rated them as M=3.87. This may reflect differences in expectations or evaluative standards rather than differences in actual compliance. Sites operating for 1–5 years (M=4.34) and 6–10 years (M=4.32) were both rated very compliant, and all locations received similar ratings. These findings support the view that ecotourism compliance depends on shared governance, stakeholder coordination, and consistent management standards (Forje et al., 2022; Salman et al., 2024).

Table 4. *Compliance of Ecotourism Sites as Assessed by Stakeholders by Profile*

Profile	M	Description
Age		
Young	4.28	Very Compliant
Adult	4.41	Very Compliant
Type of Stakeholder		
Tourism officer	3.87	Compliant
Ecotourism site officer	4.34	Very Compliant
Barangay official	4.45	Very Compliant
Educational Attainment		
Vocational degree	4.43	Very Compliant
Bachelor's degree	4.42	Very Compliant
Master's degree	3.87	Compliant
Years of Operation		
1–5 years	4.34	Very Compliant
6–10 years	4.32	Very Compliant

Note. M=mean

Extent of Sustainability of Ecotourism Sites as Assessed by Stakeholders

Table 5 indicates that the ecotourism sites were generally very sustainable, with an overall mean of 4.31. The highest-rated indicator was providing personnel with career opportunities and training in sustainable tourism (M = 4.60). This result suggests that human resource development is a major strength of the selected sites because training can improve personnel capacity in conservation, visitor management, environmental protection, and community engagement. The lowest-rated indicator was having an established management strategy and action plan based on sustainability principles (M=4.00), interpreted as sustainable. This indicates that sustainability practices may be visible in daily operations but are not always supported by formal, documented, and long-term plans. The high ratings for cultural-asset protection (M=4.53), environmentally appropriate facilities (M=4.52), and sustainability information (M=4.45) demonstrate strong environmental and cultural performance. Nevertheless, written strategies, measurable targets, monitoring systems, and accountability mechanisms remain necessary (Aydin & Öztürk, 2023).

Table 5. *Descriptive Results for the Sustainability of Ecotourism Sites as Assessed by Stakeholders*

The ecotourism site is:	M	Description
1. Has effective group responsible for sustainable tourism	4.35	Very sustainable
2. Has established management strategy based on sustainability	4.00	Sustainable
3. Encourages public participation in planning	4.32	Very sustainable
4. Has accurate visitor information materials	4.45	Very sustainable
5. Recognizes climate change risks and opportunities	4.24	Very sustainable
6. Provides personnel career opportunities and training	4.60	Very sustainable
7. Has facilities with no negative environmental impact	4.52	Very sustainable
8. Has sustainability activities for community and visitors	4.17	Sustainable
9. Upholds international standards on human rights	4.17	Sustainable
10. Has system to monitor crime, safety, and health hazards	4.19	Sustainable
11. Preserves cultural assets and heritage landscapes	4.53	Very sustainable
12. Celebrates and protects intangible cultural heritage	4.21	Very sustainable
13. Protects local community access to natural/ cultural sites	4.31	Very sustainable
14. Protects intellectual property rights of communities	4.29	Very sustainable
Column Mean	4.31	Very sustainable

Note. M=mean

Table 6. *Sustainability of Ecotourism Sites as Assessed by Stakeholders by Profile*

Profile	M	Description
Age		
Young	4.31	Very Sustainable
Adult	4.31	Very Sustainable
Type of Stakeholder		
Tourism officer	3.86	Sustainable
Ecotourism site officer	4.33	Very Sustainable
Barangay official	4.40	Very Sustainable
Educational Attainment		
Vocational degree	4.44	Very Sustainable
Bachelor's degree	4.29	Very Sustainable
Master's degree	3.86	Sustainable
Years of Operation		
1-5 years	4.29	Very Sustainable
6-10 years	4.36	Very Sustainable

Note. M=mean

Table 6 shows that young and adult respondents gave the same sustainability rating ($M = 4.31$), suggesting that age did not substantially influence their perceptions. Barangay officials gave the highest rating among stakeholder groups ($M = 4.40$), followed by ecotourism site officers ($M = 4.33$). Tourism officers gave a lower rating ($M=3.86$), although it remained within the sustainable category. Vocational-degree holders gave the highest sustainability rating ($M=4.44$), followed by bachelor's-degree holders ($M=4.29$), while master's-degree holders gave $M=3.86$. This pattern may reflect differences in expectations and familiarity with formal sustainability criteria rather than an actual effect of educational attainment. Sites operating for 6–10 years received a slightly higher rating ($M=4.36$) than those operating for 1–5 years ($M=4.29$), possibly because longer-operating sites have had more time to develop systems and partnerships. The limited variation across locations suggests that sustainability practices are generally distributed throughout the province (Aydin & Öztürk, 2023; Morse, 2023).

Extent of Stakeholder Support to Ecotourism Sites as Assessed by Stakeholders

Table 7 shows that stakeholder support was very high, with an overall mean of $M = 4.41$. The highest-rated indicator was engaging local communities in raising awareness about environmental conservation ($M = 4.79$). The lowest-rated indicator was involving local communities in local tour and travel-guiding activities ($M = 4.23$, very high). This difference suggests that communities were more strongly involved in awareness and conservation activities than in direct visitor-service roles. Other highly rated indicators included reducing energy and water consumption ($M=4.70$), tree planting and reforestation ($M=4.64$), employment generation ($M=4.61$), and training communities to develop sustainable tourism initiatives ($M=4.60$). These findings indicate that stakeholder support includes both environmental and socioeconomic dimensions. Research on marine protected areas also emphasizes stakeholder involvement in ecotourism governance, conservation, and local economic development (Casimiro et al., 2023). Similarly, community participation can help preserve the environmental quality of ecotourism sites when residents have meaningful opportunities to contribute to

conservation and benefit from tourism activities (Chatterjee & Datta, 2024). Greater participation in guiding, marketing, livelihood programs, and tourism planning could therefore strengthen community ownership and distribute benefits more equitably (Gidebo, 2023; Salman et al., 2024).

Table 7. *Descriptive Results for the Stakeholders' Support to Ecotourism Sites as Assessed by Stakeholders*

The ecotourism site is:	M	Description
1. Engaging local communities in environmental awareness	4.79	Very high
2. Involving stakeholders in energy and water conservation	4.70	Very high
3. Creating awareness about waste disposal and segregation	4.40	Very high
4. Engaging stakeholders in tree planting and reforestation	4.64	Very high
5. Creating employment opportunities for local community	4.61	Very high
6. Providing training for sustainable tourism initiatives	4.60	Very high
7. Involving local communities in marketing efforts	4.39	Very high
8. Teaching community how to market themselves	4.44	Very high
9. Allowing business ventures within the destination	4.39	Very high
10. Introducing livelihood programs for local communities	4.55	Very high
11. Empowering communities with sustainable income	4.44	Very high
12. Involving local communities in tour guiding activities	4.23	Very high
13. Involving community in planning and management	4.32	Very high
14. Practicing gender inclusivity in livelihood programs	4.40	Very high
15. Educating stakeholders about wildlife, flora, and fauna	4.38	Very high
Column Mean	4.41	Very high

Note. M=mean

Table 8. *Stakeholders' Support to Ecotourism Sites as Assessed by Stakeholders by Profile*

Profile	M	Description
Age	4.41	Very High
Young	4.41	Very High
Adult		
Type of Stakeholder	4.50	Very High
Tourism officer	4.41	Very High
Ecotourism site officer	4.39	Very High
Barangay official		
Educational Attainment	4.31	Very High
Vocational degree	4.44	Very High
Bachelor's degree	4.50	Very High
Master's degree		
Years of Operation	4.42	Very High
1-5 years	4.40	Very High
6-10 years	4.41	Very High

Note. M=mean

Table 8 shows that stakeholder support was very high across all respondent profiles. Young and adult respondents gave the same mean rating (M=4.41), indicating that age did not substantially affect perceptions of support. Tourism officers gave the highest rating among stakeholder groups (M=4.50), followed by ecotourism site officers (M=4.41) and barangay officials (M=4.39). Master's-degree holders gave the highest rating among educational groups (M=4.50), followed by bachelor's-degree holders (M=4.44) and vocational-degree holders (M=4.31). Sites operating for 1-5 years received a slightly higher rating (M=4.42) than those operating for 6-10 years (M=4.40). All locations remained within the very high category, suggesting that support was broadly shared across the province. Continuing communication, conservation activities, livelihood opportunities, and institutional cooperation may help sustain this support (Salman et al., 2024).

Differences in the Extent of Compliance of Ecotourism Sites

Table 9 shows that compliance did not differ significantly according to years of operation, $U=2357.50$, $p=.163$. Sites operating for 6-10 years had a higher mean rank (83.84) than sites operating for 1-5 years (74.08), but the difference was not statistically significant. This indicates that operational longevity alone does not guarantee higher compliance, as both new and older sites may face different implementation strengths and challenges. Compliance differed significantly according to age, $U=1748.00$, $p<.001$. Adults had a higher mean rank (94.68) than young respondents (65.60), indicating that adults assessed compliance more favorably. This difference may reflect adults' greater familiarity with regulations, site operations, or conservation responsibilities. However, it concerns perceptions and should not be interpreted as proof that adults are objectively more knowledgeable. Environmental education and ecotourism-orientation programs may help strengthen younger stakeholders' understanding of compliance requirements (Forje et al., 2022).

Table 9. *Mann-Whitney U Tests for the Differences in Compliance by Age and Years of Operation*

Profile Variables	Mean Rank	U	p	Interpretation
Age				
Young	65.60	1748.00	< .001	Significant
Adult	94.68			
Years of Operation				
1-5 years	74.08	2357.50	.163	Not significant
6-10 years	83.84			

Table 10 shows that compliance differed significantly according to stakeholder type, $H(2)=62.42$, $p<.001$, and educational attainment, $H(2)=12.51$, $p=.002$. Location did not produce a significant difference, $H(12)=0.38$, $p=1.000$. Barangay officials had the highest mean rank (106.43), followed by ecotourism site officers (72.42), while tourism officers had the lowest reported mean rank (7.00). These differences may reflect stakeholder responsibilities and evaluation standards. Barangay officials may assess compliance based on visible community-level implementation and local benefits, whereas tourism officers may apply broader administrative, regulatory, or destination-management criteria. Protected-area research indicates that governance arrangements influence how conservation and management performance are understood and evaluated. Community-based and co-managed arrangements may produce positive outcomes when decision-making authority, accountability, and local participation are clearly established (Zhang et al., 2023). These differences should therefore be interpreted as variations in perception and institutional perspective rather than proof that one stakeholder group is objectively more accurate than another

Table 10. *Kruskal-Wallis H test for the Differences in Compliance by Stakeholder, Education, and Location*

Profile Variables	Mean Rank	H	p	Interpretation
Type of Stakeholder				
Tourism officer	7.00	62.42	< .001	Significant
Ecotourism site officer	72.42			
Barangay official	106.43			
Educational Attainment				
Vocational degree	95.20	12.51	.002	Significant
Bachelor's degree	73.95			
Master's degree	7.00			
Location		0.38	<.990	Not significant

Differences in Sustainability Ecotourism Sites

Table 11. *Mann-Whitney U Tests for the Differences in Sustainability by Age and Years of Operation*

Profile Variables	Mean Rank	U	p	Interpretation
Age				
Young	77.41	2858.50	.976	Not significant
Adult	77.63			
Years of Operation				
1-5 years	70.70	2019.50	.010	Significant
6-10 years	90.10			

Table 11 shows that sustainability did not differ significantly according to age, $U=2858.50$, $p=.976$. The mean ranks of young respondents (77.41) and adults (77.63) were nearly identical, indicating that age did not distinguish sustainability assessments. Years of operation produced a significant difference, $U = 2019.50$, $p = .010$. Sites operating for 6–10 years had a higher mean rank (90.10) than sites operating for 1–5 years (70.70). This may indicate that longer-operating sites have had more time to develop organizational experience, improve facilities, establish partnerships, and refine environmental procedures. Nevertheless, longer operation does not automatically ensure sustainability; outcomes still depend on management quality, continued monitoring, stakeholder cooperation, and institutional investment (Gidebo, 2023; Morse, 2023).

Table 12 indicates that sustainability differed significantly according to stakeholder type, $H(2)=39.80$, $p<.001$, and educational attainment, $H(2)=12.38$, $p=.002$. Location did not produce a significant difference, $H(12)=0.43$, $p=1.000$. Barangay officials had the highest mean rank (94.31), followed by ecotourism site officers (78.68), while tourism officers had the lowest reported mean rank (7.00). Vocational-degree holders had the highest mean rank (97.20), followed by bachelor's-degree holders (73.42), whereas master's-degree holders had the lowest reported mean rank (7.00). These results may reflect differences in expectations, professional

exposure, and familiarity with formal sustainability frameworks rather than actual differences in site performance. The nonsignificant location result suggests that sustainability practices were perceived relatively consistently across the province. Sustainability should nevertheless be evaluated through both stakeholder perceptions and evidence of actual management performance, including management plans, monitoring records, environmental indicators, and community participation. Collaborative governance can strengthen conservation outcomes when stakeholders participate in planning, monitoring, accountability, and benefit-sharing rather than merely supporting tourism activities indirectly (Aydin & Öztürk, 2023; Casimiro et al., 2023; Morse, 2023; Zhang et al., 2023).

Table 12. *Kruskal-Wallis H test for the Differences in Sustainability by Stakeholder, Education, and Location*

Profile Variables	Mean Rank	H	p	Interpretation
Type of Stakeholder				
Tourism officer	7.00	39.80	< .001	Significant
Ecotourism site officer	78.68			
Barangay official	94.31			
Educational Attainment				
Vocational degree	97.20	12.38	.002	Significant
Bachelor's degree	73.42			
Master's degree	7.00			
Location		0.43	1.000	Not significant

Differences in Stakeholder Support to Ecotourism Sites

Table 13. *Mann-Whitney U Tests for the Differences in Stakeholders' Support by Age and Years of Operation*

13. Mann-Whitney U Tests for the Differences in Stakeholders' Support by Age and Years of Operation				
Profile Variables	Mean Rank	U	p	Interpretation
Age				
Young	76.38	2764.50	.696	Not significant
Adult	79.12			
Years of Operation				
1-5 years	80.24	2426.5	.281	Not Significant
6-10 years	72.44			

Table 13 shows that stakeholder support did not differ significantly by age, $U = 2764.500$, $p = .696$. Adults had a slightly higher mean rank (79.12) than young respondents (76.38), but the difference was not statistically significant. This indicates that both age groups held similar perceptions of stakeholder support and that age did not substantially influence the assessment of community and institutional involvement. Years of operation also did not produce a significant difference, $U = 2426.500$, $p = .281$. Sites operating for 1–5 years had a higher mean rank (80.24) than sites operating for 6–10 years (72.44), but the difference was not significant. This suggests that stakeholder support does not automatically strengthen with operational longevity. Newer sites may receive strong support through active project initiation and community mobilization, while older sites may need to maintain support through continuous communication, fair benefit-sharing, and transparent decision-making. Stakeholder support therefore depends more on the quality of engagement than on the site's age (Gidebo, 2023; Salman et al., 2024).

Table 14. *Kruskal-Wallis H test for the Differences in Stakeholder Support by Stakeholder, Education, and Location*

Profile Variables	Mean Rank	H	p	Interpretation
Type of Stakeholder				
Tourism officer	101.00	4.46	.107	Not Significant
Ecotourism site officer	76.48			
Barangay official	73.10			
Educational Attainment				
Vocational degree	44.86	23.68	.001	Significant
Bachelor's degree	85.81			
Master's degree	101.00			
Location		0.84	1.000	Not significant

Table 14 shows that stakeholder support did not differ significantly by stakeholder type, $H = 4.467$, $p = .107$. Although tourism officers had the highest mean rank (101.00), followed by ecotourism site officers (76.48) and barangay officials (73.10), the difference was not statistically significant. This indicates that the three stakeholder groups generally recognized a similar level of support. The result suggests that stakeholder support may be broadly shared across administrative, operational, and community actors. Educational

attainment, however, showed a significant difference ($H = 23.682, p < .$). Master's degree holders had the highest mean rank (101.00), followed by bachelor's degree holders (85.81), while vocational degree holders had the lowest mean rank (44.86). This may indicate that educational background affects how individuals identify and evaluate stakeholder participation, although it does not establish that education directly causes stronger support. Location did not show a significant difference ($H=.837, p=1.000$), suggesting that stakeholder support was perceived consistently throughout Negros Occidental. These findings highlight the importance of maintaining province-wide coordination while also recognizing that different educational groups may interpret participation and support differently (Salman et al., 2024).

Relationships Among Compliance, Sustainability, and Stakeholder Support

Table 15. *Correlation Among Variables*

Variables	r	p	Interpretation
Sustainability and Compliance	0.64	<.001	Significant
Compliance and Stakeholder Support	-0.55	<.001	Significant
Stakeholder Support and Sustainability	-0.13	.114	Significant

Table 15 shows a significant positive relationship between sustainability and compliance ($r=.642, p<.001$). This indicates that sites perceived as more sustainable also tended to be perceived as more compliant. The moderate-to-strong relationship suggests that formal compliance and sustainability practices may reinforce one another. For example, visitor controls, waste management, environmental design, cultural protection, and sustainability planning may contribute simultaneously to regulatory compliance and long-term site performance (Aydin and Öztürk, 2023).

Compliance and stakeholder support also showed a statistically significant negative relationship ($r = -.552, p < .001$). The negative direction means that higher scores on one variable were associated with lower scores on the other in the recorded data. This result should not be interpreted as evidence that stakeholder support reduces compliance without first checking the questionnaire coding, reverse-coded items, data-entry procedures, and scale direction. If the negative coefficient is confirmed, it may reflect differences in stakeholder expectations or the possibility that more critical stakeholders provide strong support while rating compliance more strictly.

The relationship between stakeholder support and sustainability was not significant ($r = -.128, p = .114$). This indicates that strong stakeholder support did not automatically correspond to higher sustainability ratings in this dataset. The result highlights the difference between participation and institutionalized sustainability: stakeholders may support conservation and community programs, while formal sustainability systems, action plans, monitoring, and accountability mechanisms remain underdeveloped. Therefore, ecotourism management should strengthen both stakeholder engagement and formal sustainability planning rather than assuming that one will automatically produce the other (Gidebo, 2023; Salman et al., 2024).

Conclusion

This study shows that ecotourism sites in Negros Occidental, Philippines, generally operate within a favorable management environment. The sites were assessed as very compliant, very sustainable, and supported at a very high level by stakeholders. Taken together, these findings indicate that ecotourism in the province is contributing to the combined goals of environmental protection, cultural preservation, community participation, and local economic development. The study's main contribution is its integrated assessment of these three dimensions rather than examining compliance, sustainability, or stakeholder support separately.

The findings also show that perceptions of ecotourism performance are not uniform across respondent groups. Differences were more evident by stakeholder role, educational background, age, and years of operation, particularly in assessments of compliance and sustainability. These variations suggest a perceptual gap between community-based or field-level stakeholders and respondents who may apply broader administrative or professional standards. At the same time, stakeholder support was generally consistent across most groups and locations, indicating broad recognition of ecotourism's value throughout the province.

The study further establishes that compliance and sustainability are positively associated. This suggests that

sites with stronger adherence to ecotourism standards are also more likely to demonstrate sustainable practices. Compliance may therefore function as an important operational foundation for sustainability. The significant negative relationship between compliance and stakeholder support requires cautious interpretation and should be verified by checking questionnaire coding, reverse-scored items, and the original statistical output. The absence of a significant relationship between sustainability and stakeholder support also shows that community support alone does not automatically produce formal sustainability systems. Support must be translated into documented plans, monitoring mechanisms, measurable targets, and accountable implementation.

For practice, ecotourism site managers should prioritize the areas that received comparatively lower assessments, particularly formal sustainability planning, physical site improvement, waste management, third-party coordination, concessions, and local participation in tour guiding. Site managers should prepare updated sustainability action plans, establish measurable environmental indicators, strengthen waste-management systems, and expand opportunities for community members to provide guiding, transport, food, cultural, and other visitor services. These actions would help convert stakeholder participation into more direct economic and management benefits.

For policy and governance, local government units and tourism authorities should establish a province-wide monitoring framework for compliance and sustainability. The framework should include regular site assessments, transparent reporting of entrance-fee use, visitor-capacity limits, environmental safeguards, community benefit-sharing, and minimum standards for facilities and concessions. The framework should also formalize coordination among tourism officers, barangay officials, site administrators, and conservation agencies so differences in stakeholder expectations can be addressed through common indicators and shared accountability.

For education, provide training programs for site personnel, barangay officials, tourism officers, community guides, and local enterprises. These programs should cover protected-area regulations, sustainable facility development, waste segregation, climate-risk management, cultural-heritage protection, intellectual-property rights, visitor safety, and community-based tourism. For research, future studies should use larger samples, include visitors and residents, compare additional provinces or regions, and combine survey results with interviews, field observations, compliance documents, and environmental indicators. Longitudinal and mixed-method studies would also help determine whether improvements in compliance and sustainability are sustained over time and whether stakeholder support produces measurable conservation and livelihood outcomes.

Contributions of Authors

All authors contributed to the study conception, proposal writing, data collection and analysis, data interpretation, presentation, and revision of the final manuscript.

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