

Research Article

Overtourism, Carrying Capacity, and Destination Competitiveness in Indonesia: A Systematic Literature Review

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Abstract

Overtourism and environmental degradation threaten the long-term competitiveness of tourism destinations, including Indonesia. This study examines the relationship between overtourism, environmental carrying capacity, and destination competitiveness through a systematic literature review informed by the sustainability principles of the United Nations World Tourism Organization (UNWTO). The review followed a four-stage identification, screening, eligibility, and inclusion protocol using Scopus records exported on 16 May 2026. From 50 records identified, 24 studies were retained for the systematic review. Of these, 14 studies provided empirical findings that were sufficiently comparable for quantitative evidence synthesis, while the remaining studies were used for conceptual development, contextual interpretation, and theoretical framing. The analysis combined evidence grading, exact binomial vote counting, and triangulation with official Indonesian tourism statistics. The findings indicate a consistent pattern: volume-driven tourism growth without adequate capacity management is associated with adverse environmental, social, or destination-performance outcomes. Indonesian evidence also points to increasing tourism pressure and continuing challenges in environmental levy compliance. The study contributes an Indonesia-specific synthesis and proposes capacity-based governance, strengthened monitoring systems, and yield-oriented tourism management. It also identifies priorities for future field validation of carrying capacity, institutional capacity, and destination competitiveness.

Keywords: overtourism; environmental carrying capacity; destination competitiveness; sustainable tourism; UNWTO; Indonesia; systematic literature review

JEL Classification: Z32; Q56; Q01

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1. Introduction

Tourism has become an important component of economic development because it generates employment, business opportunities, local government revenues, and broader regional economic activity. However, rapid tourism growth can also create pressure when visitors' concentration exceeds destinations' physical, environmental, social, and managerial capacity.

This condition has increasingly been discussed through the concept of overtourism, which refers not merely to a high number of visitors but to tourism impacts that negatively affect residents' quality of life and visitors' experiences. Recent research emphasizes that tourism carrying capacity should therefore be understood as a multidimensional concept involving ecological, social, economic, and visitor-experience dimensions rather than as a simple numerical limit on tourist arrivals (Adrianto et al., 2021; Zekan et al., 2022; Xu & Li, 2025).

The issue becomes more important as destinations recover from the COVID-19 pandemic and tourism activity expands again. Rapid increases in visitor flows can generate economic benefits while also increasing pressure on natural resources, infrastructure, waste management, local communities, and destination services. Recent studies show that overtourism is linked to environmental degradation, resource overuse, social tensions, and declining destination quality when tourism development is not matched with effective management mechanisms (Hanafie et al., 2025; Zhang & Kumar, 2025). In this context, the central economic and business challenge is not simply how to increase tourist arrivals, but how destinations can generate economic value while maintaining the resources and environmental quality on which tourism competitiveness depends. Consequently, capacity-based tourism management has become increasingly relevant to sustainable destination development (Xu & Li, 2025; Zhang & Kumar, 2025).

Indonesia provides a particularly relevant context for examining this issue because tourism growth is concentrated in several highly attractive destinations. The manuscript's evidence shows that Indonesia received 15.39 million international tourist arrivals in 2025, while Bali alone recorded approximately 7.1 million international arrivals, representing around 46% of the national total. Tourism also contributed 4.67% to Indonesia's GDP in 2023, demonstrating the sector's economic importance (Kemenpar & BPS, 2026). At the same time, Bali has introduced a foreign tourist levy to support cultural and environmental protection, although the manuscript reports that compliance reached only approximately 35% in 2025. These conditions illustrate the tension between tourism expansion, economic contribution, environmental protection, and institutional capacity to manage tourism impacts.

The relationship between tourism growth and carrying capacity is particularly important for Indonesia because its destinations vary considerably in ecological sensitivity, infrastructure, community characteristics, and institutional capacity. Evidence from Tidung Islands, Jakarta, demonstrates that tourism carrying capacity can be assessed through an integrated social-ecological system that considers both tourist perceptions and ecological conditions. The study emphasizes that carrying capacity can serve as an instrument for tourism management and policy design, particularly in environmentally sensitive island destinations (Adrianto et al., 2021). Similarly, recent research argues that carrying capacity should be dynamic because destination conditions change over time and across space, meaning visitor management must consider the changing interactions among tourists, residents, businesses, and environmental resources (Zekan et al., 2022; Xu & Li, 2025).

From an economic and business perspective, environmental carrying capacity is also closely connected to destination competitiveness. Environmental quality is not only an ecological concern but also a strategic tourism asset because destination attractiveness, visitor satisfaction, business performance, and long-term tourism demand depend partly on the quality of environmental and cultural resources. The literature indicates that environmental competitiveness can contribute to tourism growth, but its effects are conditional on the economic and institutional characteristics of destinations (Zhu et al., 2021). Therefore, increasing visitor volume without adequate capacity management may generate short-term economic benefits while undermining the resources that sustain long-term competitiveness. This perspective shifts destination management from maximizing visitor numbers to managing tourism value, environmental quality, visitor experience, and resource sustainability simultaneously (Oklevik et al., 2019; Zhu et al., 2021).

Recent research also shows that measuring and managing carrying capacity remains challenging. Li et al. (2021) identified tourism carrying capacity as an increasingly important research area because tourism development can produce environmental pollution, landscape degradation, ecological imbalance, and declining satisfaction among tourists and residents. More recent studies have attempted to develop multidimensional indicators, destination-specific models, and data-driven approaches to improve carrying-capacity assessment (Zekan et al., 2022; Xu & Li, 2025). For example, Xu and Li (2025) demonstrate that tourism carrying capacity can be incorporated into destination planning through a Pressure-State-Response framework, while recent research on overtourism proposes multidimensional indicators based on tourism density, intensity, and waste generation (Burlando et al., 2025). These studies indicate that effective tourism management requires measurable indicators and destination-specific evidence rather than relying solely on aggregate visitor numbers.

Despite these developments, a key research gap remains in integrating overtourism, environmental carrying capacity, and destination competitiveness within the Indonesian context. Existing studies often examine carrying capacity at individual destinations or focus on specific environmental and social dimensions, while studies of destination competitiveness often assess tourism performance without directly integrating carrying-capacity constraints. In addition, much empirical evidence on overtourism and capacity management comes from destinations outside Indonesia. The manuscript's systematic review confirms that only a limited proportion of the reviewed evidence directly concerns Indonesia, while the available Indonesian evidence is concentrated in specific locations such as Bali, Tidung Islands, and Sleman. This creates a need for an integrated synthesis that connects international evidence with Indonesia-specific tourism conditions and sustainability principles.

Another gap concerns the role of institutional capacity in translating sustainability principles into effective destination management. The existence of carrying-capacity indicators or monitoring systems does not automatically guarantee effective implementation. Evidence from UNWTO/UN Tourism sustainable tourism observatories indicates that destinations may have monitoring capabilities but still struggle to translate data into coordinated policy action because of institutional coordination and implementation constraints (Scuttari et al., 2025). This issue is particularly relevant for Indonesia, where tourism governance involves multiple levels of government and stakeholders. Accordingly, understanding destination competitiveness requires considering not only environmental conditions and visitor pressure but also the institutional capacity to monitor, coordinate, and respond to tourism impacts (Scuttari et al., 2025).

Based on these conditions, this study aims to systematically examine how overtourism and environmental carrying capacity influence the sustainability and competitiveness of tourism destinations, with particular attention to the Indonesian context. Specifically, this study addresses three issues: (1) how overtourism and environmental carrying capacity interact with destination attractiveness and competitiveness; (2) how sustainability principles and monitoring mechanisms promoted by UN Tourism/UNWTO have been operationalized in tourism destination management; and (3) how strong and consistent the existing empirical evidence is in supporting capacity-based tourism management. The study also examines the implications of the existing evidence for tourism governance and identifies areas requiring further empirical validation in Indonesia.

The study provides several contributions. First, it contributes an Indonesia-specific synthesis by connecting international literature on overtourism, carrying capacity, and destination competitiveness with Indonesian tourism statistics and evidence. Second, it strengthens the systematic review approach by applying evidence grading and quantitative vote counting rather than relying exclusively on narrative interpretation. Third, it identifies institutional capacity and compliance as important conditions for the effectiveness of sustainability instruments. Fourth, the study provides practical implications for policymakers, destination managers, tourism businesses, and local communities by emphasizing destination-specific carrying-capacity indicators,

monitoring systems, and value-oriented tourism management. Finally, its novelty lies in integrating the three dimensions overtourism, environmental carrying capacity, and destination competitiveness within a systematic literature review informed by UNWTO sustainability principles and triangulated with Indonesian evidence.

2. Literature Review and Hypothesis

Literature Review

Overtourism

Overtourism refers to a condition in which tourism activity generates excessive negative effects on residents, visitors, environmental resources, or destination quality. The concept has expanded beyond a simple count of tourists because tourism impacts depend on spatial concentration, temporal concentration, destination characteristics, infrastructure, and management capacity. A systematic review of overtourism research shows that the literature has primarily focused on three interconnected dimensions: the management of tourism pressure, visitor experiences, and the contextual characteristics that determine when tourism growth becomes problematic (Seraphin et al., 2019; Mihalic, 2020; Wasudawan & Weissmann, 2026). Recent research also emphasizes that overtourism is a sustainability challenge because uncontrolled tourism growth can simultaneously affect environmental conditions, local communities, and economic performance. From a destination-management perspective, overtourism occurs when visitor pressure exceeds a destination's ability to maintain acceptable environmental and social conditions. The resulting pressure can include congestion, waste generation, resource consumption, environmental degradation, and declining resident quality of life. Holden et al. (2022) frame overtourism within the broader social-ecological impacts of tourism and argue that the traditional growth-oriented tourism model must account for ecological limits and community well-being. Similarly, research on destination management demonstrates that negative tourism impacts and residents' irritation are connected to the quality of destination management, indicating that visitor pressure cannot be separated from the institutional mechanisms used to manage tourism development (Holden et al., 2022; Mihalic, 2020; Seraphin et al., 2019).

Environmental Carrying Capacity

Environmental carrying capacity represents the ability of a destination's natural and built environment to accommodate tourism activities without producing unacceptable environmental deterioration. Contemporary tourism research increasingly treats carrying capacity as a multidimensional concept encompassing ecological, physical, social, economic, perceptual, and managerial dimensions. The traditional approach that defines carrying capacity solely as a maximum number of visitors has therefore expanded, because the same number of visitors can generate different impacts depending on environmental conditions, infrastructure, visitor behavior, and management arrangements (Zekan et al., 2022; Xu & Li, 2025). Recent systematic evidence shows that carrying-capacity research has shifted from simple numerical thresholds to multidimensional approaches that incorporate environmental, economic, social, institutional, and stakeholder considerations. The carrying-capacity perspective is particularly relevant to island and protected destinations because ecological resources are often limited and difficult to substitute. Adrianto et al. (2021), using Tidung Islands in Indonesia as a case, demonstrate that tourism carrying capacity should be assessed as a coupled social-ecological system rather than solely as a physical visitor limit. Their findings support using carrying-capacity assessment as a management instrument to reduce tourism impacts. Similarly, contemporary carrying-capacity research emphasizes that capacity is dynamic and can change according to spatial and temporal conditions, requiring destination managers to continuously monitor visitor pressure and environmental responses (Adrianto et al., 2021; Zekan et al., 2022).

Destination Competitiveness

Destination competitiveness refers to a tourism destination's ability to attract and retain visitors while generating economic benefits and maintaining the resources and conditions required for long-term tourism development. Competitiveness therefore extends beyond marketing performance and tourist arrivals to include environmental quality, infrastructure, destination attractiveness, institutional arrangements, and the ability to provide satisfactory experiences. A systematic

literature review by Streimikiene et al. (2021) demonstrates that sustainable tourism development and destination competitiveness are closely interconnected because economic, social, and environmental objectives jointly influence the long-term performance of tourism destinations. Environmental quality can function as a strategic resource for destination competitiveness. Using data from 130 destinations from 2009–2017, Zhu et al. (2021) found that environmental competitiveness was positively associated with tourism growth in destinations with higher GDP per capita, while the relationship was weaker and statistically insignificant in lower-income destinations. These findings suggest that environmental resources alone do not automatically create competitive advantages; destinations also require sufficient economic and institutional capacity to transform environmental assets into tourism value. Consequently, environmental sustainability and destination competitiveness should be viewed as complementary dimensions of long-term tourism performance rather than as independent objectives (Zhu et al., 2021; Streimikiene et al., 2021).

Institutional Capacity

Institutional capacity refers to the ability of institutions and destination-management actors to formulate, coordinate, implement, monitor, and enforce policies that support sustainable tourism development. Within destination management, institutional capacity includes regulatory authority, stakeholder coordination, technical capability, financial resources, monitoring systems, accountability, and the ability to translate information into concrete management actions. Recent research on sustainable tourism governance emphasizes that environmental indicators and carrying-capacity measurements have limited value when institutions lack the capacity to use the information in planning and decision-making (Scuttari et al., 2025). Institutional capacity matters because carrying capacity is not merely a technical measurement but also a governance process. A destination may identify an ecological or visitor threshold, but it can influence outcomes only when managers have the authority, resources, coordination mechanisms, and monitoring capabilities to implement it. Recent research on carrying-capacity management similarly emphasizes managerial and institutional capacity as a necessary component of effective visitor-use management (Siswanto & Rahayu, 2025). Evidence from Indonesian destinations further illustrates that capacity assessment needs to incorporate institutional constraints alongside physical and ecological conditions (Adrianto et al., 2021; Siswanto & Rahayu, 2025).

Research Questions Development

The Relationship between Visitor Pressure and Environmental Quality

Visitor pressure refers to the intensity of tourism activity experienced at a destination. When visitor activity exceeds a destination's ecological and infrastructural capacity, resource consumption, waste generation, congestion, and ecosystem disturbance may increase. The theoretical basis for this relationship is the carrying-capacity perspective, which argues that tourism activity must remain within limits that allow environmental systems to maintain acceptable conditions. Overtourism literature similarly identifies excessive visitor concentration as a major source of environmental and social pressure (Seraphin et al., 2019; Mihalic, 2020; Holden et al., 2022; Wasudawan & Weissmann, 2026). Empirical evidence also supports the expected negative relationship between tourism pressure and environmental outcomes. Bekun et al. (2022) found that increased tourism activity was associated with deteriorating environmental quality in their panel study of Sub-Saharan African countries. In Indonesia, Adrianto et al. (2021) demonstrate that tourism activity on small islands must be managed according to social-ecological carrying capacity to reduce tourism impacts. More recent research on coastal destinations also confirms that excessive tourism activity can create environmental degradation and public dissatisfaction, strengthening the importance of capacity-based visitor management (Xu & Li, 2025).

RQ1: How does the existing literature explain the relationship between visitor pressure and environmental quality in tourism destinations?

The Relationship between Environmental Carrying-Capacity Management and Destination Competitiveness

Environmental carrying-capacity management refers to a destination's ability to regulate tourism activity according to ecological, physical, social, and managerial limits. From a resource-based

perspective, environmental resources can constitute strategic assets when destinations are capable of protecting and utilizing them effectively. Zhu et al. (2021) provide empirical evidence that environmental competitiveness is positively associated with tourism growth under appropriate economic conditions, indicating that environmental quality can contribute to tourism competitiveness. Streimikiene et al. (2021) similarly conclude that sustainable environmental management is an important component of strengthening tourism competitiveness. Carrying-capacity research also supports this relationship. Zekan et al. (2022) argue that sustainable destination development requires carrying-capacity assessment that considers multiple dimensions, not visitor numbers alone. Xu and Li (2025) show that carrying-capacity analysis can support sustainable destination management by identifying environmental and tourism-development pressures. In Indonesia, Adrianto et al. (2021) show that carrying-capacity management can be applied to small-island tourism to reduce tourism impacts, while Siswanto and Rahayu (2025) emphasize the importance of integrating ecological and managerial capacity in protected-area tourism. Together, these studies indicate that effective carrying-capacity management can protect destination resources and consequently support long-term competitiveness.

RQ2: How does the existing literature explain the role of environmental carrying-capacity management in supporting destination competitiveness?

3. Data and Method

Research Design

This study employs a Systematic Literature Review (SLR) to examine the relationship between overtourism, environmental carrying capacity, and destination competitiveness, with particular attention to the Indonesian tourism context. The review was conducted to synthesize existing empirical and conceptual evidence, identify recurring patterns in the literature, evaluate the strength of available evidence, and derive implications for sustainable tourism governance. The review framework was informed by the sustainability principles promoted by the United Nations World Tourism Organization (UNWTO) and recent literature on overtourism, carrying capacity, and sustainable destination management.

Data Sources and Study Selection

The literature search was conducted using the Scopus database because it provides broad coverage of peer-reviewed international publications in tourism, sustainability, environmental management, and destination studies. The search process followed four stages: identification, screening, eligibility assessment, and inclusion. Scopus records were exported on 16 May 2026 using keywords related to overtourism, tourism carrying capacity, destination competitiveness, sustainable tourism, and environmental sustainability.

The initial search identified 50 records. After removing duplicate and non-relevant records, studies were screened based on titles, abstracts, and full-text eligibility criteria. A total of 24 studies met the inclusion criteria and were retained for systematic review. Of these, 14 studies contained empirical findings that were sufficiently comparable for quantitative evidence synthesis, while the remaining studies were used for conceptual interpretation, theoretical development, and contextual analysis.

Data Extraction and Evidence Synthesis

Relevant information was extracted from each included study, including research objectives, methodological approach, study context, sample characteristics, key findings, and implications for tourism sustainability and destination management. The extracted evidence was then organized and synthesized to identify recurring themes and relationships among overtourism, environmental carrying capacity, institutional capacity, and destination competitiveness.

To strengthen analytical rigor, the review applied evidence grading based on methodological characteristics. Studies were classified according to their research design and evidentiary strength to distinguish between stronger empirical evidence and supporting conceptual or qualitative contributions. Quantitative evidence synthesis was conducted using exact binomial vote counting

to assess the consistency of findings across studies addressing similar propositions. In addition, the findings were triangulated with official Indonesian tourism statistics to provide contextual relevance and support interpretation of the reviewed evidence.

Analytical Framework

The analysis focused on three interrelated issues: (1) the relationship between overtourism and environmental quality, (2) the role of environmental carrying-capacity management in supporting destination competitiveness, and (3) the importance of institutional capacity in implementing sustainable tourism policies. The synthesis emphasized the direction, consistency, and contextual conditions of the reported findings rather than estimating causal effects. Consequently, the study provides an evidence-based assessment of existing knowledge and identifies priorities for future empirical research in Indonesian tourism destinations.

4. Results

This section presents the results obtained from the systematic literature review and quantitative evidence synthesis. The analysis followed several stages: identifying and selecting relevant studies, grading evidence, extracting and comparing empirical findings, and conducting quantitative synthesis using vote counting and an exact binomial test. We also examined secondary data from official Indonesian statistics to provide an empirical context for understanding overtourism, environmental carrying capacity, and destination competitiveness in Indonesia.

Study Selection and Evidence Synthesis

The literature search used Scopus and identified 50 records. After removing 10 duplicates and non-English records, we screened 40 studies based on their titles and abstracts. We then excluded 10 records and assessed 30 full-text articles for eligibility. We excluded six additional studies because of insufficient methodological detail or limited relevance. Consequently, 24 studies were retained for the systematic review; 14 contained extractable findings and were included in the empirical synthesis.

Table 1. Core Studies, Research Design, Sample, and Key Findings

Study	Research Design and Sample	Key Finding
Oklevik et al. (2019)	Survey, 5,249 tourists in Fjord Norway	Optimizing visitor spending, length of stay, and experience quality provides a more sustainable approach than maximizing visitor numbers.
Gössling et al. (2018)	Length-of-stay analysis, 32 destinations, 1995–2015	Length of stay declined by 14.8%, reducing yield per visitor while environmental pressure remained.
Zhu et al. (2021)	Panel analysis, 130 destinations, 2009–2017	Environmental competitiveness was positively associated with tourism growth in high-GDP destinations but insignificant in low-GDP destinations.
Bekun et al. (2022)	Panel econometric analysis	A 1% increase in tourism activity was associated with a 1.09% deterioration in environmental quality.
Scuttari et al. (2025)	Multiple case study	Monitoring capacity increased, but coordination and institutional capacity were limited in translating data into effective decisions.
Pageh et al. (2022)	Empirical case study, North Bali	Tourism that respects carrying capacity can support local benefits and sustainable development.

Source: Authors' synthesis based on the reviewed literature.

Evidence Grading and Quantitative Synthesis

The reviewed studies were classified by methodological strength. Level 1 studies involved quantitative inference with at least 30 observational units and a clearly stated statistical model. Level 2 studies used quantitative indicators or index analysis without an inferential test of the focal proposition, while Level 3 studies consisted of qualitative, documentary, case-based, or conceptual research. This classification distinguished evidence strength rather than excluding studies from the review.

The quantitative synthesis focused on the proposition that volume-driven tourism growth without adequate carrying-capacity management is associated with poorer environmental, resident, or destination-performance outcomes, whereas optimization and capacity-based management are associated with better outcomes. Five empirical studies directly addressed this proposition. Four studies supported the proposition, while one study produced a conditional finding based on the destination's income level. Thus, 80% of the studies indicated a consistent direction of evidence.

Table 2. Evidence Grading and Direction Relative to the Research Proposition

Study	Evidence Level	Unit and Sample	Direction
Oklevik et al. (2019)	1	5,249 tourists	Supports
Gössling et al. (2018)	1	32 destinations, 20 years	Supports
Bekun et al. (2022)	1	Panel of countries	Supports
Zhu et al. (2021)	1	130 destinations, 5 waves	Conditional
Pageh et al. (2022)	3	Empirical case, North Bali	Supports

Source: Authors' synthesis.

The exact two-sided binomial test produced a p-value of 0.375 for four supporting studies out of five. When the conditional finding of Zhu et al. (2021) was treated as supportive for high-income destinations, the resulting p-value was 0.0625. Neither result reached the 5% significance level. Therefore, the evidence indicates a consistent direction but does not provide statistically significant evidence of a general relationship. The small number of studies also limits the test's statistical power.

Indonesian Tourism Evidence

The secondary Indonesian data provide important context on tourism growth, visitor pressure, and destination competitiveness. International tourist arrivals reached 15.39 million in 2025, up 10.80% from 2024. Bali recorded approximately 7.1 million international arrivals, representing around 46% of Indonesia's total international arrivals. Average tourist spending reached USD 1,267 per arrival, while domestic tourist trips reached approximately 1.20 billion. Tourism contributed 4.67% to Indonesia's GDP in 2023.

Table 3. Indonesian Tourism Indicators Relevant to Overtourism and Destination Competitiveness

Indicator	Value
International tourist arrivals, 2025	15.39 million
Growth in international arrivals	10.80%
Average spending per arrival	USD 1,267
Domestic tourist trips, 2025	1.20 billion
Tourism contribution to GDP, 2023	4.67%
Bali international arrivals, 2025	Approximately 7.1 million
Bali foreign visitor levy	Rp150,000 per visitor
Bali levy revenue, 2025	Rp369 billion
Levy compliance, 2025	Approximately 35%

Source: Authors' compilation from official statistics and cited sources.

The Indonesian evidence indicates that tourism competitiveness has improved alongside increasing visitor volumes. However, the concentration of international arrivals in Bali and the relatively low compliance with the foreign visitor levy indicate continuing challenges in managing tourism pressure. The levy generated Rp369 billion in 2025 against a target of Rp500 billion, while reported compliance was approximately 35%. These findings provide contextual evidence for the importance of institutional capacity in implementing carrying-capacity and sustainability measures.

Empirical Results Model

The empirical synthesis identifies a relationship among tourism pressure, environmental carrying capacity, institutional capacity, and destination competitiveness. Increasing tourism activity can generate environmental and social pressure, while effective carrying-capacity management may help maintain environmental quality and destination competitiveness. However, the reviewed evidence indicates that the effectiveness of environmental and tourism-management measures may depend on economic development and institutional capacity.

Because the present study is based on secondary evidence, interpret the proposed relationships as evidence-based relationships identified from previous studies rather than as causal relationships directly estimated using primary Indonesian data. The manuscript therefore proposes subsequent field validation involving residents and visitors across selected Indonesian destinations.

5. Discussion

The findings indicate that tourism growth based primarily on increasing visitor volume can create environmental, social, and destination-management pressures when it is not accompanied by adequate carrying-capacity management. The evidence synthesis showed a generally consistent direction across the reviewed studies, although the statistical evidence was not sufficient to establish a universal relationship. This finding is consistent with Oklevik et al. (2019), who demonstrated that destination performance should not be assessed solely through visitor growth but should also consider visitor spending, length of stay, and experience quality. Their study suggests that destination optimization can offer an alternative to continuous volume expansion, particularly where increasing visitor numbers conflict with residents and sustainability objectives. Similarly, Gössling et al. (2018) found a 14.8% decline in average length of stay across 32 destinations between 1995 and 2015, suggesting that destinations may need more arrivals to maintain equivalent guest-night volumes. This pattern can increase pressure on transportation infrastructure and destination resources. Consequently, recent hospitality and tourism literature increasingly emphasizes visitor-dispersal strategies, seasonal flow management, and yield-oriented tourism management as alternatives to volume-based growth. These approaches seek to improve economic value per visitor while reducing congestion and environmental pressure. Therefore, the findings support a shift from measuring tourism success primarily through arrival numbers to broader indicators of destination performance, visitor value, and sustainability.

The findings also demonstrate that the relationship between environmental sustainability and destination competitiveness is conditional rather than uniform across destinations. Zhu et al. (2021) found that environmental competitiveness was positively associated with tourism growth in high-income destinations but was not statistically significant in lower-income destinations. This finding matters because it shows that environmental quality alone does not automatically generate stronger tourism competitiveness. The economic and institutional context determines whether environmental assets translate into destination value. This review therefore extends this interpretation by emphasizing that carrying-capacity management should be accompanied by institutional mechanisms that can monitor tourism pressure, implement regulations, and respond to environmental indicators. This interpretation also aligns with Scuttari et al. (2025), who found that although sustainable tourism observatories can improve monitoring capacity, information availability does not necessarily translate into effective policy action when coordination and institutional capacity remain limited. In addition, resident sentiment has become an increasingly

important dimension of destination competitiveness because tourism growth that reduces residents' quality of life may undermine long-term destination sustainability. The overtourism literature therefore suggests that governance effectiveness should be evaluated not only through environmental outcomes but also through the ability to maintain community support and social legitimacy (Holden et al., 2022; Mihalic, 2020; Seraphin et al., 2019).

The Indonesian evidence provides a relevant illustration of this institutional dimension. The concentration of international arrivals in Bali, combined with relatively limited compliance with the foreign visitor levy, suggests that tourism management requires not only appropriate policy instruments but also effective implementation mechanisms. The review found that Bali received approximately 7.1 million international arrivals in 2025, while reported levy compliance was approximately 35%. This situation indicates that the effectiveness of environmental financing mechanisms depends partly on institutional capacity to ensure compliance and convert collected resources into destination-management activities. The finding is compatible with the broader argument of Scuttari et al. (2025) that monitoring systems are more useful when information can be incorporated into coordinated decision-making. Thus, the Indonesian case suggests that establishing indicators or financial instruments alone may not be sufficient unless governance arrangements enable consistent implementation and evaluation. Practical governance responses may include destination dashboards, visitor-density thresholds, waste-load monitoring, resident-satisfaction surveys, and publicly reported sustainability indicators that support evidence-based decision-making.

Another important finding concerns the role of carrying capacity in balancing tourism benefits and environmental pressures. Previous research shows that sustainable tourism requires considering economic, sociocultural, and environmental dimensions simultaneously, rather than treating environmental protection as separate from tourism development. Mendonca et al. (2022), for example, emphasized the importance of balancing these dimensions in sustainable tourism management, while Pageh et al. (2022) demonstrated that tourism associated with cultural and religious sites can contribute to local development when tourism activities respect carrying-capacity considerations. These findings support the present review's argument that carrying capacity should be understood broadly, encompassing physical, ecological, social, and managerial dimensions. Consequently, destination competitiveness should not be interpreted simply as the ability to attract more tourists but also as the ability to maintain environmental quality, resident well-being, visitor satisfaction, and institutional effectiveness that sustain tourism demand over the longer term.

Nevertheless, the results should be interpreted cautiously. Although four of five studies directly testing the focal proposition supported its direction, the exact binomial test produced a p-value of 0.375, while the alternative coding of the conditional study produced $p = 0.0625$. Therefore, the evidence demonstrates directional consistency rather than statistically conclusive evidence. In addition, the reviewed studies use different units of analysis, indicators, destinations, and research designs, preventing the calculation of a pooled effect size. More importantly, no included empirical study directly estimates the proposed relationships using primary data from an Indonesian destination. The contribution of this study therefore lies in integrating fragmented evidence and identifying a research direction rather than claiming a causal effect for Indonesia. Future empirical research should test these relationships using destination-level longitudinal data and primary evidence from residents, visitors, tourism businesses, and local governments.

6. Conclusion

This study concludes that overtourism, environmental carrying capacity, and destination competitiveness are closely interconnected, although the strength and direction of these relationships depend on economic and institutional conditions. The systematic review indicates that tourism growth driven primarily by increasing visitor volume may intensify environmental, social, and infrastructure pressures when not accompanied by effective carrying-capacity management. The reviewed international evidence generally supports destination optimization through visitor spending, length of stay, experience quality, and capacity-based management rather than reliance on visitor growth alone (Oklevik et al., 2019; Gössling et al., 2018). However, the

quantitative synthesis provides directional consistency rather than statistically conclusive evidence, and the findings should therefore be interpreted as evidence derived from the reviewed literature rather than as verified causal relationships for Indonesian destinations. The Indonesian tourism statistics and contextual evidence are used to illustrate the relevance of these issues rather than to establish direct empirical effects.

From a managerial and policy perspective, tourism authorities should develop measurable destination-management systems that integrate visitor-density thresholds, environmental carrying-capacity indicators, waste-load monitoring, tourism-yield indicators, resident-satisfaction surveys, and annual public sustainability reporting. High-pressure destinations such as Bali, Lombok, Labuan Bajo, and Yogyakarta can strengthen destination dashboards, establish seasonal visitor-flow controls, improve tourism-levy compliance targets, and regularly monitor environmental and social impacts alongside tourism performance. Tourism businesses should prioritize higher-value tourism products, longer visitor stays, and spatial visitor dispersal strategies to reduce concentration pressures while maintaining economic benefits. These measures can support evidence-based governance and help balance destination competitiveness with long-term environmental and social sustainability.

Recommendation

Destination managers should integrate environmental carrying-capacity thresholds into tourism planning and routinely monitor visitor pressure, environmental quality, and impacts on residents. Indonesian tourism authorities should strengthen INSTO-based monitoring and improve tourism-levy compliance to support destination management. Tourism businesses should prioritize longer stays, higher visitor spending, and resource efficiency rather than relying primarily on visitor-volume growth. Local governments should coordinate capacity management with communities and businesses, particularly in high-pressure destinations such as Bali. Policymakers should also use destination-specific indicators to guide visitor distribution and investment decisions.

Limitations and avenues for future research

This study is limited by its Scopus-only secondary evidence base, the predominance of studies outside Indonesia, heterogeneous indicators that prevent pooled effect-size estimation, and the low statistical power of vote counting. Future research should broaden evidence sources to include Web of Science, Google Scholar, official policy reports, and destination-level field surveys. Longitudinal studies should combine resident and visitor perceptions, physical capacity indicators, institutional measures, and actual carrying-capacity calculations to examine causal relationships and validate the proposed destination-specific carrying-capacity framework in Indonesia.

References

- Adrianto, L., Kurniawan, F., Romadhon, A., Bengen, D. G., Sjafrie, N. D. M., Damar, A., & Kleinertz, S. (2021). Assessing social-ecological system carrying capacity for urban small island tourism: The case of Tidung Islands, Jakarta Capital Province, Indonesia. *Ocean & Coastal Management*, 212, 105844. <https://doi.org/10.1016/j.ocecoaman.2021.105844>
- Bekun, F. V., Gyamfi, B. A., Bamidele, R. O., & Udemba, E. N. (2022). Tourism-induced emission in Sub-Saharan Africa: A panel study for oil-producing and non-oil-producing countries. *Environmental Science and Pollution Research*, 29(27), 41725–41741. <https://doi.org/10.1007/s11356-021-18262-z>
- Burlando, C., Musso, E., Pavanini, T., & Traversa, S. (2025). A proposal for an overtourism index. *Annals of Tourism Research*, 115, 104042. <https://doi.org/10.1016/j.annals.2025.104042>
- Cifuentes, M. (1992). *Determination of visitor carrying capacity in protected areas*. CATIE.
- Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & Sons.
- Gössling, S., Scott, D., & Hall, C. M. (2018). Global trends in length of stay: Implications for destination management and climate change. *Journal of Sustainable Tourism*, 26(12), 2087–2101. <https://doi.org/10.1080/09669582.2018.1529771>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of

- PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hanafie, A. A., Nurhaliza, H. D., Ramadhan, M. A. T., Prasetya, N. Z. N., Putri, N. R., Widaningsih, N., & Rahmafitria, F. (2025). Tourism beyond limits: A systematic review of the challenges and mitigation strategies of overtourism. *ASEAN Natural Disaster Mitigation and Education Journal*, 3(1), 19–34. <https://doi.org/10.61511/andmej.v3i1.2025.1418>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43, 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Holden, A., Jamal, T., & Burini, F. (2022). The future of tourism in the Anthropocene. *Annual Review of Environment and Resources*, 47, 423–447. <https://doi.org/10.1146/annurev-environ-120920-092529>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Li, J., Weng, G., Pan, Y., Li, C., & Wang, N. (2021). A scientometric review of tourism carrying capacity research: Cooperation, hotspots, and prospects. *Journal of Cleaner Production*, 325, 129278. <https://doi.org/10.1016/j.jclepro.2021.129278>
- Mendonca, F., Maguire, K., & Almeida, N. (2022). Sustainable management of tourism: Insights from Portugal. *Proceedings of the International Conference on Tourism Research*, 517–519. <https://doi.org/10.34190/ictr.15.1.244>
- Mihalic, T. (2020). Conceptualising overtourism: A sustainability approach. *Annals of Tourism Research*, 84, 103025. <https://doi.org/10.1016/j.annals.2020.103025>
- Ndaguba, E. A., & Van Zyl, C. (2026). Democratising blue tourism governance: A systematic review of institutional capacity, platform power, and social legitimacy. *Sustainability*, 18(5), 2598. <https://doi.org/10.3390/su18052598>
- Oklevik, O., Gössling, S., Hall, C. M., Steen Jacobsen, J. K., Grøtte, I. P., & McCabe, S. (2019). Overtourism, optimisation, and destination performance indicators: A case study of activities in Fjord Norway. *Journal of Sustainable Tourism*, 27(12), 1804–1824. <https://doi.org/10.1080/09669582.2018.1533020>
- Pageh, I. M., Rahmawati, P. I., Delacy, T., & Jiang, M. (2022). Ancient religious sites as tools for sustainable tourism development: An empirical study in the north of Bali. *International Journal of Religious Tourism and Pilgrimage*, 10(1), 79–92.
- Scuttari, A., Windegger, F., Wallnofer, V., & Pechlaner, H. (2025). Bridging the science-policy gap in sustainable tourism: Evidence from a multiple case study analysis of UNWTO INSTO sustainable tourism observatories. *Journal of Sustainable Tourism*, 33(4), 628–652. <https://doi.org/10.1080/09669582.2023.2279023>
- Seraphin, H., Sheeran, P., & Pilato, M. (2019). Over-tourism: A literature review to assess implications and future perspectives. *Sustainability*, 11(12), 3303. <https://doi.org/10.3390/su11123303>
- Siswanto, A., & Rahayu, N. W. I. (2025). Tourism carrying capacity revisited: A mixed-methods study for sustainable heritage site management of Baluran National Park in Indonesia. *JMBI: Jurnal Manajemen Bisnis dan Informatika*, 6(1). <https://doi.org/10.31967/prodimanajemen.v6i1.1615>
- Streimikiene, D., Svagzdiene, B., Jasinskas, E., & Simanavicius, A. (2021). Sustainable tourism development and competitiveness: The systematic literature review. *Sustainable Development*, 29(1), 259–271. <https://doi.org/10.1002/sd.2133>
- UN Tourism. (2026). *International Network of Sustainable Tourism Observatories (INSTO)*. UN Tourism.
- Wasudawan, K., & Weissmann, M. A. (2026). Over-tourism: A review and research agenda. *Global Business and Organizational Excellence*, 45(2), 227–245. <https://doi.org/10.1002/joe.70007>
- Xu, N., & Li, H. (2025). Towards management of sustainable tourism development in coastal destinations of the Bohai Rim: Insights from a tourism carrying capacity analysis. *Discover Sustainability*, 6, 168.
- Zekan, B., Weismayer, C., Gunter, U., Schuh, B., & Sedlacek, S. (2022). Regional sustainability and tourism carrying capacities. *Journal of Cleaner Production*, 339, 130624. <https://doi.org/10.1016/j.jclepro.2022.130624>

- Zhang, J., & Kumar, J. (2025). Post-pandemic tourism in Asia: Addressing overtourism through sustainable practices. *Worldwide Hospitality and Tourism Themes*, 17(3), 376–384. <https://doi.org/10.1108/WHATT-01-2025-0037>
- Zhu, L., Zhan, L., & Li, S. K. (2021). Is sustainable development reasonable for tourism destinations? An empirical study of the relationship between environmental competitiveness and tourism growth. *Sustainable Development*, 29(1), 66–78. <https://doi.org/10.1002/sd.2131>