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Article

Efficiency of the Cluster Approach in the Development of Ecotourism: Theoretical and Practical Foundations

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Abstract: This study investigates the efficiency of the cluster approach in the development of ecotourism, focusing on theoretical foundations and practical implementation in Uzbekistan. The research employs a mixed-method approach based on statistical analysis of tourism indicators from 2019 to 2024, alongside comparative evaluation with leading tourism countries such as Turkey, Italy, and Malaysia. The findings reveal that Uzbekistan's tourism sector experienced significant fluctuations, including a sharp decline during the COVID-19 pandemic and a strong recovery in the post-pandemic period. Domestic tourism has emerged as a key stabilizing factor, while investments and employment in ecotourism zones have shown steady growth. However, the sector still contributes only 3–4% to GDP, indicating untapped potential. The study highlights that the cluster approach enhances coordination among tourism stakeholders, improves infrastructure efficiency, and supports regional development. Comparative analysis demonstrates that countries with mature tourism clusters achieve significantly higher economic returns. The results confirm that strengthening cluster-based ecotourism development is essential for improving competitiveness, sustainability, and economic performance in Uzbekistan.

Keywords: Ecotourism, Cluster approach, Sustainable tourism, Tourism development, Regional economy, Investment, Employment, Uzbekistan tourism, Comparative analysis, Tourism clusters.

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Introduction

Ecotourism has become one of the most significant and rapidly expanding sectors within the global tourism industry, reflecting the growing demand for sustainable and environmentally responsible travel practices. Unlike traditional mass tourism, ecotourism emphasizes the conservation of natural resources, the protection of biodiversity, and the socio-economic development of local communities. According to the UNWTO, ecotourism has been demonstrating consistent growth of approximately 10–15% annually, making it one of the fastest-growing tourism segments worldwide. This growth is driven by increasing environmental awareness, changing consumer preferences, and the global shift toward sustainable development models. In addition, ecotourism plays a crucial role in achieving the United Nations Sustainable Development Goals (SDGs), particularly those related to responsible consumption, economic growth, and ecosystem preservation. Countries across Europe, Asia, and Latin America have increasingly integrated ecotourism into their national development strategies, recognizing its potential to generate income while preserving natural heritage. As a result, ecotourism is no longer viewed as a niche market but as a strategic economic sector that contributes significantly to GDP growth, employment generation, and regional development. In this context, modern tourism

systems are increasingly relying on integrated development models, among which the cluster approach has gained particular importance due to its ability to enhance competitiveness and efficiency[1].

Despite its rich natural resources and growing tourism potential, many developing countries face structural challenges in the effective development of ecotourism. One of the major issues is the lack of integrated infrastructure and weak coordination among tourism-related stakeholders, including accommodation providers, transport services, and ecological site managers. This fragmentation limits the overall efficiency of the tourism sector and reduces its economic impact. In Uzbekistan, although significant progress has been made in developing tourism infrastructure, the sector still contributes only around 3–4% to the national Gross Domestic Product (GDP), which is relatively low compared to global standards. Furthermore, ecotourism destinations often operate in isolation, without strong linkages to supporting industries[2]. This reduces the potential multiplier effect that tourism can generate in local economies. Therefore, there is a clear need for a more coordinated and systemic development model that can integrate various components of the tourism value chain and enhance overall performance.

The cluster approach, originally introduced by Michael Porter, provides a theoretical foundation for understanding how geographically concentrated groups of interconnected companies and institutions can enhance productivity, innovation, and competitiveness. In the context of tourism, clusters typically include hotels, transport companies, tour operators, restaurants, cultural institutions, and natural attractions that function as an integrated system[3,4]. This model enables better coordination among stakeholders, reduces operational costs, and improves service quality for tourists. In recent years, the cluster approach has been widely applied in tourism development policies in various countries, particularly in regions where sustainable tourism is a priority. From a theoretical perspective, clusters create a synergy effect, where the collective performance of interconnected actors exceeds the sum of their individual contributions. In ecotourism, this is particularly important because it requires a balance between economic activity and environmental protection. By integrating ecological sites such as Zomin National Park, Chimgan Mountains, and other natural destinations into structured tourism networks, cluster development can significantly enhance both economic and environmental outcomes. Therefore, the cluster approach serves as a bridge between sustainable development theory and practical tourism management strategies[5].

In Uzbekistan, ecotourism is becoming an increasingly important sector due to the country's diverse natural landscapes, including mountainous regions, deserts, and protected ecological zones such as Aral Sea and Kyzylkum Desert. However, despite these advantages, the sector remains underdeveloped in terms of infrastructure integration and international competitiveness. One of the key limitations is the absence of fully developed tourism clusters that can effectively combine ecological sites with supporting services such as transportation, accommodation, and tourism management. International experience from countries such as Turkey, Italy, and Malaysia demonstrates that well-developed tourism clusters significantly increase economic returns, with tourism contributing between 10% and 15% of GDP in those countries. In contrast, Uzbekistan's current performance remains modest, highlighting the need for structural reforms and strategic investment in cluster-based development[6,7]. This study aims to analyze the efficiency of the cluster approach in the development of ecotourism by combining theoretical insights with empirical data from Uzbekistan and selected international cases. It also seeks to identify the key factors that influence the success of ecotourism clusters and propose recommendations for improving policy and practice. The significance of this research lies in its potential to contribute to sustainable tourism development, regional economic growth, and environmental conservation. By adopting a cluster-based model, Uzbekistan can enhance the efficiency of its ecotourism sector, increase its contribution to GDP, and strengthen its position in the global tourism market.

Methodology

This study employs a mixed-method research design to analyze the efficiency of the cluster approach in ecotourism development. The research is based on quantitative and qualitative data integration. Quantitative analysis includes statistical evaluation of tourism indicators in Uzbekistan for the period 2019–2024, such as the number of foreign and domestic tourists, tourism's contribution to GDP, employment generation, and investment volumes. Comparative analysis is conducted using international benchmarks from Turkey, Italy, and Malaysia to evaluate relative performance differences.

Qualitative analysis is applied to assess institutional frameworks, policy documents, and cluster development strategies in the tourism sector. Secondary data sources include reports from the UNWTO, World Bank, and national statistical databases of Uzbekistan.

The study applies cluster theory proposed by Michael Porter as the theoretical framework to evaluate interconnections between tourism stakeholders. Data analysis is performed using descriptive statistics and comparative evaluation methods to identify efficiency gaps and development opportunities in ecotourism clusters.

Results and Discussion

The analysis of tourism dynamics in Uzbekistan over the period 2019–2024 reveals significant structural changes characterized by three main phases: pre-pandemic growth, pandemic-induced decline, and post-pandemic recovery with accelerated expansion. In 2019, the tourism sector demonstrated strong performance with 6.7 million foreign tourists and 14.7 million domestic tourists, indicating stable growth in both international and internal mobility. However, in 2021, the COVID-19 pandemic caused a sharp contraction, reducing foreign tourist arrivals to 1.8 million and significantly limiting domestic tourism activities to 2.1 million service users[8]. This decline highlighted the vulnerability of the tourism sector to external shocks. Starting from 2022, a recovery phase began, where foreign arrivals increased to 5.2 million and domestic tourism reached 11 million, reflecting the gradual reopening of borders and restoration of mobility. By 2023, the sector entered a strong expansion phase, with domestic tourism exceeding 21 million visitors, indicating a structural shift toward internal tourism demand. The forecast for 2024 suggests further growth, with 8.2 million foreign tourists and 25 million domestic tourists expected. This demonstrates that the tourism sector is not only recovering but also expanding beyond pre-pandemic levels, driven by improved infrastructure, policy reforms, and the development of ecotourism clusters.

Domestic tourism has emerged as a key stabilizing factor in Uzbekistan's tourism ecosystem, particularly during and after the pandemic period. The rapid increase from 2.1 million domestic tourists in 2021 to over 21 million in 2023 demonstrates a significant behavioral shift in travel preferences and increased accessibility of local destinations. This growth is strongly associated with the expansion of ecotourism infrastructure and the development of cluster-based tourism models. In particular, the establishment of integrated tourism services in regions such as mountainous and desert areas has contributed to higher tourist satisfaction and increased travel frequency[9,10]. The cluster approach has facilitated coordination between accommodation providers, transport operators, tour guides, and local service providers, thereby improving overall efficiency. Additionally, the rise in domestic tourism has encouraged rural development, as many households have converted their homes into guest houses, contributing directly to local income generation. The presence of more than 3,400 guest houses and over 1,200 eco-guides indicates the rapid institutionalization of tourism clusters. Furthermore, domestic tourism plays a crucial role in reducing regional inequality by redistributing economic benefits from urban to rural areas. This internal tourism growth also supports the sustainability of ecotourism sites by reducing dependence on volatile international markets. Overall, domestic tourism has become a driving force behind the stabilization

and expansion of Uzbekistan's tourism industry, reinforcing the importance of cluster-based development strategies.

The economic structure of ecotourism in Uzbekistan shows a gradual but steady improvement. Tourism currently contributes approximately 3–4% to the national GDP, which remains lower compared to global benchmarks. However, the sector demonstrates strong growth potential due to increasing investments and employment generation. Total tourism investment reached approximately $1.1 billion in 2023, while ecotourism-specific projects accounted for over $600 million in the last three years. These investments have supported infrastructure development in key destinations such as Zomin, Chimgan, and Chorvoq. In addition, the expansion of guest houses and eco-services has created between 15,000 and 18,000 direct jobs, significantly improving rural employment levels. Despite these positive trends, the sector still requires deeper structural integration and stronger cluster coordination to maximize its economic contribution[11]. Therefore, ecotourism remains a strategically important but still emerging sector within Uzbekistan's national economy.

Investment and employment generation represent two of the most important outcomes of ecotourism development in Uzbekistan. The sector has attracted increasing levels of both domestic and foreign investment, particularly in regions with high ecological and recreational potential. In 2023 alone, total investments in the tourism sector exceeded 1.1 billion US dollars, reflecting strong government support and growing private sector interest. A significant portion of these investments has been directed toward ecotourism clusters, including destinations such as Zomin, Chorvoq, and Amirsoy, where integrated tourism infrastructure has been developed[12]. Over the past three years, ecotourism-related investments have surpassed 600 million dollars, indicating a clear prioritization of sustainable tourism development. In addition to financial inflows, the sector has had a substantial impact on employment generation. More than 3,400 guest houses operate across rural and mountainous regions, creating direct and indirect employment opportunities. Approximately 15,000 to 18,000 individuals are directly employed in ecotourism-related services, including hospitality, guiding, and transport. Furthermore, more than 1,200 certified eco-guides are actively engaged in providing specialized services to tourists. This employment structure demonstrates that ecotourism functions as a labor-intensive sector with strong socio-economic benefits. The cluster model enhances these effects by integrating various service providers into a unified system, thereby increasing efficiency and income distribution at the local level.

Table 1. Tourism and Economic Indicators (Uzbekistan and International Comparison)[13].

Indicator	Uzbekistan	Turkey	Italy	Malaysia
Tourism GDP share	3–4%	10–12%	~13%	14–15%
Annual revenue	$2–2.5B	$54B+	$45–50B	$18–20B
Ecotourism focus	Zomin, Chimgan, Aral Sea, Kyzylkum	Cappadocia, Mugla	Alps, Agriturismo	Rainforests, Marine parks
Cluster maturity	Emerging	High	High	High

The comparative analysis clearly shows that Uzbekistan significantly lags behind leading tourism economies in terms of GDP contribution and revenue generation. While developed countries benefit from mature cluster systems and integrated tourism

infrastructure, Uzbekistan's ecotourism sector remains in the developing stage. However, the country possesses strong natural resource potential, which provides a solid foundation for future cluster-based development.

The comparative analysis between Uzbekistan and leading tourism economies such as Turkey, Italy, and Malaysia reveals a significant performance gap in both economic output and cluster development. In these countries, tourism contributes between 10% and 15% of GDP, while in Uzbekistan the figure remains at 3–4%. Annual tourism revenues also differ significantly, ranging from 18 to 54 billion USD in developed destinations compared to only 2–2.5 billion USD in Uzbekistan[14]. This gap is largely explained by differences in infrastructure integration, service quality, and cluster maturity. Countries with developed tourism clusters demonstrate higher efficiency due to strong coordination between accommodation, transport, and service providers. In contrast, Uzbekistan is still in the early stage of cluster development despite having rich ecotourism resources such as Zomin, Chimgan, and Aral Sea regions. Therefore, strengthening cluster-based ecotourism development is essential for improving competitiveness and economic performance.

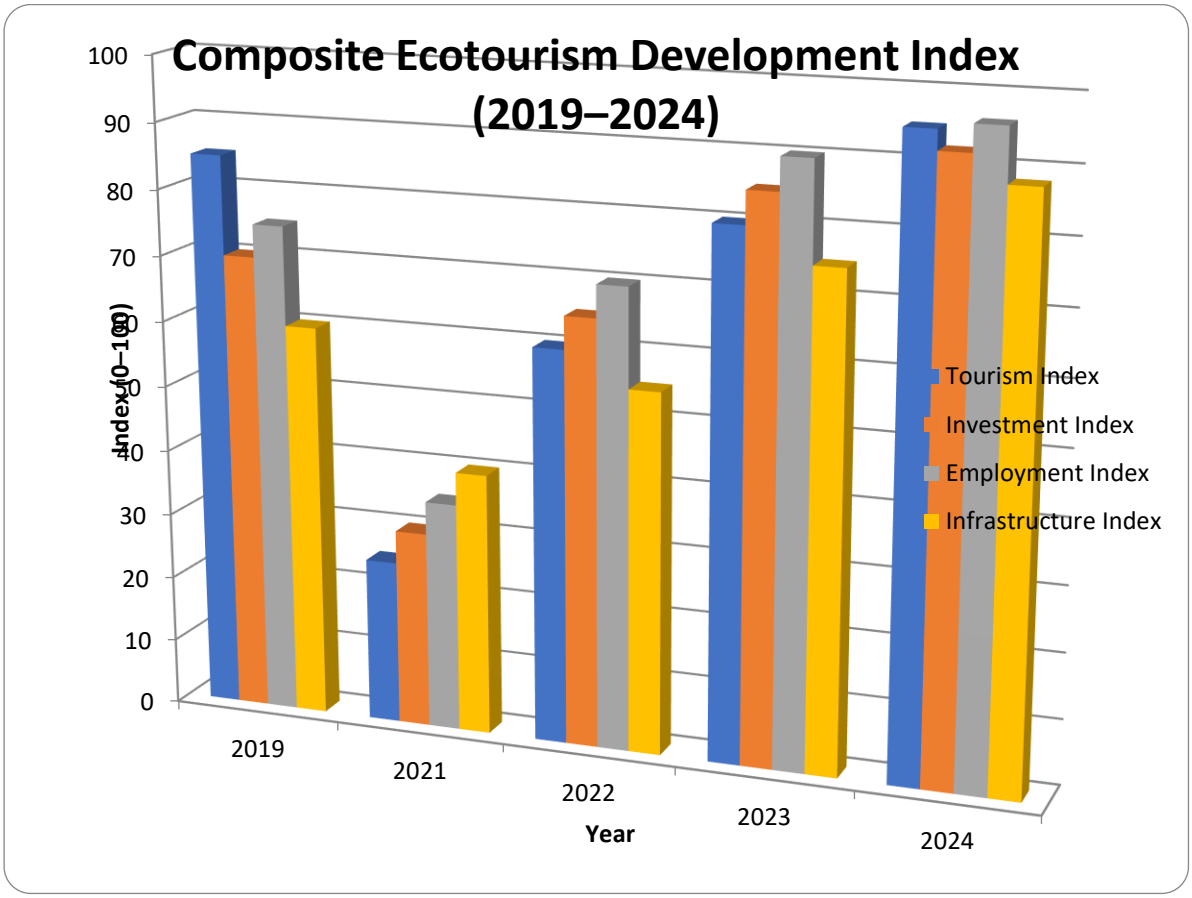

Figure 1. Composite Ecotourism Development Index (Uzbekistan, 2019–2024)[15].

This figure illustrates the dynamics of ecotourism development in Uzbekistan based on a composite index including tourism growth, investment volume, employment generation, and infrastructure development. The results indicate a sharp decline in 2021 due to the COVID-19 pandemic, followed by a steady recovery and significant growth from 2022 onwards. By 2024, all indicators demonstrate a strong upward trend, reflecting the increasing effectiveness of cluster-based tourism development policies. The simultaneous growth of all indices confirms that ecotourism development is driven by the integrated performance of economic and infrastructural factors rather than a single variable.

Conclusion

This study examined the efficiency of the cluster approach in the development of ecotourism in Uzbekistan by integrating theoretical foundations with empirical evidence from 2019–2024. The findings demonstrate that ecotourism in Uzbekistan has undergone three distinct stages: pre-pandemic growth, sharp decline during the COVID-19 crisis, and strong post-pandemic recovery. The results confirm that domestic tourism has become the main stabilizing factor, while international arrivals are gradually recovering. The analysis also shows that investments, employment generation, and infrastructure development have significantly increased, particularly in ecotourism zones such as Zomin, Chimgan, and Chorvoq. However, despite these positive trends, Uzbekistan's tourism sector still contributes only 3–4% to GDP, which remains lower than in countries with developed tourism clusters.

The study highlights that the cluster approach plays a crucial role in improving coordination, reducing fragmentation, and enhancing overall sector efficiency. International comparison with Turkey, Italy, and Malaysia reveals a clear performance gap, mainly due to differences in cluster maturity and infrastructure integration. Therefore, strengthening cluster-based development is essential for increasing competitiveness, attracting investment, and ensuring sustainable growth. In conclusion, the adoption of a well-structured ecotourism cluster model can significantly improve Uzbekistan's tourism performance and contribute to long-term economic and environmental sustainability.

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