Journal of Tourism and Hospitality Studies
DOI: 10.32996/jths
Journal Homepage: www.al-kindipublisher.com/index.php/jths

JTHS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Exploring the Perceived Carrying Capacity of Cambugay Falls: A Tourist Perspective

Dr. Rommel R. Mansueto[1] ✉ Cyd A. Sarmiento[2] and Christopher Y. Sabado[3]
[1]*Research Chair CBM, Siquijor State College*
[2]*Program Head Tourism, Siquijor State College*
[3]*ICT Director, Siquijor State College*
Corresponding Author: Dr. Rommel R. Mansueto, **E-mail**: franciesangeilo232018@gmail.com

| ABSTRACT
Tourism carrying capacity has evolved into a multidimensional construct encompassing environmental, cultural, economic, and institutional dimensions to ensure destinations remain resilient under increasing visitor pressures. This study advances the discourse by introducing the Mansueto–Sarmiento–Sabado Carrying Capacity Model (2025), a novel framework that operationalizes the concept of *Attraction Carrying Capacity* by integrating physical limits, cultural resilience, economic sustainability, and institutional governance into a unified system. Unlike earlier models, this framework incorporates a real-time monitoring component, enabling both administrators and tourists to collaboratively manage visitor flows, safeguard resources, and promote sustainable tourism practices. Employing a quantitative-descriptive research design, the study surveyed 400 stakeholders in Siquijor, Philippines, using a validated and pilot-tested structured questionnaire (Cronbach's alpha = 0.92). Descriptive statistics and composite mean scores interpreted via a Likert scale revealed that Cambugahay Falls exhibits a "very good" overall carrying capacity, with composite means of 3.81 (physical), 4.02 (cultural), 4.02 (economic), and 4.01 (institutional). Cultural carrying capacity ranked highest, reflecting robust socio-cultural support and heritage preservation, while gaps in cultural infrastructure, efficiency capacity, and allocation capacity signal areas for targeted improvement. The study concludes that the proposed model offers a practical and adaptive framework for balancing ecological protection, cultural preservation, and economic resilience in tourism management. Recommendations include adaptive governance strategies, community-led heritage programs, and digital visitor tracking systems to ensure long-term sustainability.

| KEYWORDS
Tourism carrying capacity, sustainable tourism, novelty model, Mansueto–Sarmiento–Sabado Model, Siquijor, heritage management, institutional governance.

| ARTICLE INFORMATION
ACCEPTED: 14 July 2025 **PUBLISHED:** 23 July 2025 **DOI:** 10.32996/jths.2025.3.2.1

1. Introduction

1.1 Background of the Study

Tourism carrying capacity is getting more attention these days, and it's no longer just something experts debate behind the scenes. There's a growing push to make it a shared conversation, especially as destinations face pressure from rising visitor numbers. Sati (2020) offers a framework that looks at more than just how many people a place can handle—it includes the environment, local culture, the economy, and the systems that keep everything running. What's different here is that tourists aren't just passive visitors—they're part of the equation. Research backs this up. Aktymbayeva et al. (2023) and Mijiarto & Rachmawati (2023) show how places like Katon-Karagay and Semama Island have clear limits, and when tourism crosses those lines, the damage is real. And it's not just the natural world at risk—Kang (2023), Zhang and Chen (2024), and Viñals et al. (2024) point out that crowding ruins the experience for everyone. When infrastructure can't keep up, nobody wins. So, the conversation is shifting: it's not just about how many people go to a place, but how that place—and the people in it—can handle the demand.

Digging into the root issues, it's clear there's no one-size-fits-all answer. Culturally, it's about walking the line between sharing a place and preserving what makes it unique. Matos et al. (2023) warn about the cultural loss that can come from poor tourism planning, while Nwankwo and Ede (2024) highlight how factors like gender equality and community infrastructure shape who really benefits from tourism. On the economic side, Diakomihalis and Diakomichalis (2023) remind us that making money from tourism is only sustainable if it also creates steady jobs and protects the environment. At the institutional level, things get even more complex. If policies aren't flexible or well-coordinated, the system breaks down (Domorenok et al., 2021; Weitzman et al., 2021). At the heart of all these issues is the need to balance growth with respect—for people, culture, and the planet.

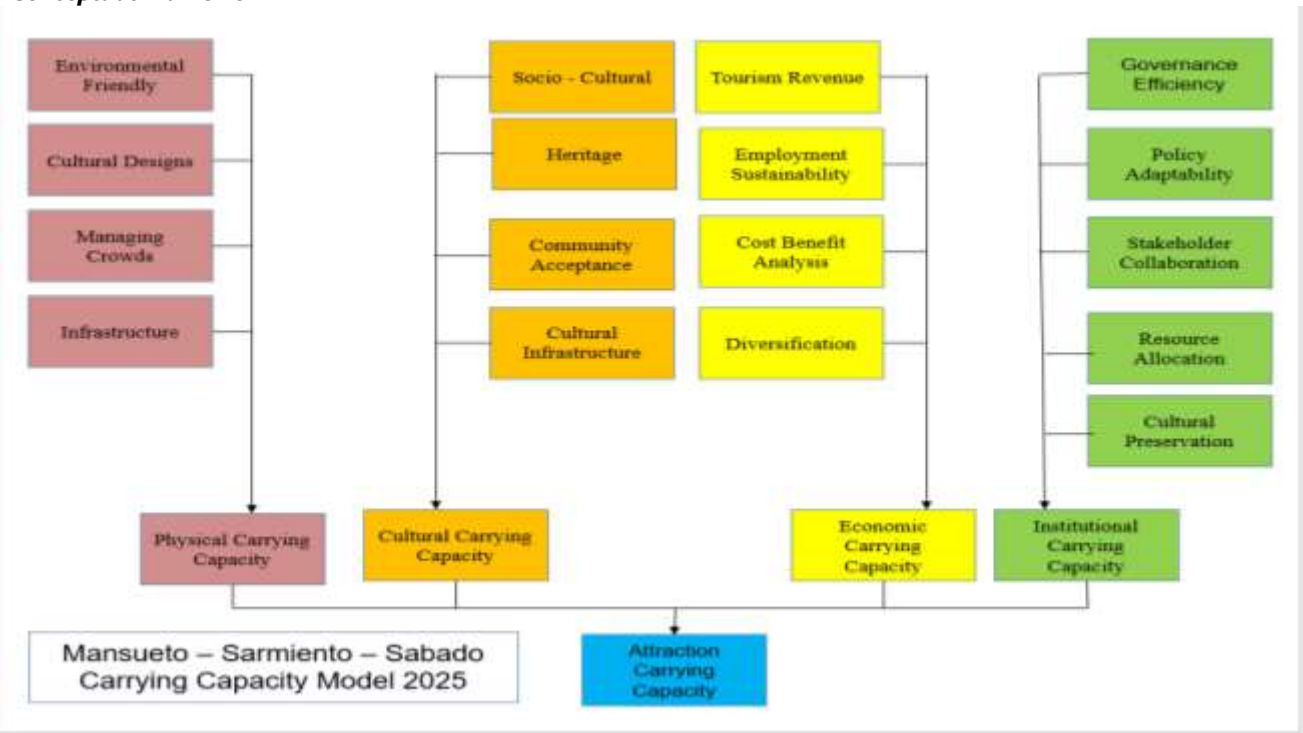
When carrying capacity is ignored, the consequences hit hard and fast. Nature takes the first blow—ecosystems get damaged, wildlife gets displaced, and natural beauty fades, just like Aktymbayeva et al. (2023) documented. But the social and cultural effects cut just as deep. Locals may feel pushed out of their own communities, traditions can get watered down or commercialized, and the authentic spirit of a place gets lost (Yakti et al., 2024; Hassan et al., 2024). Financially, it may look like tourism is booming, but if the benefits aren't spread out or tied to long-term strategies, the result is economic instability and overdependence (Sedlacek et al., 2022). And when governments or institutions aren't equipped to respond—especially in sensitive regions like karst areas or river basins—the whole system starts to crack (Yang et al., 2024; Zou & Ma, 2021). It all boils down to a lack of balance: too much focus on short-term gains, not enough on long-term sustainability.

This study leans into Sati's (2020) idea that sustainability has to be a joint effort. One practical step it proposes is a real-time, online monitoring system—kind of like a live traffic map, but for tourism. This tool would let administrators keep track of visitor numbers at different attractions, while tourists could check crowd density in real time and plan accordingly. Instead of getting stuck in packed spots, visitors could choose less crowded areas and still enjoy the destination fully. It's a win-win: tourists get a better experience, and high-traffic sites get a break. Giving travelers this kind of visibility turns them into active participants in managing tourism, not just passive consumers. And for administrators, it's a smarter way to distribute flows and avoid overburdening infrastructure. In the long run, this kind of system helps protect what makes a place worth visiting in the first place.

1.2 Theoretical Framework

This study uses a framework based on Sati's (2020) concept of tourism carrying capacity—basically, how much tourism a place can handle before it starts to lose what makes it special. But instead of leaving that up to experts alone, this approach encourages tourists to think about it too. It looks at whether a destination can handle the number of visitors without hurting the (1) environment, (2) local culture, (3) economy, or the (4) systems that keep everything running. It breaks this down into four areas—environmental, cultural, economic, and institutional—and offers ways for travelers to think more critically about the impact they're having and what sustainable tourism really means.

1.3 Conceptual Framework



The Mansueto – Sarmiento – Sabado Carrying Capacity Model (2025) offers a practical way to understand how much tourism a destination can realistically handle without causing long-term damage. At the core of the model is the concept of *Attraction Carrying Capacity*—the overall ability of a place to host visitors while protecting its environment, preserving culture, supporting the local economy, and ensuring effective governance. The model breaks this down into four key areas. First is Physical Carrying Capacity, which covers the on-the-ground limits like space, infrastructure, crowd control, and the need for eco-friendly practices and culturally respectful design. Then there's Cultural Carrying Capacity, which looks at how tourism interacts with local traditions, values, and community life—emphasizing heritage protection, social impact, and community acceptance. Economic Carrying Capacity focuses on financial sustainability, including whether tourism generates enough income, supports long-term jobs, makes economic sense, and isn't the only thing the local economy relies on. Lastly, Institutional Carrying Capacity highlights how well local governments and organizations can manage tourism through clear policies, collaboration, flexible planning, and responsible use of resources—all while supporting culture. Altogether, these four capacities shape how well a tourist attraction can cope with growth and change, making sure it stays vibrant, sustainable, and welcoming for the long run.

1.4 Related Literature

1.4.1 Physical Carrying Capacity

Tourism can bring real benefits to a destination—but only if the environment can handle it. Studies by Aktymbayeva et al. (2023) and Mijiarto & Rachmawati (2023) point out that places like Katon-Karagay National Park in Kazakhstan and the Semama Island Wildlife Sanctuary have clear ecological limits. When those are pushed too far, the damage isn't just likely—it's unavoidable. That's why understanding and respecting (1) environmental carrying capacity isn't optional; it should be a starting point for any tourism strategy. But it's not just the natural environment that's at risk. Mota et al. (2021) and Yakti et al. (2024) show how local communities—from Madeira Island to Saba Budaya Baduy—feel the impact too. When tourism grows too fast or too carelessly, (2) cultural traditions suffer, and residents can feel alienated in their own spaces. On top of that, (3) managing crowds is just as essential. Kang (2023), Zhang and Chen (2024), and Viñals et al. (2024) found that when visitors feel packed in, or when sites can't keep up with demand, the experience breaks down—for everyone. It's not just about how many people show up, but how they're managed. And finally, none of this works without the right (4) infrastructure. Almeida et al. (2024) and Xia (2024) highlight how tools like pedestrian flow models can help prevent strain on paths, facilities, and transport systems. Taken together, these studies send a clear message: if tourism is going to be sustainable, we need to balance environmental, social, infrastructural, and crowd management limits—or risk doing more harm than good.

1.4.2 Cultural Carrying Capacity

When looking at the sub-dimensions of cultural carrying capacity, it's clear that sustainable tourism depends on several interconnected factors—how it affects local communities (socio-cultural), how well heritage is preserved, how much community

support it has, and whether there's the right infrastructure to support it all. For the (1) socio-cultural side, studies show mixed experiences. In Malaysia, for example, Yusoh et al. (2023) found that tourism levels were generally seen as acceptable and didn't disrupt daily life, which suggests a healthy balance. But in Brazil, Matos et al. (2023) warned that poor management could lead to cultural decline, and in Nigeria, Nwankwo and Ede (2024) pointed out issues like gender sensitivity and weak infrastructure that hold back fair access to the benefits of heritage tourism. On the preservation front, Simou (2024) showed how using GIS technology in Morocco helped protect historical sites by managing visitor traffic. Rusdi et al. (2023) highlighted the power of digital platforms to preserve traditions in Indonesia, and Kochieva (2022) tackled the complex challenge of safeguarding (2) cultural heritage in politically disputed areas. Egypt offers a good case too—Hassan et al. (2024) emphasized the need to strike a balance between tourism growth and protecting cultural identity. (3) Community acceptance is just as crucial. In Malaysia, people generally supported tourism and saw it as beneficial (Yusoh et al., 2023), while in Tanzania, Bakari et al. (2024) found that heritage tourism helped empower communities. In Jordan, Hayajneh and Cesaro (2022) showed that engaging locals through education and cultural documentation built stronger community support. Finally, (4) cultural infrastructure—the physical and digital foundations that support tourism—makes a big difference. In the UK, Humbel et al. (2024) flagged systemic and funding problems holding back digital access to heritage collections. Meanwhile, India's "Adopt a Heritage" program (Bindhu & Panakaje, 2023) is one example of how public-private partnerships can boost site infrastructure and visitor experiences. In Malaysia, Fauzi and Ghani (2022) demonstrated how restoring heritage buildings didn't just preserve culture—it also helped drive local economic and social growth. Altogether, these studies show that cultural carrying capacity is about more than just numbers—it's about people, places, and the systems that connect them.

1.4.3 Economic Carrying Capacity

Recent studies show that tourism carrying capacity is increasingly evaluated through its economic sub-dimensions, including cost-benefit, employment sustainability, (1) tourism revenue capacity, and economic diversification. Diakomihalis and Diakomichalis (2023) integrate these aspects into the Sustainable Tourism Development Index by using data from the Tourism Satellite Account (TSA) to assess GDP contribution, employment levels, local income, and tax revenue. (2) Employment sustainability, in particular, is highlighted as a key factor, with research stressing the importance of maintaining stable job opportunities without exceeding environmental or social limits (Sedlacek et al., 2022). Garau et al. (2021) provide a detailed (3) cost-benefit analysis in Sardinia, showing how tourism's economic value can be offset by its environmental impact, such as CO_2 emissions. Similarly, Pásková et al. (2021) propose a system-based carrying capacity model that balances economic gains with ecological goals. In terms of (4) diversification, Kofidou et al. (2024) introduce a composite index (CCDI) to identify areas suitable for sustainable development across sectors like tourism and transport, helping reduce economic dependence on tourism alone. Collectively, these studies reflect a shift toward more comprehensive and balanced approaches in evaluating tourism's economic impacts.

1.4.4 Institutional Carrying Capacity

Institutional carrying capacity is shaped by five interconnected sub-dimensions that influence how well institutions can manage development within ecological and social limits. (1) *Governance efficiency* is key—it's about having clear mechanisms and frameworks that help coordinate policies across sectors and assess institutional performance. Domorenok et al. (2021) highlight how integrated governance structures strengthen institutional capacity, while Fisher et al. (2023) show how aquaculture governance is starting to incorporate ecological carrying capacity more systematically. (2) *Policy adaptability* is just as important, especially in regions facing environmental complexity. For instance, in karst areas, policies are being tailored to adapt based on environmental and socioeconomic data, aligning with broader ecological goals (Yang et al., 2024). Similarly, Weitzman et al. (2021) emphasize the need for feedback loops in governance to keep policies flexible and responsive. (3) *Stakeholder collaboration* brings in the human element—effective institutions work with local communities and stakeholders. This is evident in aquaculture planning, where inclusive assessments are now a priority (Weitzman et al., 2021), and in places like Katon-Karagay National Park, where community-based monitoring plays a role in balancing ecological and social needs (Aktymbayeva et al., 2023). (4) *Resource allocation* looks at whether resources—land, water, funding—are being distributed where they're actually needed. Studies in the Lemo Sub-Watershed show the problems that arise when land use isn't matched to its real capacity (Rizalie et al., 2022), and work in the Yangtze River region stresses the need to address regional differences when managing resources (Zou & Ma, 2021). Finally, (5) *cultural preservation* reminds us that sustainability isn't just technical—it's also cultural. In Madeira Island, social carrying capacity assessments included natural heritage and visitor experience as key indicators, tying ecological planning to cultural identity (Mota et al., 2021). Together, these dimensions give us a fuller picture of what it takes for institutions to lead sustainable, balanced development.

2. Methodology

2.1 Research Design

This study employed a quantitative-descriptive research design to assess the carrying capacity of key tourist attractions in Siquijor. The descriptive approach was chosen to systematically capture and analyze the perceptions of stakeholders on

environmental, cultural, economic, and institutional dimensions of tourism carrying capacity. As Creswell (2014) highlights, quantitative-descriptive studies are appropriate for examining existing conditions and generating empirical data that can inform evidence-based decision-making.

2.2 Sample Size

The determination of a 400-respondent sample size is grounded on Slovin's formula, which is widely used to calculate appropriate sample sizes when population parameters are unknown (Tejada & Punzalan, 2012). Using a 5% margin of error at a 95% confidence level, the computed sample size across varying population sizes consistently approximates 400, affirming its adequacy for statistical analysis. As noted by Israel (1992), such a sample size ensures sufficient precision and representativeness while maintaining feasibility in data collection. Hence, 400 respondents are considered methodologically sound and sufficient for generating reliable and generalizable findings in this study

2.3 Research Instrument

A structured questionnaire was developed, incorporating validated scales to measure the four dimensions of carrying capacity: physical, cultural, economic, and institutional. The instrument was reviewed by tourism experts for content validity and pilot-tested with 30 respondents, resulting in a Cronbach's alpha of **0.92**, indicating excellent reliability (Taber, 2018).

2.4 Data Collection Procedure

Data were gathered over a 8 week period through field visits and administered surveys. Enumerators were trained to ensure consistent administration and minimize interviewer bias. Ethical considerations such as informed consent and confidentiality were strictly observed throughout the data-gathering process, in compliance with Republic Act No. 10173 or the Data Privacy Act of 2012.

2.5 Data Analysis

Descriptive statistics such as weighted mean was used to summarize respondents' ratings of the carrying capacity dimensions. Composite mean scores were computed to determine the overall rating per dimension, which were interpreted using a Likert scale.

3. Results and Discussion

3.1 Physical Environment

The physical environment plays a critical role in shaping tourist experiences and maintaining destination sustainability. Key factors include (1) environmental carrying capacity, which refers to the ecosystem's ability to handle visitor pressure without degradation, and (2) infrastructure carrying capacity, which concerns the limits of facilities like roads, accommodations, and utilities. (3) Socio-cultural carrying capacity also matters, addressing how many tourists a local community can absorb without negative impacts on its culture or residents' quality of life. (4) Effective visitor management, density control, and monitoring through composite mean scores help balance these capacities, ensuring both visitor satisfaction and long-term destination health.

Table 1 Environment Carrying Capacity

Factors	Weighted Mean	Verbal Description
Number of Tourist on Management and Overall Experience	3.81	Very Good
Sufficient Facilities (pathways, rest areas, and restroom)	3.77	Very Good
Tourist Impact on Cleanliness and Natural Beauty	3.55	Very Good
Preservation and Protection of Attraction	3.93	Very Good
Signs and Guidelines (waste management, trails)	3.92	Very Good
Composite Mean	3.80	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean for environmental carrying capacity is 3.80, rated "very good," indicating that Cambugahay Falls is generally well-managed and protected (3.93). This aligns with global efforts to safeguard biodiversity and natural heritage. For instance, Luo et al. (2024) note how World Heritage protection preserves ecosystems and species diversity. However, other regions show challenges: Bernardes & Luiz (2023) found a 100% reduction in protected hilltop areas in Brazil under new laws, highlighting the need to integrate geological considerations in policies. Similarly, Blagajac (2023) emphasized balancing tourism development with ecological sustainability in Serbia's Suma Kosutnjak nature monument.

Notably, the lowest-rated aspect at Cambugahay Falls was the impact of tourists on cleanliness and natural beauty—an area needing attention. Khair et al. (2022) reported similar issues at Lake Toba, Indonesia, where poor waste management tarnished tourist experiences. Yurike et al. (2024) also found that while visitors appreciated Kandis Hill's beauty, they criticized cleanliness and staff performance. Likewise, Dhannur & Rakesh (2023) noted that at Karnataka's heritage sites, poor environmental maintenance lowered visitor satisfaction despite other positive factors. These findings suggest that stronger management of visitor impact is crucial to sustaining Cambugahay's environmental quality.

Table 2 Infrastructure Carrying Capacity

Factors	Weighted Mean	Verbal Description
Availability of Facilities to accommodate tourist (changing rooms, seating areas, restrooms)	3.54	Very Good
Walking Paths, stairways and routes can handle the volume	3.82	Very Good
Parking Facilities not causing congestions	3.93	Very Good
Infrastructure support (signage, railings, resting spots)	3.96	Very Good
Infrastructure design prevents overcrowding	3.71	Very Good
Composite Mean	3.80	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean for infrastructure carrying capacity at Cambugahay Falls is 3.80, indicating adequacy overall. Infrastructure support—such as signage, railings, and resting areas—scored 3.96 ("Very Good"), reflecting effective planning and maintenance even in a less urbanized setting. Mitra et al. (2023) emphasized how features like clear signage and well-kept aesthetics shape visitor experiences, while Peiris et al. (2021) and Pappalardo et al. (2022) highlighted the value of quality road markings and signage, often lacking in remote areas. Cambugahay's support and parking facilities also scored well (3.93, "Very Good"), suggesting strong infrastructure despite its rural context.

However, basic amenities such as restrooms and changing rooms scored the lowest among all factors, pointing to an area for improvement. Stepheno and Raghul (2024) noted that poorly maintained or unavailable facilities significantly lower tourist satisfaction. As Yu (2024) argued, strategically locating and designing support facilities is crucial to improving convenience and enhancing the overall tourist experience.

Table 3 Socio – Cultural Carrying Capacity

Factors	Weighted Mean	Verbal Description
Peaceful and Enjoyable Experience	3.65	Very Good
Does not affect community's lifestyle	3.85	Very Good
Respect of Cultural and Social Values	3.95	Very Good
Number of Tourist is appropriate to maintain satisfaction and Charm	3.79	Very Good
Preservation of unique character ensuring good experience	3.92	Very Good
Composite Mean	3.83	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The socio-cultural composite mean is 3.83, rated "Very Good." Tourists show strong awareness of cultural differences and local values, with "providing respect" scoring highest at 3.95. This reflects findings by Baltaci & Çakici (2022), who noted that even tourists without cultural motivations often develop appreciation for local values, encouraging repeat visits. Similarly, Zhang et al. (2022) observed that destinations practicing social responsibility inspire tourists to adopt positive behaviors supporting sustainability. Dini et al. (2023) found that satisfaction and belonging at cultural sites promote respect for local traditions, while Tafti (2024) highlighted that cultural intelligence strengthens visitor connections and enhances travel experiences.

Conversely, the lowest satisfaction relates to experiences described as peaceful and enjoyable. Studies link this to overcrowding and poor service quality (Tarkhanova, 2022; Þórhallsdóttir et al., 2024). Soares et al. (2022) supported tourist taxes in Santiago de Compostela to reduce strain on infrastructure, suggesting that managing visitor numbers is essential to improve both tourist enjoyment and destination sustainability.

Table 4 Visitor Management and Density

Factors	Weighted Mean	Verbal Description
Number of Visitors are well – managed and not overwhelming	3.69	Very Good
Number of Visitors are controlled effectively to prevent overcrowding	3.64	Very Good
Site provided enough space to enjoy comfortably	3.75	Very Good
Did not experience long waits or delays	3.97	Very Good
Well balance between the natural environment and good experience	3.98	Very Good
Composite Mean	3.81	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean is 3.81, rated "Very Good." Tourists are highly satisfied with the balance between the natural environment and overall experience, with this factor scoring highest at 3.98. Nguyen and Huynh (2024) found that the natural environment alone accounted for 27.7% of tourist satisfaction in Phong Dien, Vietnam, while Andi and Ran (2025) highlighted how alignment of natural, cultural, and service quality aspects strengthens perceived value and loyalty. Similarly, Mandić and McCool (2023) emphasized integrating conservation, community benefits, and visitor experience to achieve sustainable tourism management.

The lowest-rated factor is controlling visitor numbers to prevent overcrowding, which remains a critical challenge. Rosyida et al. (2021) proposed using deep learning and image processing for real-time density monitoring, while Abreu et al. (2024) recommended digital tools such as Wi-Fi sensors and predictive simulations to manage crowding effectively. Nurrahma et al. (2021) also stressed the importance of setting visitor limits aligned with carrying capacity to prevent environmental degradation.

Table 5 Summary of Physical Environment

Factors	Weighted Mean	Verbal Description
Environment Carrying Capacity	3.80	Very Good
Infrastructure Carrying Capacity	3.80	Very Good
Socio – Cultural Carrying Capacity	3.83	Very Good
Visitor Management and Density	3.81	Very Good
Composite Mean	3.81	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean is 3.81, rated "Very Good." Cultural carrying capacity ranks highest, showing that tourists place strong importance on the cultural identity of destinations. Hinlayagan et al. (2023) found similar results in Davao, Philippines, where socio-cultural aspects outweighed environmental and security concerns in tourist preferences. Ramires et al. (2022) also identified cultural motivations—such as intellectual curiosity and the desire for knowledge—as primary drivers of travel decisions. In Portugal and Spain, studies by Ramires et al. (2022) and Álvarez-Díaz et al. (2022) confirmed that cultural factors play a central role in how tourists select destinations.

3.2 Cultural Carrying Capacity

The assessment of Cultural Carrying Capacity revealed a generally favorable outcome, with all dimensions receiving a "Very Good" rating and a composite mean of 4.02. Among the four key areas—socio-cultural factors, heritage preservation, community acceptance, and cultural infrastructure—the highest score was observed in community acceptance (4.16), reflecting the locals' welcoming attitude and harmonious interaction with tourists. Heritage preservation (3.99) and socio-cultural dimensions (3.98) highlighted the importance of mutual respect, safeguarding traditions, and minimizing tourism's disruption to local life. Cultural infrastructure (3.94), while still rated "Very Good," indicated room for improvement, particularly in the design and maintenance of facilities to support meaningful visitor experiences without compromising site integrity. These findings underscore the delicate balance between promoting tourism and ensuring cultural sustainability, emphasizing the need for culturally sensitive, inclusive, and adaptive strategies that benefit both visitors and host communities.

Table 6 Sociocultural

Factors	Weighted Mean	Verbal Description
Activities respect and preserve traditional practices of the local community	3.99	Very Good
Tourist does not disturb the daily lives of the local residents	3.97	Very Good
Local culture and customs are adequately highlighted and respected	3.91	Very Good
There is mutual respect and understanding	4.04	Very Good
Minimizes the negative impacts of the local way of life	3.97	Very Good
Composite Mean	3.98	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

Mutual respect and understanding between locals and tourists ranked highest among sociocultural factors (4.04), underscoring the role of culturally sensitive interactions in enriching tourism experiences. Byomantara (2024) showed that respectful communication by Balinese guides improved tourist satisfaction, while Leyli et al. (2023) found that tailoring politeness to visitors' backgrounds fostered rapport in Lake Toba. In Peru, Mamani-Flores et al. (2024) reported that shared traditions deepened mutual appreciation through experiential tourism. However, sustaining respect requires effort and supportive conditions. Budiutami et al. (2024) highlighted how prosocial behavior among Yogyakarta locals nurtured ongoing respect, whereas Pan et al. (2024) warned that perceptions of inequality among tourists can erode it. In North Sumatra, community-driven tourism fostered respect (Revida & Badaruddin, 2024), while purely commercial exchanges often bred resentment (Ginting & Jayanti, 2024). These findings affirm that mutual respect is not incidental—it is essential for inclusive and meaningful tourism.

By contrast, respect for and promotion of local culture ranked lowest, raising concerns about the erosion of community identity. Chosson (2022) argued that aligning indigenous rights with local values, as with the Tseltal Maya, fosters legitimacy and acceptance. Surata et al. (2024) showed how Bali's Penglipuran Village preserves traditions through community participation. Similarly, Chao and Hafiza (2023) linked heritage branding to cultural pride, while Pérez-Bravo (2024) highlighted Mexico's culinary revival as cultural resilience. Yet without active integration, communities risk losing cohesion. Wijaya et al. (2025) found that blending Islamic practice with local traditions in Central Java depends on cultural sensitivity. Weak governance, as noted by Jia and Yang (2022), leaves traditions vulnerable, and Mahira et al. (2023) warned that Bali's spatial identity may vanish without policy support. Vuković et al. (2022) and Wijirahayu et al. (2023) stressed the roles of women and education in safeguarding intangible heritage. Together, these insights show that valuing culture is not optional—it is vital for sustaining identity, memory, and opportunity.

Table 7 Heritage Preservation

Factors	Weighted Mean	Verbal Description
Historical significance is effectively preserved	3.94	Very Good
Natural Beauty and ecological integrity are well maintained	3.94	Very Good
Efforts to protect cultural heritage is evident	4.01	Very Good
Activities are conducted responsively to safeguard natural and cultural value	4.06	Very Good
Local traditions are effectively preserved and shared with visitors in a meaningful way	4.01	Very Good
Composite Mean	3.99	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean for heritage preservation is 3.99. The highest-rated factor (4.06) is the responsive conduct of activities to safeguard natural and cultural values, reflecting a shift toward adaptive, community-driven protection. Singh et al. (2024) identify youth as the most motivated group for cultural preservation, a generational drive strengthened by digital tools that empower young people to promote heritage through online platforms and events (Rachman, 2024). Globally, similar trends emerge: student-led programs in China raise awareness of intangible heritage (Niu & Jin, 2024), Italy integrates climate adaptation with cultural conservation (Fiorentino & Vandini, 2024), and Serbia combines heritage protection with disaster resilience through institutional frameworks (Cvetković et al., 2024). In Indonesia, responsive government policies support museums as vital guardians of national identity (Ristawati et al., 2025). Across these cases, inclusive, flexible strategies—especially those engaging youth and backed by institutions—are key to lasting heritage protection.

In contrast, the lowest-rated factors—effective historical preservation and safeguarding natural beauty (both 3.94)—highlight significant vulnerabilities. Economic development in Lijiang, China, has compromised cultural sites in favor of profit (Chen & Maliki, 2024). In South Africa, neglecting lesser-known heritage weakens collective memory (Ronnie, 2024), while superficial preservation in the U.S. lacks analytical depth (Morgan, 2022). Similarly, Beijing's focus on aesthetics has disconnected preservation from cultural roots (Huang et al., 2022). Natural heritage faces parallel threats: tourism pressure damages ecosystems in Jiuzhaigou (Chen et al., 2023), unchecked land use drives desertification in Alxa League (Sun et al., 2023), and institutional mistrust undermines EU conservation efforts (McGinlay et al., 2023). Šambronská et al. (2024) argue that conservation succeeds only when ecological value is rooted in local culture. These examples underscore that without genuine engagement, informed policy, and community alignment, cultural and environmental preservation remains fragile.

Table 8 Community Acceptance

Factors	Weighted Mean	Verbal Description
Tourist are welcomed by the local community	4.33	Excellent
Local community appears comfortable with tourist	4.26	Excellent
Tourist activities blend harmoniously with social dynamics of the local community	4.09	Very Good
Tourist increase does not negatively impact relationship between locals	4.00	Very Good
Local community benefits and embrace presence of tourist	4.13	Very Good
Composite Mean	4.16	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean for community acceptance is 4.16 ("very good"), with the highest-rated factor being the welcoming attitude of locals toward tourists (4.33). This reflects a strong perception of hospitality as central to shaping visitor experiences. In Ubud, Indonesia, Sari et al. (2024) found tourists felt especially positive when local services and infrastructure fostered comfort and genuine welcome. Similarly, Stacchini et al. (2022) reported that in Italy, sustainable tourism combined with warm, personal interactions enhanced visitors' sense of belonging. Emotional connection also played a key role: An et al. (2022) and Jiang et al. (2022) showed that tourists who bonded emotionally with locals were more satisfied and likely to return. In Malaysia, Patwary et al. (2022) observed that post-pandemic host-guest relationships deepened place attachment, while Davari et al. (2023) in Iran emphasized that culturally rooted hospitality—not just service—made tourists feel truly accepted. These findings show that heartfelt hospitality is more than appreciated; it is a cornerstone of tourism appeal.

By contrast, the statement that tourism does not harm local relationships received the lowest agreement, revealing underlying social tensions. While tourism brings economic benefits, it can strain communities. Gautam (2022) found tourism-related stress reduced emotional solidarity among locals. In Mersin, Turkey, Eban and Komşu (2024) reported mixed reactions: some residents felt more connected, while others became less welcoming due to negative impacts. In Czechia, Štumpf et al. (2023) noted that overcrowding and daily disruptions shifted political attitudes and reduced support for tourism growth. Similarly, Juvan et al. (2021) highlighted how high tourist volumes damaged residents' emotional wellbeing and fueled anti-tourism sentiment, while An et al. (2024) found concerns about social costs in Vietnam weakened public support for expansion. Haini and Loon (2023) warned that overdependence on tourism can undermine happiness and cohesion. Together, these studies underscore that for tourism to be sustainable, it must preserve the well-being and unity of host communities.

Table 9 Cultural Infrastructure

Factors	Weighted Mean	Verbal Description
Facilities and walkways are well – designed to accommodate visitors	3.85	Very Good
Signage and information display effectively educate visitors about cultural and ecological significance	4.04	Very Good
Infrastructure allows for an enjoyable and meaningful experience without disrupting the natural environment	3.98	Very Good
Local guides provide valuable insights into ecological and cultural heritage	3.92	Very Good
Facilities are adequate to handle visitors while preserving site's integrity.	3.90	Very Good
Composite Mean	3.94	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean for cultural infrastructure was 3.94 ("very good"). The highest-rated factor was the effectiveness of signage and information displays (4.04), highlighting their crucial role in educating visitors on cultural and ecological themes. In Kenya's Masai Mara, Juma and Khademi-Vidra (2022) found orientation signage improved conservation education, though impacts varied by demographic. Liu and Lin (2021) reported that Taiwan's Old Zuoying City benefited from layered interpretation combining technology, education, and cultural specificity. Spooner et al. (2024) used eye-tracking in UK botanic gardens to show that visuals, clear text, and color coding enhance engagement. Similarly, Deri et al. (2023) demonstrated how QR-code signage on heritage trails supports sustainable learning with minimal environmental impact. Digital tools like the "Environmental Dashboard" foster long-term ecological awareness (Petersen & Frantz, 2024). Museum studies also affirm that multimedia displays enhance understanding and satisfaction (Mahajan et al., 2024; Huang, 2023), while Pramuková and Štrba (2025) called for more dynamic, interactive signage in Slovak geoparks. Together, these studies confirm effective signage is not optional—it is foundational to visitor education and engagement.

In contrast, the design and maintenance of facilities and walkways scored lowest (3.85), revealing a weak point in visitor infrastructure that risks undermining satisfaction and site value. Kato (2024) found multifunctional facilities in ONIKURU increased walking time among young women, linking design directly to physical activity. In Portugal, Azevedo et al. (2024) reported that high-quality boardwalks boosted visitor spending and satisfaction. Clean, accessible facilities were also shown to drive loyalty at Pantjoran PIK and Samosir Island (Yonnata, 2024; Zebua et al., 2024). Studies in schools highlighted how covered walkways promote safer, more inclusive environments (Estacio, 2022; Rolfe et al., 2022), while park upgrades encouraged broader use and physical activity (Paudel et al., 2024). Salsabila and Navitas (2024) linked walkable, accessible public spaces to mental health benefits, and aesthetic enhancements like glowing blue walkways improved mood (Lanini-Maggi et al., 2024). Gupta et al. (2024) further showed accessibility drives festival satisfaction. These findings make clear: neglecting infrastructure sacrifices physical, emotional, and economic benefits.

Table 10 Summary of Cultural Carrying Capacity

Factors under Cultural Carrying Capacity	Mean	Verbal Description
Socio- Cultural	3.98	Very Good
Heritage Preservation	3.99	Very Good
Community Acceptance	4.16	Very Good
Cultural Infrastructure	3.94	Very Good
Composite Mean	4.02	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean for cultural carrying capacity stands at 4.02—rated "Very Good"—yet cultural infrastructure emerges as the weakest component, with a score of 3.94, signaling a need for targeted improvement. Across tourism and heritage sites, infrastructure limitations are a recurring issue. For instance, research at Soge Beach, Indonesia, revealed that underdeveloped cultural infrastructure hindered sustainable tourism goals (Sumarmi et al., 2022). Similar constraints were identified at Morocco's Tour Hassan, where infrastructure gaps reduced the site's carrying capacity and called for GIS-based management strategies (Simou, 2024). In the UK, socio-cultural and financial barriers have restricted how cultural organizations engage with digital infrastructures, limiting their contribution to overall cultural capacity (Humbel et al., 2024). Bengkulu City, Indonesia, faces challenges in human resources, with insufficient expertise undermining effective cultural heritage management (Darmi et al., 2023). Meanwhile, studies on British urban centers highlight a mismatch between ecological and cultural infrastructure development, underscoring the uneven progress in building robust cultural capacity (Zhang & Davarpanah, 2022).

3.3 Economic Carrying Capacity

The evaluation of Cambugahay Falls as a tourism destination highlights a generally positive perception of its economic and community impact, with composite means across all indicators rated "Very Good." Visitors strongly agreed that their spending benefits the local economy (M = 4.17) and that tourism supports employment and site sustainability, as reflected in high ratings for job stability (M = 4.20) and reasonable entrance fees (M = 4.10). These findings align with global research underscoring tourism's role in fostering local development and job creation (Choi & Jeon, 2021; Listyorini et al., 2023; McGinley et al., 2024). However, slightly lower scores in areas such as over-commercialization (M = 3.91) and equitable benefit sharing (M = 3.95) suggest growing concerns about sustainability and inclusivity—issues mirrored in studies on overtourism, weak governance, and unequal income distribution (Lee, 2021; Pang et al., 2024). While tourism at Cambugahay Falls contributes to complementary businesses and infrastructure investments, its ability to drive broad-based economic diversification remains constrained by structural and institutional factors. These results underscore the importance of balancing tourism growth with policies that preserve authenticity, strengthen community participation, and ensure the equitable distribution of benefits.

Table 11 Tourism Revenue

Factors	Weighted Mean	Verbal Description
My spending directly benefits the local economy	4.17	Very Good
Balance between generating revenue and maintaining the authenticity	4.09	Very Good
Activities are not over-commercialized	3.91	Very Good
Local community benefits financially from tourism activities	4.11	Very Good
Activities are not meant for over dependency on tourist	3.92	Very Good
Composite Mean	4.04	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

Tourists often believe their spending supports local economies, reflected in a strong average agreement score of 4.17. This perception aligns with research showing tourism's significant contribution to local development. For instance, Choi and Jeon (2021) reported that visitor spending in Mississippi parks generated $4.4 million in economic output, supported 68 jobs, and added $2.9 million to local GDP. In Portugal, Santos (2024) highlighted how overnight stays drive regional growth. Similar findings include tourist spending boosting local demand in Albania (Boboli & Muça, 2021); multiplier effects in food and souvenir sectors in Russia's Rostov region (Zainullina & Kedrova, 2023); and consistent revenue across eight spending categories in Indonesia's Wonosobo Regency (Listyorini et al., 2023). Even small rural events generate returns through lodging, meals, and local products (Tzoumaka et al., 2022).

However, the lower score for "activities are not over-commercialized" (3.91) signals concerns about overtourism. In many destinations, tourism exceeds sustainable limits, driven by profit over planning. In Kyoto, Japan, excessive visitor numbers have caused cultural conflict and degradation (Lee, 2021), while globally, cities grapple with noise, crowding, and strained infrastructure (Çiğdemli, 2021). Some sites resort to high-tech replicas to relieve pressure on originals—a sign of over-commercialization (Frey & Briviba, 2021). Mass-appeal strategies often overshadow local identity, as in Russia's Kemerovo region where ski tourism dominates (Logunova et al., 2022). Even niche sectors like gastronomy tourism face authenticity loss and growing inequality, as seen in Surkhandarya (Zoirova, 2023). These trends highlight the need for policies that safeguard cultural integrity, community well-being, and environmental balance.

Table 12 Employment Sustainability

Factors	Weighted Mean	Verbal Description
Many local residents are employed in tourism related activities	4.18	Very Good
Activities provided by locals are well organized	4.04	Very Good
Stable and Meaningful job opportunities	4.20	Very Good
Presence of local workers enhance my overall visitor experience	4.05	Very Good
Tourism related jobs seemed to provide consistent income for locals	3.99	Very Good
Composite Mean	4.09	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

Tourism is often praised for creating jobs, but at Cambugahay Falls, Siquijor, the quality and stability of these jobs are not assured. While respondents rated tourism's ability to provide meaningful, stable employment highly (4.20), research suggests a more complex reality. McGinley et al. (2024) found U.S. accommodation and food service workers often leave for better opportunities, highlighting sector instability. Similarly, González (2025) reported that in Europe, tourism boosts employment but many jobs lack quality and longevity. By contrast, targeted strategies elsewhere have shown positive outcomes: Uswatun et al. (2024) and Kumari (2024) found that investments in infrastructure and inclusive hiring in Central Java and Bihar created stable jobs across income levels. Education and career development are also crucial; Daiki et al. (2025) and Hutasuhut & Haro (2024) showed how transferable skills and training programs improve job resilience. Job satisfaction varies, as González (2025) noted tour operators offer more meaningful work than food service roles, and Ng et al. (2024) found stronger commitment when personal values align with responsibilities. In Himachal Pradesh, Raj et al. (2023) highlighted tourism education as key to building a skilled workforce.

Yet even with jobs present, income for local communities is often low and unstable. In Garut, Indonesia, Karmila & Kania (2021) found poor policy limited tourism's share of local income to 38%. In Langsa City, Muhammad et al. (2024) reported tourism's contribution to local revenue was just 0.00232%. In Kazakhstan's Aksu-Zhabagly reserve, Akbar et al. (2024) and Akbar & Yang (2021) observed revenue-sharing issues left locals excluded from profits. Similarly, Pang et al. (2024) noted tourism income often flows to governments and corporations, sidelining residents. Pandjaitan (2021) reported that in West Bandung, political

interference and land ownership disputes further restricted community benefits. These findings highlight a disconnect between tourism employment and real economic gains, underscoring the need for structural reforms to ensure fair, stable income for Siquijor's communities.

Table 13 Cost Benefit Capacity

Factors	Weighted Mean	Verbal Description
Tourism revenue generated is sufficient to justify the investment infrastructure and site maintenance	4.03	Very Good
Facilities and services provided reflect good use of resources without excessive spending	4.01	Very Good
Tourism appears to benefit the community without creating unnecessary financial burdens	4.06	Very Good
The entrance fee and other charges seem reasonable and contribute to the upkeep of the site.	4.10	Very Good
Economic benefits outweigh the cost of maintaining the site and infrastructure	3.98	Very Good
Composite Mean	4.04	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

Entrance fees for cultural and natural heritage sites are not only reasonable but essential for long-term sustainability. At Cambugahay Falls, visitors are generally willing to pay when they know their contributions support preservation efforts. Globally, improved awareness and visual representation have boosted tourists' willingness to contribute, as seen in Korea (Kim et al., 2023). On St. Martin's Island, Bangladesh, entrance fees provide reliable funding for conservation (Rani et al., 2025). Such fees not only finance upkeep but also enhance visitor experiences and ensure sites remain accessible and protected. Strategic fee structures further support smarter management: in Nepal's Chitwan National Park, 70% of visitors said they would pay more than the current $7 fee (Cook, 2021), while seasonal pricing at Mount Etna, Italy, balances conservation with visitor flow (Platania et al., 2022). Studies across Botswana and Malaysia confirm consistent support for fees as fair tools for local development and environmental protection (Matlhola et al., 2021; Ibrahim et al., 2024).

Investing in natural and recreational infrastructure also delivers clear economic benefits. Globally, conserving or restoring ecosystems generates higher value—through flood protection, carbon storage, and other services—than alternative land uses like farming or logging (Bradbury et al., 2021). In Ireland, maintaining a kayaking site yielded recreational returns triple the cost of restoration (Alducci & Hynes, 2023), while green stormwater projects outperformed traditional systems over time (Abera et al., 2024). Similar patterns appear elsewhere: Potomac River anglers were willing to pay more than maintenance costs for restored fishing sites (Knoche & Ritchie, 2022); Canadian cities saw health and environmental benefits from bike infrastructure with benefit-cost ratios up to 4.9:1 (Whitehurst et al., 2021); and even corporate-led tropical forest restoration proved financially sound (Andaru, 2025). Major events like the UEFA European Championship also demonstrate tourism's potential for lasting economic boosts when managed well (Chen, 2024). These findings underscore that entrance fees and sustainable infrastructure investments are not just good policy—they're economically and environmentally strategic.

Table 14 Economic Diversification

Factors	Weighted Mean	Verbal Description
I believe the tourism revenue generated at Cambugahay Falls is sufficient to support not only site maintenance but also other local economic activities.	3.98	Very Good
The income from tourism appears to encourage the growth of complementary businesses such as local crafts, food vendors, transportation services, and homestays.	3.93	Very Good
Tourism at Cambugahay Falls seems to create opportunities for a wider range of livelihood options in the community beyond direct tourism jobs.	4.01	Very Good
Investments in the area appear to promote small business development and skills training, helping diversify the local economy.	4.05	Very Good
I feel that the economic gains from tourism at Cambugahay Falls are being used in ways that strengthen the community's resilience by not relying solely on tourism income.	3.95	Very Good
Composite Mean	3.98	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

While tourism at Cambugahay Falls supports complementary businesses like local crafts, food vendors, transport services, and homestays, its overall economic impact remains modest—especially in lower-income settings. Saboori et al. (2022) found tourism diversification benefits low- and lower-middle-income countries mainly at lower GDP quantiles, suggesting limited broader effects. In Siquijor, structural constraints hinder the growth of tourism-linked enterprises. Homestays, for instance, are not widely adopted because not all visitors prefer them, and many households lack capacity to host, limiting scalability. Similarly, local crafts suffer from poor visibility due to the absence of centralized markets or display areas, making it hard for artisans to benefit from tourist spending. Salauatova et al. (2024) noted that poor infrastructure—such as limited access and facilities—restricts tourism's role in economic diversification. Comparable findings in Cambodia and Brazil show rural tourism can enhance well-being but remains marginal without strong policy and infrastructure support (Kimkong et al., 2023; Sipp et al., 2025). Tafidou et al. (2023) emphasized that small-scale ventures like crafts and homestays lack scalability to drive large-scale economic change, while in Ethiopia, tourism's poverty-reduction impact was minimal without systemic support (Fikire et al., 2022). These challenges help explain the low rating (3.93) and highlight how infrastructure, scale, and context limit tourism's potential to transform Siquijor's economy.

Table 15 Efficiency Capacity

Factors	Weighted Mean	Verbal Description
I observed that rules and regulations are well-enforced by local authorities.	4.04	Very Good
The decision-making processes regarding tourism management appear transparent to visitors.	3.89	Very Good
It seems that the benefits of tourism are fairly shared among the community.	3.95	Very Good
The local institutions effectively manage the tourism activities to ensure a smooth visitor experience.	3.95	Very Good
The authorities maintain a fair and balanced approach to regulating tourism activities.	4.01	Very Good
Composite Mean	3.97	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

Although Cambugahay Falls in Siquijor received a strong overall score in Efficiency Capacity, the dimensions concerning benefit sharing and local tourism management—while rated positively at 3.95—were the lowest among the assessed indicators. This suggests that while respondents generally view tourism in a favorable light, they may still recognize underlying gaps in how benefits are distributed and how effectively institutions manage tourism activities. Pang et al. (2024) argue that community-led income distribution models tend to outperform government- or corporate-led systems, which often struggle to equitably allocate benefits among locals. Nainggolan et al. (2024) and Wawo et al. (2025) also point out that commercialization and limited capacity frequently hinder widespread benefit sharing in tourism villages. In terms of management, Martins and Ribeiro (2023) note that many destinations lack community-based systems, which limits coordination and service delivery. Davydenko (2024) further highlights how weak institutional structures and underinvestment can degrade visitor experiences. Even in well-known

destinations, Mularsari et al. (2024) found that poor infrastructure and limited government involvement hamper effective service. Lastly, Jiang et al. (2023) emphasize that community trust in institutions affects both participation and perceptions of efficiency. The relatively lower rating in these areas at Cambugahay Falls likely reflects a subtle but important public perception that, despite tourism's benefits, there is room to improve equity and governance.

Table 16 Summary of Economic Carrying Capacity

Factors of Economic Carrying Capacity	Mean	Verbal Description
Tourism Revenue	4.04	Very Good
Employment Sustainability	4.09	Very Good
Cost Benefit Capacity	4.04	Very Good
Economic Diversification	3.98	Very Good
Efficiency Capacity	3.97	Very Good
Composite Mean	4.02	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The economic carrying capacity of Cambugahay Falls as a tourist attraction was rated 4.02 ("very good"), indicating strong performance, though efficiency capacity, at 3.97, was the lowest among the factors assessed and suggests room for improvement. This finding aligns with global research showing that efficiency often lags behind other natural resource-related factors in supporting sustainable development. Wu et al. (2022) observed that urban land use efficiency (ULUE), representing efficiency capacity, tends to become a limiting factor in certain regions unless addressed through technological innovation. Similarly, Bai et al. (2023) reported in Inner Mongolia that despite improvements in ULUE, ecological carrying capacity remained the dominant constraint, with the "pressure" subsystem—linked to efficiency—acting as a bottleneck in coupling coordination. In the Yangtze River Economic Belt, Hu et al. (2024) highlighted how a 16.56% increase in agricultural production efficiency was still insufficient to counteract rising population pressures, underscoring efficiency as a secondary factor compared to resource constraints. Lin et al. (2022) confirmed that while gains in total factor energy efficiency are vital, ecological and economic factors largely determine carrying capacity, with technological progress serving as a supporting rather than leading driver. Likewise, Khorsand et al. (2022) found in Iran that even under highly efficient agricultural practices, limits in land and water availability outweighed efficiency in determining sustainable population thresholds. These studies collectively suggest that while Cambugahay Falls exhibits strong economic carrying capacity, targeted innovations to enhance efficiency could further support its sustainable tourism potential.

3.4 Institutional Carrying Capacity

The assessment of institutional capacity across key dimensions—policy adaptability, stakeholder collaboration, allocation capacity, and cultural preservation—reveals an overall composite mean of 4.01, interpreted as "Very Good" (Table 21). Among these dimensions, cultural preservation scored highest (4.04), reflecting strong efforts to safeguard local heritage while promoting tourism. Stakeholder collaboration (4.02) and policy adaptability (4.00) also received very good ratings, suggesting robust institutional frameworks that enable coordination, responsiveness, and policy flexibility in managing tourism dynamics. However, allocation capacity, though still rated "Very Good" (3.98), emerged as the lowest-scoring domain, indicating relative weaknesses in resource distribution and workforce adequacy. These findings align with global trends wherein institutional mechanisms often struggle to balance tourism growth with sustainability, particularly in addressing staff shortages and equitable resource allocation (Jeffrey & Sposato, 2022; Zhang et al., 2024). Overall, while the institutions managing Cambugahay Falls demonstrate commendable capacity in fostering sustainable tourism, the data highlights critical areas—such as adaptive management during seasonal fluctuations and strengthening inter-stakeholder synergy—that require further enhancement to elevate performance from "very good" to "excellent."

Table 17 Policy Adaptability

Factors	Weighted Mean	Verbal Description
The policies in place seem flexible enough to respond to changes in tourist numbers.	4.06	Very Good
Local regulations appear to address environmental challenges such as maintaining the ecological health of the attraction	4.02	Very Good
The management policies seem capable of adopting to the needs of tourists during peak and off-peak seasons.	3.95	Very Good
Local authorities appear responsive to emerging environmental concerns.	4.04	Very Good
The current policies reflect an ability to balance tourism growth with environmental sustainability.	3.95	Very Good
Composite Mean	4.00	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The table shows that policy adaptability achieved a composite mean of 4.00, rated as "Very Good." However, within this dimension, the areas of adapting to tourist needs during peak and off-peak seasons and balancing tourism growth with environmental sustainability scored slightly lower at 3.95—still "Very Good," but the weakest among the sub-dimensions. This indicates room for improvement compared to other policy areas. Addressing seasonal fluctuations is especially critical for Mediterranean islands, which often face overtourism in the summer and undertourism in the winter (Ruggieri & Platania, 2024). While current policies demonstrate potential, more innovative strategies—such as organizing events and offering digital trip-planning tools to redistribute visitor flows (Dalir, 2023)—could enhance resilience. Likewise, balancing tourism growth with environmental sustainability remains a global challenge. Initiatives like the "Extended Sector Responsibility" model in North Africa (Wiechert et al., 2025) and integrated ecological branding in Southeast Asia (Verances et al., 2024) highlight the need for more holistic approaches. Thus, while the progress reflected in the current ratings is commendable, strengthening these dimensions further is essential to building a truly robust and sustainable tourism management framework.

Table 18 Stakeholder Collaboration

Factors	Weighted Mean	Verbal Description
There seems to be effective coordination among government agencies, private operators, and local communities in managing the attraction.	3.99	Very Good
The collaboration among stakeholders appears to enhance the quality of tourism services.	4.01	Very Good
The involvement of local communities in tourism management is noticeable and effective.	4.07	Very Good
I perceive that all stakeholders work together to preserve the environment and culture.	4.01	Very Good
Stakeholders appear to have a shared vision for sustainable tourism development.	4.01	Very Good
Composite Mean	4.02	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The stakeholder collaboration composite mean of 4.02 ("Very Good") reflects generally strong coordination among government agencies, private operators, and local communities in managing the attraction. However, the slightly lower score for the item *"There seems to be effective coordination among government agencies, private operators, and local communities in managing the attraction"* (3.99) suggests room for improvement in inter-stakeholder synergy. This finding aligns with Taufik et al. (2023), who emphasized the importance of collaborative governance in promoting joint decision-making and resource sharing in tourism development. Similarly, Singh (2025) highlighted that inadequate coordination between government and private sectors often undermines sustainable tourism efforts, especially in infrastructure and community awareness. In contrast, Khairi (2022) and Kusworo (2023) showcased cases where robust collaboration among government, private, and community actors led to successful ecotourism and tourism village development. These examples suggest that while collaboration in the current context is perceived as "very good," further strengthening stakeholder networks and communication—as emphasized by Phương (2022) and Arifin et al. (2025)—could elevate performance to an "excellent" level and address residual gaps in coordination.

Table 19 Allocation Capacity

Factors	Weighted Mean	Verbal Description
The facilities and infrastructure seem well-maintained, indicating effective resource allocation.	3.96	Very Good
It appears that sufficient staff are available to manage tourism activities.	3.94	Very Good
The local institutions seem to have invested adequately in preserving the natural environment.	3.97	Very Good
The allocation of resources ensures a safe and enjoyable experience for visitors.	4.04	Very Good
The technical and financial resources used to support sustainable tourism seem effectively managed.	4.01	Very Good
Composite Mean	3.98	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The composite mean of 3.98 for Allocation Capacity indicates a "very good" level overall. However, the item *"It appears that sufficient staff are available to manage tourism activities"* scored 3.94, the lowest in the group, highlighting a relative weakness in staffing adequacy. This finding reflects broader challenges in the tourism sector, as post-pandemic staff shortages remain a pressing issue worldwide. Jeffrey and Sposato (2022) emphasize a global staffing crisis in tourism enterprises, necessitating organizational changes in recruitment strategies, incentives, and work-life balance to stabilize the workforce. Similarly, Jurišić Mustapić and Marušić (2023) report labor shortages and productivity challenges in the hotel industry, underlining the critical role of sufficient staffing for maintaining competitiveness. Recruitment difficulties also persist, as noted by Serwańska (2024), directly affecting service delivery and operational efficiency in tourism firms. Nevertheless, strategies such as targeted staff training and professional development (Šálková et al., 2024; Utkina, 2022) can enhance service quality and customer satisfaction, partially mitigating staffing constraints. In addition, the integration of technology, artificial intelligence, and automation (Birdir & Birdir, 2024) offers opportunities to alleviate workforce shortages without compromising service standards. Modern human resource practices are also essential, with Sejfijaj and Shehu (2023) highlighting their role in improving staff performance and attracting more visitors. Therefore, while the score of 3.94 reflects a positive perception of staffing adequacy, it simultaneously points to an area requiring continued attention and innovation to sustain tourism operations effectively.

Table 20 Cultural Preservation

Factors	Weighted Mean	Verbal Description
The management appears to actively promote local culture and heritage to visitors.	4.15	Very Good
Efforts to preserve cultural traditions and practices are evident.	4.09	Very Good
The tourism activities do not seem to compromise or commodify local cultural heritage	3.91	Very Good
Information about the local cultural and history is effectively communicated to visitors.	3.95	Very Good
The institutional efforts seem focused on balancing cultural preservation with tourism development.	4.09	Very Good
Composite Mean	4.04	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The findings on cultural preservation yielded a composite mean of 4.04, described as *very good*, indicating that tourism in the area generally supports efforts to safeguard local culture. However, the item *"The tourism activities do not seem to compromise or commodify local cultural heritage"* received the lowest mean score (3.91), still rated *very good* but suggesting room for vigilance in this aspect. While several studies support the notion that tourism, when managed sustainably, can enhance cultural preservation without commodification—such as fostering collective memory (Bugrova & Kirillova, 2024), maintaining cultural identity through sustainable practices (Ye et al., 2024), and leveraging technology like VR and AR to balance preservation and development (Shuran et al., 2024)—contradictory evidence also exists. Research highlights risks of overtourism leading to commodification and cultural tension (Iswanto et al., 2024), threats to authenticity in ethnic tourism contexts (Seid, 2023), and urban tourism pressures altering residents' sense of place (Mazzamuto & Picone, 2022). These findings underscore the need for proactive strategies to ensure that tourism remains a vehicle for cultural preservation rather than a force of commodification.

Table 21 Summary of Institutional Capacity

Factors of Institutional Capacity	Mean	Verbal Description
Policy Adaptability	4.00	Very Good
Stakeholder Collaboration	4.02	Very Good
Allocation Capacity	3.98	Very Good
Cultural Preservation	4.04	Very Good
Composite Mean	4.01	Very Good

Legend: 1.00 – 1.80 Very Poor; 1.81 – 2.60 Poor; 2.61 – 3.40 Good; 3.41 – 4.20 Very Good; 4.21 – 5.00 Excellent

The summary table for institutional capacity in Cambugahay Falls shows an overall composite mean of 4.01, rated as "very good," with Allocation Capacity scoring the lowest at 3.98. This finding aligns with several studies suggesting allocation capacity is often a weaker dimension of institutional performance in tourism. For instance, Zhang et al. (2024) observed that while government economic governance drives innovation and green development in China, allocation capacity in resource distribution is not the strongest determinant of tourism quality. Similarly, Chen and Ling (2023) noted that in the digital economy, knowledge and information sharing are prioritized over allocation capacity, making it a comparatively less emphasized institutional factor. Research in Myanmar also points to challenges in resource and workforce allocation as barriers to sustainable tourism development, particularly in unstable political contexts (Toh et al., 2024). Pauzi et al. (2023) highlighted difficulties in effectively allocating special tourism funds for human resource development in Central Lombok, while Dou (2024) identified equitable resource allocation as a significant weakness in Guangxi's culture-tourism integration. These studies support the assessment that although Cambugahay Falls exhibits strong institutional capacity overall, allocation capacity remains a relative area for improvement.

4. Conclusion and Recommendation

4.1 Conclusion

The assessment of Cambugahay Falls reveals a generally strong capacity for sustainable tourism across physical, cultural, economic, and institutional dimensions. With composite means consistently rated "Very Good," the site demonstrates resilience in preserving ecological integrity, fostering cultural vitality, supporting local livelihoods, and sustaining governance frameworks. Socio-cultural carrying capacity emerged as a particular strength, reflecting robust community acceptance and the ability to harmonize tourism with local traditions. Similarly, economic contributions to employment and site maintenance underscore tourism's developmental potential. However, areas of concern persist. Environmental and infrastructure capacities, while effective overall, point to the need for enhanced waste management, improved facilities, and crowd-control measures to mitigate peak-season pressures. Likewise, lower ratings for cultural infrastructure and allocation capacity signal vulnerabilities in resource distribution and visitor experience quality. These findings align with global evidence that cultural significance often strengthens stewardship (Hinlayagan et al., 2023; Ramires et al., 2022) but highlight the delicate balance required to prevent over-commercialization and institutional strain (Lee, 2021; Zhang et al., 2024). To sustain and elevate Cambugahay Falls' performance, targeted investments in adaptive management, heritage-sensitive planning, technological innovation, and equitable governance are essential. Such strategies will not only safeguard ecological and cultural assets but also enhance visitor satisfaction and community benefits, ensuring long-term sustainability amid increasing tourism pressures.

4.2 Recommendations:

4.2.1 Physical Carrying Capacity

Enhancing waste management and visitor flow systems is critical to mitigating environmental stress. Designated waste segregation bins should be installed along pathways and rest areas, supplemented by community-led weekly clean-up drives. A "Leave No Trace" campaign, utilizing signage and QR codes, can promote visitor awareness of environmental stewardship. This intervention responds to low scores for cleanliness (3.55), which directly influence visitor satisfaction and ecosystem health. To address overcrowding, a digital visitor tracking system via a mobile app or ticketing platform is proposed to regulate entry times and limit peak-hour visitation. Real-time density indicators at entry points can further guide visitor behavior. Despite relatively strong visitor management ratings (3.64), proactive flow control remains essential to preserving site integrity and aligning with carrying capacity thresholds.

4.2.2 Cultural Carrying Capacity

Upgrading culturally sensitive infrastructure and fostering community engagement are vital to sustaining heritage values. Walkways, rest areas, and viewing platforms should incorporate locally inspired designs to minimize disruption to cultural and natural landscapes. QR code-enabled signage and interactive panels can enrich visitor understanding of Siquijor's history and traditions. Given the low score for cultural infrastructure (3.94), such interventions can deepen appreciation and alleviate stress on heritage sites. Additionally, a "Living Heritage Program" should empower residents, particularly youth and women, to lead

cultural tours, craft demonstrations, and storytelling sessions. Capacity-building initiatives will ensure these activities preserve traditions while generating livelihoods. This addresses the low rating for respect and promotion of local culture (3.91), fostering community agency and authentic visitor experiences.

4.2.3 Economic Carrying Capacity

To promote equitable benefit sharing and curb over-commercialization, establishing "Local Enterprise Hubs" near major tourist sites is recommended. These hubs would enable local artisans, vendors, and transport providers to showcase products and services under a "Siquijor Authentic" branding program, prioritizing cultural integrity and sustainability. This strategy responds to concerns about benefit distribution (3.95) and over-commercialization (3.91), ensuring tourism revenues flow directly to local communities. A complementary Community-Based Skills Training and Diversification Program should provide workshops on sustainable tourism, financial literacy, homestay management, and value-adding skills such as eco-guiding and digital marketing. Targeting youth and women, this initiative mitigates dependency on tourism (3.92) and strengthens economic resilience (4.20) through livelihood diversification.

4.2.4 Institutional Carrying Capacity

Strengthening institutional capacity requires a province-wide "Tourism Resource Management and Workforce Enhancement Program." This initiative should recruit and train local staff as site stewards, eco-guides, and cultural interpreters, supported by dynamic resource allocation plans and technology-enabled staffing adjustments based on tourist flow. Addressing gaps in allocation capacity (3.98) will ensure institutions remain responsive to fluctuating visitor volumes. Furthermore, the establishment of a "Siquijor Tourism Stakeholder Council" is essential for coordinated governance. Comprising LGUs, private tourism operators, barangay representatives, and community leaders, the council would oversee joint planning, periodic reviews of tourism strategies, and the implementation of a shared sustainability charter. Structured communication channels such as forums, newsletters, and feedback systems can further enhance collaboration and transparency. This responds to identified needs for improved stakeholder coordination (3.99) and supports a unified approach to sustainable tourism development.

4.3 Action Plan

Table: Action Plan for Strengthening Siquijor's Tourism Carrying Capacity

Dimension	Action	Timeline	Responsible Offices	Key Partners	Success Indicators
Physical	1. Strengthen Waste Management Systems	Q3 2025 – Q2 2026	PTO, Municipal LGUs, DENR	Local NGOs, youth groups, barangay councils	90% of key sites equipped with waste bins; 12 clean-up drives/year; 80% visitor awareness of "Leave No Trace."
	2. Introduce Visitor Flow Management System	Q4 2025 – Q3 2026	PTO, DICT	Tech providers, tour operators	App operational at 3 major sites; 30% reduction in peak-time overcrowding incidents.
Cultural	1. Develop Culturally Sensitive Infrastructure	Q1 2026 – Q4 2026	PTO, Provincial Engineering Office, NCCA	Local artisans, heritage groups	70% of priority sites upgraded; 25% improvement in cultural satisfaction scores.
	2. Launch "Living Heritage Program"	Q3 2025 – Q4 2026	PTO, TESDA, DSWD	Women's groups, youth councils, elders	100 locals trained; 50% increase in visitor participation in cultural activities.
Economic	1. Establish Local Enterprise Hubs	Q2 2026 – Q1 2027	PTO, DTI, LGUs	Local cooperatives, private sector investors	3 hubs operational; 60% local vendor participation; 20% increase in locally retained tourism revenue.
	2. Community-Based Skills Training & Diversification Program	Q3 2025 – Q4 2026	PTO, TESDA, DSWD	Local NGOs, cooperatives	500 individuals trained; 30% increase in non-tourism dependent income sources.
Institutional	1. Tourism Resource Management and Workforce Enhancement Program	Q3 2025 – Q2 2026	PTO, Provincial HR Dept, LGUs	Academic institutions, DICT	100 new tourism personnel deployed; 95% staffing adequacy during peak/off-peak seasons.
	2. Establish Siquijor Tourism Stakeholder Council	Q2 2025 – Q4 2025	PTO, Provincial Governor's Office, LGUs	Private sector, CSOs	Council operational by Q4 2025; sustainability charter adopted by all major stakeholders.

Declarations

Funding: This research was personally funded by the authors to ensure independence and objectivity throughout the study. By not relying on external sponsorship or institutional funding, the research process remained free from commercial or organizational influence, thereby enhancing the credibility and reliability of the results.

Limitation: This study is limited to the responses of tourist visiting Cambugahay Falls as an attraction who voluntarily agreed to participate, which may not fully represent the other attractions in Siquijor. Data collection was conducted over a six-month period, from January 2025 to June 2025, allowing for seasonal variability but still constrained by participant availability and willingness. Throughout the research process, ethical standards were strictly observed, including informed consent and data confidentiality, to ensure the integrity and ethical soundness of the findings.

Future Directions: To build upon the present findings, future research should consider replicating the assessment framework across other prominent attractions in Siquijor to generate a holistic evaluation of the island's tourism carrying capacity. Conducting comparative analyses of sites such as Salagdoong Beach, Cantabon Cave, and Lazi Church would provide nuanced insights into the physical, cultural, economic, and institutional dynamics unique to each destination while identifying recurring patterns and site-specific vulnerabilities. Such multi-site investigations can inform the development of an integrated, province-wide sustainable tourism strategy, ensuring interventions are contextually grounded and responsive to localized needs. Furthermore, longitudinal studies examining the evolution of carrying capacities over time would be instrumental in assessing the efficacy of implemented management measures and anticipating future challenges. Collaborative engagement with key stakeholders—including local government units, community organizations, and private sector actors—remains critical in validating findings and fostering shared governance. This expanded scope of inquiry will contribute significantly to advancing sustainable tourism scholarship and practice in small island contexts.

References

[1] Abera, L. E., Surbeck, C. Q., & McKay, S. K. (2024). Lifecycle cost and benefit analysis for parcel-scale implementation of green stormwater infrastructure. *Green Technologies and Sustainability*. https://doi.org/10.1016/j.grets.2024.100139

[2] Abreu, F. B. e., Marinheiro, R., Boavida-Portugal, I., Lopes, A., Santos, T. M., Almeida, D., & Simões, R. (2024). *A digital transformation approach to scaffold tourism crowding management: pre-factum, on-factum, and post-factum*. In *2024 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON)* (pp. 586–591). IEEE. https://doi.org/10.1109/ECTIDAMTNCON60518.2024.10480056

[3] Akbar, I., & Yang, Z. (2021). The influence of tourism revenue sharing constraints on sustainable tourism development: A study of Aksu-Jabagly nature reserve, Kazakhstan. *Asian Geographer*, 39(2), 133–153. https://doi.org/10.1080/10225706.2021.1894462

[4] Akbar, I., Pazylkhaiyr, B., Myrzaliyeva, Z., Tazhekova, A., & Abdildayeva, N. D. (2024). Analysis of the tourism revenue sharing status at the Aksu-Zhabagly nature reserve of Kazakhstan. *Economy: Strategy and Practice*. https://doi.org/10.51176/1997-9967-2024-3-73-85

[5] Aktymbayeva, A., Nuruly, Y., Artemyev, A., Kaliyeva, A., Sapiyeva, A., & Assipova, Z. (2023). Balancing nature and visitors for sustainable development: Assessing the tourism carrying capacities of Katon-Karagay National Park, Kazakhstan. Sustainability. https://doi.org/10.20944/preprints202310.1040.v1

[6] Alducci, B., & Hynes, S. (2023). Protecting coastal infrastructure in the face of increasing climate related pressures: A cost-benefit analysis of maintaining a tidal kayaking feature in Ireland. *Marine Policy*. https://doi.org/10.1016/j.marpol.2023.105550

[7] Almeida, D., Simões, R., Brito e Abreu, F., Lopes, A., & Boavida-Portugal, I. (2024). *A carrying capacity calculator for pedestrians using OpenStreetMap data: Application to urban tourism and public spaces*. *ArXiv*. https://doi.org/10.48550/arXiv.2406.16781

[8] Álvarez-Díaz, M., Villanueva-Villar, M., & Rivo-López, E. (2022). Analyzing the main determinants of being a cultural traveler: The case of domestic cultural trips in Spain. *Journal of Tourism Futures*. https://doi.org/10.1108/jtf-10-2021-0237

[9] An, L. T., Hung, P., & Hung, V. (2024). Support of local residents for nature-based tourism development: Evidence from Bach Ma National Park, Vietnam. *Applied Ecology and Environmental Research*. https://doi.org/10.15666/aeer/2205_47254742

[10] An, S., Jiang, L., Woosnam, K., & Eck, T. (2022). Volunteer tourists' revisit intentions explained through emotional solidarity and on-site experience. *Journal of Hospitality and Tourism Management*. https://doi.org/10.1016/j.jhtm.2022.08.011

[11] Andaru, F. M. (2025). Cost-benefit analysis of corporate investments in tropical forest restoration. *IOP Conference Series: Earth and Environmental Science*, 1447(1), 012029. https://doi.org/10.1088/1755-1315/1447/1/012029

[12] Andi, A., & Ran, Y. (2025). The impact of tourism environment fit on tourists' psychological recovery: The mediating effect of perceived value on place attachment. *International Journal of Social Science and Human Research*. https://doi.org/10.47191/ijsshr/v8-i1-47

[13] Arifin, S., Azinuddin, M., Mat Som, A. P., Ibrahim, A., & Hanafiah, M. H. (2025). Collaborative communication for sustainable tourism in Asia: A case study from Madura Island. *Worldwide Hospitality and Tourism Themes*. https://doi.org/10.1108/whatt-01-2025-0042

[14] Azevedo, A., Freire, F., Silva, L., Carapinha, A., & Matos, R. (2024). *Tourists' assessment of economic value, benefits and negative impacts of pedestrian walkways: Case-studies of the Paiva River (Arouca) and the Mondego River (Guarda) in Portugal*. *Journal of Outdoor Recreation and Tourism*. https://doi.org/10.1016/j.jort.2024.100769

[15] Bai, Z., Ling, H., Liu, H., Li, L., & Xuhai, J. (2023). Assessment of coordinated development between urban land use efficiency and ecological carrying capacity: Case study of the cities in Inner Mongolia. *Ecological Indicators*, *151*, 110933. https://doi.org/10.1016/j.ecolind.2023.110933

[16] Bakari, S. J., Ntow-Gyan, K., Dery, J., Asamoah, E., Ankor, P., Gyeduah, C., & Patience, K. (2024). Tanzania's treasure: Community empowerment through sustainable cultural heritage tourism. *Technium Social Sciences Journal*. https://doi.org/10.47577/tssj.v60i1.11403

[17] Baltaci, M., & Çakici, A. (2022). Serendipitous cultural tourist. In *Handbook of Research on Digital Communications, Internet of Things, and the Future of Cultural Tourism*. https://doi.org/10.4018/978-1-7998-8528-3.ch018

[18] Bassett, H., Harrell, K., Koropeckyj, D., Welsh, W. A., & Gunter-Bassett, M. (2023). *Partners as stakeholders in cultural property protection: Bridging the intrinsic and instrumental value of cultural heritage*. *Preservation Education & Research*, 14, 40–53. https://doi.org/10.1353/per.2022.a910529

[19] Bernardes, M. P., & Luiz, E. L. (2023). Permanent Preservation Areas (PPA) on hilltops in two crystalline massifs of Florianópolis, Santa Catarina: Application to different relief models according to the delimitation criteria of the repealed Brazilian Forest Code and the new law for the protection of native vegetation. *GEOUSP: Espaço e Tempo (Online), 27*. https://doi.org/10.11606/issn.2179-0892.geousp.2023.193254.en

[20] Bindhu, D., & Panakaje, N. (2023). Adopt a heritage scheme: A CSR initiative for preserving our past glories to future. *International Journal of Case Studies in Business, IT, and Education*. https://doi.org/10.47992/ijcsbe.2581.6942.0272

[21] Birdir, K., & Sahilli Birdir, S. (2024). *Staff shortages in hospitality and tourism industries: How technology influences?* Worldwide Hospitality and Tourism Themes. https://doi.org/10.1108/whatt-09-2024-0229

[22] Blagajac, I. (2023). The conflict between nature preservation and tourism in nature monument "Suma Kosutnjak". Glasnik Srpskog geografskog drustva. https://doi.org/10.2298/gsgd2301447b.

[23] Boboli, I., & Muça (Dashi), E. (2021). Exploring tourist expenditures of the Gjirokastra district in Albania: A cluster analysis. *Acta Scientiarum Polonorum. Oeconomia*. https://doi.org/10.22630/aspe.2021.20.2.11

[24] Bradbury, R., Butchart, S., Fisher, B., Hughes, F., Ingwall-King, L., MacDonald, M., Merriman, J. C., Peh, K., Pellier, A.-S., Thomas, D. H. L., Trevelyan, R., & Balmford, A. (2021). The economic consequences of conserving or restoring sites for nature. *Nature Sustainability*, 4, 602–608. https://doi.org/10.1038/s41893-021-00692-9

[25] Brown, C., Ahmadia, G., Andradi-Brown, D. A., Arafeh-Dalmau, N., Buelow, C., Campbell, M. D., Edgar, G., Geldmann, J., Gill, D., & Stuart-Smith, R. (2023). Entry fees enhance marine protected area management and outcomes. *Biological Conservation*. https://doi.org/10.1016/j.biocon.2023.110105

[26] Budiutami, G. N., Ma'rof, A. A., Abdullah, H., & Kunasekaran, P. (2024). *The influence of tolerance, prosocial behavior, cultural openness, and social identity on attitude towards tourists: A quantitative study among local residents in Yogyakarta, Indonesia*. International Journal of Academic Research in Business and Social Sciences. https://doi.org/10.6007/ijarbss/v14-i12/24038

[27] Bugrova, E. D., & Kirillova, N. (2024). Cultural tourism as a resource for memory studies. *Observatory of Culture*. https://doi.org/10.25281/2072-3156-2024-21-4-348-357

[28] Byomantara, D. G. N. (2024). *Politeness and respect: The strategy of communicating winisatawan in Bali Province tourism village*. Devotion: Journal of Research and Community Service. https://doi.org/10.59188/devotion.v5i3.698

[29] Chao, L., & Hafiza, N. (2023). Research on the strategy of local cultural creative products and brand building. *Academic Journal of Humanities & Social Sciences.* https://doi.org/10.25236/ajhss.2023.062110

[30] Chen, J. (2024). The economic benefits of hosting major football tournaments: UEFA European Championship and Copa America as examples. *SHS Web of Conferences*. https://doi.org/10.1051/shsconf/202420701008

[31] Chen, L., Yang, H., Huang, H., Chang, M., Wang, X., Han, D., & Liu, S. (2023). How do natural and socio-economic factors influence the sustainable development of the ecological environment in the World Natural Heritage Sites? Evidence from the Jiuzhaigou, China. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2023.139238

[32] Chen, X., & Ling, X. (2023). A conceptual model study of tourism resource sharing in the digital economy. *Sustainability*. https://doi.org/10.3390/su15129752

[33] Chen, X., & Maliki, N. Z. (2024). Exploring success factors in cultural landscape conservation: Quantitative insights from the Ancient City of Lijiang, China. *International Journal of Advanced and Applied Sciences*. https://doi.org/10.21833/ijaas.2024.09.011

[34] Choi, J., & Jeon, H. (2021). Economic impacts of local park visitor spending on local communities: A case of Mississippi parks. *International Journal of Hospitality & Tourism Management*. https://doi.org/10.11648/J.IJHTM.20210502.12

[35] Chosson, M. (2022). From Talel to cultural rights: The challenge of translating transnational discourse on indigenous rights in the Tseltal area. *Anthropological Quarterly, 95*(3), 533–555. https://doi.org/10.1353/anq.2022.0031

[36] Çiğdemli, A. Ö. Ö. (2021). *Overtourism: Issues, risk and responsibility*. In Overtourism, Technology Solutions and Decimated Destinations**.** https://doi.org/10.1007/978-981-16-2474-2_9

[37] Cook, J. (2021). Valuing protected areas through contingent valuation: A case study of Chitwan National Park, Nepal. *[Unpublished]*. https://doi.org/10.32920/ryerson.14656083

[38] Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications.

[39] Cvetković, V. M., Gole, S., Renner, R., Jakovljević, V., & Lukić, T. (2024). *Qualitative insights into cultural heritage protection in Serbia: Addressing legal and institutional gaps for disaster risk resilience*. *Open Geosciences*. https://doi.org/10.1515/geo-2022-0755

[40] Daiki, I. (2025). Exploring the Experiences of Tour and Travel Alumni in Job Hunting. *Proceedings International Conference on Marine Tourism and Hospitality Studies*. https://doi.org/10.33649/iconmths.v1i1.367

[41] Dalir, S. (2023). Innovative strategies to tackle seasonality issue in hospitality and tourism industry. *International Journal of Contemporary Hospitality Management*. https://doi.org/10.1108/ijchm-09-2023-1382

[42] Darmi, T., Mujtahid, I. M., & Nusantara, B. D. (2023). Analysis of human resources capacity for cultural heritage managers in Bengkulu City. *Journal of Local Government Issues*, 6(2). https://doi.org/10.22219/logos.v6i2.23245

[43] Davari, D., Alaedini, P., & Cai, L. A. (2023). Conceptualizing destination-community hospitality: An illustrated framework leveraging Persianate culture. *International Journal of Contemporary Hospitality Management*. https://doi.org/10.1108/ijchm-02-2023-0179

[44] Davydenko, I. (2024). *Key performance indicators of the tourist destinations development.* Black Sea Economic Studies. https://doi.org/10.32782/bses.88-20

[45] Deri, M., Chiti, L., & Ciuffoletti, A. (2023). A sustainable approach to tourist signage on heritage trails. *Sustainability*. https://doi.org/10.20944/preprints202310.1533.v1

[46] Dhannur, V. K., & Rakesh, M. (2023). A study on heritage tourist satisfaction in Karnataka. *Tuijin Jishu/Journal of Propulsion Technology, 44*(4). https://doi.org/10.52783/tjjpt.v44.i4.1166

[47] Diakomihalis, M. N., & Diakomichalis, N.-M. (2023). Sustainable Tourism Development Index: A Scientifically Practical Proposal. *Environmental Management and Sustainable Development*. https://doi.org/10.5296/emsd.v12i2.21263

[48] Dini, M., Curina, I., Francioni, B., Hegner, S., & Cioppi, M. (2023). Tourists' satisfaction and sense of belonging in adopting responsible behaviors: The role of on-site and social media involvement in cultural tourism. *The TQM Journal*. https://doi.org/10.1108/tqm-03-2023-0085

[49] Domorenok, E., Graziano, P., & Polverari, L. (2021). Introduction: Policy integration and institutional capacity: Theoretical, conceptual and empirical challenges. *Policy and Society, 40*(1), 1–18. https://doi.org/10.1080/14494035.2021.1902058

[50] Dou, T. (2024). Culture and tourism integration development status, problems and policy recommendations in Guangxi. *Frontiers in Humanities and Social Sciences*. https://doi.org/10.54691/0va87n61

[51] Eban, F., & Komşu, M. S. (2024). Tourism impacts on local residents emotional solidarity with tourists: The case of Mersin. *Journal of Tourism and Gastronomy Studies*. https://doi.org/10.21325/jotags.2024.1468

[52] Estacio, M. R. (2022). *Elevation and construction of covered walkway in Caingin elementary school in the City of Malolos, infrastructure facility improvement: Resulting to better learning environment*. *International Journal of Multidisciplinary Research and Growth Evaluation*. https://doi.org/10.54660/anfo.2022.3.2.6

[53] Fauzi, T. A. B. E., & Ghani, N. A. (2022). Conservation potential and impact of heritage buildings in Terengganu, Malaysia. *International Journal of Academic Research in Business and Social Sciences*. https://doi.org/10.6007/ijarbss/v12-i10/15288

[54] Fikire, A. H., Bires, Z., & Emeru, G. M. (2022). An economic analysis of tourism contribution for urban poverty reduction in major tourist towns of North Shewa Zone, Amhara Region, Ethiopia. *Scientifica*, 2022. https://doi.org/10.1155/2022/1116011

[55] Fiorentino, S., & Vandini, M. (2024). *Resilience and sustainable territorial development: Safeguarding cultural heritage at risk for promoting awareness and cohesiveness among next-generation society*. *Sustainability*. https://doi.org/10.3390/su162410968

[56] Fisher, J., Angel, D., Callier, M. D., Cheney, D., Filgueira, R., Hudson, B., ... & Byron, C. (2023). Ecological carrying capacity in mariculture: Consideration and application in geographic strategies and policy. *Marine Policy*. https://doi.org/10.1016/j.marpol.2023.105516

[57] Frey, B., & Briviba, A. (2021). A policy proposal to deal with excessive cultural tourism. *European Planning Studies, 29*(4), 601–618. https://doi.org/10.1080/09654313.2021.1903841

[58] Garau, G., Carboni, D., & El Meligi, A. K. (2021). Economic and Environmental Impact of the Tourism Carrying Capacity: A Local-Based Approach. *Journal of Hospitality & Tourism Research, 46*(7), 1257–1273. https://doi.org/10.1177/10963480211031426

[59] Gautam, V. (2022). Why local residents support sustainable tourism development? *Journal of Sustainable Tourism, 31*, 877–893. https://doi.org/10.1080/09669582.2022.2082449

[60] Ginting, A. J. C., & Jayanti, J. (2024). *Influence of communication and attitudes of foreign tourists towards local communities*. Vernacular: Linguistics, Literature, Communication and Culture Journal. https://doi.org/10.35447/vernacular.v3i2.827

[61] Gkarane, S., Gianni, M., & Vassiliadis, C. (2024). Running toward sustainability: Exploring off-peak destination resilience through a mixed-methods approach—The case of sporting events. *Sustainability*. https://doi.org/10.3390/su16020576

[62] González, S. M. (2025). Job quality in the tourism industry. *PASOS. Revista de Turismo y Patrimonio Cultural*. https://doi.org/10.25145/j.pasos.2025.23.002

[63] Gupta, S., Kumar, A., Ambulkar, A., Kundra, D., Venkadeshwaran, K., Goyal, S., & Chakravarthy, S. (2024). *Evaluating the key elements contributing to visitor contentment at cultural festivals*. *Evolutionary Studies in Imaginative Culture*. https://doi.org/10.70082/esiculture.vi.1138

[64] Haini, H., & Loon, P. W. (2023). Tourism dependency and residents' happiness. *Annals of Tourism Research*. https://doi.org/10.1016/j.annals.2023.103580

[65] Haron, N. F., & Kamaludin, M. (2025). Valuing visitors' willingness to pay for a preservation fund: Choice experiment approach in UNESCO world heritage site in Melaka, Malaysia. *Journal of Cultural Heritage Management and Sustainable Development*. https://doi.org/10.1108/jchmsd-05-2023-0067

[66] Hassan, T. H., Almakhayitah, M. Y., & Saleh, M. (2024). Sustainable stewardship of Egypt's iconic heritage sites: Balancing heritage preservation, visitors' well-being, and environmental responsibility. *Heritage*. https://doi.org/10.3390/heritage7020036

[67] Hayajneh, H., & Cesaro, G. (2022). The UNESCO contribution to safeguarding and preserving Jordan's cultural heritage. *Jordan Journal for History and Archaeology*. https://doi.org/10.54134/jjha.v16i3.665

[68] Hinlayagan, K. R., Gratuito, K. N., Matillosa, S. M. L., & Laos, R. V. (2023). The factors influencing tourist decision-making on choosing a cultural destination. *International Journal of Tourism & Hospitality Reviews*. https://doi.org/10.18510/ijthr.2023.1023

[69] Hu, Y.-P., Zhang, J., & Liu, Q. (2024). Exploring the path of balanced development: The decoupling evaluation of agricultural production efficiency and land carrying capacity. *Land Degradation & Development*, *35*(5), e5382. https://doi.org/10.1002/ldr.5382

[70] Huang, X., Gong, P., Wang, S., White, M., & Zhang, B. (2022). Machine learning modeling of vitality characteristics in historical preservation zones with multi-source data. *Buildings*. https://doi.org/10.3390/buildings12111978

[71] Humbel, M., Nyhan, J., Pearlman, N., Vlachidis, A., Hill, J. D., & Flinn, A. (2024). Socio-cultural challenges in collections digital infrastructures. *Journal of Documentation*. https://doi.org/10.1108/jd-12-2023-0263

[72] Humbel, M., Nyhan, J., Pearlman, N., Vlachidis, A., Hill, J. D., & Flinn, A. (2024). Socio-cultural challenges in collections digital infrastructures. *Journal of Documentation*. https://doi.org/10.1108/jd-12-2023-0263

[73] Hutasuhut, E. M., & Haro, J. (2024). Beyond Job Matching: Creating Positive Experiences at Medan Tourism Polytechnic Job Fairs. *Open Access Indonesia Journal of Social Sciences*. https://doi.org/10.37275/oaijss.v7i6.271

[74] Ibrahim, M. S. N., Johari, S., Assim, M. I. S. A., Wan Mohammad, S. K., Afandi, S. H. M., & Hassan, S. (2024). An economic assessment on public well-being for biodiversity conservation in Gunung Mulu National Park, Sarawak, Malaysia. *Environment, Development and Sustainability*. https://doi.org/10.1007/s10668-024-04533-5

[75] Israel, G. D. (1992). Determining sample size (PEOD-6). Institute of Food and Agricultural Sciences, University of Florida Cooperative Extension Service. *EDIS.* (Original work published 1992; revised 2009.) https://doi.org/10.12691/ajcea-4-6-2

[76] Iswanto, D., Istiqlal, I., & Irsyad, Z. (2024). Optimizing tourism promotion through the use of cultural heritage. *PROCURATIO: Jurnal Manajemen & Bisnis*. https://doi.org/10.62394/projmb.v3i2.149

[77] Jeffrey, H., & Sposato, M. (2022). *Post pandemic "revenge travel": Developing organizations to address staff shortage*. Development and Learning in Organizations: An International Journal. https://doi.org/10.1108/dlo-09-2022-0179

[78] Jia, Z., & Yang, Y. (2022). Research on promoting visual communication of local folk culture by using digital technology. *Scientific Programming.* https://doi.org/10.1155/2022/8058390

[79] Jiang, L., Eck, T., & An, S. (2022). A study on the effect of emotional solidarity on memorable tourism experience and destination loyalty in volunteer tourism. *SAGE Open, 12*(1). https://doi.org/10.1177/21582440221087263

[80] Jiang, Y., Guo, Y., & Zhou, H. (2023). *Residents' perception of tourism impact, participation and support in destinations under the COVID-19 pandemic: The intermediary role of government trust*. Sustainability, 15(3), 2513. https://doi.org/10.3390/su15032513

[81] Juma, L., & Khademi-Vidra, A. (2022). Nature interpretation as an environmental educational approach in visitor management; The application dilemma for different target groups at Masai Mara National Reserve, Kenya. *Sustainability*. https://doi.org/10.3390/su14052935

[82] Jurišić Mustapić, M., & Marušić, F. (2023). *Staff productivity in hotel industry in tourism destination Makarska*. EMC Review - Časopis za ekonomiju - APEIRON. https://doi.org/10.7251/emc2301224m

[83] Juvan, E., Podovšovnik, E., Lesjak, M., & Jurgec, J. (2021). A destination's social sustainability: Linking tourism development to residents' quality of life. *Academica Turistica*. https://doi.org/10.26493/2335-4194.14.39-52

[84] Kang, N. (2023). Assessing tourism carrying capacity based on visitors' experience utility: A case study of Xian-Ren-Tai National Forest Park, China. Forests. https://doi.org/10.3390/f14091694

[85] Karmila, M., & Kania, I. (2021). Tourism policy: Potential increase of original local income. *Jurnal Ilmu Administrasi: Media Pengembangan Ilmu dan Praktek Administrasi*. https://doi.org/10.31113/jia.v18i2.795

[86] Kato, H. (2024). *Daily walking time effects of the opening of a multifunctional facility "ONIKURU" using propensity score matching and GPS tracking techniques*. *Scientific Reports*. https://doi.org/10.1038/s41598-024-82232-x

[87] Khaerunissa, Iskandar, E., Aini, S. N., Marezka, Rahmawati, R., & Seran, G. G. (2021). Cultural tourism based on local wisdom: Potential, development approach and policy response. *International Journal of Sciences: Basic and Applied Research, 60*, 144–155. https://doi.org/10.53896/IJSBAR.V60I1.13016

[88] Khair, H., Utami, R., Lordye, G., Sari, U., & Pasaribu, E. (2022). Cleanliness assessment of Lake Toba tourist attractions from stakeholders' perspective. *IOP Conference Series: Earth and Environmental Science, 1098*(1). https://doi.org/10.1088/1755-1315/1098/1/012005

[89] Khairi, N. (2022). Penerapan Community Based Tourism (CBT) dalam upaya pengembangan pariwisata di Tangkahan Kabupaten Langkat. *Tourism, Hospitality and Culture Insights Journal*. https://doi.org/10.36983/thcij.v2i2.376

[90] Khorsand, M., Homayouni, S., & van Oel, P. (2022). The edge of the petri dish for a nation: Water resources carrying capacity assessment for Iran. *Science of the Total Environment*, *818*, 153038. https://doi.org/10.1016/j.scitotenv.2022.153038

[91] Kim, J., Choi, Y., & Lee, W. S. (2023). Effects of knowledge and perceived image on willingness-to-pay for access to world cultural heritage sites in Korea: Using the dual coding theory of learning. *Asia Pacific Journal of Tourism Research, 28*(8), 777–789. https://doi.org/10.1080/10941665.2023.2264967

[92] Kimkong, H., Promphakping, B., Hudson, H., Day, S. C. J., & Long, L. (2023). Income diversification and household wellbeing: Case study of the rural farming communities of Tang Krasang and Trapang Trabek in Stung Chreybak, Kampong Chhnang, Cambodia. *Sustainability*. https://doi.org/10.3390/su15141110

[93] Knoche, S., & Ritchie, K. (2022). A travel cost recreation demand model examining the economic benefits of acid mine drainage remediation to trout anglers. *Journal of Environmental Management*, 319, 115485. https://doi.org/10.1016/j.jenvman.2022.115485

[94] Kochieva, A. A. (2022). UNESCO activities for the protection of cultural heritage in the territory of partially recognized and unrecognized states. *Concept: Philosophy, Religion, Culture*. https://doi.org/10.24833/2541-8831-2022-3-23-50-67

[95] Kofidou, M., Kopsidas, O., & Gemitzi, A. (2024). A Novel Approach to Assessing Carrying Capacity for Development by Combining Socio-Economic and Environmental Indicators: A Case Study in Greece. *Land, 13*(7), 987. https://doi.org/10.3390/land13070987

[96] Krasnikova, N., Mykhailenko, O., & Demchenko, A. (2023). Modernization of the tourist services management system to prevent overtourism. *European Journal of Management Issues*. https://doi.org/10.15421/192321

[97] Kumari, K. (2024). Development of Tourism Industry and Prospects of Employment Generation in Bihar. *International Research Journal on Advanced Engineering and Management (IRJAEM)*. https://doi.org/10.47392/irjaem.2024.0211

[98] Kusworo. (2023). Government functions acceleration in tourist village development: A case study of Dermaji Village. *International Journal of Professional Business Review*. https://doi.org/10.26668/businessreview/2023.v8i3.1296

[99] Lacueva, R. S., González, M. V., & Domingo, A. G. (2022). The integration of sustainable tourism policies in European cities. *PASOS: Revista de Turismo y Patrimonio Cultural*. https://doi.org/10.25145/j.pasos.2022.20.083

[100] Lanini-Maggi, S., Lanz, M., Hilton, C., & Fabrikant, S. (2024). *The positive effect of blue luminescent pathways on urban park visitor's affective states: A virtual reality online study measuring facial expressions and self-reports*. *Environment and Planning B: Urban Analytics and City Science*. https://doi.org/10.1177/23998083241239383

[101] Leyli, E., Saragih, L., Mulyadi, M., Nasution, K., & Pujiono, M. (2023). *Positive strategies of language politeness across tourism service actors: A cross-cultural socio-pragmatic study*. Research Journal in Advanced Humanities. https://doi.org/10.58256/wzav3v6

[102] Lin, X., Tang, Z., & Long, H. (2022). Spatial and temporal research on ecological total factor energy efficiency in China: Based on "Ecology-Economy-Geography" heterogeneity framework. *Journal of Cleaner Production*, *370*, 134143. https://doi.org/10.1016/j.jclepro.2022.134143

[103] Listyorini, H., Pranoto, Hakim, A. R., & Bawaulu, E. A. (2023). The pattern of travel decisions and tourist expenditures for local tourism revenue in Wonosobo Regency. *International Conference on Digital Advance Tourism, Management and Technology*. https://doi.org/10.56910/ictmt.v1i2.43

[104] Liu, Y.-R., & Lin, H.-W. (2021). Construction of interpretation and presentation system of cultural heritage site: An analysis of the Old City, Zuoying. *Heritage*. https://doi.org/10.3390/HERITAGE4010020

[105] Logunova, L., Tremblyuk, E., & Utkina, A. (2022). Tourist potential of the Kemerovo region: Management specifics. *Sociologicheskaja nauka i social'naja praktika*. https://doi.org/10.19181/snsp.2022.10.1.8864

[106] Luo, L., Wang, H., Chen, Z., Wang, X., & Guo, H. (2024). Biodiversity co-benefits of World Heritage protection. *The Innovation Life*. https://doi.org/10.59717/j.xinn-life.2024.100051

[107] Mahajan, V., Venkadeshwaran, K., Goyal, U., Shah, B., Bhushan, B., Barla, U. K., & Singh, P. (2024). Enhancing educational experiences in museums through ethnic cultural exhibitions. *Evolutionary Studies in Imaginative Culture*. https://doi.org/10.70082/esiculture.vi.1185

[108] Mahira, E. D., Soemardiono, B., & Santoso, E. (2023). Cultural tradition as a local context for sustainable of urban identity in Gianyar city case study. *Pertanika Journal of Social Sciences and Humanities*. https://doi.org/10.47836/pjssh.31.1.15

[109]Mamani-Flores, A., Apaza-Ticona, J., Calatayud-Mendoza, A. P., Calderón-Torres, A., Maquera-Maquera, Y., & Velasquez-Sagua, H. L., & Flores-Chambilla, S. G. (2024). *The exercise of experiential rural tourism in the population nucleus of an Andean community in Peru*. Journal of Ecohumanism. https://doi.org/10.62754/joe.v3i7.4630
[110]Mamani-Flores, A., Calatayud-Mendoza, A. P., Paredes-Calatayud, E. F., Vizcarra-Pinto, F., Cotrado-Lupo, S. L., Maquera-Maquera, Y., & Incacutipa-Limachi, D. J. (2024). *Interculturality in the practice of experiential rural tourism in a community in the Peruvian Andes*. Journal of Ecohumanism. https://doi.org/10.62754/joe.v3i7.4509
[111]Mandić, A., & McCool, S. (2023). Sustainable visitor experience design in nature-based tourism: An introduction to the special issue. *Journal of Ecotourism, 22*(1), 1-3. https://doi.org/10.1080/14724049.2022.2124765
[112]Martadina, Y., & Ardiansyah, I. (2023). The role of stakeholders in ecotourism development in Jatiluwih tourism village area, Bali. *E-Journal of Tourism*. https://doi.org/10.24922/eot.v10i2.102356
[113]Martins, L. P., & Ribeiro, S. (2023). *The enduring political viability of governance models in tourist destinations and their implications for people and planet*. Worldwide Hospitality and Tourism Themes. https://doi.org/10.1108/whatt-09-2023-0115
[114]Matlhola, D. M., Kgathi, D., & Mmopelwa, G. (2021). Tourists' perceptions and consumer surplus at a UNESCO World Heritage Site, the Okavango Delta, Botswana: Implications for rural development. *Development Southern Africa, 39*(2), 271–287. https://doi.org/10.1080/0376835X.2021.1999792
[115]Matos, L. A., Velásquez, J. R., de Miranda, R. C., & Nabout, J. (2023). Assessing tourism carrying capacity in one sustainable protected area of Cerrado: Balancing ecological and socio-economic dimensions. *Fronteiras: Journal of Social, Technological and Environmental Science*. https://doi.org/10.21664/2238-8869.2023v12i3.p194-212
[116]Mazzamuto, M., & Picone, M. (2022). The commodification dilemma: Tourism pressure and heritage conservation in Barcelona. *Societies*. https://doi.org/10.3390/soc12040111
[117]McGinlay, J., Jones, N., Malesios, C., Dimitrakopoulos, P., Begley, A., Berzborn, S., ... & Sepp, K. (2023). Exploring local public support for protected areas: What social factors influence stated and active support among local people? *Environmental Science & Policy*. https://doi.org/10.1016/j.envsci.2023.04.003
[118]McGinley, S., Dogru, T., & Sharma, A. (2024). The effect of job abundance on tourism employee turnover. *International Journal of Hospitality Management*. https://doi.org/10.1016/j.ijhm.2024.103718
[119]Mijiarto, J., & Rachmawati, E. (2023). Physical carrying capacity of the Semama Island Wildlife Sanctuary. Jurnal Ilmu Kehutanan. https://doi.org/10.22146/jik.v17i1.4813
[120]Mitra, S., Nanda, P., & Behera, I. (2023). *Metro report: Building urban rail infrastructure and image in Kolkata, India*. In 2023 Smart City Challenges & Outcomes for Urban Transformation (SCOUT) (pp. 146–157). IEEE. https://doi.org/10.1109/SCOUT58937.2023.00037
[121]Morgan, R. (2022). Critical material culture analysis in US National Register of Historic Places significance statements. *Journal of Field Archaeology*. https://doi.org/10.1080/00934690.2022.2028069
[122]Mota, L. S., Franco, M., & Santos, R. (2021). Social carrying capacity in island destinations: Interpreting visitors' opinions in Madeira Island. *European Journal of Tourism, Hospitality and Recreation, 11*, 253–266. https://doi.org/10.2478/ejthr-2021-0023
[123]Muhammad, A., Safarida, N., & Murdiah. (2024). The impact of the tourism industry on local revenue in Langsa City. *EDUTOURISM Journal of Tourism Research*, 5(2). https://doi.org/10.53050/ejtr.v5i02.702
[124]Mularsari, A., Nugraha, R. N., & Pratiwi, R. (2024). *Analysis of community-based tourism potential and management strategies for the destination of community care tourism in Kedung Sahong Ciliwung*. West Science Social and Humanities Studies. https://doi.org/10.58812/wsshs.v2i03.722
[125]Nainggolan, H. C., Prihadi, D. J., & Mulyana, H. (2024). *Community-Based Tourism as a solution to reduce the negative impact of mass tourism*. MSJ: Majority Science Journal. https://doi.org/10.61942/msj.v2i4.256
[126]Ng, Y. P., Dousin, O., & Kler, B. K. (2024). Exploring sustainable work orientation among tourist guides: how does it affect their intention to stay. *IOP Conference Series: Earth and Environmental Science*. https://doi.org/10.1088/1755-1315/1366/1/012055
[127]Nguyen, T. N., & Huynh, V. D. (2024). Exploring the impact of tourism environment on tourist satisfaction in tourist sites: An example of Phong Dien Tourism Village, Vietnam. *Case Studies in the Environment*. https://doi.org/10.1525/cse.2024.2281531
[128]Niu, F., & Jin, L. K. (2024). *Study on factors influencing university students' awareness of intangible cultural heritage transmission*. *Journal of Education and Educational Research*. https://doi.org/10.54097/1hpnx911
[129]Nurrahma, H., Hakim, L., & Parmawati, R. (2021). *Evaluation of the maximum number determination tourists on new normal tourism*. Journal of Indonesian Tourism and Development Studies. https://doi.org/10.21776/ub.jitode.2021.009.03.05
[130]Nwankwo, E., & Ede, C. E. (2024). A survey of heritage resources for tourism development in Ikem, Isi-Uzo local government area of Enugu State, Nigeria. *Smart Tourism*. https://doi.org/10.54517/st2980
[131]Pan, L., Ren, W., & Fang, R. (2024). *Incivility: How tourists cope with relative deprivation*. Tourism Management Perspectives. https://doi.org/10.1016/j.tmp.2024.101246
[132]Pandjaitan, B. (2021). The effect of tourism policy implementation to local revenue. *Jurnal Indonesia Sosial Sains*, 2(7). https://doi.org/10.36418/JISS.V2I7.336
[133]Pang, Q., Hao, F., Xiao, H., & Bao, J. (2024). Community empowerment: Pro-poor tourism income distribution. *Annals of Tourism Research*. https://doi.org/10.1016/j.annals.2024.103764
[134]Pappalardo, G., Caponetto, R., Varrica, R., & Cafiso, S. (2022). *Assessing the operational design domain of lane support system for automated vehicles in different weather and road conditions*. *Journal of Traffic and Transportation Engineering (English Edition)*. https://doi.org/10.1016/j.jtte.2021.12.002
[135]Pásková, M., Wall, G., Zejda, D., & Zelenka, J. (2021). Tourism carrying capacity reconceptualization: Modelling and management of destinations. *Journal of Destination Marketing & Management, 21*, 100638. https://doi.org/10.1016/j.jdmm.2021.100638
[136]Patwary, A. K., Yusof, M., Kamarudin, L. M., Simpong, D. B., Islam, G. M. N., & Rahman, M. K. (2022). Place attachment, host tourists' interaction and resident welcoming attitude: A post COVID-19 assessment towards tourism recovery in Langkawi, Malaysia. *GeoJournal of Tourism and Geosites*. https://doi.org/10.30892/gtg.44419-951

[137]Paudel, C., Timperio, A., Salmon, J., Loh, V. H. Y., Deforche, B., & Veitch, J. (2024). *Something for the young and old: A natural experiment to evaluate the impact of park improvements*. *Urban Forestry & Urban Greening*. https://doi.org/10.1016/j.ufug.2024.128486
[138]Pauzi, M. H., Musleh, Rochmi, E., Mahrun, & Solihin, R. (2023). Non-physical tourism infrastructure: How specific allocation fund (DAK) contributes to local human resources? *JMET: Journal of Management Entrepreneurship and Tourism*. https://doi.org/10.61277/jmet.v1i1.15
[139]Peiris, S., Berecki-Gisolf, J., Newstead, S., Chen, B., & Fildes, B. (2021). *Development of a Methodology for Estimating the Availability of ADAS-Dependent Road Infrastructure*. *Sustainability, 13*(79512). https://doi.org/10.3390/su13179512
[140]Pérez-Bravo, J. (2024). Culinary traditions, endemic resources, San Juan del Río, Querétaro. *Revista de Desarrollo Económico.* https://doi.org/10.35429/jed.2024.11.31.6.1.7
[141]Petersen, J. E., & Frantz, C. M. (2024). Changing culture through pro-environmental messaging delivered on digital signs: A longitudinal field study. *Sustainability*. https://doi.org/10.3390/su16177312
[142]Phương, T. L. (2022). Networking actors in private-public management tourism development partnership. *International Journal Papier Public Review*. https://doi.org/10.47667/ijppr.v3i4.182
[143]Platania, M., Sharpley, R., Rizzo, M., & Ruggieri, G. (2022). The contingent equilibrium during imbalanced volcano tourism demand through fee estimation: An empirical analysis of tourism in Mount Etna. *Journal of Environmental Management, 316*, 115235. https://doi.org/10.1016/j.jenvman.2022.115235
[144]Pramuková, K., & Štrba, Ľ. (2025). Assessment of online and onsite information on heritage and its presentation in Slovak geoparks. *Heritage*. https://doi.org/10.3390/heritage8020047
[145]Pratt, S., Gibson, D., & Kuilamu, M. (2023). Residents' attitudes towards tourism development in a non-touristy destination: The moderating role of travel experience. *Asia Pacific Journal of Tourism Research, 28*(9), 907–922. https://doi.org/10.1080/10941665.2023.2283602
[146]Rachman, Y. (2024). *Unveiling local community initiatives and participation in safeguarding cultural heritage through digital spaces*. *Library Hi Tech News*. https://doi.org/10.1108/lhtn-07-2024-0127
[147]Raj, S. K., Sharma, S., Kaushal, N., & Choudhary, V. (2023). Assessing The Impacts Of Tourism Education On Employment Opportunities: A Study Of The Schooling Population Of Himachal Pradesh. *Journal of Survey in Fisheries Sciences*. https://doi.org/10.53555/sfs.v10i2.1379
[148]Ramachandran, S., & Kumar, S. A. S. (2025). Layering overtourism in multi-value destinations—The case of medical, health, and wellness tourism. *South Eastern European Journal of Public Health*. https://doi.org/10.70135/seejph.vi.3530
[149]Ramires, A., Monteiro, A., Lopes, S., Rodrigues de Sousa, S., & Leite, Â. (2022). Towards an interpretation of the Portuguese cultural tourist: Motivations and constraints. *Turyzm/Tourism*. https://doi.org/10.18778/0867-5856.32.2.10
[150]Rani, S., Bennett, M., Ahmed, M. K., Xue, X., Chen, K., Alam, M. S., March, A., & Failler, P. (2025). Potential of establishing a tourism entrance fee for the conservation management of St. Martin's Island, Bangladesh. *Green Finance*. https://doi.org/10.3934/gf.2025001
[151]Revida, E., & Badaruddin. (2024). *Implementation of good tourism governance based on local wisdom in increasing community income in the Simanindo Samosir tourism village, North Sumatra*. ABDIMAS TALENTA: Jurnal Pengabdian Kepada Masyarakat. https://doi.org/10.32734/abdimastalenta.v9i2.17907
[152]Ristawati, R., Salman, R., Fitriany, S. A., & Taşkesen, S. (2025). *Constitutional protection of cultural heritage in Indonesia: The role of museums in preserving national identity and public welfare*. *Sriwijaya Law Review*. https://doi.org/10.28946/slrev.vol9.iss1.3348.pp49-70
[153]Rizalie, A., Yunita, R., Kadir, S., & Saidy, A. R. (2022). Environmental carrying capacity for spatial planning of Lemo Sub-Watershed, North Barito Regency, Central Kalimantan, Indonesia. *Journal of Hunan University Natural Sciences*. https://doi.org/10.55463/issn.1674-2974.49.4.8
[154]Rolfe, A., Franz, J., & Bridge, A. (2022). *The combined impact of school design and procurement on student wellbeing and educational outcomes*. *Facilities*. https://doi.org/10.1108/f-08-2021-0071
[155]Ronnie, D. (2024). No room for modesty in heritage significance: The case of Dennesig in Stellenbosch, South Africa. *Modern Geográfia*. https://doi.org/10.15170/mg.2024.19.02.03
[156]Rosyida, N., Atmoko, R. A., Handoko, G. P., Widia, I. M., & Asriningtyas, S. R. (2021). *Tourist attractions visitor density monitoring platform*. Indonesian Journal of Engineering Research. https://doi.org/10.11594/10.11594/ijer.02.02.06
[157]Ruggieri, G., & Platania, M. (2024). Islands' tourism seasonality: A data analysis of Mediterranean islands' tourism comparing seasonality indicators (2008–2018). *Sustainability*. https://doi.org/10.3390/su16093674
[158]Rusdi, Z., Lim, C., & Dewayani, E. (2023). Intangible cultural heritage website program. *International Journal of Application on Sciences, Technology and Engineering*. https://doi.org/10.24912/ijaste.v1.i3.855-865
[159]Saboori, B., Ghaderi, Z., & Soleymani, A. (2022). A revised perspective on tourism-economic growth nexus, exploring tourism market diversification. *Tourism Economics*. https://doi.org/10.1177/13548166221134183
[160]Salauatova, D., Tleuberdinova, A., & Pratt, S. (2024). Can tourism be a way to diversify regional economies: The case of the Ulytau region of Kazakhstan. *Tourism and Hospitality Management*. https://doi.org/10.20867/thm.30.3.4
[161]Šálková, D., Yekimov, S., Křečková, R., Yarmoliuk, O., Sobirov, B., Oleksenko, R., & Ihnatiev, V. (2024). *Improving the quality of tourist services*. E3S Web of Conferences. https://doi.org/10.1051/e3sconf/202453805003
[162]Salsabila, S., & Navitas, P. (2024). *Built environment design features, mental health, and well-being for inclusive urban design: An extensive literature review*. *IOP Conference Series: Earth and Environmental Science*. https://doi.org/10.1088/1755-1315/1394/1/012020
[163]Šambronská, K., Šenková, A., Kolesarova, S., & Kormaníková, E. (2024). Motivational factors and financial support for entering sustainable ecological destinations as impulses for sustainable tourism and environmental protection: A case study on the example of national parks. *GeoJournal of Tourism and Geosites*. https://doi.org/10.30892/gtg.53211-1223
[164]Santos, E. (2024). Sustainable tourism dynamics: Understanding the impact of tourist stays on regional revenue and development. *Sustainability*. https://doi.org/10.3390/su16198403
[165]Sari, N. P. R., Sri, A. A. P., Dalem, A. A. G. R., & Prawira, A. A. G. O. A. (2024). Tourist perceptions on destination attributes and service quality of tourism accommodation in the Ubud Tourism Area. *European Modern Studies Journal, 8*(1). https://doi.org/10.59573/emsj.8(1).2024.2
[166]Sati, V.P. (2020). Tourism Carrying Capacity and Destination Development. In: Sustainable Tourism Development in the Himalaya: Constraints and Prospects. Environmental Science and Engineering. Springer, Cham. https://doi.org/10.1007/978-3-030-588540_10

[167]Sedlacek, S., Zekan, B., Weismayer, C., Gunter, U., & Schuh, B. (2022). Regional sustainability and tourism carrying capacities. *Journal of Cleaner Production, 370*, 130624. https://doi.org/10.1016/j.jclepro.2022.130624
[168]Seid, S. (2023). Contentions about commodified ethnic identity: The case of cultural tourism in Hammar and Mursi communities of South Omo Rift Valley, Ethiopia. *Ethiopian Journal of Business and Social Science*. https://doi.org/10.59122/63502op
[169]Sejfijaj, O., & Shehu, E. (2023). *The linkage between modern HR management and activities to improve performance in tourism development trends in the Republic of Kosovo*. Journal of Environmental Management and Tourism. https://doi.org/10.14505/jemt.v14.6(70).09
[170]Séraphin, H., & Korstanje, M. (2021). Locals' satisfaction and dissatisfaction with overtourism and events in Winchester, UK. In *Managing events, festivals and the visitor economy: Concepts, collaborations and cases*. https://doi.org/10.1079/9781789242843.0009
[171]Serwańska, K. (2024). *Recruitment processes as part of the policy pursued in tourism enterprises in a post-COVID environment*. Folia Turistica. https://doi.org/10.5604/01.3001.0054.8814
[172]Shuran, F. C., Salim, A., & Ying, X. (2024). Enhancing cultural heritage tourism through market innovation and technology integration. *Evolutionary Studies in Imaginative Culture*. https://doi.org/10.70082/esiculture.vi.1030
[173]Simou, S. (2024). Investigating cultural dimensions in sustainable tourism: Carrying capacity assessment and GIS-based management strategies for historic buildings. *Mediterranean Architectural Heritage*. https://doi.org/10.21741/9781644903117-33
[174]Simou, S. (2024). Investigating cultural dimensions in sustainable tourism: Carrying capacity assessment and GIS-based management strategies for historic buildings. *Mediterranean Architectural Heritage*. https://doi.org/10.21741/9781644903117-33
[175]Singh, A., Singh, P., Saraswat, V., Pushparajesh, V., Goyal, S., Zaveri, B., & Reddy, B. (2024). *Examining the impact of young people's involvement in cultural heritage preservation and promotion*. *Evolutionary Studies in Imaginative Culture*. https://doi.org/10.70082/esiculture.vi.1090
[176]Singh, S. (2025). The roles of government and private sector in sustainable tourism and management in India. *International Journal of Scientific Research in Engineering and Management*. https://doi.org/10.55041/ijsrem41445
[177]Sipp, G., Padilha, A. C. M., dos Santos, L. W., & Sartoretto, C. R. (2025). The phenomenon of rural tourism and the participation of the diversification strategy: The case of Recanto dos Pomares. *Revista de Gestão Social e Ambiental*. https://doi.org/10.24857/rgsa.v19n2-172
[178]Soares, J., Remoaldo, P., Perinotto, A., Gabriel, L., Lezcano-González, M.-E., & Sánchez-Fernández, M. (2022). Residents' perceptions regarding the implementation of a tourist tax at a UNESCO World Heritage Site: A cluster analysis of Santiago de Compostela (Spain). *Land*, 11(2), 189. https://doi.org/10.3390/land11020189
[179]Spooner, S. L., Heath, N., & Dymond, T. (2024). Using eye-tracking to create impactful interpretation signage for botanic gardens and other visitor attractions. *Journal of Zoological and Botanical Gardens*. https://doi.org/10.3390/jzbg5030029
[180]Stacchini, A., Guizzardi, A., & Costa, M. (2022). The value of sustainable tourism destinations in the eyes of visitors. *Highlights of Sustainability*. https://doi.org/10.54175/hsustain1030015
[181]Stepheno, A., & Raghul, P. (2024). *A study on tourism and level of satisfaction of tourists*. *Shanlax International Journal of Management*. https://doi.org/10.34293/management.v11is1-mar.8107
[182]Štumpf, P., Vojtko, V., Luštický, M., & Janeček, P. (2023). Determinants of residents' preferences in local elections in a tourism destination. *Current Issues in Tourism, 27*, 112–126. https://doi.org/10.1080/13683500.2022.2162372
[183]Sumarmi, Irawan, L. Y., & Arinta, D. (2022). Improving environmental and cultural carrying capacity to sustainably develop Soge Beach in Pacitan Regency Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1066(1), 012020. https://doi.org/10.1088/1755-1315/1066/1/012020
[184]Sun, H., Cao, W., Liu, H., Zhang, X., Wang, L., & Wen, L. (2023). Evaluation and driving factors of ecological integrity in the Alxa League from 1990 to 2020. *Frontiers in Ecology and Evolution*. https://doi.org/10.3389/fevo.2023.1266736
[185]Surata, I. K., Sumartana, I. M., & Utama, I. G. B. R. (2024). The impact of cultural tourism on local traditions. *JPPI (Jurnal Penelitian Pendidikan Indonesia)*. https://doi.org/10.29210/020244780
[186]Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2
[187]Tafidou, A., Lialia, E., Prentzas, A., Kouriati, A., Dimitriadou, E., Moulogianni, C., & Bournaris, T. (2023). Land diversification and its contribution to farms' income. *Land*. https://doi.org/10.3390/land12040911
[188]Tafti, M. T. F. (2024). The effect of cultural intelligence on the special value of the tourism destination brand and its consequences regarding the attitude and intention to visit the destination. *Dynamic Management in Business Analysis*. https://doi.org/10.61838/dmbaj.2.4.3
[189]Tarkhanova, N. (2022). Using the tools of the experience economy in tourism. *Transbaikal State University Journal*, 28(10), 133-146. https://doi.org/10.21209/2227-9245-2022-28-10-133-146
[190]Taufik, M., Ibrahim, M. A., Ahmad, B., Suni, M., & Nur, M. (2023). Collaborative government in tourism sector development. *KnE Social Sciences*. https://doi.org/10.18502/kss.v8i17.14148
[191]Tejada, J. J., & Punzalan, J. R. B. (2012). On the misuse of Slovin's formula. *The Philippine Statistician, 61*(1), 129–136. https://doi.org/10.12691/education-6-2-6
[192]Þórhallsdóttir, G., Ólafsson, R., Árnason, T., & Gudmundsson, R. (2024). Mobility patterns and sustainable tourism: Planning and managing tourism in Iceland. *The Journal of Arctic Tourism*. https://doi.org/10.33112/arctour.2.2
[193]Toh, T. L., Bhaumik, A., Chakkaravarthy, M., & Liana, S. R. (2024). The vital role of institutional capacity interrelation with impact of sustainable tourism development: A case study of Inle region, Myanmar. *International Journal on Recent Trends in Business and Tourism*. https://doi.org/10.31674/ijrtbt.2024.v08i01.003
[194]Trisoko, R., Yanti, R., & Andita, R. P. (2024). The power of local culture in regional tourism capital development. *Indonesian Tourism Journal*. https://doi.org/10.69812/itj.v1i3.49
[195]Tzoumaka, E., Leivadi, S., & Kaplanidou, K. (2022). Recurring rural destination sport events: A study on participants' direct spending. *International Journal of Financial Studies*, *10*(3), 78. https://doi.org/10.3390/ijfs10030078

[196]Unurlu, Ç. (2024). The effect of place personality on resident welcoming tourist through self-congruity and place attachment. *Advances in Hospitality and Tourism Research (AHTR)*. https://doi.org/10.30519/ahtr.1368472
[197]Uswatun, D., Khasanah, M., Adi, L., & Kurniawan. (2024). Panel Seemingly Unrelated Regression on Employment in Tourism Sector: Evidence in Central Java Province. *EKO-REGIONAL: Jurnal Pembangunan Ekonomi Wilayah*. https://doi.org/10.32424/1.erjpe.2024.19.1.3369
[198]Utkina, O. N. (2022). *Specific aspects of managing the development of youth educational tourism services in the context of training staff for the tourism industry*. Economics and Management. https://doi.org/10.35854/1998-1627-2022-5-479-490
[199]Verances, J., Rusmiatmoko, D., & Afifudin, M. A. (2024). Sustainable tourism and city branding: Balancing growth and authenticity. *Journal of City: Branding and Authenticity*. https://doi.org/10.61511/jcbau.v2i1.2024.910
[200]Viñals, M., Orozco Carpio, P. R., Teruel, P., & Gandía-Romero, J. M. (2024). Real-time monitoring of visitor carrying capacity in crowded historic streets through digital technologies. Urban Science. https://doi.org/10.3390/urbansci8040190
[201]Vuković, D., Varlaj, S., & Simić, S. (2022). The role and importance of women in the revitalization of intangible heritage in order to maintain the competitiveness of the destination. *Sixth International Scientific Conference ITEMA*. https://doi.org/10.31410/itema.2022.153
[202]Wasela, K. (2023). The role of intangible cultural heritage in the development of cultural tourism. *International Journal of Eco-Cultural Tourism, Hospitality Planning and Development*. https://doi.org/10.21608/ijecth.2024.297283.1004
[203]Wawo, M., Tetelepta, J. M. S., Ayal, F. W., Mamesah, J. A. B., Rahman, & Hehakaya, T. B. (2025). *The participation level of the local community towards community-based tourism development in Sopapei Tourism Destination, Ambon, Indonesia*. Media Konservasi. https://doi.org/10.29244/medkon.30.1.96
[204]Weitzman, J., Filgueira, R., & Grant, J. (2021). Development of best practices for more holistic assessments of carrying capacity of aquaculture. *Journal of Environmental Management, 287*, 112278. https://doi.org/10.1016/j.jenvman.2021.112278
[205]Whitehurst, D. G. T., Devries, D., Fuller, D., & Winters, M. (2021). An economic analysis of the health-related benefits associated with bicycle infrastructure investment in three Canadian cities. *PLoS ONE*, 16(2), e0246419. https://doi.org/10.1371/journal.pone.0246419
[206]Wiechert, J., Chaher, N. E., Hassan, G., Nassour, A., & Nelles, M. (2025). Extended sector responsibility—The tourism sector as a driver for improved waste management in Egypt, Morocco and Tunisia. *Recycling*. https://doi.org/10.3390/recycling10020029
[207]Wijaya, W., Tanaka, K., Nishida, D., & Fujita, M. (2025). The influence of local culture on customary practices in Muslim societies: A case study in Central Java. *Journal of Noesantara Islamic Studies.* https://doi.org/10.70177/jnis.v2i2.1846
[208]Wijirahayu, S., Hantamah, T., & Amirudin. (2023). Exploration of local culture in English classroom practices through project-based learning. *International Conference On Research And Development (ICORAD).* https://doi.org/10.47841/icorad.v1i2.88
[209]Wu, K., Wu, M., An, Z., & Jiao, H. (2025). Evaluation of tourism ecological security and its obstacles in semi-arid river valley urban: A case study of Lanzhou, China. *Scientific Reports, 15*. https://doi.org/10.1038/s41598-025-88157-3
[210]Wu, Q., Cao, Y., Fang, X., Wang, J., & Li, G. (2022). A systematic coupling analysis framework and multi-stage interaction mechanism between urban land use efficiency and ecological carrying capacity. *Science of the Total Environment*, *845*, 158444. https://doi.org/10.1016/j.scitotenv.2022.158444
[211]Xia, Q. (2024). Mathematical modeling and enhancing the carrying capacity of national parks in the United States. Journal of Biosensors and Bioelectronics Research. https://doi.org/10.47363/jbber/2024(2)125
[212]Yakti, S. W., Sriwana, I. K., & Rumanti, A. (2024). System dynamics modelling for tourism carrying capacity in Saba Budaya Baduy. Jurnal Kepariwisataan Indonesia. https://doi.org/10.47608/jki.v18i12024.17-40
[213]Yang, W., Li, X., & Yang, Y. (2024). Technical framework and empirical analysis of resource and environmental carrying capacity evaluation in karst regions under the constraint of ecological civilization. *Frontiers in Environmental Science*. https://doi.org/10.3389/fenvs.2024.1499757
[214]Ye, J., Qin, Y., & Wu, H. (2024). Cultural heritage and sustainable tourism: Unveiling the positive correlations and economic impacts. *Current Psychology*. https://doi.org/10.1007/s12144-024-07070-6
[215]Yonnata. (2024). *The influence of facilities and prices on tourist satisfaction at Pantjoran PIK, North Jakarta*. *Eduvest - Journal of Universal Studies*. https://doi.org/10.59188/eduvest.v4i9.6409
[216]Yu, Y. (2024). *A strategic study on the planning of accommodation facilities in tourist attractions to enhance tourist experience*. *International Journal for Housing Science and Its Applications*. https://doi.org/10.70517/ijhsa4532
[217]Yurike, Y., Wiryono, W., & Lestari, A. (2024). Persepsi pengunjung dalam pengembangan wisata alam Bukit Kandis Kabupaten Bengkulu Tengah. *MAKILA*. https://doi.org/10.30598/makila.v18i1.12250
[218]Yusoh, M. P., Latip, N. A., Hanafi, N., Hua, A., Zakaria, Z., & Ridzuan, M. I. M. (2023). Social carrying capacity as a planning tool for sustainable tourism: A case of Pangkor Island, Perak, Malaysia. *Planning Malaysia*. https://doi.org/10.21837/pm.v21i28.1329
[219]Zainullina, T., & Kedrova, I. (2023). Multiplicative effect as a factor in the development of industrial tourism in the Rostov region. *E3S Web of Conferences*. https://doi.org/10.1051/e3sconf/202338101085
[220]Zebua, A., Raja, E. A. L., Syamsuddin, Hasugian, P., & Mardianus. (2024). *Influence of tourism facilities and destination image on the satisfaction of tourist visitors on Samosir Island*. *Jurnal Manajemen Bisnis Eka Prasetya Penelitian Ilmu Manajemen*. https://doi.org/10.47663/jmbep.v10i2.463
[221]Zhang, H., Cheng, Z.-F., & Chen, X. (2022). How destination social responsibility affects tourist citizenship behavior at cultural heritage sites? Mediating roles of destination reputation and destination identification. *Sustainability*, 14(11), 6772. https://doi.org/10.3390/su14116772
[222]Zhang, H., Xia, Z., & Zeng, Z. (2024). The economic governance capability of the government and high-quality development of China's tourism industry. *Sustainability*. https://doi.org/10.3390/su16177370
[223]Zhang, S., & Chen, A. (2024). Do different queue formations influence the overestimation of tourism carrying capacity? Sustainability. https://doi.org/10.3390/su162411047
[224]Zhang, Y., & Davarpanah, A. (2022). Quantitative estimation of ecocultural bearing capacity of urban agglomerations in Britain. *Discrete Dynamics in Nature and Society*, 2022, 8091132. https://doi.org/10.1155/2022/8091132
[225]Zoirova, S. (2023). Gastronomy tourism problems in Surkhandarya. *Iqtisodiy taraqqiyot va tahlil*. https://doi.org/10.60078/2992-877x-2023-vol1-iss7-pp181-185

[226]Zou, H., & Ma, X. (2021). Identifying resource and environmental carrying capacity in the Yangtze River Economic Belt, China: The perspectives of spatial differences and sustainable development. *Environment, Development and Sustainability, 23*, 14775–14798. https://doi.org/10.1007/s10668-021-01271-w