

A Comprehensive Analysis of the Theoretical Foundations of Ecotourism Clusters Using the Delphi Method

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Abstract

Purpose: This study aims to develop a theoretical framework for ecotourism clusters within regional ecological networks, addressing gaps in the understanding of their composition and governance in transitional economies.

Research Methodology: This study applies the Delphi method, combining open and closed questions with expert interviews. A multidisciplinary panel in tourism, environmental management, and cluster development was engaged to reach consensus on cluster components and governance structures.

Results: The findings showed that ecotourism clusters are territorial and cooperative systems focused on environmental conservation, involving tourism services, local economic actors, and independent governance. Clusters with 12–14 members were found to enhance coordination, support sustainable resource management, and reduce the ecological impact.

Conclusions: This study concludes that ecotourism clusters not only act as profit-maximizing networks but also serve as institutional equilibria, balancing economic growth with environmental protection. The findings provide a basis for strategic frameworks in designing sustainable regional development and policies.

Limitations: The study is limited by the subjective nature of the panel, as it is based on expert opinions, which may not be generalizable across all contexts. Further empirical testing is needed for broader applications.

Contributions: This research offers a theoretical framework for ecotourism clusters and highlights the importance of multi-stakeholder collaboration in managing sustainable regional tourism.

Keywords: *Economy, Ecotourism Cluster, Innovation, National Innovation System, Tourism*

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1. Introduction

In the context of accelerating globalization, regional competition, and the transition toward sustainable development models, the tourism sector has increasingly been recognized as a strategic driver of economic growth, environmental stewardship, and social cohesion. Among its various forms, ecotourism has emerged as a particularly significant approach, integrating environmental conservation with local economic development and community participation ([Irmawati & Hasnawati, 2024](#); [Yan, Gooi, Huang, & Wang, 2025](#)). Unlike conventional mass tourism, ecotourism emphasizes responsible travel to natural areas, preservation of biodiversity, and enhancement of local livelihoods.

However, the growing demand for ecotourism services has also intensified the need for more structured, coordinated, and innovation-oriented management mechanisms capable of balancing ecological

integrity with economic viability. Within this framework, the concept of the ecotourism cluster has gained prominence as a potentially effective model for organizing regional tourism systems in a sustainable and competitive manner ([Hawkins, 2004](#); [Omilovna, 2025](#)).

The notion of “cluster” was first introduced into economic analysis to describe the geographical concentration of interconnected firms and institutions operating within a specific field. Although early applications of the term were primarily technical and spatial, it was later conceptualized within economic theory as a strategic instrument for enhancing competitiveness and innovation. The cluster approach emphasizes the importance of proximity, cooperation, knowledge exchange, and synergistic relationships among enterprises, supporting institutions, and public authorities. In tourism studies, clusters are understood as networks of tourism-related businesses, infrastructure providers, regulatory bodies, and community organizations that collectively contribute to destination development and value creation.

When applied to ecotourism, this concept extends beyond economic coordination to include environmental protection, sustainable resource management, and ethical governance principles ([Akramova, 2025](#)). Despite the increasing interest in ecotourism and cluster-based development strategies, the theoretical and conceptual foundations of ecotourism clusters remain insufficiently systematized. The existing literature has explored tourism clusters in general, often focusing on competitiveness, innovation diffusion, and regional economic performance ([Ferreira & Esteveao, 2009](#); [Franco, Franco, Lopes, Severo, & Ferreira, 2018](#); [Yalçınkaya & Güzel, 2019](#)).

Classical cluster theory highlights the role of localized networks in enhancing productivity, stimulating entrepreneurship, and fostering innovation ecosystems. Subsequent research has demonstrated that clusters contribute to regional development through knowledge spillovers, joint marketing strategies, shared infrastructure, and coordinated governance mechanisms ([Benner, 2017](#); [Nordin, 2003](#)). However, many of these studies have concentrated on industrial or manufacturing clusters, whereas tourism clusters—particularly ecotourism-oriented ones—have received comparatively limited analytical attention ([Khanra, Dhir, Kaur, & Mäntymäki, 2021](#); [Korbiel, Gmyrek, & Kruczek, 2025](#)).

Recent research on tourism development underscores the importance of sustainability-oriented governance models. Studies on rural and nature-based tourism emphasize the need for integrated management systems capable of reconciling environmental conservation with market expansion ([Kurniawan, 2024](#)). Scholars have highlighted that ecotourism initiatives frequently suffer from fragmentation, limited stakeholder coordination, weak institutional support, and insufficient monitoring of ecological impacts ([Esparza, Caicedo, Gamarra, Romo Román, & Mougenot, 2023](#)). Although various empirical studies have examined environmental carrying capacity, community participation, and sustainable tourism planning, fewer investigations have addressed the structural organization and governance architecture of ecotourism clusters as coordinated economic systems ([Nurullayevich, 2025](#); [Yalçınkaya & Güzel, 2019](#)).

2. Literature Review

The literature reveals divergent interpretations of what constitutes an ecotourism cluster. Some researchers define it primarily as a geographical concentration of environmentally oriented tourism enterprises, whereas others conceptualize it as a broader institutional arrangement encompassing conservation organizations, local governments, infrastructure providers, and community actors. The absence of a unified theoretical framework has resulted in conceptual ambiguity regarding the definition, composition, optimal size, governance mechanisms, and functional characteristics of ecotourism clusters. Consequently, there is a significant knowledge gap concerning the systematic identification of core components, criteria for membership, mechanisms of coordination, and environmental management strategies within such clusters.

In addition, previous studies have often relied on case analyses or descriptive methodologies without employing structured consensus-building approaches among experts. Although qualitative interviews and regional assessments have provided valuable insights, the complexity and interdisciplinary nature

of ecotourism clusters require more rigorous methodological tools capable of synthesizing diverse expert perspectives. The need for methodological refinement is particularly evident in emerging economies and rural regions, where institutional frameworks for sustainable tourism development are still evolving.

Against this background, the present study seeks to contribute to the theoretical and methodological advancement of ecotourism cluster research by employing the Delphi method as a structured instrument for expert consensus formation. The Delphi method, characterized by iterative rounds of questionnaires, controlled feedback, and anonymized expert interaction, enables the identification and refinement of complex conceptual constructs. By integrating multidisciplinary expertise from tourism, environmental protection, cluster development, and regional planning, this study aims to clarify the conceptual foundations, structural elements, and functional mechanisms of ecotourism clusters.

The primary research objective is to develop a comprehensive theoretical model of the ecotourism cluster, identifying its defining characteristics, membership composition, governance structure, experiential offerings, and environmental management principles. More specifically, this study seeks to:

1. Formulate a consensual definition of an ecotourism cluster based on expert evaluations.
2. Identification of the key structural components and actors involved in cluster formation.
3. Determine the optimal size and proportional distribution of cluster members across environmental, economic, and public sectors
4. Examine the perceived impact of ecotourism clusters on ecological load and environmental sustainability
5. Clarify the motivations for cluster formation and the mechanisms through which environmental interests are integrated into cluster governance.

The significance of this research is multidimensional. From a theoretical perspective, the study contributes to cluster theory by extending its application to ecotourism and sustainable regional development. It addresses conceptual fragmentation by synthesizing expert knowledge into a structured framework, thereby strengthening academic discourse on tourism clusters and sustainability-oriented governance models ([Faraji, Rashidi, Meydani Haji Agha, Rahnamayiezekavat, & Samali, 2022](#); [Nguyen et al., 2025](#)). By integrating economic, environmental, and institutional dimensions, this research advances interdisciplinary understanding and enriches the literature on sustainable tourism systems. From a methodological standpoint, the application of the Delphi method enhances the reliability and validity of conceptual development in tourism research ([Zhao & Jaafar, 2025](#)).

The iterative design of the method reduces bias, encourages reflective evaluation, and facilitates convergence toward well-founded conclusions. This approach is particularly valuable in contexts characterized by diverse stakeholder interests and complex environmental considerations ([Ordóñez-Castaño, Padilla-Delgado, & Velasco-Tafur, 2025](#)). Practically, the findings offer strategic guidance to policymakers, regional development agencies, and tourism practitioners. By clarifying the structural prerequisites and governance mechanisms of ecotourism clusters, this research supports evidence-based decision-making in regional planning and sustainable tourism management ([Nawawi, Abdullah, Ibrahim, & Congge, 2025](#); [Xu, Ao, Liu, & Cai, 2023](#)).

The identification of optimal membership configurations and environmental management principles can assist in designing clusters that balance economic growth and ecological preservation effectively. Furthermore, this study provides a foundation for integrating ecotourism clusters into broader rural development and innovation strategies, thereby contributing to long-term regional resilience and competitiveness ([Fodor & Sitanyi, 2008](#)). In summary, the dynamic evolution of market economies and the increasing urgency of environmental sustainability necessitate innovative organizational models in tourism development.

Ecotourism clusters represent a promising framework for achieving coordinated, environmentally responsible, and economically viable regional growth ([Mancini et al., 2022](#)). Nevertheless, conceptual

ambiguities and methodological limitations have constrained their theoretical advancement. This study bridges this gap by employing a structured Delphi-based approach to synthesize expert knowledge and offer a comprehensive analysis of the theoretical foundations and practical implications of ecotourism clusters in contemporary regional development contexts ([Donohoe, 2011](#); [Zairina, Wibisono, Ngaliman, Indrayani, & Satriawan, 2023](#)).

3 Methodology

To test the proposed hypotheses and examine the concept, characteristics, and system of criteria of the ecotourism cluster, the Delphi method was selected as the principal research tool (see Figure 1). This method enables the collection and synthesis of expert judgments and provides a structured framework for identifying key components and relationships within the ecotourism cluster.

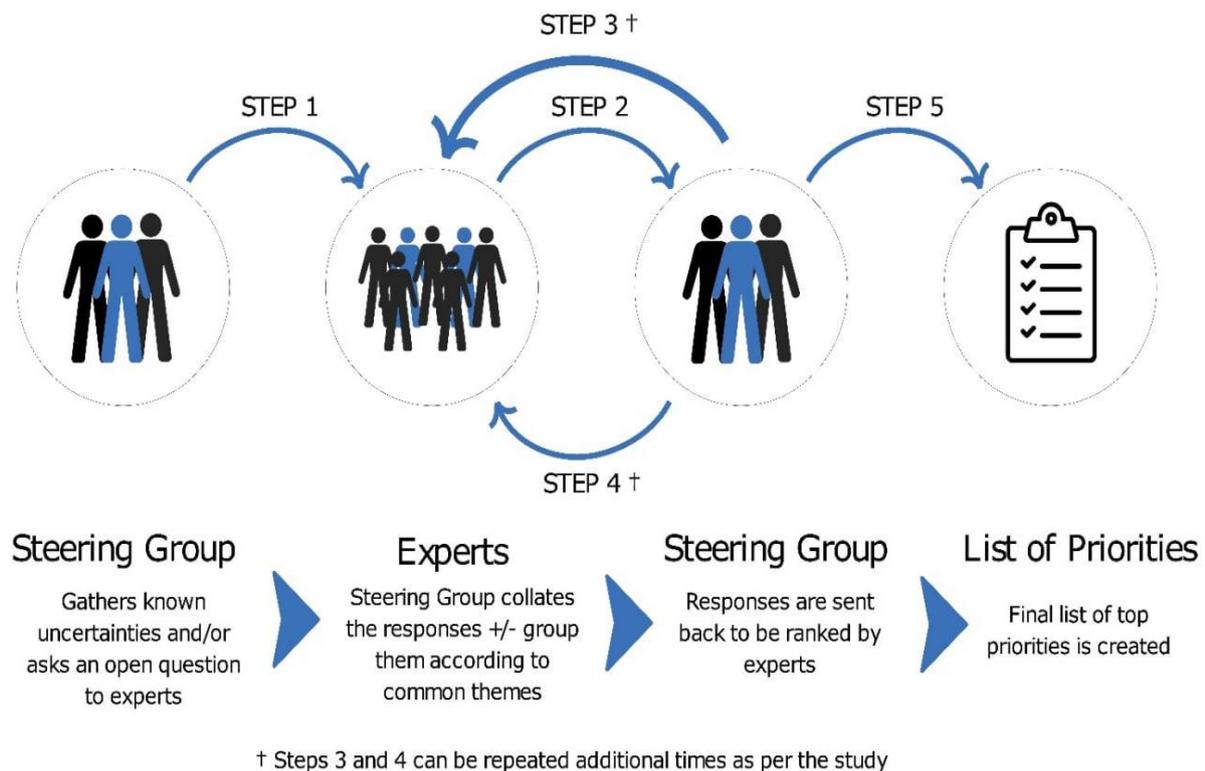


Figure 1. Delphi research process

In addition, the research employed oral interviews and statistical data analysis. The Delphi method was implemented as follows in this study. A panel of experts, that is, a group of specialists who participated in and were invited to the survey, consisting of highly qualified professionals, was established. Owing to the diversity of their professional backgrounds, their opinions varied considerably, which created certain difficulties in the process of generalization. Incorrectly expressed or improperly synthesized opinions may lead to ambiguous conclusions. Experts whose professional activities directly influenced the research topic were selected for the initial panel. The selection of experts for the survey was of crucial importance. In addition to specialists in tourism, particularly in ecotourism, the complexity of the research topic required the participation of experts with strong expertise in environmental protection and cluster development.

In this study, the Delphi method was applied in three stages:

1. Open-ended questions
2. Closed-ended questions
3. Questionnaire and oral interviews

In the first stage of the research, the questionnaire consisted of nine questions with both open-ended and closed-ended formats. Greater emphasis was placed on open-ended questions to obtain deeper and more

detailed expert opinions. One of the key indicators of success was that none of the experts deviated from the core issue concerning the emergence of ecotourism clusters.

4 Result and Discussion

4.1 Results and their interpretation.

The first open-ended question concerned the main characteristics of the ecotourism cluster. Most respondents not only identified the distinctive features of the ecotourism cluster concept but also proposed recommendations regarding its objectives and conditions for formation.

Question 1: *What do you consider the most important characteristics of an ecotourism cluster?*

All experts agreed with the definition formulated in this manner. An ecotourism cluster is an economic partnership based on ecological values and common principles and landscape traditions. It represents a system in which competitive yet cooperative environmental protection and tourism enterprises and institutions participate in generating economic benefits while maintaining a balance between the creation, conservation, protection, and presentation of natural values. A cluster is a geographical cooperation of infrastructure, services, and organizations connected with regional supply elements, the formation of which is a result of a long-term developmental process. Within this system, tourism, together with other local economic activities, does not exceed the ecological carrying capacity of the designated area.

The cluster also functions as a quality assurance system in terms of environmental protection and service standards and applies a trademark-based system. The ecotourism cluster as a tool for regional development represents an independent, cooperation-based coordinating organization whose objective is to obtain tenders and joint funding necessary for implementing collective projects. The cluster links service providers operating in accordance with ecotourism principles, whereby tourism, together with other local economic activities, contributes to enhancing the environmental sustainability of the destination.

4.1.1 Levels of clustering

An ecotourism cluster, as an instrument of regional development, functions as a coordinating organization with an independent management structure. The following key characteristics of an ecotourism cluster were identified based on a synthesis of expert opinions.

1. A relatively clearly defined territorial unit that does not necessarily correspond to current administrative or statistical boundaries.
2. close cooperative relationships, continuous interaction among members, and shared values and objectives.
3. The presence of mutually trusting actors capable of generating positive synergistic effects in the fields of nature conservation, environmental protection, tourism, related services, and infrastructure.
4. Identification of cluster-specific services and development concepts to achieve common goals.
5. Compliance with long-term sustainability requirements
6. Independent governance and organizational structure (preferably closely associated with an organization possessing long-standing experience in business development).
7. Effective joint marketing activities
8. Provision of environmentally friendly services necessary for the maintenance of attractions intended for use and visitation, as well as the promotion of responsible behavior within the destination area, thereby contributing to shaping the awareness of both visitors and host communities.
9. Environmentally conscious host communities and cluster members who are willing to sacrifice part of their income to preserve local natural and cultural values and who possess knowledge of the surrounding natural and cultural heritage.
10. Rapid and efficient information flows and the generation of synergistic effects
11. Commitment to ecotourism programs
12. Support from local and regional political stakeholders
13. Preservation of naturalness and authenticity under increasing consumption pressure

Thus, through RQ1, a general definition, objectives, and principal characteristics of the ecotourism cluster were clarified.

Question 2: *Which elements should be included in an ecotourism cluster's experiential offer?*

The following viewpoints were proposed to the experts:

1. The experiential offer should be based exclusively on ecological values and supported by relevant service facilities and organizations (e.g., appropriate trails for the presentation of natural assets, observation platforms, accommodation, catering services, and information provision).
2. In addition to ecological value, the offer should integrate folk art and cultural features, traditions, and the activities of local economic and social actors, such as local historians, traditional craftsmen, fishermen, hunters, sports and gastronomy providers, small-scale artisans, and local agricultural entrepreneurs and farmers.
3. In addition to ecological value, the role of "bio-initiatives" should be emphasized, including the use of natural materials, alternative energy sources, and biological methods for wastewater and municipal waste treatment.

All experts expressed positive assessments of the proposed viewpoints.

Question 3: *In your opinion, how many members should an optimally sized ecotourism cluster group have?*

A wide range of opinions were obtained on this issue. Some respondents emphasized that the optimal size depends on the specific characteristics of the cluster. The respondents provided the following considerations:

1. Membership should include all actors involved in nature conservation, environmental protection, the mediation of related values, and the utilization of tourism opportunities associated with these values (including investors, operating companies, environmental civil society organizations, and local authorities). All cluster members contribute directly or indirectly to its success and benefit from its outcomes.
2. In general, the size depends on the nature of the cluster; the number of participants of the same type (e.g., enterprises) should not exceed 3–5, whereas in some cases, clusters may require 30–50 members.
3. It is recommended that a critical mass be reached at the initial stage of cluster formation, which may require 15–20 participants.
4. For strategic decision-making, it is advisable to establish a competent governing body. Under no circumstances should it exceed 10 members, as an excessive number of staff may threaten its effective functioning.

Question 4: *What should be the proportion of nature conservation actors (citizens and officials), business enterprises, and other organizations within the cluster?*

Based on the responses, nearly all experts suggested the following approximate distribution according to the level of participation:

1. Environmental non-governmental organizations: 10–20%
2. Economic actors (tourism, transport, catering): 35–45%
3. Public sector (state institutions): 45–65%

Question 5: *In your opinion, what motivates members to establish ecotourism clusters?*

In response to this open-ended question, the respondents highlighted the following factors.

1. The importance of environmental protection and conservation, including its economic and social dimensions.
2. Integration of tourism development into rural development programs at the planning or implementation stages.
3. The presence of complementary and attractive landscapes, ecological, and cultural values within the region, which allow for the creation of integrated ecotourism experiences and attractions.
4. The existence of positive local experiences and best practices related to this topic.
5. The pursuit of efficiency and joint efforts to mobilize resources (e.g., increased effectiveness in tendering processes).

6. The presence of higher-order motivating goals, such as regional development or the preservation of national values, rather than purely profit-oriented objectives.
7. Recognition of common interests, efficient use of shared resources, protection of common values, necessity of cooperation, and appreciation and exchange of complementary knowledge and information.
8. The difficulty in developing individual programs, attracting visitors, and independently organizing events; a larger number of members enables the provision of more diverse and attractive programs, thereby increasing public interest.
9. positive effects of clustering on innovation and competitiveness, development of experiential offerings, and long-term growth and business dynamics
10. Shared interest among environmental organizations in disseminating knowledge through tourism and increasing revenues
11. From the perspective of tourism enterprises (when conservation organizations do not operate their own tourism facilities), there are opportunities to improve objectives, image, and status, as well as to develop new tourism products, target specific audiences, and increase business profitability.
12. preservation of nature in its traditional sense and as a tourist attraction, maintenance of local identity, regulation of visitor flows, and enhancement of members' incomes through sustainable load management.

Question 6 (continued): Reasons for the effect of ecotourism clusters on ecological load

Respondents identified several key factors that explain the impact of ecotourism clusters on the ecological load generated by tourists.

1. The capacity of sites and activities to accommodate tourists should be assessed and continuously monitored to ensure respect for ecological limits.
2. A well-organized information system and infrastructure within a cluster can reduce the potential environmental harm to tourists.
3. The cluster emerges from the cooperation of participants sensitive to their environment. It reflects an ecologically conscious approach (e.g., the use of natural materials, promotion of local products, waste management, and energy saving), which encourages tourists to comply with both written and unwritten rules of environmental and nature protection.
4. The selection of appropriate product groups partially mitigates environmental burden.
5. Effective organization prevents repetitive or harmful practices, and offering services that match visitor interests and infrastructure planning can moderately reduce ecological load.
6. According to 60% of the respondents, an ecotourism cluster functions as an ecological mechanism that reduces the environmental burden caused by tourists (see Figure 1).
7. According to 40% of the respondents, the ecological load generated by tourists is reduced to some extent through the establishment of a cluster. Among them, **20%** indicated a moderate reduction, while 10% stated that the ecological load remained unchanged. The remaining **20%** reported that the cluster slightly increased the ecological burden, and **10%** suggested that it increased it significantly. To clarify these findings, further explanations were sought in the subsequent questions.

Question 7: *What do you consider the reasons for this effect?*

1. Approximately 80% of respondents provided explanations for their assessments, and a wide range of comments were collected.
2. The impact of an ecotourism cluster on the ecological load generated by tourists within its territory was explained by the respondents as follows:

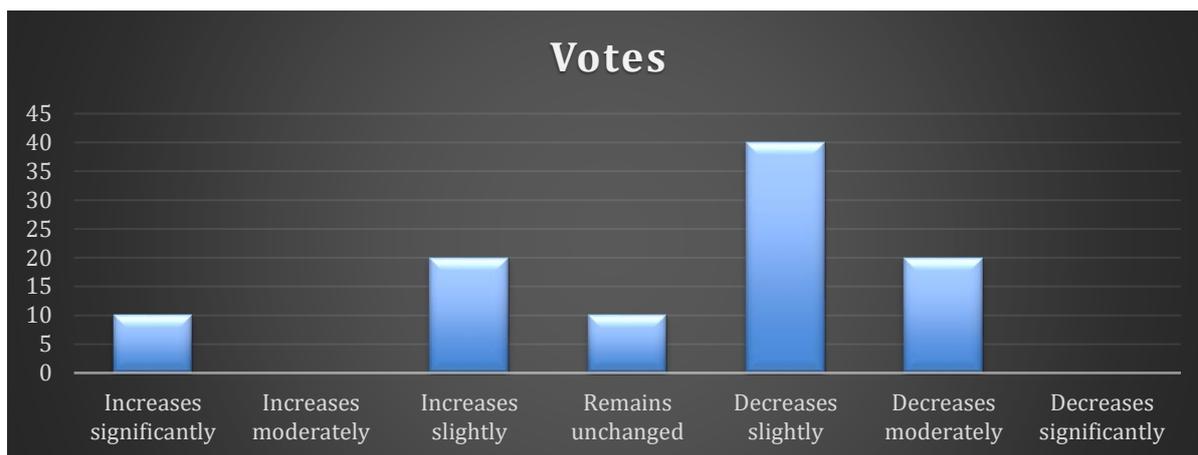


Figure 1. Expert assessments of the impact of ecotourism clusters on ecological load

This figure illustrates respondents' opinions regarding the effect of ecotourism clusters on the ecological burden generated by tourists. The data show that most experts consider ecotourism clusters to reduce or moderately manage the environmental impact of tourism within their territories, whereas a smaller proportion indicated slight or significant increases under certain conditions.

Question 8: *Do potential ecotourism cluster participants consider environmental protection interests?* Approximately 80% of the experts responded to this question. Among them, 70% indicated that participants moderately consider environmental protection interests, while 30% stated that they consider such interests to a high degree.

Question 9: *How do members consider environmental protection interests?*

The respondents emphasized the following practices:

1. Environmental protection considerations are addressed from the outset in the cluster agreement, including the rules for monitoring and action.
2. Environmental awareness, societal attitudes toward nature, and the value of "ecosystem services" are increasing. The growing demand for a healthy and aesthetically pleasing environment and the increasing attractiveness of natural tourism sites have accelerated nature preservation. The principles of protection and sustainable use intersect in these contexts, which is reflected in the assessment of ecological culture.
3. Although members verbally accept collaboration based on common interests, short-term gains occasionally take precedence.
4. Members integrate environmental protection into their objectives and act responsibly and with care.
5. Environmental considerations must be comprehensively incorporated, as they form part of the enterprise's long-term and sustainable benefits.
6. Experts consistently noted that long-term collaboration is unlikely without accounting for environmental interests, as neglecting such interests undermines the cluster's objectives.
7. The solutions to this question are generally addressed in the cluster charter, ensuring that all members agree from the outset and remain mindful of their future environmental and economic interests.

4.2 Discussion

The findings of this study provide important theoretical and practical insights into the conceptualization and operationalization of ecotourism clusters within regional development frameworks. By applying the Delphi method to synthesize multidisciplinary expert opinions, this research advances the understanding of ecotourism clusters as structured, cooperation-based systems that integrate environmental protection, tourism services, public governance, and local community engagement. The results clarify the defining characteristics and optimal configuration of such clusters and offer a nuanced evaluation of their environmental and institutional implications. This discussion critically analyses these findings, situates them within the broader academic literature, and proposes recommendations for policy and future research.

One of the central findings of this study is the strong expert consensus regarding the definition of an ecotourism cluster as a territorially concentrated and institutionally coordinated network that balances economic objectives with environmental sustainability. This aligns with classical cluster theory, which emphasizes geographical proximity, inter-firm linkages, and knowledge spillovers as drivers of competitiveness. However, this study extends traditional economic interpretations by embedding ecological responsibility and sustainability principles at the core of the cluster model. Unlike industrial clusters, which primarily pursue productivity and innovation gains, ecotourism clusters incorporate environmental protection as both a foundational value and an operational constraint. This dual orientation suggests that ecotourism clusters function as hybrid systems, simultaneously economic, ecological, and institutional in nature.

The identification of key structural characteristics—such as clearly defined territorial boundaries, close cooperation among actors, independent governance structures, shared values, and effective information flows—reinforces the view that coordination and trust are essential preconditions for cluster success. These findings are consistent with prior research emphasizing that relational capital and institutional density significantly influence cluster performance. In the ecotourism context, trust and shared ecological commitments appear particularly critical, given the potential tension between profit maximization and environmental preservation. The results indicate that clusters built upon mutual environmental responsibility are more likely to manage ecological loads effectively and maintain long-term sustainability.

A noteworthy contribution of the study is the identification of the optimal size and composition of the ecotourism cluster. Experts recommended a balanced membership structure consisting of environmental organizations, economic actors, and public authorities, with an overall optimal size of approximately 12–14 members. This finding reflects the need to reconcile diversity with manageability. Excessively large clusters may face coordination inefficiencies and governance complexities, whereas overly small clusters may lack critical mass and resource diversity ([Forje & Tchamba, 2022](#); [Guo & Zhang, 2022](#)). The proposed composition underscores the importance of multi-stakeholder participation in sustainable tourism governance. Public sector actors provide regulatory oversight and legitimacy; economic actors ensure market viability and innovation; and environmental organizations safeguard ecological standards and promote awareness. The interplay among these groups generates synergistic effects that extend beyond individual organizational capacities ([Roxas, Rivera, & Gutierrez, 2020](#)).

The analysis of expert assessments regarding ecological load further enriches the discussion. Most respondents indicated that ecotourism clusters either reduce or moderately manage the environmental burden generated by tourism activities ([Bernal, Montero, & Vázquez, 2024](#); [Castellani & Sala, 2012](#)). This perception supports the hypothesis that coordinated management, joint monitoring systems, and shared environmental guidelines can mitigate negative externalities. Clusters facilitate infrastructure planning, visitor flow regulation, and capacity monitoring, thereby enhancing compliance with ecological carrying capacity thresholds ([Siswanto & Rahayu, 2025](#); [Zekan, Weismayer, Gunter, Schuh, & Sedlacek, 2022](#)). Nevertheless, a minority of experts acknowledged the possibility of slight or moderate increases in ecological load under certain conditions, such as inadequate enforcement mechanisms or excessive commercialization. This divergence highlights that cluster formation alone does not automatically guarantee environmental improvement; effective governance, monitoring, and adaptive management remain essential.

The study also sheds light on the motivational drivers of cluster establishment. Experts emphasized factors such as resource mobilization, innovation, regional branding, access to funding, and the integration of tourism development into rural sustainability programs. Importantly, motivations extend beyond economic profitability to encompass environmental conservation and cultural preservation. This multidimensional motivation reflects the normative orientation of ecotourism clusters toward sustainable development objectives. However, the discussion of expert responses reveals a subtle tension between long-term ecological goals and short-term economic incentives. Some respondents noted that although environmental interests are formally embedded in cluster agreements, short-term

gains may occasionally take precedence in practice. This observation underscores the importance of institutional safeguards, transparent monitoring systems, and accountability mechanisms to ensure that ecological objectives are consistently prioritized.

From a theoretical standpoint, the findings contribute to the cluster and sustainability literature by illustrating how governance structures mediate the relationship between economic cooperation and environmental performance. The presence of independent management bodies and clearly defined cluster charters appears to strengthen coordination and enforce environmental standards. This supports governance-based theories of sustainable development, which argue that institutional arrangements and regulatory frameworks significantly shape environmental outcomes. Furthermore, the research highlights the role of information flows and knowledge exchange in promoting environmentally responsible behavior among cluster members and tourists. Educational initiatives, awareness campaigns, and shared best practices foster an ecological culture that reinforces sustainability norms.

The results suggest several strategic recommendations in terms of policy implications. First, policymakers should recognize ecotourism clusters as formal instruments of regional development policies rather than informal networks. Institutional recognition can facilitate access to funding, capacity-building programs, and technical assistance. Second, cluster charters should explicitly incorporate environmental protection principles, performance indicators, and monitoring procedures. Third, training programs should be implemented to strengthen managerial competencies in sustainable tourism planning, environmental assessments, and collaborative governance. Fourth, local communities should be actively involved in cluster decision-making processes to enhance their legitimacy, social acceptance, and cultural preservation.

Additionally, this study highlights the importance of integrating ecotourism clusters into broader national innovation systems. By fostering linkages among universities, research institutions, environmental agencies, and tourism enterprises, clusters can promote innovation in eco-friendly technologies, renewable energy use, waste management, and digital marketing. Such integration enhances competitiveness while reinforcing sustainability objectives. Despite its contributions, this research also presents limitations that warrant critical reflection. The reliance on expert opinion, while methodologically rigorous within the Delphi framework, does not substitute empirical performance measurements. Future research should complement expert-based conceptualization with quantitative analyses of environmental indicators, visitor satisfaction metrics, financial performance data, and biodiversity assessments. Longitudinal studies are particularly valuable for examining whether ecotourism clusters maintain environmental and economic balance over time.

Moreover, comparative cross-regional studies can explore contextual variations in cluster formation and governance effectiveness. Differences in institutional capacity, cultural norms, legal frameworks, and ecological conditions may influence cluster outcomes. Such comparative research would enhance the generalizability of the proposed model and identify best practices that are adaptable to diverse regional contexts. Another promising direction for future research involves exploring digital transformation within ecotourism clusters. The integration of digital platforms for visitor management, environmental monitoring, and marketing can significantly enhance coordination and transparency. Investigating the role of digital governance tools in strengthening sustainability performance would further advance this field.

In conclusion, the discussion of findings demonstrates that ecotourism clusters represent a sophisticated organizational model capable of reconciling economic development with environmental sustainability when properly structured and governed. The research confirms that balanced stakeholder participation, independent governance, shared ecological values, and effective monitoring mechanisms are critical determinants of cluster success. Although challenges remain regarding implementation consistency and long-term environmental accountability, the ecotourism cluster offers a viable framework for sustainable regional development. Continued empirical validation, comparative analysis, and integration of technological innovations will be essential for refining and operationalizing this model in practice.

5. Conclusions

5.1 Conclusion

This study offers a systematic and expert-based clarification of the theoretical foundations, structural components, and functional mechanisms of ecotourism clusters using the Delphi method. The research reveals a strong consensus among experts that ecotourism clusters are territorially defined, cooperation-based systems involving actors from environmental protection, tourism enterprises, public authorities, and supporting institutions. Properly structured clusters, with a balanced distribution of environmental, economic, and public sector participants, enhance coordination, strengthen environmental management practices, and contribute to reducing or moderating the ecological load generated by tourism activities. The study also shows that ecotourism clusters function not only as economic partnerships but also as sustainability-oriented mechanisms that aim to preserve natural and cultural values while promoting regional competitiveness.

5.2 Research Limitations

The research findings are primarily based on expert assessments from a specific regional context, limiting their generalizability. Although the Delphi method is rigorous, it relies on subjective expert opinions, which may not fully capture the complexities of ecotourism clusters in other regions. Furthermore, the study does not provide empirical performance measurements to validate the theoretical model proposed. The regional context of this study may also influence the perspectives and recommendations of the experts involved.

5.3 Suggestions and Directions for Future Research

To advance the understanding and applicability of ecotourism clusters, future research should focus on empirical validation using quantitative performance indicators including visitor satisfaction, financial performance, and biodiversity assessments. Comparative cross-regional studies can help identify contextual variations in cluster formation and governance effectiveness. Longitudinal studies can explore the long-term ecological, economic, and social impacts of ecotourism clusters. In addition, future research should explore the role of digital technologies in enhancing the governance and sustainability of ecotourism clusters, particularly in improving coordination, environmental monitoring, and stakeholder engagement.

Author Contributions

KZB contributed to the conceptualization, study design, and supervision. JSAo. was responsible for data collection, analysis, manuscript drafting, and revision. All authors approved the final manuscript.

References

- Akramova, N. (2025). The importance of corporate culture in enhancing the governance of joint-stock companies. *Journal of Multidisciplinary Academic Business Studies*, 2(3), 397-406. doi:<https://doi.org/10.35912/jomabs.v2i3.3027>
- Benner, M. (2017). From clusters to smart specialization: Tourism in institution-sensitive regional development policies. *Economies*, 5(3), 26. doi:<https://doi.org/10.3390/economies5030026>
- Bernal, B., Montero, N., & Vázquez, S. (2024). A Comparative Study of the Tourism Carrying Capacity of the State of Baja California between 2019 and 2022. *Sustainability*, 16(10), 3938. doi:<https://doi.org/10.3390/su16103938>
- Castellani, V., & Sala, S. (2012). Carrying Capacity of Tourism System: Assessment of Environmental and Management Constraints Towards Sustainability.
- Donohoe, H. (2011). A Delphi toolkit for ecotourism research. *Journal of Ecotourism*, 10, 1-20. doi:<https://doi.org/10.1080/1472404090>
- Esparza, R., Caicedo, Y., Gamarra, C., Romo Román, P., & Mougenot, B. (2023). Perceptions of stakeholders and challenges faced by ecotourism management in a natural protected area in Peru. *Environment, Development and Sustainability*, 26. doi:<https://doi.org/10.1007/s10668-023-03501>

- Faraji, A., Rashidi, M., Meydani Haji Agha, T., Rahnamayiezekavat, P., & Samali, B. (2022). Quality management framework for housing construction in a design-build project delivery system: a BIM-UAV approach. *Buildings*, 12(5), 554. doi:<https://doi.org/10.3390/buildings12050554>
- Ferreira, J., & Estevo, C. (2009). Regional competitiveness of a tourism cluster: A conceptual model proposal. *Encontros científicos–Tourism & management studies*, 37-51.
- Fodor, A., & Sitanyi, L. (2008). Clusters And Innovation In Ecotourism Development. *Interdisciplinary Management Research*, 4, 93-109.
- Forje, G. W., & Tchamba, M. N. (2022). Ecotourism governance and protected areas sustainability in Cameroon: The case of Campo Ma'an National Park. *Current Research in Environmental Sustainability*, 4, 100172. doi:<https://doi.org/10.1016/j.crsust.2022.100172>
- Franco, C., Franco, R. S., Lopes, J. M. C., Severo, M., & Ferreira, M. A. (2018). Clinical communication skills and professionalism education are required from the beginning of medical training - a point of view of family physicians. *BMC Med Educ*, 18(1), 43. doi:10.1186/s12909-018-1141-2
- Guo, W., & Zhang, X. (2022). Regional Tourism Performance Research: Knowledge Foundation, Discipline Structure, and Academic Frontier. *Sage Open*, 12, 215824402210880. doi:<https://doi.org/10.1177/21582440221088013>
- Hawkins, D. (2004). A Protected Areas Ecotourism Competitive Cluster Approach to Catalyze Biodiversity Conservation and Economic Growth in Bulgaria. *Journal of Sustainable Tourism - J SUSTAIN TOUR*, 12, 219-244. doi:https://doi.org/10.1080/09669580408667235?urlappend=%3Futm_source%3Dresearchgate.net%26utm_medium%3Darticle
- Irmawati, I., & Hasnawati, H. (2024). Community-based Ecotourism Strategy for Local Economic Empowerment. *Journal of Education, Humaniora and Social Sciences (JEHSS)*, 7, 395-404. doi:<https://doi.org/10.34007/jehss.v7i2.2359>
- Khanra, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2021). Bibliometric analysis and literature review of ecotourism: Toward sustainable development. *Tourism Management Perspectives*, 37, 100777. doi:<https://doi.org/10.1016/j.tmp.2020.100777>
- Korbiel, K., Gmyrek, K., & Kruczek, Z. (2025). A review of research on inclusive tourism: Clusters of thematic links and research gaps. *Sustainability*, 17(14), 6521. doi:<https://doi.org/10.3390/su17146521>
- Kurniawan, R. (2024). Sustainable tourism development: A systematic literature review of best practices and emerging trends. *International Journal of Multidisciplinary Approach Sciences and Technologies*, 1(2), 97-119. doi:<https://doi.org/10.62207/8qsmcg37>
- Mancini, M. S., Barioni, D., Danelutti, C., Barnias, A., Bračanov, V., Pisce, G. C., . . . Lang, M. (2022). Ecological Footprint and tourism: Development and sustainability monitoring of ecotourism packages in Mediterranean Protected Areas. *Journal of Outdoor Recreation and Tourism*, 38, 100513. doi:<https://doi.org/10.1016/j.jort.2022.100513>
- Nawawi, J., Abdullah, M. T., Ibrahim, M. A., & Congge, U. (2025). Mapping Publication Trends on Governance Capacity in Tourism Development: A Systematic Literature Review. *KnE Social Sciences*, 10(18), 38-54. doi:<https://doi.org/10.18502/kss.v10i18.19444>
- Nguyen, A. T., Vu, T. T. T., Nguyen, T. P. N., Trinh Phuong, N., Le, N. A., Do Thi, T., & Le Huyen, T. (2025). Sustainable agritourism monitoring: An expert Delphi study on provincial-level indicators in Vietnam. *Environmental and Sustainability Indicators*, 28, 100966. doi:<https://doi.org/10.1016/j.indic.2025.100966>
- Nordin, S. (2003). *Tourism clustering & innovation: Paths to economic growth & development*: Etour.
- Nurullayevich, E. B. (2025). The role of the media in strengthening freedom of expression and democratic institutions in Uzbekistan. *Journal of Multidisciplinary Academic Business Studies*, 2(4), 539-542. doi:<https://doi.org/10.35912/jomabs.v2i4.3089>
- Omilovna, K. N. (2025). Development of investment activities in the automobile industry of Uzbekistan in the conditions of the digital economy. *Journal of Multidisciplinary Academic Business Studies*, 2(2), 463-467. doi:<https://doi.org/10.35912/jomabs.v2i2.2785>
- Ordóñez-Castaño, I. A., Padilla-Delgado, L. M., & Velasco-Tafur, X. F. (2025). Delphi Technique to Generate a Sustainable Development Index in Alternative Tourism: An Applied Case in Colombia. *Tourism and Hospitality*, 6(5), 248. doi:<https://doi.org/10.3390/tourhosp6050248>

- Roxas, F. M. Y., Rivera, J. P. R., & Gutierrez, E. L. M. (2020). Mapping stakeholders' roles in governing sustainable tourism destinations. *Journal of Hospitality and Tourism Management*, 45, 387-398. doi:<https://doi.org/10.1016/j.jhtm.2020.09.005>
- 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), 57-66. doi:<https://doi.org/10.31967/prodimanajemen.v6i1.1615>
- Xu, L., Ao, C., Liu, B., & Cai, Z. (2023). Ecotourism and sustainable development: a scientometric review of global research trends. *Environment, Development and Sustainability*, 25(4), 2977-3003. doi:<https://doi.org/10.1007/s10668-022-02190-0>
- Yalçınkaya, T., & Güzel, T. (2019). A General Overview of Tourism Clusters. *Journal of Tourism Theory and Research*, 5, 27-39. doi:<https://doi.org/10.24288/jttr.465912>
- Yan, L., Gooi, L.-M., Huang, W., & Wang, X. (2025). Ecotourism and economic sustainable development of local communities from the lens of technological innovation: the synergistic role of green industry and social capital. *International Review of Economics & Finance*, 104, 104720. doi:<https://doi.org/10.1016/j.iref.2025.104720>
- Zairina, S., Wibisono, C., Ngaliman, N., Indrayani, I., & Satriawan, B. (2023). The influence of product quality, prices, and promotions on buyer decisions in the small and medium industry handicrafts of Tanjungpinang City. *Journal of Multidisciplinary Academic Business Studies*, 1(1), 13-25. doi:<https://doi.org/10.35912/jomabs.v1i1.1778>
- Zekan, B., Weismayer, C., Gunter, U., Schuh, B., & Sedlacek, S. (2022). Regional sustainability and tourism carrying capacities. *Journal of cleaner production*, 339, 130624. doi:<https://doi.org/10.1016/j.jclepro.2022.130624>
- Zhao, Y., & Jaafar, M. (2025). Integrated Delphi-entropy framework for sustainable rural tourism: evidence from Shaanxi Province, China (2018–2023). *Frontiers in Sustainable Tourism*, 4, 1733705. doi:<https://doi.org/10.3389/frsut.2025.1733705>