

Environmental Governance for Sustainable Tourism in Socio-Ecological Systems: A Systematic Literature Review

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ABSTRACT

Tourism destinations are increasingly understood as socio-ecological systems (SES) where ecological dynamics, livelihoods, and institutions interact through feedback loops. This systematic literature review synthesises evidence on how environmental governance shapes sustainable tourism trajectories in tourism-dependent SES and highlights gaps for future research. Peer-reviewed journal articles (2000–2025) were identified through structured searches in major databases and complementary searches, then screened using predefined eligibility criteria and appraised for methodological quality using a mixed-methods-appropriate tool [9]. Forty-six studies were retained for narrative thematic synthesis. The evidence indicates that governance in tourism SES is commonly hybrid—combining hierarchical regulation, market mechanisms, and community participation—and is implemented through instrument mixes such as zoning, permitting, environmental standards, economic incentives, and stakeholder forums. Across protected areas, coastal zones, rural landscapes, and urban destinations, collaborative arrangements (e.g., co-management and community-based models) are more frequently linked with biodiversity protection, improved habitat condition, and livelihood diversification than fragmented or investor-dominated regimes [1], [2], [3]. However, outcomes vary substantially and are mediated by enforcement capacity, institutional coherence, perceived legitimacy, and distributional fairness [4], [5]. The review also shows an expanding methodological toolkit (remote sensing, composite indices, modelling), but persistent gaps in longitudinal designs and in indicators that capture equity, resilience, and linked human–environment risks [6], [7]. Overall, sustainable tourism in SES requires adaptive, cross-scale, and equity-oriented governance that can learn from monitoring and address power asymmetries.

Keywords: *Environmental Governance, Sustainable Tourism, Tourism SES, Multi-Level Governance, SLR*

1. INTRODUCTION

Tourism destinations can be better understood as socio-ecological systems (SES): coupled systems in which ecological processes, economic activities, and social institutions co-evolve [8]. Within this lens, sustainability outcomes depend not only on tourism demand and local biophysical conditions, but also on governance—how rules are made, implemented, negotiated, and enforced among public agencies, communities, and private actors [5].

Tourism simultaneously generates benefits (employment, income, investment, and local entrepreneurship) and produces pressures on ecosystems and communities. Across regions, recurring concerns include climate-related threats, land-use pressures, biodiversity disturbance, and rising emissions embedded in transport and energy use along tourism supply chains [9], [10]. These pressures are especially visible in coastal zones, marine and terrestrial protected areas, and destinations experiencing congestion and overtourism [8], [11], [12].

Environmental governance, therefore, becomes central to steering tourism development toward sustainability. Governance quality influences whether environmental standards are enforced, whether land-use planning is coherent, and whether communities can influence decisions and benefit fairly [6], [7]. Yet, empirical insights remain scattered across destination types, regions,

and governance models, making it difficult to compare which configurations tend to support better socio-ecological outcomes and under which contextual conditions.

This review addresses that gap through a systematic literature review on environmental governance for sustainable tourism in SES. The review asks: (1) How are governance configurations and instrument mixes described across tourism-dependent SES? (2) What environmental and social outcomes are associated with different governance arrangements? (3) Which contextual factors and governance processes (e.g., enforcement, legitimacy, participation) condition effectiveness? and (4) What methodological patterns dominate the literature and what limitations do they introduce?

2. LITERATURE REVIEW

2.1 *Socio-Ecological Systems and Tourism*

SES scholarship conceptualises destinations as complex adaptive systems in which feedback loops connect ecosystem conditions, tourism activities, livelihood strategies, and policy responses [8]. Complexity-oriented perspectives on destination governance emphasise that interventions can create non-linear effects, so monitoring and learning are crucial for sustaining destination resilience over time [13], [14].

2.2 *Environmental Governance in Tourism Contexts*

Environmental governance in tourism refers to the formal and informal rules, organisations, and practices that shape how environmental resources are used, conserved, and restored while tourism grows [5]. In tourism SES, governance typically spans multiple jurisdictions and actor groups and must reconcile competing objectives such as conservation, livelihoods, investor interests, and destination competitiveness [15], [16].

2.3 *Sustainable Tourism, Resilience, and Justice*

Sustainable tourism scholarship increasingly aligns with socio-ecological systems (SES) and resilience perspectives, framing tourism destinations as dynamic and adaptive systems that must continuously respond to environmental, economic, and social disturbances [8], [13], [14].

Within this framework, justice—particularly intergenerational equity—adds a critical temporal dimension to sustainable tourism governance. Intergenerational equity emphasises that governance arrangements should not prioritise short-term economic benefits at the expense of ecological integrity and social well-being for future generations [17]. This concern is especially pronounced in environmentally fragile contexts, such as small island destinations, alpine regions, and biodiversity-rich areas, where rapid tourism expansion can quickly degrade ecosystems and erode local adaptive capacity [9], [18].

Integrating resilience and justice perspectives implies that sustainable tourism governance must move beyond narrow efficiency- or growth-oriented objectives. Instead, governance systems should simultaneously respect ecological limits, ensure a fair distribution of benefits and burdens among social groups, and acknowledge responsibilities across time [4], [5]. In this sense, governance that supports sustainable tourism in SES must balance environmental protection, social equity, and long-term resilience, while remaining sufficiently flexible to adapt to changing conditions and emerging risks [8], [14].

2.4 Integrative Conceptual Logic for This Review

This review adopts an integrative logic: (a) destination context and actor constellations shape governance design; (b) governance instruments and processes translate design into implementation; (c) socio-ecological outcomes emerge (environmental condition, emissions, livelihoods, equity, conflict); and (d) feedback loops (learning, contestation, reform) influence subsequent governance decisions [8], [14].

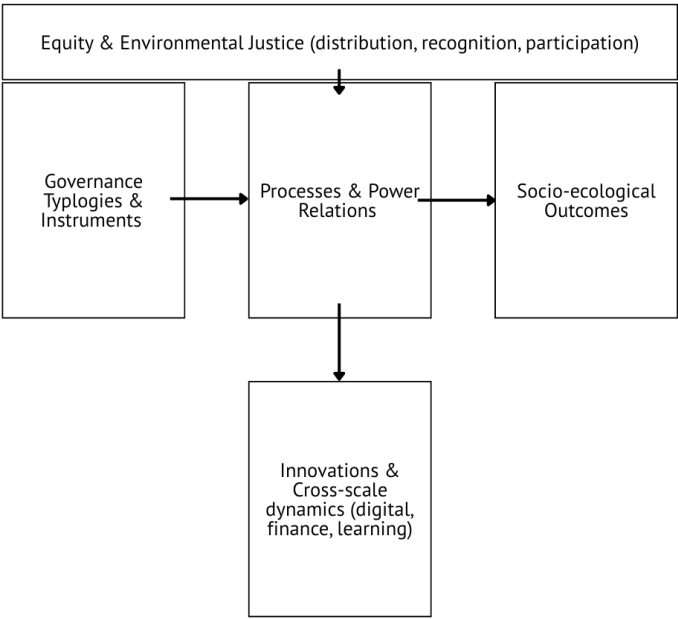


Figure 1. Conceptual Framework Linking Governance Design, Processes, and Socio-Ecological Outcomes in Tourism SES.

3. METHODS

3.1 Review Protocol and Reporting

The review applied structured procedures for searching, screening, eligibility decisions, quality appraisal, and synthesis, consistent with established systematic review practice in tourism and sustainability research [19], [20]. A PRISMA-style flow diagram documents the selection process.

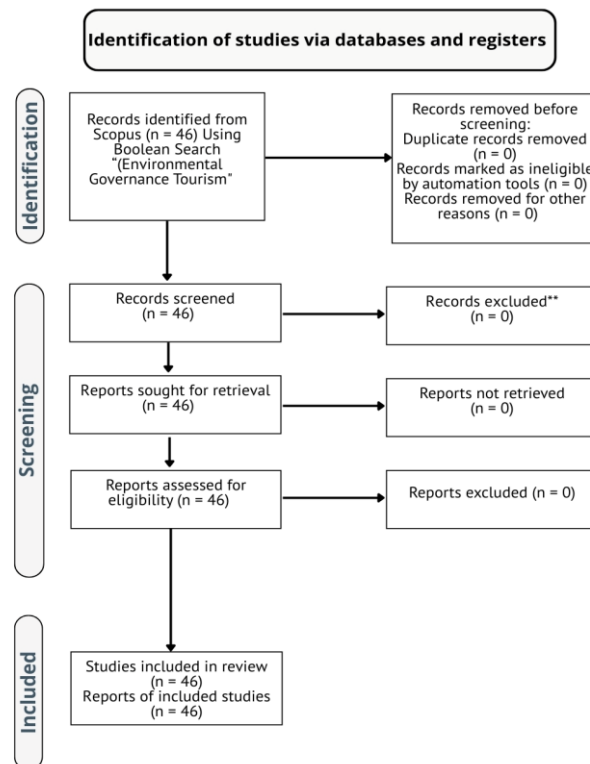


Figure 2. PRISMA-Style Flow Diagram of the Screening and Selection Process (Final Sample $n = 46$)

3.2 Search Strategy and Data Sources

Searches were conducted in major multidisciplinary and subject databases and were complemented by targeted searches to capture additional relevant studies. Search strings combined tourism terms (e.g., sustainable tourism, ecotourism, coastal tourism), governance terms (e.g., environmental governance, institutions, policy instruments), and SES terms (e.g., socio-ecological system, protected area, marine protected area).

3.3 Eligibility Criteria

Studies were included when they: (1) addressed tourism or recreation as a main phenomenon; (2) explicitly examined environmental governance, institutions, or policy instruments; (3) reported environmental and/or social outcomes relevant to sustainability or resilience; and (4) were peer-reviewed journal articles (including empirical, conceptual, and review designs).

Studies were excluded when they: (1) focused on tourist behaviour without governance content; (2) were editorial/opinion pieces without methodological grounding; or (3) were non-peer-reviewed grey literature.

3.4 Screening and Selection

Records from all sources were exported to reference management software and deduplicated. Title/abstract screening and full-text screening were conducted against the criteria, with disagreements resolved through discussion. Reasons for exclusion at the full-text stage were recorded.

3.5 Data Extraction, Coding, and Quality Appraisal

A structured extraction form captured study location/scale, destination type, governance configuration, instruments, methods, and reported socio-ecological outcomes. The corpus was coded using a combined deductive–inductive thematic approach. Methodological quality and risk of bias

were assessed using the Mixed Methods Appraisal Tool (MMAT) [21], and the quality results informed interpretation (without applying a rigid exclusion threshold).

3.6 Synthesis Strategy

Given heterogeneity across designs and outcomes, the review used narrative thematic synthesis. Evidence was organised into four themes: (1) governance typologies and instruments; (2) governance processes and participation; (3) socio-ecological outcomes; and (4) methodological patterns and emerging governance tools.

4. RESULTS AND DISCUSSION

4.1 Governance Typologies and Instrument Portfolios

Across the reviewed literature, governance in tourism SES rarely fits a single category. Most destinations operate under hybrid configurations combining state-led regulation, market coordination, and varying degrees of community participation [5], [15], [16]. Hierarchical governance remains central, with land-use planning, infrastructure, licensing, and environmental standards controlled by government agencies. In protected and coastal contexts, governance frequently uses zoning and spatial planning to separate incompatible uses and manage visitor pressure [1], [22].

Co-management and community-based arrangements are prominent in marine protected areas and community tourism settings. These arrangements often combine formal conservation rules with participatory councils and livelihood support mechanisms, aiming to integrate local knowledge, improve compliance, and distribute tourism benefits more equitably [1], [2], [3].

Table 1. Governance Arrangements and Key Instruments In Tourism Socio-Ecological Systems

No	Evidence	Country/Destination Type	Governance Typology
1	Coastal SES governance challenges [23]	Mexico; coastal tourism SES	Predominantly state-led / hierarchical (with multi-actor pressures)
2	Ecosystem-based coastal management plan [22]	Ghana; coastal zone	State-led, ecosystem-based coastal governance
3	Conservation governance in large multiple-use MPA [1]	Brazil; marine protected area	Co-management / mixed governance
4	Inclusion and governance in a protected area council [2]	Brazil; coastal protected area	Co-management / council-based governance
5	National policy system and evaluation [24]	China; national tourism system	Multi-level, policy-centric governance
6	Municipal management and sustainable tourism (urban protected areas) [25]	Urban protected areas	State-led municipal governance
7	Governance quality and tourist flows (cross-country) [25]	Cross-country	National-level governance
8	Local environmental governance and firm performance [24]	Vietnam; tourism companies	Local/regional governance influencing firms

Source: Adapted from synthesized literature.

4.2 Governance Processes, Participation, and Power Dynamics

Beyond formal typologies, governance processes—who participate, how decisions are made, and how conflicts are managed—strongly mediate outcomes [4], [5]. In community and indigenous contexts, participation mechanisms include surveys, consultations, local meetings, and co-design of tourism products. Even so, participation is sometimes consultative rather than decision-

sharing, particularly when high-value investments, land-use rights, or infrastructure are involved [26], [27].

Legitimacy and trust tend to increase when governance communicates decisions transparently, recognises local values, and demonstrates responsiveness [4], [27]. Conversely, tokenistic participation and unequal benefit sharing can erode support and trigger persistent conflict or non-compliance [3], [26].

Table 2. Participation, Power Distribution, and Legitimacy in Tourism SES

No.	Evidence	Social Context	Participation Mechanisms	Power Distribution & Actor Roles
1	Indigenous support for conservation initiatives [27]	Indigenous/rural communities; conservation-linked tourism	Surveys, community consultations, local meetings	Agencies and NGOs shape agendas; community support depends on recognition and feedback
2	Tourist walking trails and political recognition [28]	Rural communities; trail-based tourism	Multi-actor consultations, co-design of routes/branding	Municipalities and operators influential; negotiation can reduce asymmetry
3	Heritage tourism products based on traditional knowledge [29]	Rural communities; ritual/heritage nature tourism	Local associations, involvement in design/performance	External promoters can shape narratives; community intermediaries buffer conflict
4	Beach environmental quality perceptions [30]	Coastal residents and users	Surveys and perception studies; limited formal participation	Authorities and businesses dominate decisions; residents rely on advocacy
5	Power relations in regional tourism organisations [26]	Regional tourism governance networks	Formal representation, meetings, committees	Large municipalities/elites can dominate; smaller actors marginalised
6	Governance in protected area council [2]	Coastal MPA stakeholders	Council deliberation and representation rules	Inclusion depends on council design; risks of tokenism remain
7	Self-governing institutions in rural tourism commons [3]	Rural tourism villages	Village rules, meetings, collective monitoring	Local leaders/entrepreneurs as brokers; risk of elite capture

Source: Adapted from synthesized literature.

4.3 Socio-Ecological Outcomes Linked to Governance

1. Environmental Outcomes

Across protected areas and coastal destinations, weak enforcement, inconsistent planning, and limited involvement of local users are frequently associated with habitat degradation and rising vulnerability [22], [31]. By contrast, governance that combines clear rules, visitor management, and community engagement is more often associated with improved ecological conditions and greater environmental awareness [1], [32]. At broader scales, quantitative studies indicate that stronger institutional quality is associated with improved tourism performance and can support more efficient environmental management, although it does not automatically prevent degradation or emissions growth [25], [33].

2. Social and Economic Outcomes

Governance also shapes livelihood resilience and equity. Tourism can support diversification when governance ensures fair benefit distribution, supports local capacity, and maintains ecological limits [3], [28]. Conversely, elite capture and opaque decision-making are associated with perceived unfairness and recurrent conflict [12], [26]. Evidence-based planning barriers inside local authorities further constrain implementation, even where sustainability goals are stated [34].

Table 3. Examples of Socio-Ecological Outcomes Associated with Governance Configuration

No.	Evidence	Governance Type/Scale	Environmental Outcome Indicators	Social/Economic Outcome Indicators
1	Land-use change and coastal implications [31]	Coastal governance (local-regional)	Land-cover change, habitat fragmentation, vulnerability	Tourism development pressures, livelihood shifts
2	Ecosystem-based coastal management plan [22]	Coastal governance (multi-actor/state-led)	Coastal ecosystem condition, management implementation	Coordination costs, local acceptance
3	Conservation governance in multiple-use MPA [1]	MPA co-management	Perceived conservation effectiveness, compliance drivers	Local attitudes, perceived fairness, livelihood links
4	Underwater trail as integrated management tool [32]	MPA local management	Habitat condition proxies, biodiversity disturbance	Visitor awareness, quality of experience
5	Tourismification–transport–ecological resilience system [35]	Urban–regional multi-level governance	Composite ecological resilience indices	Tourism output, transport quality, growth
6	Coupling tourism–economy–environment [36]	Regional governance	Composite environment indices, stress indicators	Tourism and economic indicators
7	Evolution of tourism SES resilience [6]	Regional governance	Resilience indices, obstacle factors	Development constraints
8	Governance and tourist flows [25]	National/cross-country	Proxy environmental management capacity (indirect)	Tourist arrivals, destination performance
9	Overtourism and community well-being [18]	Island-scale governance	Environmental stress narratives	Community well-being, social pressure, conflict

Source: Adapted from synthesized literature.

4.4 Emerging Tools and Methodological Patterns

Because the evidence base is methodologically diverse, there is no single “best” method. Research combines case studies, surveys, governance indices, modelling, and spatial analysis. Several studies employ composite indices to represent resilience or coupling among tourism–economy–environment subsystems [6], [35]. Others use land-cover analysis to connect governance gaps with land-use change in sensitive coastal landscapes [31]. Modelling approaches (e.g., system dynamics) are used to explore emissions-reduction scenarios and feedback effects [7]. Cross-country studies use governance indices to test whether institutional quality conditions tourism and environmental outcomes [25], [33].

Table 4. Examples of Analytical Tools and What they add to Tourism SES Governance Research

Tool / Approach	What it helps to Answer in Tourism SES Governance	Example Evidence
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Governance quality indices and cross-country estimation	Whether institutional quality relates to tourism performance and management capacity	[25], [33]
Composite resilience / coupling indices	How tourism development and ecological resilience co-evolve; where imbalances emerge	[6], [35]
Land-use/land-cover analysis for coastal change	How governance coherence/enforcement relates to habitat loss and vulnerability	[22], [31]
System dynamics / scenario modelling	How policy choices can reduce tourism travel emissions and manage feedback loops	[7], [10]
Integrated accounting of benefits vs emissions	How tourism economic benefits compare with emissions burdens	[37], [38]
Tool / approach	What it helps to answer in tourism SES governance	Example evidence

Source: Adapted from synthesized literature.

4.5 Comparison With Prior Reviews and State-of-the-Art

Compared with reviews that focus primarily on tourism–emissions links or on destination sustainability without detailing governance mechanisms, this synthesis integrates governance configurations, processes, and outcomes within an SES-oriented logic [8], [15], [20]. By mapping evidence across coastal/marine systems, protected areas, rural landscapes, and urban destinations, the review clarifies that the same instrument (e.g., zoning) can produce different outcomes depending on enforcement capacity, legitimacy, and distributional politics [1], [4], [31]. It also highlights that many studies still operationalise sustainability through aggregate indicators, whereas fewer explicitly assess legitimacy and fairness, even though these factors strongly condition compliance and long-term effectiveness [4], [26].

5. CONCLUSION

This systematic literature review shows that environmental governance is a decisive mediator of sustainable tourism pathways in socio-ecological systems. Across diverse destination types, governance arrangements are predominantly hybrid, combining state authority, market incentives, and varying degrees of community participation [5], [15], [16]. The evidence more consistently associates collaborative governance (co-management and community-based models) with positive socio-ecological outcomes—such as improved conservation legitimacy, better habitat condition, and livelihood diversification—than fragmented, weakly enforced, or investor-dominated regimes [1], [2], [3], [31]. However, outcomes remain context-dependent and are shaped by institutional capacity, monitoring and enforcement, and the perceived legitimacy and fairness of decision-making [4], [26], [34].

Future research should prioritise (1) longitudinal and comparative designs that trace how governance reforms translate into ecological and social outcomes over time; (2) clearer measurement of equity and legitimacy (distribution, procedural fairness, and recognition); and (3) integrated methods that connect biophysical monitoring with institutional and livelihood analysis to better capture SES feedback loops and climate-related risks [6], [10], [35].

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